
COMMITTEE ON PAYMENT AND SETTLEMENT SYSTEMS

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PAYMENT SYSTEMS IN ISRAEL

**Prepared by the Bank of Israel and the
Committee on Payment and Settlement Systems of the
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Foreword

The Committee on Payment and Settlement Systems (CPSS) of the central banks of the Group of Ten countries periodically publishes - under the aegis of the Bank for International Settlements (BIS) - reference works on payment systems in various countries, widely known as Red Books. In December 1993, it published the fourth edition of the Red Book covering the G10 countries, and has since produced yearly statistical updates. The CPSS has also invited the central banks of a number of countries where important developments in payment systems are under way to publish - 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 Israel, 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 as part of their overall concern with financial stability. They play a key role in domestic payment system development and, in many cases, operate large-value payment systems. A number of central banks have been influential in improving public understanding of the payment and settlement arrangements in their countries.

We hope this volume will contribute to the general understanding and awareness of payment systems in Israel, both domestically and internationally.

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Introduction

The Bank of Israel (the central bank - BOI) and the commercial banking system form the backbone of Israel's payment system (see chart on page 2).

While most of the other payment and clearing services are provided by the commercial banks and their affiliates, the BOI has played an important role in establishing and directing the interbank clearing systems (see Section 5.1). The BOI manages current and other accounts for the government, the banks and various other entities, and transfers across these accounts are the principal method of settlement between these entities. The BOI also directly manages two systems for large-value transactions. The first is for interbank transfers in connection with liquidity trading (in order to meet the BOI's reserve requirements), while the other is an interbank system for settlement of USD/NIS transactions, operated by the Foreign Currency Department of the BOI.

There are 24 commercial banks of a universal nature operating in Israel. These banks provide a wide range of financial and payment services. The banks operate inter alia a paper-based clearing house for cheques, etc (the BCH) and an automated clearing house for debits and credits via electronic media (the BCC). The banks also operate an ATM network through a company whose abbreviated name is Shva (owned by the five major banks). They also own credit card companies operating a POS network (through Shva). In addition, the banks provide securities brokerage services and are members and principal owners of the Tel Aviv Stock Exchange (TASE), where shares, warrants, bonds, treasury bills and derivatives are traded. The transfer of the securities and derivatives and their related payments is executed by means of the TASE securities and derivatives clearing houses.

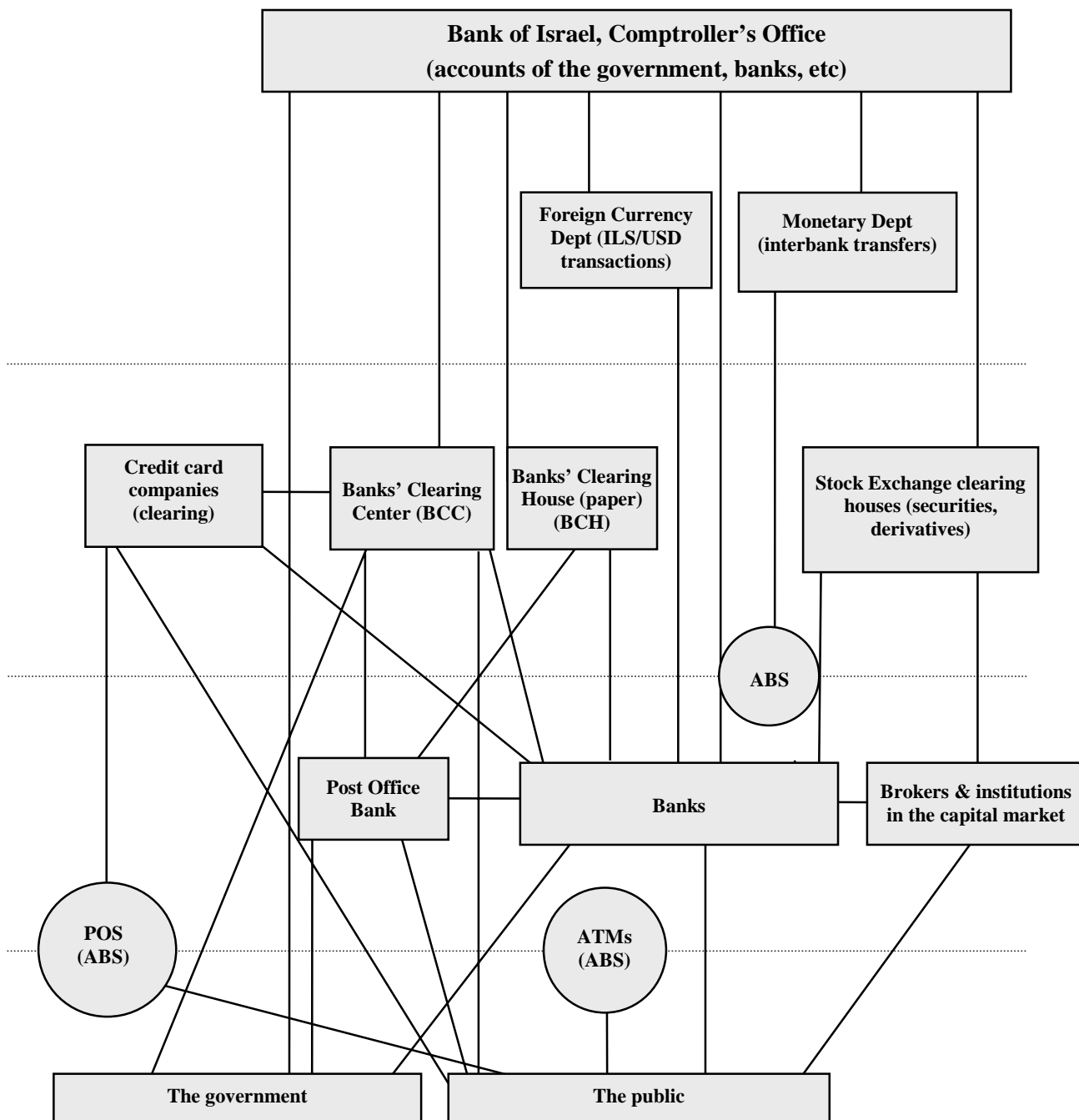
Israel's banking system is highly concentrated. The three largest banking groups hold 90% of the system's assets and liabilities. The major banks also control a large share of the institutions operating on the capital market (provident funds, mutual funds, etc). Very few foreign currency controls exist (most of them have recently been revoked). It is fair to say that Israel's capital account is liberalised. Formerly, regulation restricted the participation of foreign entities in the local currency payment system.

Following the cancellation of most foreign currency controls, foreign entities have become increasingly involved in the local forex market and Israel's payment system. This has increased the level of the risks in the local payment system. It seems obvious that a large-value funds transfer system in the Israeli payment system is necessary. The BOI is currently examining the implementation of such a system.

A long period of high inflation created the need to hedge against the erosion of the value of money. As a result, the public opted to hold as little means of payment (M1 - currency plus transferable deposits) as possible, as well as to make efficient use of it. Consequently, M1 as a proportion of GDP was lower in Israel than in other advanced economies (less than half the value in Europe, the United States and Japan), where the inflation rates were significantly lower. Due to the continued reduction of inflation, since the stabilisation plan in 1985 far-reaching changes have taken place and the public has considerably increased its holdings of M1.

In recent years, technological developments have caused the public to switch from cheques to credit cards and electronic payments. There has also been a significant rise in the use of ATMs as these have become more widespread (see Section 2.1 and Table 6).

Israel's payment systems



1. Institutional aspects

1.1 General legal and regulatory aspects

Although there is no single all-encompassing law regarding the payment system, there are several items of legislation that address related topics and the means of payment.

Article 48 of the Bank of Israel Law, 5714-1954, states that the BOI may accept deposits from banking corporations. A bank is defined in the Banking (Licensing) Law, 5741-1981. Banks in Israel are licensed by the Supervisor of Banks at the Bank of Israel. An entity which operates in Israel and receives deposits from over 30 depositors and extends credit is, according to the law, a bank and must therefore be licensed and supervised by the Supervisor of Banks.

Furthermore, under the BOI Law, 5714-1954, one of the functions of the BOI is to administer, regulate and direct the currency system, as well as to regulate and direct the credit and banking system in Israel.

The Banking (Licensing) Law, 5741-1981, refers inter alia to the spheres of activity permitted to banks, and states that a bank may engage in the management of a system of payments, including the collection, transfer and conversion of money. There is an agreement between the BOI and the banks regarding the operation of the clearing houses. This arrangement is contractual.

With regard to payment instruments, it should be noted that the Bills Ordinance deals with relations between the parties to a bill (including a cheque) from the viewpoint of civil law.

Credit cards are covered by the provisions of the Debit Card Law, 5746-1986, which inter alia regulates contractual relations between the holders and issuers of such cards.

The Banking (Service to Customers) (Cheque Dates) Regulations determine inter alia when a cheque is credited with finality.

In addition, under the Cheques Without Cover Law, 5741-1981, restrictions are imposed on customers who persistently issue cheques without cover (see Section 2.2.1.1).

1.2 Financial intermediaries

The following institutions provide services within the framework of the payment system.

1.2.1 Commercial banks

There are 24 commercial banks in Israel (including one branch of a foreign bank). They provide a wide range of banking services, and participate in the local currency clearing system. Nineteen of these banks provide full foreign exchange services. Most of the banks also offer securities transaction services, ie acting as brokers on the stock market and serving as securities custodians. All commercial banks (including foreign banks) are supervised by the Supervisor of Banks at the Bank of Israel.

1.2.2 The Post Office Bank

The Post Office Bank's services are provided through the Postal Authority, via most of the post offices in Israel. The services provided include payment services (over-the-counter and online payments), chequing accounts, some foreign exchange services, international money transfers via Western Union and encashment of international money orders.

1.2.3 Banks in the Palestinian Autonomy

Nineteen Banks in the Palestinian Autonomy which provide chequing account services in Israeli currency are members of the Banks' Clearing House (BCH) (see Section 1.4.3).

1.2.4 Credit card companies

The credit card companies are subsidiaries of the major commercial banks, and distribute cards primarily through the banks. There are cards for dual use (domestic and international), as well as cards for use in Israel only.

1.3 The role of the central bank

As set out in the Bank of Israel Law, 5714-1954, the functions of the central bank are to administer, regulate and direct the currency system, and to regulate and direct the credit and banking system in Israel, in accordance with the economic policy of the government, by formulating and implementing monetary policy so as to stabilise the value of the currency inside and outside Israel and achieve a high level of production, employment, national income and capital investments in Israel.

To fulfil these goals, the following has been determined:

- the BOI is the sole banker and fiscal agent of the government, including state loans administration;
- the Supervisor of Banks is an employee of the BOI;
- the BOI is authorised to issue currency;
- the BOI may conduct transactions in foreign currency;
- the BOI may extend credit to the government only in exceptional cases;
- the BOI may conduct transactions in certain securities;
- the BOI may extend credit to banking corporations;
- the BOI may accept deposits from banking corporations;
- the BOI sets reserve requirements for banking corporations.

1.4 The role of other private and public sector bodies

1.4.1 The Banks' Clearing House (BCH)

The BCH is a non-incorporated body that deals with the clearing of all paper-based instruments (cheques, etc).

The members of the BCH are the BOI, commercial banks, the Post Office Bank and the commercial banks in the Palestinian Autonomy that provide cheque services in Israeli currency. However, the Palestinian banks as well as some small Israeli banks are represented in the various types of clearing by one of the direct members of the BCH. The activities of the BCH are regulated by the Banks' Clearing House Committee (BCHC).

1.4.2 The Banks' Clearing House Committee (BCHC)

The Committee is appointed by the Governor of the BOI and comprises 10 members - five from the BOI (including the Chairman) and five from commercial banks. Its function is to decide on procedures regarding the banks' clearing houses (paper-based and automated, see Section 3.1), and to determine the regulations of the BCH, which govern relations among its members (see Section 5.2).

1.4.3 Banks' Clearing Center Ltd (BCC/Masav)

The company, which is owned by the five major banks, manages the automated clearing house and settles direct debits and credits. The company's services are provided to all the members of the BCH.

1.4.4 Automatic Banking Services Ltd (ABS/Shva)

This company, owned by the five major banks, provides the following services:

- administering a communication network between some 35,000 POS terminals and the credit card companies;
- administering ATMs that are not sited at bank branches (approximately 70 machines in various locations, eg hospitals, universities, shopping centres) and connecting them to customers' accounts;
- administering a communication network between some 1,000 ATMs;
- administering communications between the banks and the interbank liquidity trading system run by the Monetary Department of the BOI;
- transferring daily settlement results from the BCH and BCC to the BOI.

1.4.5 The Tel Aviv Stock Exchange (TASE)

Two subsidiary companies of the TASE, one for shares, bonds, Treasury bills and warrants and one for derivatives (Maof), clear all transactions executed on the exchange (including those concluded off the TASE). Clearance and settlement are performed both for securities and derivatives and their related payments (see Section 4.2).

2. Payment media

2.1 Cash payments

2.1.1 Issuing currency

The BOI has sole authority to issue currency in Israel (as regards the production, safeguarding and regular supply of coins and banknotes in circulation). The following functions are carried out by the BOI:

- planning the entire range of coins and banknotes in all denominations;
- coordinating the production processes among the various subcontractors (producers of paper, banknotes, coins, etc);
- supplying coins and banknotes through the banking system;
- counting and sorting the coins and banknotes deposited by commercial banks at the BOI;
- administering a system of depositories in which reserve stocks of coins and banknotes are kept.

2.1.2 The use of cash

The total value of the cash in circulation in Israel at the end of 1998 amounted to NIS 11.9 billion (NIS 10.4 billion in 1997), and its per capita value was NIS 1,976. In the past decade, there has been a continuous rise in cash in circulation (at both current and constant prices). Thus, since 1990 cash in circulation has increased by 6% annually (in real terms). Much of this increase derives from the rise in the population and in GDP (the annual rate of population growth was 3.2% during this period). It is also partly due to drastic decline in the inflation rate since 1985, and the increased use of ATMs.

A study undertaken by the BOI several years ago suggested that:

- the number of coins and banknotes per capita has not changed much since 1988, but their value per capita has increased, due partly to the availability of higher denomination bank notes.
- the proportion of people preferring to use cash declined from 26% in 1988 to 11% in 1994;
- the use of cash substitutes is increasing; the proportion of people using credit cards rose from 45% in 1988 to 67% in 1994;
- over the years, as ATMs have become more widespread, the proportion of people using them for cash withdrawals has risen.

2.2 Non-cash payments

2.2.1 Paper-based instruments

Paper-based payment instruments constitute a significant proportion of all payments. While cheque payments are widely used (see Section 2.2.1.1), credit transfers include both paper-based payment vouchers and electronic instructions.

2.2.1.1 Cheques

The commercial banks allow their customers to write cheques on current accounts, which can be either in credit or in debit. The Post Office Bank administers only credit accounts.

Cheques deposited with bank tellers by 3 pm are credited to the depositor's account with same day value. These cheques are presented and exchanged at the clearing house on the same day. The drawee bank debits the drawer's account on the same day as the presentation in the clearing house, even though the cheque reaches the drawee bank's branch on the next business day. The branch may return the cheque on the day it is received, in which case the account balances of both parties are reversed with value date of presentation.

Cheques still constitute a widely used method of payment; however their relative share in the payment system has declined as a result of the growing use of credit cards and automated payments via the BCC.

The Cheques Without Cover Law, 5741-1981, was introduced in 1981 to address the problem of cheques returned because of insufficient funds. According to this Law, a cheque is defined as returned if it is not paid because of insufficient cover and the bank is not obliged to pay it by virtue of an overdraft agreement with the drawer. If 10 cheques from a given account are returned within a year or less, restrictive conditions are imposed on the account for one year. During this period, cheques may not be drawn on the account and banks may not honour such cheques, if drawn. The account holder is not allowed to open another chequing account. If another account held by this customer is also restricted during this period, or within three years of the end of the previous period of restriction (on the same or a different account), the customer is subject to a more severe restriction for two years. During that period, the customer may not draw cheques on any account.

Due to the absence of data prior to the introduction of the Law, it is difficult to draw quantitative conclusions concerning the Law's effect on payment ethics. However, it is reasonable to assume that the Law has contributed to reducing the percentage of returned cheques. It is also worth mentioning that the file of restricted accounts is accessible to the business community, which makes daily use of it.

2.2.1.2 Credit transfers

Most credit transfers are effected through payment vouchers for bills, which may be paid at a bank by cash or by cheque. Like cheques, the payment vouchers have a magnetic code line. Payments made to payees whose deposits are held at a bank other than the one where the payment is made are transferred

via the BCH. Transfers may also be made by means of standing orders or by individual transfers by customers.

2.2.2 Electronic instruments

2.2.2.1 Automated clearing house payments

Most electronic transactions - direct debits and credits - are settled via the BCC but transfers between accounts in the same bank may be carried out through the bank's internal clearing system. Direct debit is in widespread use and is entirely electronic. Automation of credits of all kinds (eg salaries, suppliers' payments) is also common.

The debit and credit files are transferred directly to the BCC, electronically or using other magnetic media, by the banks' customers with the banks' approval. Credit transfers also include periodic transfers (against standing orders) via the BCC.

2.2.2.2 Interbank transfer system

Interbank transfers between banks' deposits with the central bank, which are used as liquid assets for reserve requirements, are effected by means of a designated system run by ABS (see Section 3.2.1).

2.2.3 Payment cards

2.2.3.1 Credit cards

Credit cards are used extensively in Israel, not only for services and retail trade but also for public services. In most cases, the customer authorises the debiting of his account by the total amount of his purchases during the preceding month on one of the possible specified dates. Certain payments may be deferred. Such credit, if not financed by the suppliers, would usually incur an interest charge, in accordance with arrangements reached with the banks or credit card companies.

2.2.3.2 Debit cards and cheque guarantee cards

Limited use is made of such cards. Payments are debited from the customer's bank account within two days of a transaction.

2.2.4 Other cards

2.2.4.1 Prepaid cards

Prepaid cards for a specific purpose are also used, primarily for public phones and mobile phones (see also the next section).

2.2.4.2 Electronic purses

2.2.4.2.1 Planned projects

At present, several projects involving card-based electronic purses are being planned in Israel. Most of them are intended to serve a specific population segment, but two of the projects are defined by their planners as multipurpose e-purses for general distribution.

Two projects are currently operating on a trial basis: one, by the Israel Telecommunication Corporation (Bezek), is operating at Bar-Ilan University and the other, which is associated with Mondex, is operating in the Rehovot area.

As far as the other projects are concerned, no final operating decisions have yet been made.

2.2.4.2.2 BOI policy

In mid-1996, the Governor of the BOI appointed a committee to study the subject of e-purses and submit its recommendations. The committee completed its deliberations, and its recommendations were adopted by the senior management of the BOI in March 1997.

The committee found that at present there is no appropriate legislative framework to deal with e-purses, and recommended that the BOI act to change the law in this respect. Until the law is amended, corporations wishing to introduce e-money projects are required to voluntarily accept the requirements which will come into force at a later stage (see also Section 5.4).

2.2.5 Online banking

Most banks enable customers to contact the bank's computer via their own computer in order to obtain information and make funds transfers between their accounts as well as to a third party, subject to some restrictions, including that the third party is named in a list specified in advance by the customer or that the transfer does not exceed an amount set for this purpose by the Supervisor of Banks.

The Supervisor of Banks has also recently authorised banks to enable their customers to obtain general and specific information about their accounts via the internet. At present, however, banks are not allowed to let their customers use the internet to send funds transfer instructions.

Most banks offer their customers the use of telebanking facilities, in some cases outside bank working hours.

3. Interbank exchange and settlement circuits

3.1 The Banks' Clearing House

All commercial banks in Israel and the Palestinian Autonomy may apply for membership (direct or indirect) of the clearing house. The BOI and the Post Office Bank are also members. To become a direct member, a bank must have an account with the BOI and be approved by at least seven (direct) members of the BCHC. Other banks (including banks operating in the Palestinian Autonomy) may become indirect members and are represented at the various clearing sessions by a direct member. The Palestinian banks do not operate in Israel and are not supervised by the Supervisor of Banks. They do not have an account with the BOI and therefore may not be direct members of the BCH.

As at 31 December 1998, there were 45 BCH members:

24	Israeli commercial banks (including one branch of a foreign bank)
19	Commercial banks in the Palestinian Autonomy (including branches of foreign banks)
1	Post Office Bank
1	Bank of Israel

The numbers of participants in the various types of clearing are as follows:

Type of clearing	Numbers of participants	
	Direct	Indirect (represented)
MICR-encoded cheques	12	33
Electronic exchange of MICR-encoded cheques	4	32
Non-encoded paper	14	31
Automated Clearing House	12	33

Each of the separate clearing sessions is settled on a multilateral net basis and is recorded in the accounts of the BOI - value date of presentation.

3.1.1 Paper-based clearing

The paper-based clearing house is supervised by an official of the BOI and operates from independent premises in Tel Aviv. The participants in the various clearing sessions cover its rental and other expenses.

Types of paper payment instruments cleared:

Debits: cheques - MICR-encoded, standard CMC7,
sundry debits for commission charges, payment of promissory notes, etc.

Credits: credits for bill payments, etc (MICR-encoded);
sundry other credit transfers (including lists).

All paper-based instruments are presented to the counterparty members at the clearing house, unless they have been directly delivered before the beginning of the clearing session.

The details included in the magnetic code line on the cheques are exchanged among the big banks by electronic means.

Timetable of operations: according to banking regulations, the cutoff time for the end of the business day in banks is 3 pm (except on Fridays and on the eve of a holiday). Banks which open in the afternoon record transactions executed after 3 pm on the next business day.

Paper-based clearing: the timetable of the various clearing sessions varies slightly on certain days or in certain seasons. The timetable on an ordinary business day is as follows:

Day 1	7 pm	Session 1	Non-encoded paper and MICR-encoded credits for bill payments.
Day 1	8.30 pm	Session 2	MICR-encoded cheques.
Day 2	7 pm	Session 3	Returned items (value day 1).

3.1.2 Automated clearing

The BCC processes direct debits from and credits to customers' accounts with the banks. It also processes employers' payments directly to their employees' bank accounts with banks and provident funds. Customers authorised by their banks submit their files directly to the BCC electronically. The banks themselves submit certain credits (eg standing orders) directly to the BCC. All files submitted to the BCC before noon are processed on the same day. The net results of the clearing are settled (value day of processing) in the accounts of the banks at the BOI overnight.

3.2 Large-value payment systems

3.2.1 Interbank system for trading liquidity

Alongside the BOI's supply of liquidity and the banks' demand for it, there is an interbank liquidity market. Most of the banks participate in this market, which operates over the counter by means of bilateral phone trading.

The interest rates on these transactions are similar to those of the BOI (at the daily monetary or deposit auctions). The amounts transferred by means of interbank trading on a given day reflect the various banks' liquidity surpluses or shortages arising from unexpected transactions. Since paper-based clearing is done value same day and given the timetable of the clearing sessions (see Section 3.1.1 above), the banks are aware of their positions only the next business day. In order to overcome the information time gap, the BOI enables trading in liquidity amongst banks value the previous business day. This tool allows minimisation of an excess or shortage of liquidity.

A bank wishing to make an interbank transfer sends an instruction to the BOI by means of the ABS communication network. Once the order is received, the BOI notifies the recipient bank of the particulars of the transfer via the ABS communication network. The BOI reserves the right not to execute transfers which would cause a bank to be in debit at the BOI and the above-mentioned notification is binding on the BOI only if the transfer has been recorded in its books. At the end of the business day, all the interbank transactions are submitted for entry in the books of the BOI, in which the transferring bank's account is debited and the transferee bank's account is credited. Instructions for interbank transfers may be dispatched until the end of the banks' business day - 3 pm from Sunday to Thursday and 12 noon on Fridays and holiday eves.

During a business day, transactions amounting to hundreds of millions of NIS are executed.

3.2.2 Interbank transfers in NIS versus USD

In July 1994, a new trading system was introduced for the Israeli foreign exchange market; instead of a single multilateral trading session for one hour per business day (which determined the exchange rate for all transactions), the market moved to continuous bilateral trading, as is common throughout the developed world. As the Israeli foreign exchange market is relatively small, it was not clear how fast the banking institutions - which acted as agents in the old system - would be able to cope with the risks involved in becoming "market-makers".

Therefore, along with the introduction of the new trading rules, a number of additional measures were taken to provide solutions to problems which might arise during the transition.

In July 1994, a payment-versus-payment (PVP) system for interbank payments between authorised dealers was introduced at the BOI. It was created essentially to allay one of the main concerns regarding the transition: that large market-makers might force smaller ones out of the market by trading with them only with wide interbank bid/offer spreads that would cover the credit risk involved in the transactions.

The creation of the PVP system was possible since authorised dealers hold both USD and NIS deposits at the BOI (eg to meet reserve requirements). Clearing is done by transferring funds to and from these deposits, after receipt of matched instructions.

Banks can transfer USD funds amongst themselves and to the government (through the BOI's books) value same day; all other transfers (eg to parties which do not hold accounts with the BOI) are made value spot.

The clearing system is completely automatic. After instructions are matched, settlement is final. Gross transfers are made on the BOI's books during the night. These transfers are final. There is no back-valuing in foreign exchange transactions.

Since transfers are executed versus payment, there is no credit risk for the banks involved. However, the risk is transferred to the BOI. USD settlements are finalised on the day of trade. Although NIS settlement is made on the day of trade, the BOI records these settlement results only on the next business day at 10 am. Since BCH settlement results are not final until the end of the rejection process (of cheques and other credits/debits in NIS), the BOI knows the NIS current account balances of banks participating in NIS versus USD trade only two days after a transaction has taken place.

Transfers from banks' deposits can expose the BOI to some credit risk. Since it is possible to transfer funds value same day between banks, the BOI can sometimes transfer funds before it has verified that funds have arrived in the paying bank's current account. However, in the case of large domestic banks, foreign currency transfers are much smaller than their deposits with the BOI, thus in practice little exposure is created for the BOI. As far as smaller banks are concerned, their volume of foreign exchange activity is limited and so is the BOI's exposure.

4. Special use of interbank transfer systems for international and domestic financial transactions

4.1 Exchange and settlement systems for international transactions

4.1.1 General overview

Until May 1998, the Foreign Exchange Control Regulations existing in Israel stipulated that all dealing in foreign exchange had to be carried out through banks that were authorised for such dealing. Other institutions (eg securities brokers and foreign exchange dealers) could obtain a limited licence to deal in foreign exchange.

The Foreign Exchange Control Regulations were (almost completely) rescinded in May 1998. From that point on, every person or firm became free to engage in foreign exchange transactions. The settlement of such transactions is usually effected by a bank. Banks in Israel maintain accounts in NIS as well as in USD with the BOI, and interbank foreign exchange transactions are settled in the books of the BOI. In order to operate in foreign exchange, banks have to receive an authorisation from the Supervisor of Banks, as a prerequisite to opening a USD account with the BOI.

The international transfer of both small- and large-value payments is done primarily through correspondent banking relationships. The principal means by which large-value payments are transmitted internationally by Israeli banks is S.W.I.F.T.

4.1.2 Large-value transactions in NIS versus USD

See Section 3.2.2.

4.1.3 Large-value transfers in other currencies

Large-value transfers in other currencies take place through clearing and settlement systems abroad via correspondent banks that are members of those systems.

4.1.4 Other cross-border payments

There are several means by which retail cross-border payments can be effected: international money orders and banker's drafts; credit cards issued by Israeli banks; travellers' cheques; and cash in foreign currency.

4.1.5 Local foreign currency payments

Due to the relaxation of foreign currency controls in May 1998, all Israeli residents are now allowed to hold foreign currency in cash as well as in accounts with Israeli banks.

Payments in foreign currency can be made in Israel in cash or by transferring money between foreign currency accounts. Almost all the banks also offer chequing account facilities in various foreign currencies, which are cleared and settled through their correspondent banks abroad.

4.2 Exchange and settlement systems for securities transactions

Securities and derivatives transactions are settled in clearing houses operated by the TASE (see 1.4.5). Members of these clearing houses are also members of the TASE, including banks, non-banks and the BOI (however, there are a few members of the stock exchange who are not members of the clearing houses). The clearing houses settle transactions conducted on the stock exchange, as well as bilateral transactions executed off the stock exchange. They also provide services for the settlement of payments connected with securities and derivatives traded on the stock exchange, such as the payment of interest on bonds, dividends, etc (corporate transactions). Settlement of derivatives trades is carried

out by the Ma'of clearing house, which is a subsidiary of the stock exchange. The clearing houses act as the central depository for securities and derivatives in Israel.

The securities clearing house was established in 1962 by members of the stock exchange, and is owned by them. Securities traded on the stock exchange are registered in the books of the issuing company as belonging to the person who bought them. When a security is issued, the issuing company allocates them to a nominee company. Hence, the body registered in the company's books as the holder is the nominee company. In order to enable securities to be traded and settled rapidly, the nominee company deposits them with a custodian bank, which is in effect the bank that fully controls the nominee company.

This procedure enables the nominee company to register the securities at the stock exchange clearing house to the credit of those members of the clearing house which hold securities for the ultimate owners.

There are four nominee companies, each owned by a major bank: Hapoalim, Leumi, Discount and Mizrahi. The BOI administers the registry of owners of state loans.

As a result of the "book-entry" structure just described, there is no need for the physical transfer of securities, and settlement is carried out rapidly by electronic means.

Settlement of the securities takes place on the day the transaction is executed on the stock exchange, while cash settlement is effected the next day. Because of this one-day gap, the transfer of the securities is conditional until the money transfer is completed and then the transaction is concluded. The commercial banks generally record securities transactions in their customers' accounts on the day the transaction is executed on the stock exchange, as regards both the transfer of ownership of the securities and the money paid or received for them.

The settlement of securities is implemented via the securities accounts of members of the stock exchange clearing house. On the other hand, the financial account of a bank that is a member of the stock exchange is at the BOI, and the financial settlement is executed through it.

For foreign investors, settlement of securities transactions (buying and selling) may be separated from custodial activities on their behalf by using two different members of the stock exchange. The settlement transaction is implemented by a member of the stock exchange who acts as a broker for the investor, whereas the custodial function is fulfilled by another member of the stock exchange, which is usually a bank.

5. The role of the central bank in interbank settlement systems

5.1 General responsibilities

As a central bank, the BOI has overall responsibility for the stability of the payment system in Israel. This stability is *inter alia* a necessary condition enabling the BOI to conduct effective monetary policy.

Nonetheless, the BOI's basic approach is that it should restrict its involvement in developing and running the payment system unless, for one reason or another, the private sector is not prepared to take the initiative. Most of the payment systems are run by the banks, the stock exchange or the credit card companies.

In practice, the BOI has the power to supervise payment systems and settlement arrangements through its Banking Supervision Department. This supervisory ability derives from the BOI's formal supervisory powers over the banks and the fact that most payment systems are owned by the banks (or considerably influenced by them). However, the BOI generally avoids exercising its authority in matters connected with the supervision of settlement institutions, and is content to guide them indirectly by means of its representatives on the BHC and the Banking Supervision Department. Thus, in the past the BOI has initiated the establishment of the automated clearing house (BCC) as

well as important changes in settlement arrangements, for example the transition to same-day settlement.

The main function of the BOI in the context of the payment system is, therefore, to serve as a settlement provider for interbank settlements (eg settling in its books the obligations arising from the transactions in the BCH and the stock exchange clearing houses).

As already mentioned, the BOI directly administers two large-value payment systems: the interbank liquidity trading system (increasing the efficiency of banks' reserve management), which is a net system not operating in real time (multilateral netting system), and an interbank system for selling/buying USD against NIS, which is a real-time system (see Section 3).

The large-value payment systems run by the BOI are restricted systems intended for very specific kinds of interbank transactions. There are no other designated large-value systems in Israel. Such systems have not developed to date (nor has there been any pressure on the BOI to assist in developing them), presumably for the following reasons: the domestic money and capital markets are fairly small; the financial system is quite concentrated; and the major banks work closely with one another. In addition, settlement is made at the value of the day on which the amounts are presented (see the Introduction); the BOI discount window is freely accessible to all the banks, immunising them to a great extent against liquidity problems.

This situation could change with the entry of new foreign participants in local currency trading in the wake of the liberalised foreign exchange regime. Serious thought is being given to introducing an LVTS in Israel.

5.2 Supervision and regulation of the payment system

Israel's payment system is regulated and supervised at three levels:

Legislation - legislation deals primarily with the relationship between the customer and payment system's participants (see also Section 1.1).

Clearing house regulations - these regulations are a voluntary agreement which regulates the relationship between participants (ie the commercial banks) and the BOI. The regulations determine the structure and specifications of all the means used in the settlement process (the size of paper documents submitted, the format in which the settlement results are reported to the BOI, the timing of settlement sessions, the procedures for settling disagreements among participants, criteria for accepting new participants, etc). The clearing house regulations apply to both the settlement of paper instruments (checks, notes and other paper-based instruments) and to electronic settlement. The clearing house committee controls the settlement procedures and is responsible for their full implementation. It consists of 10 members, all of whom are nominated by the Governor of the BOI; five members belong to the BOI staff, including the chairperson of the committee; the other five represent the Israeli banking system. The secretary of the BCH and its supervisor belong to the BOI staff.

Supervision and regulation - the BOI influences the settlement procedures via its representatives on the clearing house committee (including its chairperson). The Supervision of Banks Department at the BOI regulates and supervises all the banks in Israel (including subsidiary corporations such as credit card companies), which are the major participants in the payment system.

Supervision is carried out both on-site and off-site. The Supervisor of Banks is entitled by law to receive any information he requires from banking corporations and their subsidiaries, including information relating to the payment system.

The Supervisor of Banks regulates the banking system by using inter alia orders and audits of risk management (including credit risk and liquidity risk which stem from the banks' activities in the payment system).

5.3 Provision of settlement and credit services

5.3.1 *Accounts with the Bank of Israel*

By law, the BOI may accept deposits from government ministries, including government-supported units, as approved by the Accountant General, and from banking corporations under the supervision of the Supervisor of Banks.

The BOI also administers the accounts of international financial institutions. In contrast with the first two categories, the BOI initiates the opening of these accounts.

5.3.2 *Banks' accounts with the Bank of Israel*

All the banking corporations in Israel have a local currency current account at the BOI. A deposit in this account is regarded as a liquid asset against the bank's reserve requirement. It is in this account that all debits and credits of the banks vis-à-vis the central bank are executed. These include sales and purchases of foreign currency and/or securities, monetary loan activities, settlement of bank and stock exchange daily clearing results and transactions vis-à-vis the government (see Appendix 2 for further details).

These accounts should be in credit. Very high interest is charged on debit balances and the bank's management is notified that it has departed from proper banking practice. A bank may draw (value same day) on its credit line within the quota of the monetary loan in order to cover an overdrawn balance.

Monetary loans must be collateralised by foreign or local currency deposits with the central bank and floating collateral of government bonds and treasury bills at 90% of their stock exchange value.

The BOI does not pay interest on credit balances on current account holdings up to the reserve requirement, but it does pay interest, lower than the market rate, on surplus reserves.

Brokers, foreign banks and other financial institutions do not have deposits at the BOI and all their transactions are conducted through a bank in Israel.

Within the framework of monetary policy, the BOI influences the monetary base by setting interest rates and liquidity injection/absorption, as described in Section 5.4. There is, in addition, an interbank local currency market in which banks trade in liquid local currency assets, value previous day, in order to cover unexpected transactions (see Section 3.2.1).

The banks also have other accounts at the BOI:

- fixed-term deposits in local currency, for periods of between one day and three months, as an instrument for absorbing liquidity from the system. These deposits bear the interest rate set at the auctions open to the banks.
- demand deposits in foreign currency, to cover the reserve requirement on non-residents' foreign currency deposits. No interest is paid on these deposits.
- fixed-term deposits in foreign currency, to cover the secondary reserve requirement on foreign currency - 5% of foreign currency deposits. The interest on these deposits is paid at the foreign interbank rate.
- optional interest bearing foreign currency deposits. The BOI allows banks to hold optional foreign currency deposits with it as an alternative to holding them abroad.

5.4 Monetary policy and payment systems

Since 1992, Israel has followed an inflation targeting strategy; the principal monetary policy instrument is the short-term interest rate. This policy replaced the previous, exchange rate-based monetary policy that was in effect from mid-1985 until the end of 1991. This earlier regime was introduced in the context of Israel's heterodox economic stabilisation programme of July 1985, which

succeeded in the reducing triple digit inflation that had prevailed throughout the first half of the 1980s to the 15-20% range. The exchange rate-based regime was, initially, a peg to the dollar, followed by a peg to a trade-weighted basket of foreign currencies and, ultimately, a target zone around a fixed central parity for the currency basket. The role of the interest rate in this regime was to support exchange rate policy by moderating capital flows. The inflation targeting regime replaced the exchange rate-based strategy following repeated speculative attacks against the Israeli currency and when it became clear that the earlier regime would not succeed in further reducing inflation. The new regime included a publicly announced inflation target but was accompanied by a new exchange rate policy based on an upward-sloping target zone. The slope was defined as the difference between the inflation target and a forecast of weighted average inflation in the countries whose currencies were included in the basket. The bandwidth was set at 5 percentage points above and below the central parity but the BOI often intervened in the foreign exchange market when the actual rate was within 2 percentage points of the central parity of the sloping target zone.

At the end of 1987, the BOI introduced the monetary instruments that continue to serve to this day. Hitherto, the key central bank interest rate had been established by means of an essentially infinitely elastic standby facility, at the desired rate. The new system included an upward-sloping standby facility, under which commercial banks could obtain fixed amounts of reserve money in a series of tranches at increasing marginal cost. Currently, each tranche costs 10 basis points more than its immediate predecessor. Banks may access this facility until 2 pm each business day. This facility has evolved into a key signalling device for interest rate changes, which are implemented by adding an appropriate number of tranches in the case of rate reductions and eliminating them to raise rates. The new system also included a system of monetary loans, offered at auction to commercial banks at a variable interest rate; the role of these monetary loans was to offset flows into and out of the monetary base that are not controlled by the BOI, ie defensive operations. These collateralised loans function like repurchase agreements in all economic respects, although there are some legal differences in the status of the collateral. The auctions are currently held at 10 am each business day. Thus, the marginal cost of the BOI's credit is determined at the intersection between the demand for bank reserves and the supply. Another policy tool that was developed during the late 1980s and early 1990s was the treasury bill, a non-indexed government security for up to one year used for monetary purposes. The secondary market for this security has not yet developed to the point where day-to-day open market operations are feasible, but primary issues have been used actively to absorb excess liquidity, when needed for monetary control and when not prohibited by the ceiling on the total amount of issue.

Following three years of significant fluctuations in inflation, culminating in 1994 with actual inflation of 14.5% (December-December CPI) but a target of 8%, the government gave the BOI a more serious mandate to combat inflation. The Bank raised interest rates significantly in the final three months of 1994, from less than 10% to over 18%. In combination with an unchanged foreign exchange intervention policy, the higher rates led to a substantial capital inflow, primarily due to Israeli firms seeking sources of credit with lower expected cost than non-indexed domestic currency credit. The Bank's response was to sterilise the foreign exchange intervention by various means, including, first, a reduction of auctioned loans, then a significant increase in treasury bill issuance, foreign exchange swaps and, finally, the main tool currently in use, monetary deposits (or commercial bank time deposits) at the BOI. These deposits are sold to commercial banks at auction and are currently issued for monthly, weekly and daily terms. Capital inflows have also been addressed by increasing the flexibility of the exchange rate target zone. Most notably, in June 1997 the width of the zone was increased from 10 percentage points to nearly 30 points and the rate of increase of the slope of the depreciated bound was set at a higher pace than for the appreciated edge. Thus the band has been widened steadily over time and currently appears to be largely ineffective. In retrospect, the policy measures of June 1997 seem to have sent a convincing message that the inflation targeting policy would prevail over the exchange rate policy in cases of possible conflict.

Restrictive monetary policy has succeeded, over a relatively lengthy period of five years, in bringing inflation down to near western levels. In fact, inflation almost reached western levels during the first eight months of 1998 but the worldwide financial market crisis in the autumn of that year prompted a significant devaluation of the Israeli currency and three months of relatively sharp price level

increases, ie an inflation scare. This was fought with increased interest rates, and inflation has been at western levels for the past year and a half. As noted above, the main monetary instruments are now the commercial bank time deposits and the upward-sloping standby facility.

5.5 Main policies and planned projects

A general overview of the BOI's policy with regard to the payment system was provided in Section 5.1, and large value payment systems administered by the BOI were described in Section 3.2. Consequently, in this section information is provided only on the BOI's policy relating to electronic purses. As stated in Subsection 2.2.4.2.2, no appropriate legal framework exists in Israel for supervising e-purses, and the committee appointed by the Governor of the BOI has recommended creating one. As a consequence, in August 1998 the Credit Card Law was amended and a regulation concerning e-purses was added to it. The amendment mainly regulates the relationship between the e-purse issuer and its customers. Thus, in conjunction with the Legal Department of the BOI, the Ministry of Justice has begun to formulate amendments to existing laws, which will reflect the committee's recommendations. Licensing of corporations wishing to issue e-purses will be carried out by the Supervisor of Banks. The few permits already issued by the Supervisor of Banks demonstrate the approach to supervision and regulation of such corporations. The corporations issuing e-purses must agree to minimum capital adequacy requirements, rules regarding their dealings with related parties, rules regarding dividend policy and other regulations which apply to banking corporations under the supervision of the Supervisor of Banks (with the necessary adjustments).

In addition to the recommendation regarding supervision, the following main proposals made by the BOI committee have been adopted:

- the BOI itself will not issue e-purses;
- non-banks will be permitted to issue e-purses, provided they meet certain conditions regarding stability and issuer-customer relations;
- the BOI will act to introduce amendments to the relevant laws so that, in contrast to the existing situation, issuers of e-purses will be legally authorised and supervised by the BOI;
- the amount of “money” that may be loaded into an e-purse shall not exceed NIS 300;
- currently, only card-based products will be permitted, rather than network-/software-based products;
- issuers of e-purses will be required to undergo an initial security check for each component of the e-purse network, carried out by professional agencies not connected with the specific project, before the project is put into operation, and also to undergo periodic security checks at set times, or in response to developments that could have security repercussions;
- The planned legislation on e-purses will, in the areas of regulation and supervision, be subordinated to the authority granted by law to the Supervisor of Banks, subject to the necessary changes stemming from the nature of e-purse activity.

Annex

The government's and banks' accounts with the BOI

Local currency accounts are administered as follows.

1. Government accounts

Debits

Debit orders are received in the following ways:

- clearing house: cheques issued by the government ministries;
- BCC: debits against transfers to payees;
- telex or properly signed written instructions to debit the ministry and credit the payee.

Clearing house: each day cheques are presented to the Bank of Israel at the clearing house and are recorded in the accounts value day of presentation.

BCC: debits arrive electronically; there is no value dating (debits for future dates are kept until that date).

Telex/written instructions: instructions received until 3 pm are carried out and recorded on that day.

Credits

Cheques from the public that are deposited by the ministries with the BOI before 3 pm are recorded and presented at the clearing house on the same day, as are other credits arriving via the paper-based clearing house and the BCC.

2. Accounts of banking corporations

Credit/debit instructions are received as follows.

- 2.1 Clearing houses: the results of automated and other clearing, as well as credits to and debits from the government's account.
- (a) credits: usually by money transfer from the banking corporations to the government's account;
- (b) debits: a limited number of ministries have authorised banking corporations to debit their accounts regarding specific topics (loans to teachers, etc).
- The credits and debits are received one day after being presented at the clearing house and are recorded value day of presentation.
- 2.2 BCC: the results of the clearings reach the Bank of Israel electronically, without value dates.
- 2.3 Stock exchange: the results of the stock exchange clearings arrive electronically, without value dates.
- 2.4 ABS: the results of withdrawals from ATMs, without value dates.
- 2.5 S.W.I.F.T.: the banks use this network for transferring local currency credits to the governments' accounts on the basis of agreements with the ministries. The agreements fix the value date (which may be backdated by one day).

In principle, there are no value day adjustments (except in cases where a mistake has been made at the Bank of Israel).

List of abbreviations

ABS (Shva)	Automatic Banking Services Ltd
BCC	Banks' Clearing Center Ltd
BCH	Banks' Clearing House
BCHC	Banks' Clearing House Committee
BOI	Bank of Israel
PVP	Payment versus payment
NIS	New Israeli shekel (local currency)
Ma'of	The TASE derivatives clearing house
TASE	Tel Aviv Stock Exchange

Statistical tables

Table 1
Basic statistical data

	1991	1992	1993	1994	1995	1996	1997	1998
Population:								
<i>year-end</i>	5,058,800	5,195,900	5,327,600	5,471,500	5,612,300	5,757,800	5,900,800	6,041,400
<i>average</i>	4,949,100	5,123,500	5,261,400	5,399,300	5,544,900	5,685,100	5,826,500	5,970,700
GDP (millions of ILS)	134,688	160,770	184,918	223,185	261,582	304,731	340,717	372,038
GDP per capita (ILS)	27,215	31,379	35,146	41,336	47,176	53,602	58,453	62,339
Exchange rate (ILS per USD): ¹								
<i>year-end</i>	2.2830	2.7640	2.9860	3.0180	3.1350	3.2510	3.5360	4.1600
<i>average</i>	2.2791	2.4590	2.8300	3.0112	3.0113	3.1886	3.4494	3.8000

¹ The representative rate published on every business day by the BOI.

Table 2
Settlement media used by non-banks
(year-end, in millions of ILS)

	1991	1992	1993	1994	1995	1996	1997	1998
Total notes and coin issued	3,784	4,793	5,651	6,453	7,915	9,220	10,370	11,935
Private non-bank sector's holding of notes and coin	3,228	4,113	4,851	5,466	6,730	7,770	8,764	10,065
Transferable deposits ¹	4,680	6,454	8,720	9,141	10,303	12,522	13,586	15,362
<i>of which held by:</i>								
<i>households</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>
<i>corporate sector</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>
<i>other</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>
Narrow money supply (M1)	7,908	10,567	13,571	14,608	17,034	20,294	22,352	25,427
<i>Memorandum items:</i>								
Broad money supply (M2) ²	25,891	32,459	47,588	63,614	85,231	113,814	139,801	166,347
Broad money supply (M3) ³	<i>n.a.</i>	<i>n.a.</i>	139,307	173,290	196,262	260,261	306,261	371,039

¹ Current deposits with banks. The Israeli banking system permits the private sector to deposit ILS funds overnight (bearing interest). These deposits are by nature very close to transferable deposits. ² Includes M1 and ILS deposits of the private non-bank sector.

³ Includes M2, foreign exchange deposits or deposits linked to foreign exchange of the private non-bank sector (residents only) up to one year, MAKAM - an ILS-denominated treasury bill with maturity of up to one year - and saving schemes.

Table 3
Settlement media used by credit/deposit-taking institutions
(year-end, in millions of ILS)

	1991	1992	1993	1994	1995	1996	1997	1998
Reserve balances held at central bank ¹	1,260	1,111	4,088	3,190	1,007	3,502	6,021	4,700
Transferable deposits at other institutions:								
<i>banks</i>	.	.	.	.	.	.	.	.
<i>non-banks</i>	.	.	.	.	.	.	.	.
<i>other</i>	.	.	.	.	.	.	.	.
<i>Memorandum items:</i>								
Total bank reserves ^{2, 3}	n.a.	3,586	5,206	5,515	3,336	3,742	7,605	6,539
Required reserves ⁴	n.a.	3,531	5,136	5,445	3,305	3,670	4,425	6,842
Institutions' borrowing from central bank	n.a.	10,607	16,536	15,082	3,783	958	1,426	796

¹ The BOI also received fixed-term deposits from banks amounting to ILS 5,000 million in 1996, ILS 32,500 million in 1997 and ILS 40,000 million in 1998. ² Reserves held at the central bank and currency in banks' vaults. ³ Figure related to the last business day of corresponding year. ⁴ December daily average.

Table 4
Banknotes and coin
(year-end, in millions of ILS)

	1991	1992	1993	1994	1995	1996	1997	1998
Total banknotes and coin issued	3,784	4,793	5,651	6,453	7,915	9,220	10,370	11,935
Denomination of banknotes:								
200 ILS ¹	.	749	1,160	1,540	2,160	2,620	2,948	3,380
100 ILS	1,520	1,519	1,620	1,720	2,110	3,240	4,291	5,340
50 ILS	1,745	1,935	2,205	2,445	2,820	2,480	2,209	2,200
20 ILS	206	233	260	294	336	340	325	360
10 ILS	119	131	137	158	62	34	28	26
5 ILS ²	6.5	6.0	.	.	.	.	.	.
1 ILS ²	1.8	1.8	.	.	.	.	.	.
Banknotes held by credit institutions	n.a.	680	800	987	1,185	1,450	1,606	1,870
Total banknotes and coin outside credit institutions	3,229	4,113	4,851	5,466	6,730	7,770	8,764	10,065

¹ The ILS 200 note was issued during 1992. ² ILS 1 and ILS 5 were reissued in coin form during 1993.

Table 5
Institutional framework
(as at end-December 1998)

Categories	Number of institutions	Number of branches	Number of accounts ¹	Value of accounts ¹ (millions of ILS)
Central bank	1	2	98	28,524
Commercial banks	24	1,092	3,217,647 ² a 3,116,232 ² b	10,820 ² a 33,407 ² b
Mortgage banks	8	372	.	.
Post Office Bank	1	713	140,000	n.a.
<i>Memorandum item:</i>				
Branches of foreign banks	1	1	.	.

¹ Current accounts in local currency. ² The data covers the 12 largest banks (includes more than 99% of the banking system): (a) demand deposits; (b) overdraft accounts.

Table 6
Cash dispensers, ATMs and EFTPOS terminals

	1993	1994	1995	1996	1997	1998
Cash dispensers and ATMs:						
<i>number of networks</i>	1	1	1	1	1	1
<i>number of terminals</i>	785	909	987	1,056	1,131	1,241
<i>volume of transactions (thousands)¹</i>	58,739	73,557	82,680	89,275	99,439	105,471
<i>value of transactions (millions of ILS, Dec 1998 prices)</i>	13,368	17,013	18,837	20,483	23,405	26,182
EFTPOS:						
<i>number of networks</i>	1	1	1	1	1	1
<i>number of terminals</i>	10,800	15,500	20,500	25,600	30,200	35,275
<i>volume of transactions (thousands)²</i>	87,000	115,000	144,000	177,000	209,000	240,000
<i>value of transactions (millions of ILS)²</i>	.	.	.	.	.	.

¹ Cash withdrawals. ² Credit card transactions.

Table 7
**Payment instructions handled by selected payment systems:
 volume of transactions**
 (in thousands)

	1993	1994	1995	1996	1997	1998
Paper-based:						
<i>cheques</i>	127,572	150,607	187,966	155,579	151,599	147,919
<i>other debits</i>	27,437	36,588	62,395	80,715	82,032	85,355
Automated (BCC):						
<i>debits</i>	61,884	69,180	76,294	86,417	96,569	104,000
<i>credits</i>	47,736	52,537	56,708	61,813	64,234	62,000
Automated interbank transfers (ABS)	9	5	7	10	9	2

Table 8
**Payment instructions handled by selected payment systems:
 value of transactions**
 (in millions of ILS, December 1998 prices)

	1993	1994	1995	1996	1997	1998
Paper-based:						
<i>cheques</i>	558,343	601,047	758,438	631,456	670,158	627,740
<i>other debits</i>	50,069	49,210	56,466	57,564	73,126	82,687
Automated(BCC):						
<i>debits</i>	37,994	53,817	64,085	72,697	78,630	88,000
<i>credits</i>	142,096	161,992	191,601	223,673	264,706	356,500
Automated interbank transfers (ABS)	4,489,178 ¹	478,493	606,217	1,063,055	742,233	335,490
Interbank payment instructions in USD/ILS at the BOI (estimate in millions of USD)	.	.	.	37,710	20,194	28,295

¹ The large figure stems from extensive new issues for which there were outstanding overbookings. These overbookings require reserves to be deposited at the BOI (for one day).

Table 9
**Transfer instructions handled by TASE settlement systems:
 volume of transactions**
 (in millions)

	1995	1996	1997	1998
Equity transactions	1.7	1.3	1.6	3.6
Bond transactions	0.3	0.3	0.3	0.3

Table 10
**Transfer instructions handled by TASE settlement systems:
 value of transactions¹**
 (in billions of ILS)

	1993	1994	1995	1996	1997	1998
Equity transactions	85.80	75.70	27.60	25.80	49.00	57.60
Bond transactions ²	40.50	38.40	62.00	72.10	67.70	107.70

¹ Including transactions outside the exchange. ² Starting in 1996, excluding new issues by the BOI.

Table 11
**Indicators of use of various cashless payment instruments:
 volume of transactions**
 (in thousands)

	1993	1994	1995	1996	1997	1998
Cheques	204,979	238,454	245,922	201,662	197,489	194,581
Payments by debit and credit cards	.	.	.	.	.	.
Credits ¹	122,446	131,936	132,157	216,576	228,428	222,650
Direct debits	76,442	93,180	100,945	93,247	104,255	109,878
Other debits ¹	266,632	323,280	337,913	328,896	345,268	354,196
Total	670,499	786,850	816,937	840,381	875,440	881,305

¹ No breakdown into paper-based and paperless transactions is available.

Table 12
**Indicators of use of various cashless payment instruments:
 value of transactions**
 (in millions of ILS, December 1998 prices)

	1993	1994	1995	1996	1997	1998
Cheques	866,049	942,175	992,979	817,028	787,588	789,907
Payments by debit and credit cards	.	.	.	.	.	.
Credits ¹	3,610,143	2,403,438	2,475,907	5,239,489	5,592,505	6,413,811
Direct debits	111,254	157,518	186,042	173,959	193,700	208,281
Other debits ¹	6,323,014	3,392,701	3,379,612	4,138,132	4,509,966	5,327,380
Total	10,910,460	6,895,832	7,034,540	10,368,608	11,083,759	12,739,379

¹ No breakdown into paper-based and paperless transactions is available.

Table 13
Participation in S.W.I.F.T. by domestic institutions
 (live institutions)

	1993	1994	1995	1996	1997	1998
Total domestic S.W.I.F.T. users	14	14	17	17	18	18
<i>of which:</i>						
members	11	11	14	14	15	15
submembers	3	3	3	3	3	3
participants	0	0	0	0	0	0
<i>Memorandum items:</i>						
Total S.W.I.F.T.:						
members	2,244	2,551	2,693	2,874	2,969	2,635
submembers	1,887	2,097	2,259	2,404	2,590	2,729
participants	125	218	277	354	606	1,259
users	4,256	4,866	5,229	5,632	6,165	6,623

Table 14
S.W.I.F.T. message flows to/from domestic users¹

	1993	1994	1995	1996	1997	1998
Total messages sent	2,163,030	2,319,176	2,629,393	2,830,154	2,956,406	3,282,139
<i>of which:</i>						
category I ²	847,232	940,110	1,048,235	1,129,403	1,179,891	1,285,656
category II ³	621,166	655,883	725,936	789,648	813,821	868,391
Total messages received	1,844,812	1,948,208	2,243,812	2,437,867	2,452,332	2,864,743
<i>of which:</i>						
category I ²	730,799	794,340	895,686	941,585	959,543	1,017,917
category II ³	83,595	69,003	88,056	108,691	89,668	113,078
Domestic traffic	298,251	277,451	343,806	390,746	311,445	353,726
<i>Memorandum item:</i>						
Global S.W.I.F.T. traffic	457,218,200	218,097,873	603,575,374	705,680,417	812,117,556	937,039,995

¹ The BOI and commercial banks. ² Customer transfers. ³ Banks' transfers.

Comparative tables

Table 1
Notes and coin in circulation¹

	1994	1995	1996	1997	1998
	USD per inhabitant²				
Israel	391	467	493	496	474
Belgium	1,229	1,391	1,340	1,174	1,244
Canada	647	677	687	688	681
France	807	891	841	742	800
Germany	1,790	2,025	1,936	1,679	1,682
Italy	1,032	1,082	1,138	1,062	1,210
Japan	3,393	3,578	3,363	3,217	3,727
Netherlands	1,424	1,537	1,411	1,227	1,283
Sweden	1,120	1,312	1,327	1,183	1,207
Switzerland	2,985	3,394	3,127	2,828	3,117
United Kingdom	504	528	606	627	655
United States	1,385	1,442	1,506	1,616	1,737
	As percentage of GDP				
Israel	2.9	3.0	3.0	3.0	3.2
Belgium	5.2	5.3	5.2	5.1	4.8
Canada	3.4	3.4	3.4	3.4	3.5
France	3.4	3.3	3.3	3.2	3.1
Germany	6.8	6.9	7.0	6.8	6.4
Italy	5.8	5.5	5.3	5.5	5.6
Japan	8.8	9.6	9.8	10.4	11.0
Netherlands	na	5.7	5.5	5.2	4.9
Sweden	5.0	4.7	4.8	4.7	4.6
Switzerland	7.8	7.7	8.0	7.8	7.9
United Kingdom	2.8	2.8	2.8	2.9	2.8
United States	5.1	5.1	5.1	5.2	5.4
	As percentage of narrow money³				
Israel	44.2	46.5	45	46.3	46.9
Belgium	27.1	27.2	27.5	26.5	23.8
Canada	17.7	16.8	15.3	14.7	15.2
France	15.1	14.2	14.2	13.5	13.2
Germany	29.6	29.1	26.9	26.3	23.3
Italy	16.0	16.3	16.1	16.1	16.1
Japan	27.9	26.9	26.1	25.8	25.3
Netherlands	25.0	22.1	19.7	18.5	14.9
Sweden	10.7	10.5	9.9	10.0	10.2
Switzerland	19.7	18.0	17.3	15.6	15.5
United Kingdom	4.6	4.6	4.5	4.6	4.5
United States	30.7	32.9	36.2	39.4	42.1

¹ For explanation of figures see relevant country tables. ² Year-end figures converted at end-of-year exchange rates. ³ Narrow money: M1; except for Canada, Sweden (M3) and the United Kingdom (M2).

Table 2
Transferable deposits held by non-banks^{1,2}

	1994	1995	1996	1997	1998
USD per inhabitant					
Israel	553	586	669	652	611
Belgium	3,307	3,715	3,536	3,261	3,984
Canada	3,001	3,362	3,808	3,976	3,803
France	4,543	5,381	5,082	4,761	5,393
Germany	4,287	4,953	5,309	4,697	5,551
Italy	5,236	5,399	5,784	5,386	6,199
Japan	8,758	9,697	9,526	9,245	10,987
Netherlands	4,265	5,421	5,763	5,397	7,370
Sweden	9,811	11,351	11,991	10,476	10,570
Switzerland	6,799	8,359	8,282	8,673	9,824
United Kingdom	10,493	11,073	12,797	12,895	13,842
United States	3,103	2,917	2,631	2,466	2,379
As percentage of GDP					
Israel	4.1	3.9	4.1	4.0	4.1
Belgium	14.0	14.0	13.8	14.1	15.5
Canada	16.0	17.0	19.0	20.0	20.0
France	19.2	20.1	19.8	20.6	20.8
Germany	16.3	16.8	19.1	19.1	21.2
Italy	29.5	27.4	26.8	27.6	28.7
Japan	22.8	25.9	27.8	29.8	32.3
Netherlands	na	20.2	22.5	23.1	27.9
Sweden	42.4	40.6	44.3	42.0	40.4
Switzerland	17.7	18.9	21.3	23.8	25.0
United Kingdom	58.6	59.5	59.8	58.8	59.6
United States	11.5	10.4	8.9	8.0	7.3
As percentage of narrow money³					
Israel	62.6	60.5	61.7	60.8	60.4
Belgium	72.9	72.8	72.5	73.5	76.2
Canada	82.0	83.0	85.0	85.0	85.0
France	84.9	85.8	85.8	86.5	89.3
Germany	70.8	71.2	73.8	73.7	76.8
Italy	81.4	81.1	81.8	81.8	82.4
Japan	72.1	73.1	73.9	74.2	74.7
Netherlands	75.0	77.9	80.3	81.5	85.3
Sweden	90.3	90.6	91.1	88.7	89.6
Switzerland	44.9	44.2	45.8	47.9	48.9
United Kingdom	95.4	95.4	95.5	95.4	95.5
United States	68.9	66.6	63.2	60.2	57.7

¹ For explanation of figures and definition of transferable deposits, see relevant country tables. ² Year-end figures converted at end-of-year exchange rates. ³ Narrow money: M1; except for Canada, Sweden (M3) and the United Kingdom (M2).

Table 3
Settlement media used by banks¹
 (1998)

	Banks' reserves at central bank (billions of USD)²	Banks' reserves at central bank in percentage of narrow money³	Transferable deposits at other banks (billions of USD)²	Transferable deposits at other banks in percentage of narrow money²
Israel	1.1	1.85	na	na
Belgium	0.982	1.84	5.36	10.06
Canada	0.4	0.28	2.7	2.0
France	5.6	1.6	na	na
Germany	26.38	4.45	268.64	45.35
Italy	11.6	2.7	63.9	14.7
Japan	33.2	1.8	54.5 ⁴	3.7 ⁵
Netherlands	18.947	13.97	na	na
Sweden	0.21	0.20	14.04	13.5
Switzerland	4.8	3.4	48.3	33.7
United Kingdom	2.7	0.3	387.4	45.1
United States	26.3	2.4	38.5	3.5

¹ For explanation of figures see relevant country tables. ² Year-end figures converted at end-of-year exchange rates. ³ Narrow money: M1; except for Canada, Sweden (M3) and the United Kingdom (M2). ⁴ End-March figure converted at end-March exchange rate. ⁵ End-March figure.

Table 4
Institutional framework¹
 (1998)

	Number of institutions	Number of inhabitants per institution	Number of branches	Number of inhabitants per branch	Number of accounts per inhabitant
Israel	35	232,323 ²	1,816 ²	3,327 ²	1.07
Belgium	122	83,623	8,575	1,191	1.39
Canada ³	2,265	13,413	13,562	2,240	na
France	510	115,490	46,765	1,259	1.1
Germany	3,234	25,355.6	60,120	1,364 ⁴	1.0
Italy	923	62,405	40,313	1,429	0.49 ⁵
Japan	3,593	35,205	68,334	1,851	na
Netherlands	120	130,783	6,862	2,287	1.3
Sweden	122	72,557	3,683	2,403	na
Switzerland	311	20,890	6,757	1,054	na
United Kingdom	537	110,242	34,698	1,706	2.5
United States ⁶	21,680	12,468	76,986	3,511	.

¹ For explanation of figures see relevant country tables. ² Computed only for the commercial banks and the Post Office Bank.
³ Deposit-taking institutions only. ⁴ Including post office branches which are entrusted with the execution of semi-cashless payments for Deutsche Postbank AG. ⁵ Refers to bank accounts only. ⁶ Number of branches does not include head offices of any type of institution or branches of credit unions.

Table 5
Cash dispensers and ATMs¹

	1994	1995	1996	1997	1998
Number of machines per 1,000,000 inhabitants					
Israel	166	176	183	192	205
Belgium	313	360	414	492	562
Canada	581	600	624	651	774
France	356	395	419	461	499
Germany	361	436 ²	459	504	556
Italy	326	378	421	446	482
Japan	978	1,013	1,051	1,115	1,127
Netherlands	324	354	372	409	419
Sweden	259	267	269	268	281
Switzerland	481	532	587	678	722
United Kingdom	342	358	376	393	416
United States	418	466	524	616	692
Number of transactions per inhabitant					
Israel	13.6	14.9	15.7	17.1	17.7
Belgium	13.1	14.3	15.1	15.7	15.6
Canada	41.1	46.3	49.7	53.2	53.0
France	14.2	15.8	18.1	19.9	20.5
Germany	11.5	13.4 ²	15.3	.	17.1
Italy	4.8	5.8	6.4	7.2	8.4
Japan	3.6	3.8	4.1	5.0	5.8
Netherlands	19.4	22.3	23.8	25.3	27.2
Sweden	30.7	31.8	33.6	35.3	37.6
Switzerland	9.1	10.0	10.6	11.4	11.3
United Kingdom	22.9	25.2	27.2	29.6	31.3
United States	31.8	36.9	40.3	41.1	41.4
Average value of transactions (USD)³					
Israel	106.7	97.2	83.6	74.1	65.3
Belgium	126.5	138.1	129.5	114.3	124.0
Canada ⁴	51.2	51.0	52.0	50.6	62.2
France	76.5	81.3	77.5	68.0	70.7
Germany	157.6	196.6 ²	179.0	.	169.5
Italy	191.3	198.3	202.7	184.7	178.9
Japan	419.8	450.6	383.4	288.8	235.0
Netherlands	110.4	124.5	118.4	99.6	95.7
Sweden	104.7	112.6	104.4	104.5	108.4
Switzerland	217.8	246.9	209.5	186.6	180.4
United Kingdom	74.6	77.3	78.1	84.5	87.8
United States	67.2	67.7	68.0	67.7	68.0

¹ For explanation of figures see relevant country tables. ² Increase partly due to new data source. ³ Converted at yearly average exchange rates. ⁴ Average value of a cash withdrawal only.

Table 6
EFTPOS terminals¹

	1994	1995	1996	1997	1998
Number of terminals per 1,000,000 inhabitants					
Israel	2,883	3,652	4,446	5,118	5,839
Belgium	6,294	7,174	7,997	8,421	9,124
Canada	4,109	6,448	8,499	10,977	12,960
France	7,574	9,394	9,333	9,540	9,949
Germany ²	767	856	1,402	1,983	2,816
Italy	1,819	2,683	3,734	4,887	5,977
Japan	227	200	183	155	127
Netherlands	3,085	4,736	6,170	7,692	8,569
Sweden	5,514	6,160	6,946	7,774	8,405
Switzerland	2,379	3,499	4,747	5,803	7,167
United Kingdom	5,993	8,647	9,354	8,983	10,304
United States	1,320	2,009	3,296	4,853	6,289
Number of transactions per inhabitant					
Israel	21.0	25.6	30.7	35.4	40.0
Belgium	18.0	20.8	23.9	27.2	32.7
Canada	6.4	13.4	22.7	34.5	44.6
France	26.1	32.3	32.4	32.7	36.8
Germany ²	1.28	1.83	2.61	2.75	4.43
Italy	1.56	2.12	2.94	4.41	5.62
Japan	0.006	0.007	0.004	0.004	0.004
Netherlands	9.3	16.5	23.8	31.0	37.9
Sweden	8.8	10.4	12.6	15.9	19.0
Switzerland	5.7	8.0	10.8	13.6	14.9
United Kingdom	na	na	na	na	na
United States	4.2	6.1	9.3	14.6	21.2
Average value of transactions (USD)³					
Israel	na	na	na	na	na
Belgium	71.2	77.6	72.6	63.3	66.2
Canada	37.2	34.8	32.7	30.8	29.1
France	57.6	63.3	60.4	51.2	54.2
Germany ²	64.0	95.7	98.2	71.7	88.5
Italy	119.8	118.6	118.2	106.8	101.9
Japan	80.2	.	32.4	56.6	62.4
Netherlands	55.0	59.1	56.5	48.0	48.2
Sweden	80.8	80.7	80.7	78.0	68.0
Switzerland	73.8	96.4	96.3	73.5	63.6
United Kingdom	na	na	na	na	na
United States	30.6	37.0	40.4	41.5	41.6

¹ For explanation of figures see relevant country tables. ² In 1997 electronic cash only. ³ Converted at yearly average exchange rates.

Table 7
Number of cards¹
 (1998, per 1,000 inhabitants)

	Cards with a cash function	Cards with a debit/credit function	Cards with a cheque guarantee function	Retailer cards
Israel	na	na	na	na
Belgium	1,178	1,178	465	153
Canada	1,863	2,380	.	na
France	575	514	na	na
Germany	na	1,114	535	61
Italy	312	471	8	.
Japan	2,319	2,030	.	504
Netherlands	1,476	261	45	na
Sweden	785	776	na	na
Switzerland	997	1,060	668	na
United Kingdom	1,792	1,421	927	314
United States	2,628	2,767	.	2,284

¹ For explanation of figures, see relevant country tables.

Table 8
Relative importance of cashless payment instruments¹
 (percentage of total volume of cashless transactions)

	1994	1995	1996	1997	1998
	Cheques				
Israel	30.3	30.1	23.9	22.5	22.1
Belgium	11.7	10.6	9.4	8.0	7.0
Canada	58.7	52.1	45.4	39.4	34.6
France	47.4	45.6	43.6	43.0	40.7
Germany	7.9	7.0	6.4	5.7	4.8
Italy ²	34.9	33.7	31.4	28.8	27.2
Japan	na	na	na	na	na
Netherlands	8.5	5.8	4.1	2.9	1.9
Sweden ³	.	.	.	2.0	0.3
Switzerland ⁴	2.6	2.0	1.6	1.3	1.0
United Kingdom ⁵	40.2	36.7	33.1	30.5	28.1
United States	77.6	75.9	74.1	72.2	70.0
	Payments by card				
Israel	na	na	na	na	na
Belgium	18.0	19.7	21.4	23.4	27.4
Canada ¹	28.1	33.3	38.8	44.5	48.4
France	16.2	17.6	18.3	16.9	18.2
Germany	3.1	3.6	4.2	4.1	5.1
Italy ²	5.2	6.6	8.6	11.2	14.2
Japan	na	na	na	na	na
Netherlands	6.1	13.4	17.8	21.6	24.5
Sweden ³	11.6	14.2	14.8	18.9	22.3
Switzerland	16.2	18.4	20.7	22.8	23.4
United Kingdom	23.3	25.9	28.9	31.1	33.1
United States	18.6	19.9	21.3	22.7	24.3

¹ For explanation of figures see relevant country tables. In some cases the total may not sum to 100% because of other items. ² The figures for the years 1994-95 differ from those provided in the statistical annex of the Italian chapter as they are estimated for the whole system. ³ Statistics on the volume and value of cheque payments are not available from 1993 onwards. The percentage figures for these years therefore do not include cheques. ⁴ Postal cheques are not included because detailed figures are not published by the Postfinance. ⁵ Includes Town cheques.

Table 8 (cont)

	1994	1995	1996	1997	1998
	Credit transfers				
Israel	16.8	16.6	25.7	26.1	25.2
Belgium	60.9	60.2	59.5	58.0	54.0
Canada	7.1	8.2	8.9	8.9	9.5
France	15.7	15.6	15.7	16.3	16.4
Germany	48.7	48.8	49.2	48.2	50.6
Italy ²	45.9	45.0	41.7	40.8	39.0
Japan	na	na	na	na	na
Netherlands	59.8	52.7	49.8	47.3	45.0
Sweden	82.3	79.4	78.5	72.1	69.3
Switzerland ⁶	78.1	76.3	74.4	72.3	72.1
United Kingdom ⁷	20.1	19.7	19.9	19.6	19.3
United States	2.5	2.7	3.0	3.3	3.7
	Direct debits				
Israel	11.8	12.5	11.7	11.9	12.5
Belgium	9.4	9.5	9.7	9.8	9.4
Canada	6.1	6.4	6.8	7.2	7.4
France	11.2	11.3	11.8	12.5	13.3
Germany	40.3	40.6	40.2	42.0	39.5
Italy ²	4.7	5.4	7.3	8.5	9.2
Japan	na	na	na	na	na
Netherlands	25.6	28.1	28.3	28.3	28.5
Sweden	6.1	6.4	6.7	7.1	8.1
Switzerland ⁸	3.1	3.3	3.3	3.6	3.5
United Kingdom	16.5	17.7	18.1	18.7	19.4
United States	1.3	1.5	1.7	1.8	2.0

⁶ All transfers at Postfinance included. ⁷ Paper-based and paperless (includes large-value: CHAPS). ⁸ Without Postfinance direct debits. See footnote 4.

Table 9
Relative importance of cashless payment instruments¹
 (percentage of total value of cashless transactions)

	1994	1995	1996	1997	1998
	Cheques				
Israel	13.7	14.1	7.9	7.1	6.2
Belgium	3.8	3.3	3.0	2.9	3.2
Canada	98.8	98.2	97.3	97.0	96.5
France	4.4	4.7	4.8	4.4	2.6
Germany	2.3	2.1	1.8	1.6	1.4
Italy ²	4.5	4.5	3.7	3.3	2.8
Japan	na	na	na	na	na
Netherlands	0.1	0.1	0.0	0.0	0.0
Sweden	.	.	.	.	0.1
Switzerland ³	0.1	0.1	0.1	neg	neg
United Kingdom ⁴	7.6	5.3	4.9	4.2	3.7
United States	12.1	11.9	11.2	10.5	10.2
	Payment by cards				
Israel	na	na	na	na	na
Belgium	0.1	0.1	0.2	0.2	0.2
Canada	0.3	0.4	0.7	0.7	0.8
France	0.2	0.2	0.2	0.2	0.1
Germany	0.02	0.03	0.04	0.03	0.04
Italy ²	0.04	0.05	0.05	0.06	0.07
Japan	na	na	na	na	na
Netherlands	0.1	0.1	0.1	0.1	0.1
Sweden	1.0	1.4	1.5	1.7	1.7
Switzerland	neg	neg	neg	0.1	0.1
United Kingdom	0.2	0.2	0.3	0.3	0.3
United States	0.1	0.2	0.2	0.2	0.2

¹ For explanation of figures see relevant country tables. In some cases the total may not sum to 100% because of other items. ² The figures for the years 1994-95 differ from those provided in the statistical annex of the Italian chapter as they are estimated for the whole system. ³ Postal cheques are not included because detailed figures are not published by the Postfinance. ⁴ Includes Town cheques.

Table 9 (cont)

	1994	1995	1996	1997	1998
	Credit transfers				
Israel	34.8	35.2	50.5	50.4	50.3
Belgium	95.8	96.3	96.6	96.7	96.3
Canada	0.7	1.0	1.5	1.8	2.1
France	93.5	93.0	92.7	93.4	96.0
Germany	95.7	95.8	95.7	95.9	95.8
Italy ²	94.2	94.1	95.0	95.4	95.7
Japan	na	na	na	na	na
Netherlands	98.8	98.9	99.0	99.1	99.2
Sweden	96.2	95.7	95.6	95.8	96.5
Switzerland ⁵	99.8	99.8	99.8	99.8	99.8
United Kingdom ⁶	91.2	93.4	93.7	94.6	95.1
United States	86.7	86.9	87.6	88.3	88.5
	Direct debits				
Israel	2.3	2.6	1.7	1.7	1.6
Belgium	0.2	0.3	0.3	0.3	0.3
Canada	0.2	0.3	0.5	0.6	0.7
France	0.8	0.9	1.0	1.0	0.6
Germany	2.0	2.1	2.5	2.5	2.7
Italy ²	0.2	0.2	0.2	0.3	0.3
Japan	na	na	na	na	na
Netherlands	1.1	0.9	0.8	0.7	0.7
Sweden	2.8	2.9	2.9	2.5	2.7
Switzerland ⁷	0.1	0.1	0.1	0.1	0.1
United Kingdom	1.0	1.0	1.1	1.0	1.0
United States	1.0	1.0	1.0	1.0	1.1

⁵ All transfers at Postfinance included. ⁶ Paper-based and paperless (includes large-value: CHAPS). ⁷ Without Postfinance direct debits. See footnote 3.

Table 10a
Features of selected interbank funds transfer systems¹
 (figures relate to 1998)

	Type ²	Owner/ Manager ³	No of participants		Processing ⁴	Settlement ⁵	Member- ship ⁶
				of which direct			
Israel							
BCH	R+L	AS	45	12	M	N	RN
BCC	R+L	B	45	12	ACH	N	RN
ABS ⁷	L	B	25	25	N	N	RN
USD/ILS	L	CB	25	25	RTT	GS	RN
Belgium							
ELLIPS	L	B + CB	103	20	RTT	RTGS	RM
Clearing House	L + R	B + CB	103	23	M	N	O
CEC	R	B + CB	105	23	ACH	N	O
Canada							
IIPS	L	B + AS	63	19	.	. ⁸	RM
France							
SAGITTAIRE	L	CB	57	57	RTT	N	RM
CH Paris ⁹	L + R	AS	388	30	M	N	RM
CH Provinces ¹⁰	R	CB	380 ¹¹	208 ¹¹	M	N	O
SIT	R	CB + B/AS	311	22	RTT	N	RM
CREIC	R	CB	16	16	ACH	N	O
Card payments	R	B/AS	209	11	RTT	N	RM
TBF	L	CB	216	216	RTT	RTGS	O
SNP	L	B	26	10	RTT	N/BN	RM
Germany							
MAOBE ¹²	R	CB	5,202	5,202	ACH	GS	O
EMZ (former DTA) ¹²	R	CB	5,202	5,202	ACH	GS	O
ELS (former EIL-ZV)	L	CB	2,773	2,773	RTT	RTGS	O
Konventionelle Abrechnung	L + R	CB	38	38	M	GS	O
EAF (former EAF 2)	L	CB	66	66	RTT	N	RM
Italy							
Local clearing	R	CB	na	130	RTT ¹³	N	O
Retail	R	CB ¹⁴	952	213	ACH	N	O
BI-REL ¹⁵	L	CB	769	769	RTT	RTGS	O

¹ For additional information see relevant country chapters. ² L = large-value system, R = retail system. ³ Owner/Manager: B = banks, CB = central banks, AS = payment association. ⁴ Processing method: M = manual, ACH = automated clearing house (offline), RTT = real-time transmission. ⁵ N = multilateral netting, BN = bilateral netting, RTGS = real-time gross settlement, GS = other gross settlement. ⁶ O = open membership (any bank can apply) or RM = restricted membership (subject to criteria). ⁷ Geographical access to the system: C = centralised (one processing centre only) or D = decentralised. ⁸ Other (see Table 11, footnote 7). ⁹ Clearing house in Paris. ¹⁰ Clearing houses in the provinces. ¹¹ All institutions on which cheques are drawn or at which bills of exchange are payable are bound by regulations to participate in the local clearing houses, through an agent in certain cases. ¹² Number of accounts. ¹³ Transactions can also be submitted on floppy disk. ¹⁴ System managed by the Interbank Society for Automation in the name and on behalf of the Bank of Italy. ¹⁵ In 1998, BI-REL replaced Electronic Memoranda and Ingresso (SIPS). The number and the value of transactions include those related to Electronic Memoranda and Ingresso as long as they were in operation.

Table 10a (cont)

	Degree of centralisation ⁷	Pricing ¹⁶	Closing time for same day transactions ¹⁷	Number of transactions (thousands)	Value of transactions (billions of USD) ¹⁸	Ratio of transactions value to GDP (at annual rate)
Israel						
BCH	C	N	15:00	233,274	186	191
BCC	C	F	15:00	206,000	117	1.19
ABS	C	N	15:00	2	88.1	0.20
USD/ILS	C	N	15:00	na	28.3	0.07
Belgium						
ELLIPS	C	F	16:45	1,005	10,906	41.6
Clearing House	D	V	15:00	5,750	139	0.5
CEC	C	F	15:00	929,100	563	2.1
Canada						
IIPS	D	N	16:30	3,200	18,205	30.1
France						
SAGITTAIRE	C	F	13:00	1,320	5,259	3.45
CH Paris ⁹	C	F	15:00	683,890	1,152	0.76
CH Provinces ¹⁰	C	N	11:00	2,915,415	1,296	0.85
SIT	C	F	13:30	5,410,473	2,606	1.71
CREIC	C	F	NO	296,671	29	0.02
Card payments ¹⁹	C	F	13:30	.	.	.
TBF	C	F	18:15	569	48,986	32.03
SNP	C	F	16:00	5,529	42,358	27.70
Germany						
MAOBE	D	V	NO	11,100	84	0.04
EMZ (former DTA)	C	V	NO	2,239,000	2,437	1.13
ELS (former EIL-ZV)	C	F	15:00	13,500	22,379	10.41
Konventionelle Abrechnung	D	F	13:00	100	49	0.02
EAF (former EAF 2)	C	F	12:30	22,500	107,012	49.77
Italy						
Local clearing	D	V	12:30	182,660	1,101	0.9
Retail	C	F	NO ²⁰	825,518	1,254	1.1
BI-REL ¹⁵	C	V	16:20	11,460	47,444	40.0

¹⁶ Prices charged to participants: F = full costs (including investments), V = variable costs, S = symbolic costs (below variable costs), N = no costs. ¹⁷ Closing time for same day transactions (NO = no same day transactions). ¹⁸ Converted at yearly average exchange rates. ¹⁹ These data are included in the SIT data. ²⁰ Except for the credit transfers entered before 12:00, which are settled on the same day.

Table 10b
Features of selected interbank funds transfer systems¹
 (figures relate to 1998)

	Type ²	Owner/ Manager ³	No of participants		Processing ⁴	Settlement ⁵	Member- ship ⁶
				of which direct			
Japan							
FEYCS	L	B	264	50	RTT	N/RTGS	RM
BOJ-NET	L	CB	429	429	RTT	RTGS ⁷	RM
Netherlands							
Interpay	R	B	72	72	ACH	N	O
TOP ⁸	L	CB	124	124	RTT	RTGS	O
Sweden							
RIX	L	CB	23	23	RTT	RTGS	RM
Bank Giro System	R	B	19	19	ACH	N	O
Switzerland							
SIC	L + R	CB + B	288	288	RTT	RTGS	RM
DTA/LSV	R	B	164	164	ACH	GS	RM
United Kingdom							
CHAPS	L	B	.	17	RTGS	N	RM
BACS	R	B	40,000 ⁹	16	ACH	N	RM
Cheque/credit	R	B	444	13	M	N	RM
United States							
Fedwire ¹⁰	L	CB	10,024	10,024	RTT	RTGS	O
CHIPS	L	B	85	85	RTT	N	RM

¹ For additional information see relevant country chapters. ² L = large-value system, R = retail system. ³ Owner/Manager: B = banks, CB = central banks. ⁴ Processing method: M = manual, ACH = automated clearing house (offline), RTT = real-time transmission. ⁵ N = multilateral netting, BN = bilateral netting, RTGS = real-time gross settlement, GS = other gross settlement. ⁶ O = open membership (any bank can apply) or RM = restricted membership (subject to criteria). ⁷ The system has been designed to allow participants to enter funds transfer instructions continuously, in which case settlement takes place on the central bank's books immediately. It is, however, also used to settle on a net basis. ⁸ Merger of 8007 S.W.I.F.T. and the Central Bank FA System. ⁹ Estimated. ¹⁰ Fedwire participants as of 15 March 1999.

Table 10b (cont)

	Degree of centralisation ¹¹	Pricing ¹²	Closing time for same day transactions ¹³	Number of transactions (thousands)	Value of transactions (billions of USD)	Ratio of transactions value to GDP (at annual rate)
Japan						
FEYCS	D	V ¹⁴	13:45	11,155	81,628	16.5
BOJ-NET	D	V ¹⁴	17:00	5,307	329,235	66.5
Netherlands						
Interpay	C	F	11:30	2,012,300	1,376	3.5
TOP ⁸	C	F	18:00	3,548	17,386	44.1
Sweden						
RIX	C	F	17:00	313	11,531	49.0
Bank Giro System	C	F	NO	315,000	366	1.6
Switzerland						
SIC	C	F	16:15	134,400	31,993	121.9
DTA/LSV	C	F	NO	98,840	237	0.9
United Kingdom¹⁵						
CHAPS	D	F	16:00	18,012	68,779	50.2
BACS	C	F	NO	2,905,012	2,655	1.9
Cheque/credit	D	F	NO	2,184,795	2,375	1.7 ¹⁶
United States						
Fedwire	C	F	18:30	98,100	328,749	37.5
CHIPS	C	F	16:30	59,100	350,372	40.0

¹¹ Geographical access to the system: C = centralised (one processing centre only) or D = decentralised. ¹² Prices charged to participants: F = full costs (including investments), V = variable costs, S = symbolic costs (below variable costs), N = no costs. ¹³ Closing time for same day transactions (NO = no same day transactions). ¹⁴ Prices are set on the principle that institutions which are to benefit from online processing should pay the relevant charges. ¹⁵ Interbank figures only. ¹⁶ Excludes Northern Ireland.

Table 11
Operating hours of selected large-value interbank funds transfer systems¹
(as of December 1998)

System	Gross (G) or net (N)	Opening- closing time for same day value (local time)	Settlement finality (local time)	Cutoff for all third-party payment orders	Cutoff for international correspondents' payment orders	Memo item: Standard money market hours ² (local time)
Israel						
ABS	G	8:00-15:00	15:00	–	–	15:00
USD/ILS	G	8:00-15:00	15:00	–	–	15:00
Belgium						
ELLIPS	G	6:30-16:45	.	16:30	15:00	(9:00-16:15)
CEC	N	15:01-15:00 ³	15:15	15:00	15:00 ⁴	
Clearing House	N	8:00-15:00	15:00	.	. ⁴	
Canada⁵						
IIPS	N ⁶	8:00-16:30	11:00 ⁷	16:30 ⁸	16:30 ⁸	
France						
SAGITTAIRE	N	8:00-13:00 ⁹	18:30	na	8:00 ¹⁰	(8:15-17:00)
TBF ¹¹	G	7:30-18:15	7:30-18:15	18:15	18:15	
SNP	N	7:30-16:00	16:15	15:45	15:45	
Germany						
ELS	G	8:00-15:00	8:00-15:00	(12)	8:00 ¹⁰	(9:30-13:00 ¹³)
EAF ¹⁴	G/N	8:00-12:30	14:30 ¹⁵	(12)	8:00 ¹⁰	(9:30-13:00 ¹³)
Italy						
BI-REL ¹⁶	G	8:00-16:20	8:00-16:20	15:50	9:00 ¹⁰	(8:30-16:30)
Japan						
FEYCS	G/N	9:00-13:45	15:00	10:30 ¹⁰	10:30 ¹⁰	(9:00-17:00)
BOJ-NET	G ¹⁷	9:00-17:00	9:00-17:00	14:00	na	
Netherlands						
TOP ¹⁸	G	7:00-18:00 ¹⁹	7:00-18:00	17:00 ^{10,20}	17:00 ^{10,20}	(7:00-18:30)
Sweden						
RIX	G	8:00-17:00	8:00-17:00	(21)	8:00 ¹⁰	(9:00-16:15)
Switzerland						
SIC	G	18:00-16:15 ²²	18:00-16:15 ²²	15:00 ²¹	8:00 ⁴	(9:00-16:00)
United Kingdom						
CHAPS	G ²³	8:30-16:00	end of day	none	12:00	(7:30-15:30 ²⁴)
United States						
Fedwire	G	00:30-18:30 ²⁵	00:30-18:30	18:00	17:00	(8:30-18:30 ²⁶)
CHIPS	N	00:30-16:30	18:00 ²⁷	16:30	16:30	
ECU clearing system	N	14:01-14:00 ²⁸	15:45	none	None	(TOM/NEXT ²⁹)

Footnotes to Table 11

- ¹ Some systems make no explicit distinction between large-value and retail transactions and may be used to settle interbank transfers relating to a variety of underlying transactions. Some systems may also accept payment orders for a number of value days.
- ² Money market hours indicated refer to the time period in which domestic interbank transactions are normally carried out. They therefore do not relate to particular interbank funds transfer systems.
- ³ The CEC transfer system operates round the clock, five days a week.
- ⁴ S.W.I.F.T. guideline.
- ⁵ Eastern time.
- ⁶ Settlement typically takes place on the basis of bilateral net positions. The net receiving bank in each pair creates a paper document called an inter-member debit voucher and delivers it to the net sending bank as part of the exchanges covered by the Automated Clearing and Settlement System (ACSS) operated by the Canadian Payments Association. Settlement may also take place on a gross basis or on an item by item basis, in each case over the ACSS.
- ⁷ Net settlement at 11:00 the next day (retroactively).
- ⁸ Local time at the receiving IIPS point, or the beneficiary account point, whichever is earlier.
- ⁹ SAGITTAIRE'S exchange day, ie the period during which orders are recorded by the Bank of France, begins at 08:00 and ends at 17:30. Orders sent after 17:30 are stored by S.W.I.F.T. and processed at the start of the next exchange day. SAGITTAIRE'S accounting day starts at 13:00 on D-1 and ends at 13:00 on D (transfers sent after 13:00 on D, regardless of whether they are processed during the same exchange day or at the start of the following exchange day, are only entered in the accounts on D+1). The net positions of members are drawn up after the close of the accounting day.
- ¹⁰ S.W.I.F.T. guideline; in practice it may be later.
- ¹¹ The TBF became operational on 27 October 1997.
- ¹² This is subject to arrangements between the correspondent banks.
- ¹³ For settlement purposes it can be later.
- ¹⁴ Electronic netting system in Frankfurt for interbank transfers predominantly relating to international DEM transactions.
- ¹⁵ Planned time for communication of completion (positive message) or non-completion (negative message) of settlement.
- ¹⁶ In 1998 BI-REL replaced Electronic Memoranda and Ingresso (SIPS).
- ¹⁷ The system has been designed to allow participants to enter funds transfer instructions continuously, in which case settlement takes place on the central bank's books immediately. BOJ-NET, however, is also used to settle on a net basis.
- ¹⁸ Merger of 8007 S.W.I.F.T. and the Central Bank FA System.
- ¹⁹ The 8007 S.W.I.F.T. system is, for a given value day, also open on the previous business day.
- ²⁰ Interbank NLG transfers relating to international transactions are sent through the 8007 S.W.I.F.T. system which is operated by the Netherlands Bank; net settlement of these transactions takes place over the Central Bank TOP System.
- ²¹ Participants decide among themselves which cutoff times they will use for different types of third-party orders. Large-value payments can be made at any time of day.
- ²² 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).
- ²³ Changed to an RTGS system on 22 April 1996.
- ²⁴ For same day value: there are no standard money market hours but trading typically takes place between about 07:30 and 15:30. The market is most liquid in the morning. The Bank of England intervenes in the market as necessary between 09:45 and 15:30.
- ²⁵ On 8 December 1997, the opening time for Fedwire and CHIPS changed to 00:30.
- ²⁶ Trading occurs among dealers for funds on deposit at Federal Reserve Banks (ie federal funds) as early as 06:30.
- ²⁷ Payments over CHIPS become final on completion of settlement, which normally occurs between 16:30 and 17:00. Rules are designed to ensure that settlement takes place no later than 18:00.
- ²⁸ ECU payment orders can be sent (for up to 28 forward value days) through S.W.I.F.T. 24 hours a day, seven days a week. At 14:00 (GMT +1) on each value day the netting computer calculates participants' net-net positions. Messages arriving after 14:00 are processed automatically for the next value day(s).
- ²⁹ There is no overnight market for ECU interbank loans. Day-to-day interbank ECU transactions are normally carried out in the euromarkets on a TOM/NEXT basis.

Table 12
Features of selected securities systems
 (figures relate to 1998)

	Type ¹	Owner/ Manager ²	No of participants		Settlement of cash leg ³	Delivery ³
				of which direct		
Israel						
TASE	EGO	SE	24	24	N	N
Belgium						
NBB Clearing	G,O	CB	197	197	G	G
CIK	E,O	B	128	128	G	N
Canada						
SSS ⁴	G,E,O	B,SE,O	92	92	N	G/N
DCS ⁵	G	B,SE,O	63	63	N	G
France						
RGV ⁶	B,C,G	O	164	na	RTGS	RT
RELIT	B,G,O,S	O	371	na	N	GS
Germany						
DBC	G,E,O	SE	385	385	N/G	G
Italy						
Securities Settlement Procedures:						
LDT	G,E,O	CB	278	278	N	N
CAT	G	CB	455	455	. ⁷	G
Monte Titoli	E,O	Monte Titoli	426	426	. ⁷	G
Japan						
JGB registration	G	CB	453	453	G/N	G/N
JGB book-entry	G	CB	383	383	G/N	G/N
Netherlands						
NECIGEF	G+E+O	SE	69	69	G	G
CB Clearing Institute ⁸	.	.	.	.	.	.
Sweden						
VPC	G+E+O	B+O	57	57	G/N	G
OM	O	O	40	40	N	N
Switzerland						
SECOM	G,E,O	B	350	350	G	G
United Kingdom						
CGO	G+O	CB/SE	322	322	N	G
CMO	O	CB	84	84	N	G
CREST	E,O	B,SE,O	5,422	5,422	N	G
United States						
Fedwire	G	CB	8,081	8,081	G	G
DTC (SDFS) ⁹	E,O	B,SE,O	545	545	N	G

¹ G = government securities, E = equity, O = other. ² B = banks, CB = central banks, SE = stock exchange, O = other. ³ G = gross, N = net, RTGS = real-time gross settlement. ⁴ The book-based system of the Canadian Depository for Securities Limited (CDS). ⁵ The real-time, online debt clearing service of CDS, which commenced operation during August 1994. ⁶ In the course of 1998, the operations of the Saturne system were transferred to the RGV system. ⁷ Deliveries free of payments. ⁸ The central bank clearing institute stopped its operations in 1998; its activities were taken over by AEX-Clearing Depository/NECIGEF. ⁹ Same day funds settlement.

Table 12 (cont)

	Delivery	Central securities depository	Cash settlement agent	Number of transactions (thousands)	Value of transactions (billions of USD) ¹⁰	Ratio of transactions value to GDP (at annual rate)
Israel						
TASE	T ¹¹	TASE	CB	3,900	39.7	44.4
Belgium						
NBB Clearing	T+2/T+3 ¹²	NBB	NBB	157	3,151.9	12.02
CIK	T+3 ¹³	CIK	NBB	770,000	31.5	0.13
Canada						
SSS ⁴	up to T+3	CDS	B ¹⁴	{21,100 ¹⁵	{37,287 ¹⁵	{61.7
DCS ⁵	up to T+3	CDS	B ¹⁶			
France						
RGV ⁶	T+T100	SICOVAM	CB	440	33,138	21.8
RELIT	T+T30 ¹⁷	SICOVAM	CB	21,216	2,340	1.5
Germany						
DBC	T+0-40	DBC	CD	58,000	14,290	6.64
Italy						
Securities Settlement Procedures:						
LDT	T+2/T+3 T+5 ¹⁸	CAT+ Monte Titoli	CB	40,104 ¹⁹	30,634 ¹⁹	25.8
CAT	T	CAT	. ⁷	715	1,432	1.2
Monte Titoli	T	Monte Titoli	. ⁷	189	58 ²⁰	0.0
Japan						
JGB registration	T+3	CB	CB	1,218.9	31,912	6.4
JGB book-entry	T+3	CB	CB	773.9	32,804	6.6
Netherlands						
NECIGEF	T+3	NECIGEF	CB	2,061	474	1.2
CB Clearing Institute ⁸	.	.	.	.	.	.
Sweden						
VPC	T+2, T+3 ²¹	VPC	CB	5,780	12,313	52.3
OM	T+3		CB	47,895	.	.
Switzerland						
SECOM	T+3	SIS	CB	12,620	2,132	7.62
United Kingdom						
CGO ²²	T,T+1	CB	CB	1,114	54,627	39.9
CMO	T	CB	CB	221	5,496	4.0
CREST	T+5	na	B	35,801	22,214	16.2
United States						
Fedwire	T	CB	CB	14,400	197,800	22.6
DTC (SDFS) ⁹	T+3	DTC	DTC	164,000	77,000	8.8

¹⁰ Converted at yearly average exchange rate. ¹¹ Same day delivery but conditional up to cash clearing. ¹² T+2 for treasury bills; T+3 for bonds. ¹³ The seller retains the responsibility for delivering securities. ¹⁴ A single chartered bank. ¹⁵ Figures are for 12 months, ending on 31 October 1998. ¹⁶ A single chartered bank, though not the same bank as for the SSS. ¹⁷ When processed by the "SLAB" system (special delivery service by bilateral agreement), delivery occurs the same day. ¹⁸ T+2 for government bills; T+3 for government and corporate bonds; T+5 for equities, warrants and convertible bonds. ¹⁹ Bilateral balances. ²⁰ Data only refers to bonds. ²¹ Same day delivery and settlement is also possible under specific conditions. ²² In September 1998 the Bank of England and CRESTco (operators of CREST) announced that responsibility for CGO and CMO would be transferred from the Bank to CRESTco during 1999.

Table 13
S.W.I.F.T. traffic: intra-G10 message flows in 1998
(number of messages, in thousands)

From/To	BE	CA	CH	DE	FR	GB	IT
IL	116	52	219	534	197	654	242
BE	7,000	200	2,056	2,405	2,602	5,927	1,352
CA	225	4,596	495	507	300	1,446	222
CH	1,449	428	8,763	5,245	2,755	5,086	2,331
DE	1,918	385	4,138	7,572	3,011	8,105	3,557
FR	2,316	321	1,975	3,798	18,931	6,506	2,977
GB	3,618	1,405	5,118	9,490	4,967	28,686	5,195
IT	1,364	194	2,180	3,857	2,845	6,116	3,907
JP	543	267	762	1,192	751	4,440	510
NL	2,604	147	1,498	3,398	1,163	4,019	799
SE	363	56	323	1,357	368	2,788	343
US	2,924	3,703	6,496	8,239	4,345	17,754	3,694
Total G10	24,323	11,702	33,802	47,059	42,038	90,872	24,888
Total non-G10	7,294	2,315	10,022	25,040	11,355	33,230	10,052
Total all countries	31,618	14,016	43,825	72,099	53,393	124,102	34,940

From/To	JP	NL	SE	US	Total G10	Non-G10	All countries
IL	96	127	37	2,300	4,574	1,807	6,381
BE	536	2,731	315	3,925	29,049	7,406	36,455
CA	348	139	49	4,898	13,224	2,893	16,117
CH	837	1,254	272	8,051	36,473	9,491	45,963
DE	1,130	2,488	735	8,848	41,887	20,077	61,964
FR	820	1,207	298	6,573	45,724	10,534	56,258
GB	5,469	3,109	1,934	19,264	88,254	28,418	116,672
IT	543	765	224	4,907	26,901	8,446	35,347
JP	4,433	254	103	8,530	21,786	10,261	32,048
NL	312	3,051	243	4,268	21,502	5,366	26,868
SE	129	343	2,398	2,123	10,591	4,037	14,628
US	7,705	3,423	1,436	33,987	93,706	69,289	162,995
Total G10	22,263	18,765	8,008	105,375	429,096	176,219	605,315
Total non-G10	11,950	5,201	3,837	70,307	190,602	141,123	331,725
Total all countries	34,213	23,966	11,845	175,682	619,698	317,342	937,040

Source: S.W.I.F.T.

Standard Red Book terms

Advisory netting	see position netting.
Assured payment system (APS)	an arrangement in an exchange-for-value system under which completion of timely settlement of a payment instruction is supported by an irrevocable and unconditional commitment from a third party (typically a bank, syndicate of banks or clearing house). See exchange-for-value settlement system.
Automated clearing house (ACH)	an electronic clearing system in which payment orders are exchanged among financial institutions, primarily via magnetic media or telecommunication networks, and handled by a data-processing centre. See also clearing.
Automated teller machine (ATM)	electro-mechanical device that permits authorised users, typically using machine-readable plastic cards, to withdraw cash from their accounts and/or access other services, such as balance enquiries, transfer of funds or acceptance of deposits. ATMs may be operated either online with real-time access to an authorisation database or offline.
Bank draft	in Europe, the term generally refers to a draft drawn by a bank on itself. The draft is purchased by the payer and sent to the payee, who presents it to his bank for payment. That bank presents it to the payer's bank for reimbursement. In the United States, the term generally refers to a draft or cheque drawn by a bank on itself or on funds deposited with another bank. In the case of a cashier's cheque, the bank is both the drawer and drawee. In the case of a teller's cheque, one bank is the drawer and a second bank is the drawee. Bank drafts may be written by a bank for its own purposes or may be purchased by a customer and sent to a payee to discharge an obligation. See draft.
Batch	the transmission or processing of a group of payment orders and/or securities transfer instructions as a set at discrete intervals of time.
Beneficial ownership/interest	the entitlement to receive some or all of the benefits of ownership of a security or other financial instrument (eg income, voting rights, power to transfer). Beneficial ownership is usually distinguished from "legal ownership" of a security or financial instrument. See legal ownership.
Bilateral net settlement system	a settlement system in which participants' bilateral net settlement positions are settled between every bilateral combination of participants. See also net credit or debit position.
Bilateral netting	an arrangement between two parties to net their bilateral obligations. The obligations covered by the arrangement may arise from financial contracts, transfers or both. See netting, multilateral netting, net settlement.
Bill of exchange	a written order from one party (the drawer) to another (the drawee) to pay a specified sum on demand or on a specified date to the drawer or to a third party specified by the drawer. Widely used to finance trade and, when discounted with a financial institution, to obtain credit. See also draft.
Book-entry system	an accounting system that permits the transfer of claims (eg securities) without the physical movement of paper documents or certificates. See also dematerialisation, immobilisation.

Bulk transfer system	see retail transfer system.
Call money	a loan contract which is automatically renewed every day unless the lender or the borrower indicates that it wishes the funds to be returned within a short period of time.
Capital risk	see principal risk.
Caps	for risk management purposes, the quantitative limits placed on the positions (debit or credit positions, which may be either net or gross) that participants in a funds or securities transfer system can incur during the business day. Caps may be set by participants on credit extended bilaterally to other participants in a system, eg bilateral credit limits, or by the system operator or by the body governing the transfer system on the aggregate net debit a participant may incur on the system, eg sender net debit limits. Sender net debit limits may be either collateralised or uncollateralised.
Card	see cash card, cheque guarantee card, chip card, credit card, debit card, delayed debit card, prepaid card, retailer's card, travel and entertainment card.
Cash card	card for use only in ATMs or cash dispensers (often, other cards also have a cash function that permits the holder to withdraw cash).
Cash dispenser	electro-mechanical device that permits consumers, typically using machine-readable plastic cards, to withdraw banknotes (currency) and, in some cases, coins. See also automated teller machine (ATM).
Cashier's cheque	see bank draft.
Central bank credit (liquidity) facility	a standing credit facility that can be drawn upon by certain designated account holders (eg banks) at the central bank. In some cases, the facility can be used automatically at the initiative of the account holder, while in other cases the central bank may retain some degree of discretion. The loans typically take the form either of advances or overdrafts on an account holder's current account which may be secured by a pledge of securities (also known as lombard loans in some European countries), or of traditional rediscounting of bills.
Central securities depository	a facility for holding securities which enables securities transactions to be processed by book entry. Physical securities may be immobilised by the depository or securities may be dematerialised (ie so that they exist only as electronic records). In addition to safekeeping, a central securities depository may incorporate comparison, clearing and settlement functions.
Certificate	physical document which evidences an ownership claim in, indebtedness of, or other outstanding financial obligations of the issuer.
Chaining	a method used in certain transfer systems (mostly for securities) for processing instructions. It involves the manipulation of the sequence in which transfer instructions are processed to increase the number or value of transfers that may be settled with available funds and/or securities balances (or available credit or securities lending lines).
Charge card	see travel and entertainment card.

Cheque	a written order from one party (the drawer) to another (the drawee, normally a bank) requiring the drawee to pay a specified sum on demand to the drawer or to a third party specified by the drawer. Widely used for settling debts and withdrawing money from banks. See also bill of exchange.
Cheque guarantee card	a card issued as part of a cheque guarantee system. This function may be combined with other functions in the same card, eg those of a cash card or debit card. See also cheque guarantee system.
Cheque guarantee system	a system to guarantee cheques, typically up to a specified amount, that have been validated by the merchant either on the basis of a card issued to the cheque writer or through a central database accessible to merchants. Validated cheques are guaranteed by the issuer of the guarantee card, the drawee bank or the system operator.
Chip card	also known as an IC (integrated circuit) card or smart card. A card containing one or more computer chips or integrated circuits for identification, data storage or special-purpose processing used to validate personal identification numbers (PINs), authorise purchases, verify account balances and store personal records. In some cases, the memory in the card is updated every time the card is used, eg an account balance is updated.
Clearing/Clearance	clearing is the process of transmitting, reconciling and in some cases confirming payment orders or security transfer instructions prior to settlement, possibly including netting of instructions and the establishment of final positions for settlement. In the context of securities markets this process is often referred to as clearance. Sometimes the terms are used (imprecisely) to include settlement.
Clearing house	a central location or central processing mechanism through which financial institutions agree to exchange payment instructions or other financial obligations (eg securities). The institutions settle for items exchanged at a designated time based on the rules and procedures of the clearing house. In some cases, the clearing house may assume significant counterparty, financial or risk management responsibilities for the clearing system. See clearing/clearance, clearing system.
Clearing house funds	term most commonly used in certain US markets to refer to funds that typically are provisional on the day of receipt and final on the following day. More specifically, the term is used to refer to monetary claims with next-day finality that are exchanged by participants in certain clearing house arrangements in settlement of obligations arising from the clearing process. Such claims are typically transferred via cheques, drafts or other similar payment.
Clearing system	a set of procedures whereby financial institutions present and exchange data and/or documents relating to funds or securities transfers to other financial institutions at a single location (clearing house). The procedures often also include a mechanism for the calculation of participants' bilateral and/or multilateral net positions with a view to facilitating the settlement of their obligations on a net or net net basis. See also netting.
Comparison	see matching.

Confirmation	a particular connotation of this widely used term is the process whereby a market participant notifies its counterparties or customers of the details of a trade and, typically, allows them time to affirm or to question the trade.
Correspondent banking	an arrangement under which one bank (correspondent) holds deposits owned by other banks (respondents) and provides payment and other services to those respondent banks. Such arrangements may also be known as agency relationships in some domestic contexts. In international banking, balances held for a foreign respondent bank may be used to settle foreign exchange transactions. Reciprocal correspondent banking relationships may involve the use of so-called nostro and vostro accounts to settle foreign exchange transactions.
Counterparty	the opposite party to a financial transaction, such as a securities trade or swap agreement.
Credit caps	see caps.
Credit card	card indicating that the holder has been granted a line of credit. It enables him to make purchases and/or draw cash up to a prearranged ceiling; the credit granted can be settled in full by the end of a specified period or can be settled in part, with the balance taken as extended credit. Interest is charged on the amount of any extended credit and the holder is sometimes charged an annual fee.
Credit card company	a company which owns the trademark of a particular credit card, and may also provide a number of marketing, processing or other services to the members using the card services.
Credit risk/exposure	the risk that a counterparty will not settle an obligation for full value, either when due or at any time thereafter. In exchange-for-value systems, the risk is generally defined to include replacement cost risk and principal risk.
Credit transfer	a payment order or possibly a sequence of payment orders made for the purpose of placing funds at the disposal of the beneficiary. Both the payment instructions and the funds described therein move from the bank of the payer/originator to the bank of the beneficiary, possibly via several other banks as intermediaries and/or more than one credit transfer system.
Credit transfer system (or giro system)	a system through which payment instructions and the funds described therein may be transmitted for the purpose of effecting credit transfers.
Cross-currency settlement risk (or Herstatt risk)	see principal risk.
Custody	the safekeeping and administration of securities and financial instruments on behalf of others.
Daylight credit (or daylight overdraft, daylight exposure, intraday credit)	credit extended for a period of less than one business day; in a credit transfer system with end-of-day final settlement, daylight credit is tacitly extended by a receiving institution if it accepts and acts on a payment order even though it will not receive final funds until the end of the business day.
Debit caps	see caps.
Debit card	card enabling the holder to have his purchases directly charged to funds on his account at a deposit-taking institution (may sometimes be

	combined with another function, eg that of a cash card or cheque guarantee card).
Debit transfer system (or debit collection system)	a funds transfer system in which debit collection orders made or authorised by the payer move from the bank of the payee to the bank of the payer and result in a charge (debit) to the account of the payer; for example, cheque-based systems are typical debit transfer systems.
Default	failure to complete a funds or securities transfer according to its terms for reasons that are not technical or temporary, usually as a result of bankruptcy. Default is usually distinguished from a “failed transaction”.
Delayed debit card	card issued by banks indicating that the holder may charge his account up to an authorised limit. It enables him to make purchases but does not offer extended credit, the full amount of the debt incurred having to be settled at the end of a specified period. The holder is usually charged an annual fee.
Deletion	a mechanism whereby some or all transfers to/from a defaulting participant are excluded from the settlement process. In a netting scheme, other participants’ bilateral and/or multilateral net positions are recalculated. See unwinding.
Delivery	final transfer of a security or financial instrument.
Delivery versus payment system (or DVP, delivery against payment)	a mechanism in an exchange-for-value settlement system that ensures that the final transfer of one asset occurs if and only if the final transfer of (an)other asset(s) occurs. Assets could include monetary assets (such as foreign exchange), securities or other financial instruments. See exchange-for-value settlement system, final transfer.
Dematerialisation	the elimination of physical certificates or documents of title which represent ownership of securities so that securities exist only as accounting records.
Direct debit	a preauthorised debit on the payer’s bank account initiated by the payee.
Direct participant/member	the term generally denotes participants in a funds or securities transfer system that directly exchange transfer orders with other participants in the system. In some systems direct participants also exchange orders on behalf of indirect participants. Depending on the system, direct participants may or may not also be settling participants. In the EC context this term has a specific meaning: it refers to participants in a transfer system which are responsible to the settlement institution (or to all other participants) for the settlement of their own payments, those of their customers and those of indirect participants on whose behalf they are settling. See participant/member, indirect participant/member, settling participant/member.
Discharge	release from a legal obligation imposed by contract or law.
Draft	a written order from one party (the drawer) to another (the drawee) to pay a party identified on the order (payee) or to bearer a specified sum, either on demand (sight draft) or on a specified date (time draft). See cheque, bank draft, bill of exchange.
EFTPOS	see point of sale (POS).
Electronic data interchange (EDI)	the electronic exchange between commercial entities (in some cases also public administrations), in a standard format, of data relating to a number of message categories, such as orders, invoices, customs documents, remittance advices and payments. EDI messages are sent

through public data transmission networks or banking system channels. Any movement of funds initiated by EDI is reflected in payment instructions flowing through the banking system. EDIFACT, a United Nations body, has established standards for electronic data interchange.

Exchange-for-value settlement system	system which involves the exchange of assets, such as money, foreign exchange, securities or other financial instruments, in order to discharge settlement obligations. These systems may use one or more funds transfer systems in order to satisfy the payment obligations that are generated. The links between the exchange of assets and the payment system(s) may be manual or electronic. See delivery versus payment system.
Face-to-face payment	payment carried out by the exchange of instruments between the payer and the payee in the same physical location.
Failed transaction	a transaction (eg a funds or securities transfer) that does not settle on time, usually for technical or temporary reasons.
Final (finality)	irrevocable and unconditional.
Final settlement	settlement which is irrevocable and unconditional.
Final transfer	an irrevocable and unconditional transfer which effects a discharge of the obligation to make the transfer. The terms “delivery” and “payment” are each defined to include a final transfer.
Giro system	see credit transfer system.
Gridlock	a situation that can arise in a funds or securities transfer system in which the failure of some transfer instructions to be executed (because the necessary funds or securities balances are unavailable) prevents a substantial number of other instructions from other participants from being executed. See also failed transaction, queuing, systemic risk.
Gross settlement system	a transfer system in which the settlement of funds or securities transfers occurs individually on an order-by-order basis according to the rules and procedures of the system, ie without netting debits against credits. See real-time gross settlement, net settlement system.
Haircut	the difference between the market value of a security and its collateral value. Haircuts are taken by a lender of funds in order to protect the lender, should the need arise to liquidate the collateral, from losses owing to declines in the market value of the security. See margin.
Herstatt risk	see principal risk.
Home banking	banking services which a retail customer of a financial institution can access using a telephone, television set, terminal or personal computer as a telecommunication link to the institution’s computer centre.
IC card	see chip card.
Immobilisation	Placement of certificated securities and financial instruments in a central securities depository to facilitate book-entry transfers.
Imprinter	mechanical device to reproduce the name and account number of a cardholder on a paper sales slip. See also imprinter voucher.
Imprinter voucher	in card transactions, a sales slip that is to be signed by the customer on which the name and card number of the customer are imprinted. See also imprinter.

Indirect participant/member	refers to a funds or securities transfer system in which there is a tiering arrangement. Indirect participants are distinguished from direct participants by their inability to perform some of the system activities (eg input of transfer orders, settlement) performed by direct participants. Indirect participants, therefore, require the services of direct participants to perform those activities on their behalf. In the EC context the term refers more specifically to participants in a transfer system which are responsible only to their direct participants for settling the payments input to the system. See direct participant/member, settling participant/member, tiering arrangement.
Interbank funds transfer system (IFTS)	a funds transfer system in which most (or all) direct participants are financial institutions, particularly banks and other credit institutions.
Intraday credit	see daylight credit.
Irrevocable and unconditional transfer	a transfer which cannot be revoked by the transferor and is unconditional.
Issuer	the entity which is obligated on a security or other financial instrument. For example, a corporation or government having the authority to issue and sell a security; a bank that approves a letter of credit. Sometimes used to refer to a financial institution that issues credit or debit cards.
Large-value funds transfer system	interbank funds transfer system through which large-value and high-priority funds transfers are made between participants in the system for their own account or on behalf of their customers. Though as a rule no minimum value is set for the payments they carry, the average size of payments through such systems is relatively large. Large-value funds transfer systems are sometimes called wholesale funds transfer systems.
Legal ownership	recognition in law as the owner of a security or other financial instrument.
Letter of credit (L/C)	a promise by a bank or other issuer to a third party to make payment on behalf of a customer in accordance with specified conditions. Frequently used in international trade to make funds available in a foreign location.
Liquidity risk	the risk that a counterparty (or participant in a settlement system) will not settle an obligation for full value when due. Liquidity risk does not imply that a counterparty or participant is insolvent since it may be able to settle the required debit obligations at some unspecified time thereafter.
Loss-sharing rule (or loss-sharing agreement)	an agreement between participants in a transfer system or clearing house arrangement regarding the allocation of any loss arising when one or more participants fail to fulfil their obligation: the arrangement stipulates how the loss will be shared among the parties concerned in the event that the agreement is activated.
Magnetic ink character recognition (MICR)	a technique, using special MICR machine-readable characters, by which documents (ie cheques, credit transfers, direct debits) are read by machines for electronic processing. See optical character recognition (OCR).
Margin	margin has at least two meanings. In the futures/commodity markets, margin is a good faith deposit (of money, securities or other financial instruments) required by the futures clearing system to assure performance. In the equities markets, margin is a sum of money deposited by a customer when borrowing money from a broker to purchase shares. The money deposited with the broker is the difference

between the purchase value of the shares and the collateral value of the shares. See haircut.

Marking to market	the practice of revaluing securities and financial instruments using current market prices. In some cases unsettled contracts to purchase and sell securities are marked to market and the counterparty with an as yet unrealised loss on the contract is required to transfer funds or securities equal to the value of the loss to the other counterparty.
Matching (or comparison checking)	the process used by market participants before settlement of a transaction to ensure that they agree with respect to the terms of the transaction.
Money order	an instrument used to remit money to the named payee, often used by persons who do not have a chequing account relationship with a financial institution, to pay bills or to transfer money to another person or to a company. There are three parties to a money order: the remitter (payer), the payee and the drawee. Drawees are usually financial institutions or post offices. Payees can either cash their money orders or present them to their bank for collection.
Multilateral net settlement position	the sum of the value of all the transfers a participant in a net settlement system has received during a certain period of time less the value of the transfers made by the participant to all other participants. If the sum is positive, the participant is in a multilateral net credit position; if the sum is negative, the participant is in a multilateral net debit position.
Multilateral net settlement system	a settlement system in which each settling participant settles (typically by means of a single payment or receipt) the multilateral net settlement position which results from the transfers made and received by it, for its own account and on behalf of its customers or non-settling participants for which it is acting. See multilateral netting, multilateral net settlement position, settling participant and direct participant.
Multilateral netting	an arrangement among three or more parties to net their obligations. The obligations covered by the arrangement may arise from financial contracts, transfers or both. The multilateral netting of payment obligations normally takes place in the context of a multilateral net settlement system. See bilateral netting, multilateral net settlement position, multilateral net settlement system.
Net credit or debit position	a participant's net credit or net debit position in a netting system is the sum of the value of all the transfers it has received up to a particular point in time less the value of all transfers it has sent. If the difference is positive, the participant is in a net credit position; if the difference is negative, the participant is in a net debit position. The net credit or net debit position at settlement time is called the net settlement position. These net positions may be calculated on a bilateral or multilateral basis.
Net debit cap	see caps, net credit or debit position.
Net settlement	the settlement of a number of obligations or transfers between or among counterparties on a net basis. See netting.
Net settlement system	a system to effect net settlement.

Netting	an agreed offsetting of positions or obligations by trading partners or participants. The netting reduces a large number of individual positions or obligations to a smaller number of obligations or positions. Netting may take several forms which have varying degrees of legal enforceability in the event of default of one of the parties. See also bilateral and multilateral netting, position netting, novation, substitution.
Nominee	a person or entity named by another to act on his behalf.
Novation	satisfaction and discharge of existing contractual obligations by means of their replacement by new obligations (whose effect, for example, is to replace gross with net payment obligations). The parties to the new obligations may be the same as to the existing obligations or, in the context of some clearing house arrangements, there may additionally be substitution of parties. See substitution.
Obligation	a duty imposed by contract or law. It is also used to describe a security or other financial instrument, such as a bond or promissory note, which contains the issuer's undertaking to pay the owner.
Offline	in the context of payment and settlement systems, the term may refer to the transmission of transfer instructions by users, through such means as voice, written or telefaxed instructions, that must subsequently be input into a transfer processing system. The term may also refer to the storage of data by the transfer processing system on media such as magnetic tape or disk such that the user may not have direct and immediate access to the data. See online.
Online	in the context of payment and settlement systems, the term may refer to the transmission of transfer instructions by users, through such electronic means as computer-to-computer interfaces or electronic terminals, that are entered into a transfer processing system by automated means. The term may also refer to the storage of data by the transfer processing system on a computer database such that the user has direct access to the data (frequently real-time) through input/output devices such as terminals. See offline.
Optical character recognition (OCR)	a technique, using special OCR machine-readable characters, by which documents (eg cheques, credit transfers, direct debits) are read by machines for electronic processing. See magnetic ink character recognition (MICR).
Overnight money (or day-to-day money)	a loan with a maturity of one business day.
Paperless credit transfers	credit transfers that do not involve the exchange of paper documents between banks. Other credit transfers are called paper-based.
Participant/Member	a party who participates in a transfer system. This generic term refers to an institution which is identified by a transfer system (eg by a bank identification number) and is allowed to send payment orders directly to the system or which is directly bound by the rules governing the transfer system. See direct participant/member, indirect participant/member.
Payment	the payer's transfer of a monetary claim on a party acceptable to the payee. Typically, claims take the form of banknotes or deposit balances held at a financial institution or at a central bank.
Payment lag	the time lag between the initiation of the payment order and its final settlement.

Payment order (or payment instruction)	an order or message requesting the transfer of funds (in the form of a monetary claim on a party) to the order of the payee. The order may relate either to a credit transfer or to a debit transfer.
Payment system	a payment system consists of a set of instruments, banking procedures and, typically, interbank funds transfer systems that ensure the circulation of money.
PIN (personal identification number)	a numeric code which the cardholder may need to quote for verification of identity. In electronic transactions, it is seen as the equivalent of a signature.
Point of sale (POS)	this term refers to the use of payment cards at a retail location (point of sale). The payment information is captured either by paper vouchers or by electronic terminals, which, in some cases, are designed also to transmit the information. Where this is so, the arrangement may be referred to as “electronic funds transfer at the point of sale” (EFTPOS).
Position netting (or advisory netting)	the netting of instructions in respect of obligations between two or more parties which neither satisfies nor discharges those original individual obligations. Also referred to as payment netting in the case of payment instructions.
Prepaid card (or payment card)	a card “loaded” with a given value, paid for in advance.
Principal risk	the credit risk that a party will lose the full value involved in a transaction. In the settlement process, this term is typically associated with exchange-for-value transactions when there is a lag between the final settlement of the various legs of a transaction (ie the absence of delivery versus payment). Principal risk that arises from the settlement of foreign exchange transactions is sometimes called cross-currency settlement risk or Herstatt risk. See credit risk.
Provisional transfer	a conditional transfer in which one or more parties retain the right by law or agreement to rescind the transfer.
Queuing	a risk management arrangement whereby transfer orders are held pending by the originator/deliverer or by the system until sufficient cover is available in the originator’s/deliverer’s clearing account or under the limits set against the payer; in some cases, cover may include unused credit lines or available collateral. See also caps.
Real-time gross settlement (RTGS)	a gross settlement system in which processing and settlement take place in real time (continuously).
Real-time transmission, processing or settlement	the transmission, processing or settlement of a funds or securities transfer instruction on an individual basis at the time it is initiated.
Receiver finality	analytical rather than operational or legal term used to describe the point at which an unconditional obligation arises on the part of the receiving participant in a transfer system to make final funds available to its beneficiary customer on the value date. See final settlement.
Registration	the listing of ownership of securities in the records of the issuer or its transfer agent/registrar.

Remote participant	a participant in a transfer system which has neither its head office nor any of its branches located in the country where the transfer system is based.
Remote payment	payment carried out through the sending of payment orders or payment instruments (eg by mail). Contrast with face-to-face payment.
Replacement cost risk (or market risk, price risk)	the risk that a counterparty to an outstanding transaction for completion at a future date will fail to perform on the settlement date. This failure may leave the solvent party with an unhedged or open market position or deny the solvent party unrealised gains on the position. The resulting exposure is the cost of replacing, at current market prices, the original transaction. See also credit risk.
Respondent	see correspondent banking.
Retailer's card	a card issued by non-banking institutions, to be used in specified stores. The holder of the card has usually been granted a line of credit.
Retail transfer system	interbank funds transfer system which handles a large volume of payments of relatively low value in such forms as cheques, credit transfers, direct debits, ATM transactions and EFT at the point of sale.
Same-day funds	money balances that the recipient has a right to transfer or withdraw from an account on the day of receipt.
Securities depository (book-entry system)	see central securities depository.
Sender finality	analytical rather than operational or legal term used to describe the point at which an unconditional obligation arises on the part of the initiating participant in a funds transfer system to make final payment to the receiving participant on the value date. See final settlement.
Settlement	an act that discharges obligations in respect of funds or securities transfers between two or more parties. See gross and net settlement system, net settlement, final settlement.
Settlement agent	an institution that manages the settlement process (eg the determination of settlement positions, monitoring the exchange of payments, etc) for transfer systems or other arrangements that require settlement. See final settlement, settlement, settlement institution(s), multilateral net settlement system.
Settlement finality	see final settlement.
Settlement institution(s)	the institution(s) across whose books transfers between participants take place in order to achieve settlement within a settlement system. See settling participant/member, settlement agent, multilateral net settlement system, bilateral net settlement system.
Settlement lag	in an exchange-for-value process, the time lag between entering into a trade/bargain and its discharge by the final exchange of a financial asset for payment. See payment lag.

Settling participant/member	in some countries, a settling participant in a funds or securities transfer system delivers and receives funds or securities to/from other settling participants through one or more accounts at the settlement institution for the purpose of settling funds or securities transfers for the system. Other participants require the services of a settling participant in order to settle their positions. Currently in the EC direct participants are by definition also settling participants. See direct participant/member, tiering arrangement.
Settlement risk	general term used to designate the risk that settlement in a transfer system will not take place as expected. This risk may comprise both credit and liquidity risk.
Settlement system	a system in which settlement takes place.
Standing order	an instruction from a customer to his bank to make a regular payment of a fixed amount to a named creditor.
Substitution	the substitution of one party for another in respect of an obligation. In a netting and settlement context the term typically refers to the process of amending a contract between two parties so that a third party is interposed as counterparty to each of the two parties and the original contract between the two parties is satisfied and discharged. See novation.
S.W.I.F.T. (Society for Worldwide Interbank Financial Telecommunication)	a cooperative organisation created and owned by banks that operates a network which facilitates the exchange of payment and other financial messages between financial institutions (including broker-dealers and securities companies) throughout the world. A S.W.I.F.T. payment message is an instruction to transfer funds; the exchange of funds (settlement) subsequently takes place over a payment system or through correspondent banking relationships.
Systemic risk	the risk that the failure of one participant in a transfer system, or in financial markets generally, to meet its required obligations will cause other participants or financial institutions to be unable to meet their obligations (including settlement obligations in a transfer system) when due. Such a failure may cause significant liquidity or credit problems and, as a result, might threaten the stability of financial markets.
Telematics	the combined use of data processing and data transmission techniques.
Teller's cheque	see bank draft.
Tiering arrangement	an arrangement which may exist in a funds or securities transfer system whereby participants in one category require the services of participants in another category to exchange and/or settle their transactions. See direct, indirect and settling participant/member.
Trade date	the date on which a trade/bargain is struck.
Trade netting	a consolidation and offsetting of individual trades into net amounts of securities and money due between trading partners or among members of a clearing system. A netting of trades which is not legally enforceable is a position netting.
Trade-for-trade (gross) settlement	the settlement of individual transactions between counterparties. See gross settlement system.
Trade-for-trade settlement system	see gross settlement system.

Transfer	operationally, the sending (or movement) of funds or securities or of a right relating to funds or securities from one party to another party by (1) conveyance of physical instruments/money; (2) accounting entries on the books of a financial intermediary; or (3) accounting entries processed through a funds and/or securities transfer system. The act of transfer affects the legal rights of the transferor, transferee and possibly third parties in relation to the money balance, security or other financial instrument being transferred.
Transfer system	a generic term covering interbank funds transfer systems and exchange-for-value systems.
Travel and entertainment (charge) card	card issued by non-banks indicating that the holder has been granted a line of credit. It enables him to make purchases but does not offer extended credit, the full amount of the debt incurred having to be settled at the end of a specified period. The holder is usually charged an annual fee.
Truncation	a procedure in which the physical movement of paper payment instruments (eg paid cheques or credit transfers) within a bank, between banks or between a bank and its customer is curtailed or eliminated, being replaced, in whole or in part, by electronic records of their content for further processing and transmission.
Ultimate settlement	sometimes used to denote final settlement in central bank money.
Unwinding (or settlement unwind)	a procedure followed in certain clearing and settlement systems in which transfers of securities or funds are settled on a net basis, at the end of the processing cycle, with all transfers provisional until all participants have discharged their settlement obligations. If a participant fails to settle, some or all of the provisional transfers involving that participant are deleted from the system and the settlement obligations from the remaining transfers are then recalculated. Such a procedure has the effect of transferring liquidity pressures and possibly losses from the failure to settle to other participants, and may, in the extreme, result in significant and unpredictable systemic risks.
Variation margin (or mark-to-market payments)	the amount which is paid by a counterparty to reduce replacement cost exposures resulting from changes in market prices, following the revaluation of securities or financial instruments that are the subject of unsettled trades.
Wholesale funds transfer system	see large-value funds transfer system.

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