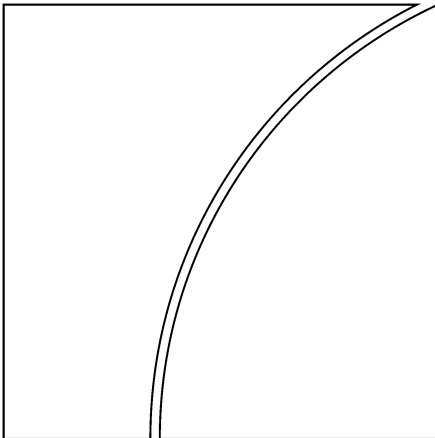


Committee on Payment and Settlement Systems



Payment systems in Saudi Arabia

Prepared by the Saudi Arabian Monetary Agency
and the Committee on Payment and Settlement
Systems of the central banks of the Group of Ten
countries

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Foreword

The Committee on Payment and Settlement Systems (CPSS) periodically publishes - under the aegis of the Bank for International Settlements (BIS) - reference works on payment systems in various countries, widely known as Red Books. 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 second edition of the Red Book for Saudi Arabia, is a further step towards increasing our understanding of the way payment systems work in different countries. This volume aims to portray the significant steps taken by the Saudi Arabian Monetary Agency in promoting safe and efficient payment systems in the Kingdom of Saudi Arabia.

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 Saudi Arabia, both domestically and internationally.

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Abbreviations

BSDA	Bankers' Security Deposit Accounts
ESIS	Electronic Securities and Information System
FRNs	Floating Rate Notes
GDBs	Government Development Bonds
OMS	Order Management System
SAMA	Saudi Arabian Monetary Agency
SARIE	Saudi Arabian Riyal Interbank Express system
SPAN	Saudi Payments Network
SSRC	Saudi Share Registration Company
TADAWUL	the Saudi online share trading and settlement system
ZAKAT	a special tax on income and trading assets

Introduction

Payment systems in Saudi Arabia have undergone significant changes over the past 15 years. SAMA, the Saudi Arabian Monetary Agency (www.sama-ksa.org), with the cooperation and support of the commercial banks, has taken, and continues to take, the lead in the development and day-to-day management of a modern national payments infrastructure to support the economic development of the Kingdom. This cooperative approach to developing an efficient and shared payments infrastructure drawing upon the best available practices and technologies from advanced banking systems has brought considerable benefits to the banks and their customers. The banks have avoided costly competing investments, while their customers have benefited from the ease of access and connectivity offered by the new payment services.

SAMA has put in place the major components of a rational and comprehensive electronic payments infrastructure. The payments infrastructure provides a national network for all payment card and credit card transactions, at ATMs and points of sale (SPAN), and a single electronic funds transfer system for high-value same-day and forward-dated payments and direct debits (SARIE). All Saudi banks are members of SWIFT, over which they send and receive all their international payment messages.

SAMA provides the sole means of interbank settlement. The Saudi Arabian Riyal Interbank Express (SARIE) system, which went into operation in 1997, is a fully integrated RTGS system that permits all Saudi banks to make immediate interbank payments over accounts held at SAMA. SARIE provides the basis for improved banking products and services and lays the foundation for the future payments system strategy of the Kingdom.

Work is currently underway to upgrade the ATM/EFTPOS system. This upgrade will enhance the SPAN infrastructure, implement and support smartcard technology, broaden the range of services, introduce e-commerce and m-commerce, and facilitate further consumer and business services, such as electronic bill presentment and payment (EBPP).

SAMA is currently engaged in a number of initiatives that will build on the existing electronic funds transfer infrastructure and provide the government, banks and citizens of the Kingdom with a comprehensive range of options to meet all their payment needs. SAMA's stated objective is to utilise internet technology in providing a sound, expandable and efficient payment systems infrastructure for the Kingdom. It is planned to implement a business to business (B2B) e-payments infrastructure and an e-Trust centre that will provide PKI services.

During 2001, SAMA upgraded its ESIS equity trading and settlement system (Electronic Securities and Information System) to a new internet-based system. TADAWUL (an Arabic word meaning "exchange" - www.tadawul.com.sa) provides a continuous, order-driven market, with up to the minute price, volume and company information. It concentrates all local equity trading into a single market. Transfer of ownership occurs immediately after matching of buy and sell orders and all trades are settled on the day of execution. Cash positions from TADAWUL are settled daily on a net-net basis over SARIE. All brokerage services are provided through the commercial banks.

1. Institutional aspects

1.1 The general institutional framework

The Saudi Arabian Monetary Agency was established by a Royal Decree issued on 4 October 1952 with the objectives of issuing and strengthening the Saudi currency and stabilising its internal and external value, and dealing with the banking affairs of the government. A subsequent Royal Decree in 1957 extended SAMA's objectives to regulating exchange dealers and managing the country's official foreign exchange reserves. In 1959 a Currency Law was issued which conferred on SAMA the sole privilege of minting, printing and issuing of Saudi currency as determined by the Council of Ministers and made it mandatory for SAMA to maintain full cover in gold and convertible foreign currencies for currency issued.

The Banking Control Law of 1966 gives SAMA broad powers to regulate and supervise Saudi banks and to safeguard the banking system. It defines "banking business", confers licensing power, determines capital adequacy, prescribes reserve requirements, grants authority to formulate credit

policy and deals with the usual banking supervisory issues. These include conferment of enabling powers to issue rules and guidelines to banks and to lay down conditions for certain actions and transactions. Consequently, SAMA can issue rules and guidelines for any new type of banking transaction or product, including payment cards, ATMs and EFTPOS. It is by judicious exercise of these regulatory powers that SAMA has led the development of the payment systems in the country with the full participation of the banks.

Another important law relating to payment systems is the 1963 Negotiable Instruments Regulations, which cover the legal treatment of various payment instruments such as bills of exchange, cheques and drafts.

Also important is the 1960 Anti-Forgery Law, which makes it a criminal offence for anyone to counterfeit currencies, financial papers, financial instruments or banking documents. As transactions related to payment cards, share trading, ATMs, EFTPOS and so on give rise to banking documents, they are subject to the provisions of this law. Violations are punishable by financial penalties and prison terms.

SAMA operates a network of 10 regional branches to satisfy the needs of government for the collection and distribution of funds and to meet the requirements of local commercial banks for currency and remittances.

1.2 The role of the central bank

SAMA performs a number of important functions, including:

- issuing national currency;
- acting as banker to the government;
- conducting monetary policy to stabilise the internal and external value of the currency;
- managing the country's foreign exchange reserves;
- regulating and supervising commercial banks and money changers;
- supervising the Saudi equities market.

The regulation and supervision of commercial banks and money changers encompasses three complimentary functions: supervisory, regulatory and investigative functions.

In addition to the above, SAMA actively promotes cooperation among financial market participants and acts as a banking ombudsman. SAMA also provides training facilities to the banking community through its Institute of Banking.

1.2.1 Payment systems oversight

SAMA controls and oversees all payments systems in the Kingdom. It also operates and manages the interbank systems used for:

- cheque clearing;
- ATM, credit card and EFTPOS transactions (SPAN);
- equity trading and settlement (TADAWUL);
- credit transfers and direct debits (SARIE);
- securities trading and settlement;
- custody of all government securities.

To ensure the safety and soundness of payment systems in Saudi Arabia, SAMA utilises the on-site supervision approach. This approach consists of regular visits to banks operating in Saudi Arabia to examine their information systems, which include payment systems.

The main phases of the supervisory process are: analysis, planning, action, documentation, reporting, and follow-up.

Information systems examination takes a risk-based approach, which encompasses risk assessment, risk management and control, and risk monitoring. This process is part of the analysis phase of the supervisory process. Once identified, risks pertaining to information systems at banks in Saudi Arabia are highlighted during the planning phase of the supervisory process so that they can be fully addressed when the examination is conducted.

This examination follows a formal procedure - which is regularly updated - to examine key areas affecting the overall information systems such as:

- management of information systems (IS);
- disaster recovery planning (DRP);
- IS operations;
- physical and information security;
- systems development life cycle (SDLC);
- networking.

Along with these key areas in information systems, specific systems such as electronic funds transfer (EFT), ATMs, credit cards and internet banking are examined to ensure that the availability, integrity and confidentiality of such systems are preserved.

With specific regard to credit cards (as well as consumer loans), banks operating in Saudi Arabia maintain a C-list (which contains customers who have been in default for more than 90 days). All lists maintained by the banks are electronically consolidated. This consolidated list is updated on a monthly basis and sent back to all banks. In addition, an M-list (merchant list) is maintained by banks in Saudi Arabia; this includes all merchants who have committed fraudulent transactions.

Along with that, there are guidelines on how names become eligible to be added to the C-list and how names can be removed. To ensure adherence, and as part of SAMA's regular examination, C-list practices and its related systems are examined to ensure that security, privacy and compliance are exercised.

Banks in Saudi Arabia go through a rigorous scrutiny process. Follow-up examinations are carried out based on a rating system. This rating system employs a mechanism to calculate banks' exposure to risks pertinent to information systems. The banks are ordered to take corrective actions on any issues raised during the examination activity.

In addition to the ongoing process of electronic banking examination, SAMA issues specific guidelines - as part of its regulatory function - regarding information systems in Saudi banks, such as the Disaster Recovery Planning Guidelines and the Internet Banking Security Guidelines.

SAMA also publishes circulars to ensure that the system of internal controls in payment systems is adequate at all banks in Saudi Arabia. One circular specific to ATMs and POS addresses the need to implement an adequate internal control mechanism. This circular can be summarised as follows:

- the conduct of a daily inventory of all ATMs;
- the use of dual control involving two signatures in filling ATM balance sheets;
- the need to maintain an audit trail for all ATM transactions;
- the implementation of adequate controls regarding the issuance of ATM cards and PINs;
- the treasury and secret numbers of the ATM should be under dual control and should only be disclosed after management approval.

Equally important is the issuance of various important guidelines such as:

- Internal Control Guidelines for Commercial Banks Operating in the Kingdom of Saudi Arabia;
- Guidelines for Banks in Saudi Arabia on Organising Audit Committees;
- Guidelines on the Prevention of Fraud;
- Guidelines on the Prevention of Money Laundering.

To ensure confidence in payment systems among citizens and expatriates, SAMA reviews and investigates consumers' complaints and fraud-related cases regarding payment systems (specifically ATMs and POS, and credit cards). To do so, SAMA has formed a highly skilled and mobile team to follow up on consumers' complaints and to act as a mediator between them and banks in Saudi Arabia. This process is synchronised with banks to resolve any problems regarding such systems.

Technological innovation and competition among banks operating in Saudi Arabia has allowed for a much wider array of electronic banking products and services for retail and wholesale banking customers. Therefore, SAMA promotes a healthy environment for banks in which to operate and innovate. However, it expects Saudi banks to recognise, address and manage electronic banking risks in a prudent manner according to the fundamental characteristics and challenges of electronic banking.

1.2.2 Activities in the area of securities clearing and settlement systems

The Ministry of Finance is the borrower on behalf of the government and SAMA is the fiscal agent of the government. Government development bonds (GDBs) were first offered to domestic banks and some special government agencies in June 1988. From a regulatory perspective, banks' GDB holdings are considered as eligible assets for domestic liquidity ratio purposes.

SAMA uses a book entry system for GDB settlements because of the low cost and ease of administration. GDBs, carrying fixed coupons for two-, three-, five-, seven- and 10-year maturities, are offered to the domestic banks and some institutions every second Monday of the month. SAMA issues invitations to subscribe on Monday and the banks/institutions respond by Tuesday for settlement Wednesday.

The equity market remained informal until the early 1980s, when the government embarked on a rapid development programme. In 1984 a ministerial committee consisting of the Minister of Finance and National Economy, the Minister of Commerce and the Governor of SAMA, was formed to regulate and develop the market. SAMA was additionally charged with the day-to-day regulation of the market.

Automated clearing and settlement was introduced in 1989. In 1990 the **Electronic Securities Information System (ESIS)** was launched. This was an electronic floorless share trading and settlement system operated and supervised by SAMA. ESIS almost entirely dematerialised share trading.

ESIS has now been replaced by TADAWUL (see Section 4.2).

1.2.3 Operational role of the central bank

SAMA provides non-cash payment services by permitting the banks to maintain current accounts with it through which interbank settlements take place with finality. Transactions in treasury bills, government bonds and repos as well as purchases of foreign exchange by the banks also pass through these accounts.

SAMA operates a network of 10 regional branches to satisfy the needs of the government for the collection and distribution of funds and to meet the requirements of local commercial banks for currency and remittances. Regional cheque clearing houses are also operated at each of these branches.

SAMA provides the sole means of interbank settlement. The SARIE system integrates the clearing and settlement of all other existing systems, ie ATM, EFTPOS and credit cards (SPAN), cheque clearing (ACH and manual) and equity trading and settlement (TADAWUL), into a single interbank settlement position that is settled through the accounts of the commercial banks in the books of SAMA. All transactions relating to the debt market are also settled over SARIE on a gross basis.

SAMA operates and manages the SARIE system and takes full responsibility for its supervision and risk management. SAMA also monitors the liquidity of the clearing process and the orderly completion of settlements. In all instances, payment instructions are validated and endorsed by a direct participant before submission to the system. Thus, tight and effective control over the use of the service is maintained.

SAMA operates and controls SPAN, the ATM and EFTPOS system. This is the single national switch for all ATM and EFTPOS transactions. The daily cash positions arising from SPAN are settled on a net-net basis over SARIE.

SAMA operates the cheque clearing system. This consists of 10 regional clearings at each SAMA branch. The individual clearings are settled on a net-net basis over SARIE on a daily basis.

SAMA currently manages and operates the TADAWUL equity trading and settlement system. Cash positions arising are settled daily over SARIE on a net-net basis.

Banks' current accounts at SAMA earn no interest. They must be operated within approved fully collateralised intraday limits and must be in credit by the end of the day.

SAMA's role in payment systems has evolved from its broad mandate to maintain the safety and soundness of the Saudi banking and monetary system and to strengthen its credibility. It is by judicious exercise of its regulatory powers that SAMA has led the development of the payment systems in the country with the full participation of the banks.

SAMA believes that its leading role in the payment, clearing and settlement systems is essential to ensure effective execution of a rational and consistent national strategy for payment systems. This approach is based on a conviction that significant financial benefits will accrue to all financial market participants from a collaborative rather than a competitive development of a common payments infrastructure.

To implement its payments strategy, SAMA has established a Banking Technology Division under the aegis of the Directorate of Banking Control. The Banking Technology Division is responsible for the development, enhancement and day-to-day operation of the payment, clearing and settlement systems in the Kingdom and for enlisting the cooperation and participation of the local banks.

Further, SAMA has formed different committees to act as self-regulatory bodies. These committees serve very important objectives; first, to ensure that problems are resolved once they are encountered; second, to give banks as well as SAMA the mechanism to discuss internal control issues that can eventually be incorporated into formal guidelines governing a specific activity; and, finally, to serve as a forum to discuss new developments regarding related projects as well as the progress of ongoing projects. Examples of such committees are: the Fraud Committee and the Bank Operations Officers Committee.

The "banked" population has increased significantly over recent years, primarily due to an initiative introduced by SAMA to have all government payroll paid into bank accounts using the SARIE system. In promoting efficient and convenient means of payment SAMA is explicitly encouraging the spread of the "banking habit" in support of social and economic development of the Kingdom.

1.3 The role of other private and public sector bodies

1.3.1 Financial intermediaries allowed to provide payment services

There are currently 11 commercial banks in the Kingdom with 1,184 branches. Three banks are fully Saudi owned, seven have minority foreign ownership and one foreign bank has a branch presence. Five banks also have joint venture agreements with major international banks under which the latter provide management and technical support. Banks operate on the universal banking model and provide a broad range of products and services including retail and corporate banking, investment management and advice, and both domestic and international securities brokerage services. All banks fully participate in the various payment and settlement systems that are currently operational in the Kingdom.

1.3.2 Other entities

There are about 36 money changers in the Kingdom. These are special purpose financial institutions that are permitted by law to change foreign currencies into local currency and vice versa and to provide limited funds transfer services. The money changer institutions formerly provided elementary banking services catering mainly to pilgrims from all over the world who congregated at the Kingdom's holy places and had a variety of currencies to exchange. The money changers no longer perform any primary banking functions and are not permitted to participate directly in the payment and settlement systems. They can, however, access such services through a commercial bank.

Other financial institutions in the country include special purpose government credit agencies, insurance companies and specialised investment companies. Certain international credit card

companies such as MasterCard, Visa and American Express use Saudi banks to offer their products and services to customers in the Kingdom. These institutions use the Saudi payment and clearing systems as customers of the local banks.

2. Payment media used by non-banks

2.1 Cash payments

SAMA issues bank notes in denominations of 1, 5, 10, 20, 50, 100, 200 and 500 riyals and coins in denominations of 1, 5, 10, 25, 50 and 100 hallalahs. Notes and coin in circulation at the end of 2001 amounted to SAR 52.6 billion (USD 14.0 billion), and of this amount notes and coin held by the commercial banks amounted to SAR 3.4 billion (USD 0.90 billion).

Notes and coin are distributed through the 10 SAMA branches to the branches of the commercial banks in their respective districts. Besides meeting the cash requirements of commercial banks, SAMA branches pay out and receive cash on behalf of various agencies of the government.

As an indication of cash intensity, the notes and coin held by the public in 2001 amounted to 27.4% of the narrow money supply M1 (34% in 1993) and 7.1% of GDP (9.6% in 1993).

2.2 Non-cash payments

2.2.1 Cheques

Cheques are decreasing in importance as a non-cash payment instrument in Saudi Arabia following the introduction of the SARIE electronic payments system in mid-1997. Cheque volumes fell by 1.8% between 1996 and 2000 (from 7.90 million cheques in 1996 to 7.76 million cheques in 2000), as compared to a 164% increase over the period 1992 to 1996. The total value of cheques has decreased from SAR 3,295.5 billion in 1996 to SAR 463.0 billion in 2000. This dramatic drop in the value of cheques is due, in particular, to the switch from cheques to electronic payments by banks for the settlement of all interbank transactions.

2.2.2 Payment cards

Payment cards have increased significantly in importance as a retail payment medium in Saudi Arabia. The Saudi Payments Network (SPAN) was implemented in 1990 and enhanced in 1993 to support point of sale transactions.

There are 21,631 point of sale terminals in online daily operation, with 5.56 million cards issued by the commercial banks (one card per 3.9 head of population) functioning as both ATM and EFTPOS cards. There were 24.0 million EFTPOS transactions in 2001 for a total value of SAR 10.2 billion, representing an average purchase of SAR 427 (USD 114) per transaction. These figures have increased since 1996 from 6.8 million transactions for a total value of SAR 3.2 billion. The average purchase in 1996 was SAR 471 (USD 125).

There are currently 2,577 ATM terminals in online daily operation in SPAN. There were 219.4 million ATM transactions in 2001 for a total value of SAR 137 billion.

During 2001 the Kingdom's payment card base increased by 16.5%, and the number of ATMs and EFTPOS terminals increased by 15% and 17% respectively. These factors, combined with government and banking initiatives to increase electronic services and transactions, has led to an increase in volume by 34% at ATMs, and 33% at EFTPOS terminals, supporting a total value of over SAR 147.2 billion in transactions during 2001. This growth was sustained in 2002, and is projected to continue and to be supplemented through new channels over the next five to seven years.

2.2.3 Credit transfers

All credit transfers between banks are processed via the SARIE system. The operating rules and regulations (ORR) for SARIE state that "each Participant will make all interbank payments which are in Saudi riyals and which are for the account of another Participant or the account of a customer of a Participant solely through SARIE, except where the Participant is unable to use SARIE by reason of systems breakdowns or otherwise". The volume of customer credit transfers in the year 2000 was 5.05 million, while there were only 0.14 million interbank credit transfers. In terms of value, interbank credit transfers amounted to SAR 4,870.8 billion, while customer transfers were only SAR 374.7 billion.

2.3 Recent developments

In December 2001 SAMA started work on a project to upgrade the existing Saudi Payments Network (SPAN) system. This initiative forms part of SAMA's continuing objectives to shrink the cash economy within the Kingdom, and to support new and enhanced electronic banking services for the country's residents and companies.

Currently, businesses in Saudi Arabia initiate payment transactions to banks through paperwork delivered to branches or through proprietary electronic systems that banks make available to their corporate customers. SAMA and the Saudi banks recognise that the growth of e-commerce will have a significant impact on banking and business operations. A business to business (B2B) e-payments project has been initiated, the main aims of the project are:

- address e-commerce opportunities;
- establish an effective and secure means of settlement between buyers and sellers of e-commerce goods and services;
- leverage existing funds transfer service offerings and investments made in the associated technical infrastructures, including SARIE and SWIFT;
- to ensure that the architecture designed is internet-based;
- adopt open industry standard protocols and message formats;
- facilitate both domestic and international e-payments.

It is SAMA's aim that an infrastructure solution is developed for e-payments in the Kingdom. The design of the e-payments system(s) should:

- address the needs of small, medium-sized and large corporates;
- support PKI in order to address the security requirements (non-repudiation, authentication, confidentiality and integrity);
- support the push model (buyer-initiated payments);
- support bulk and forward-dated payments as well as payment advices and enquiries.

As part of the e-payments project SAMA has also initiated an eTrust Centre project to establish a national public key infrastructure (PKI). The eTrust Centre will be developed using commercially available technology based on open standards.

The eTrust Centre will provide the ability to issue and manage digital certificates for use within the Kingdom's financial sector. Specifically, the eTrust Centre will provide the following functions:

- end-entity certificate registration;
- end-entity certificate issuance;
- certificate renewal;
- certificate revocation and suspension;
- certificate publication;
- certificate revocation list publication;
- online certificate status checking support.

SAMA envisages that the root certification authority (root CA), the subordinate CAs, the certificate repository and the validation authorities will reside within a data centre contained within, and operated by, SAMA. The registration authorities will be hosted and operated by individual banks within the Kingdom. The commercial banks will therefore be responsible for the registration of end-entities, which will be issued certificates by the eTrust Centre.

SAMA sees the introduction of B2B e-payments as key to increasing e-commerce transaction volumes, reducing risks and providing flexibility to enable future business opportunities.

The B2B e-payments infrastructure will:

- For **businesses**, provide a paperless, cost-effective and secure B2B e-payment environment. It will also enable businesses to benefit from opportunities available via the internet;
- For **banks**, provide the infrastructure for an enhanced range of services while maintaining consistent standards and good service levels in a high-growth environment. It will eliminate manual processes traditionally involved in supporting payment processing. It will also maintain an effective balance between competition and cooperation, to avoid duplication of infrastructure and to control the financial industry's costs.

3. Interbank exchange and settlement circuits

3.1 General overview

There is a single electronic funds transfer system which handles all interbank credit transfers and direct debits as well as the settlement of all other clearings. This system, SARIE, is owned and operated by SAMA and is located at its head office in Riyadh. Commercial banks communicate with the central system through proprietary gateways via a private network. Most banks have automated payments processing systems linked to these gateways. There is a growing trend among commercial banks to provide banking services over the internet.

SAMA provides regional cheque clearing facilities at each of its 10 branches. Three of these clearings are automated and are known as the ACHs, while the other seven are manual operations and are known as the MCHs. The positions arising from each of these cheque clearings is settled separately on a net-net basis over SARIE.

SPAN provides a single national network for all payment card and credit card transactions. All ATM and EFTPOS terminals are linked to this single network. SPAN is owned and operated by SAMA while the ATM and EFTPOS terminals are owned and operated by the individual banks. SPAN positions are settled on a net-net basis over SARIE.

Cash positions arising from the equities trading system (TADAWUL) are settled on a net-net basis over SARIE, while securities transactions are settled on a gross basis.

3.2 RTGS - SARIE

The Saudi Arabian Riyal Interbank Express system (SARIE) went into operation on 14 May 1997, building on a decade of rapid progress and achievements by Saudi Arabia in the field of electronic banking. The commercial banks in the Kingdom were actively involved in the project, which was led by SAMA. SARIE consolidated all interbank clearing and settlement operations into a single efficient, cost-effective and highly risk-controlled electronic environment. The SARIE system, designed using the concept of real-time gross settlement (RTGS), has revolutionised electronic banking and commerce in the Kingdom by providing the backbone for a number of advanced and sophisticated payment and settlement systems already in place.

3.2.1 Operating rules

The SARIE operating rules and regulations govern the following:

- ownership and operation of the system;
- admission and expulsion of participants;
- certification of participants by SAMA;
- definition of each payment type and its usage;
- responsibilities of all parties using SARIE;
- use of system functions by participants;
- types of system functions which are reserved for SAMA use;
- direct debit scheme rules governing banks, payers and originators.

In addition, they stipulate that all credit transfers between banks, on their own behalf or on behalf of their customers, must be made solely through SARIE.

3.2.2 Participation in the system

There are 12 participants in SARIE, the 11 commercial banks plus SAMA. The operating rules state that all participants must be banks, must have systems, procedures and trained staff satisfactory to SAMA for participation in SARIE and must be certified by SAMA in accordance with the operating rules. There is no requirement in relation to a minimum number of transactions. An entry fee is payable by new participants joining the system after June 2001. SAMA must approve all participants.

The market share of the five largest participants for the year 2000 was as follows:

- Customer payments by value 72%
- Customer payments by volume 93%
- Interbank payments by value 73%
- Interbank payments by volume 64%

3.2.3 Types of transactions handled

SARIE combines the functionalities of both a high-value and a high-volume system and handles both credit transfers and direct debits.

Message types are based on SWIFT standards. SARIE supports both single and bulk transfers, which may be effected on a same day value basis or for up to 14 days' forward value. Banks are provided with a schedule of their positions up to 14 days ahead. The system handles interbank and customer payments as well as direct debits, and facilitates the execution of domestic transfers arising from the receipt of international funds transfer instructions.

3.2.4 Operation of the system

SARIE is owned and operated by SAMA. It is an RTGS system providing for payment finality through debits and credits across banks' current accounts at SAMA in real time.

SAMA as central controller has facilities for selective intervention to break payment gridlock situations in exceptional circumstances. The system provides gridlock resolution, or circles processing, tools to enable SAMA resolve these situations. Payments may also be reprioritised or cancelled.

Tight linkages to other SAMA head office operating systems permit banks to access liquidity for their SARIE accounts via sale and repurchase facilities against their government bond and Treasury bill holdings and sales of foreign currency to SAMA.

The SARIE system has a number of security features which ensures that it operates smoothly and in a fully controlled environment. These security features include:

- digital signatures;
- encrypted communication lines;

- secure access through use of smartcards;
- physical security at all SARIE sites, with access to the system only for authorised personnel.

Contingency is provided through dual configuration and contingency sites.

SARIE operating hours are as follows:

- Saturday to Wednesday 8 am to 3 pm
- Thursday 9.30 am to 1.30 pm

3.2.5 Transaction processing environment

SARIE is a fully integrated RTGS system that permits all Saudi banks to make immediate interbank money transfers through accounts held at SAMA. The system features 24-hour availability and ensures payment finality and irrevocability. The system also gives banks real-time, direct access to their accounts with SAMA and enables them to continuously monitor their financial positions.

3.2.6 Settlement procedures

Forward value payments and maturing direct debits are settled at the start of the daily business cycle. Same day value payments are irrevocably settled with finality in real time provided the sending participant has sufficient liquidity in his account. Payments will be queued until sufficient liquidity is available. If sufficient liquidity is not available by close of business, SAMA may cancel any queued payments.

SARIE integrates the clearing and settlement positions of all other existing systems, ie ATM, EFTPOS, cheque clearings and equity trading and settlement, into a single interbank settlement position that is settled through the banks' accounts in the books of SAMA. This permits the continued use of existing netting arrangements while reducing the risk associated with the net settlement positions arising from such systems.

3.2.7 Credit and liquidity risk

The risk management approach designed for SARIE provides a rigorous and comprehensive mechanism for controlling risks: first, there are intraday limits on exposure of the system to any participant; second, there are requirements to provide collateral against such exposure. All limits are fully collateralised. The level of limits and the nature and value of collateral are decided by SAMA.

SAMA has issued a Limits and Collateral Policy to all participants. This sets out the rules governing intraday limits and specifies the types of acceptable collateral. The policy states that participants may negotiate intraday overdraft limits with SAMA and that the intraday overdraft limit must be fully collateralised by Saudi Arabian government-issued instruments which can be readily liquidated and over which SAMA has jurisdiction. The policy then lists the instruments that are allowable as collateral. These are:

- Government Development Bonds;
- Treasury bills;
- special bonds;
- floating rate notes;
- farmers' certificates.

SAMA holds a Letter of Undertaking signed by each bank, pledging the specified instruments as collateral.

The balance on a participant's account must never be less than zero plus any intraday debit limit approved by SAMA. All intraday debit balances on a participant's account must be discharged at the end of the day, at which stage the participant's account must have a zero balance or be in credit.

If any action is required to safeguard the integrity of the banking system, SAMA can adjust these requirements. SARIE also features real-time monitoring of banks' daylight limits by SAMA and the banks, thus providing enhanced capability for actively managing institutional and systemic risk.

3.2.8 Pricing

SAMA sets the pricing policy, under which three types of fees are currently levied:

- (a) Transaction fees - variable costs according to message type;
- (b) Service fees - covering the other SARIE support services provided by SAMA;
- (c) Exceptional and penalty fees - aimed at encouraging best practices for the benefit of the smooth operation of the overall system.

The level of the fees is set with the following aims in mind:

- encouraging both participants and their customers to switch from manual to automated procedures;
- responding to and encouraging new developments in various electronic payment systems and methods;
- encouraging participants to provide the fullest possible range of electronic services to their customers, including same day and forward value payments;
- encouraging the early transmission of payments so as to minimise the impact of any contingency situation.

Participants are free to set tariffs for customers in relation to SARIE transactions on a competitive basis. However, the maximum tariff which may be charged to a customer by a participant for any single SARIE transaction is:

- SAR 15.00 for a forward value transaction;
- SAR 25.00 for a same day value transaction.

3.2.9 Statistical data

The total value of transactions processed through SARIE on an average day currently stands at SAR 28.9 billion (USD 7.71 billion). The volume of customer payments over SARIE continues to grow. The average daily volume of customer payments is 37,500 with an average payment size of SAR 69,800 (USD 18,613). The number of interbank payments has stabilised. The average daily volume of interbank payments is 466 with an average value per transaction of SAR 56.4 million (USD 15.04 million).

Payments processed over SARIE for 2001 were as follows:

- Customer payments
 - value: SAR 450.4 billion (USD 120.1 billion)
 - volume: 8,319,861 payments
- Interbank payments
 - value: SAR 5,355.2 billion (USD 1,428.1 billion)
 - volume: 148,282 payments

3.3 Retail payment systems

3.3.1 ATM and EFTPOS - SPAN

For ATM services, SPAN operates in a back-end mode, linking the 10 member banks' ATMs, which are managed by the individual bank's host systems. For EFTPOS, SPAN operates as a pseudo "transaction acquirer" as all EFTPOS terminals in the Saudi Arabian national network are directly connected to SPAN. The terminals themselves are installed and maintained by the individual banks, which conduct the commercial acquiring relationship with the merchants.

SAMA rationalised the initial competitive introduction of ATMs into the Kingdom by certain commercial banks in the mid-1980s by establishing the Saudi Payments Network (SPAN), a "neutral" national

transaction switch which went into operation in April 1990. The system, which works on the basis of full interoperability, links the ATMs of all the commercial banks on a reciprocal basis so that all bank customers can withdraw cash at any ATM in the Kingdom. This has permitted national ATM service coverage with a relatively modest deployment of ATMs. There are currently 2,577 ATM terminals in online daily operation in SPAN, processing 18.3 million transactions a month, for a total monthly value of SAR 11.4 billion.

SPAN terminals accept Visa and MasterCard transactions (and in the near future American Express), with SAMA's SPAN operations providing a single online connection to the overseas switches of these bank card associations. SPAN also supports an interchange connection to K-Net (the Kuwait switch) and, in the near future, connections to the central switches in the other five Gulf Cooperation Council (GCC) countries.

In December 2001 SAMA started work on a project to upgrade the SPAN system. This initiative forms part of SAMA's continuing objectives to shrink the cash economy within the Kingdom, and to support new and enhanced electronic banking services for the country's residents and companies.

The upgrade project will, over the next three years, enhance the SPAN infrastructure to:

- service the continued growth in card payment transactions within the Kingdom of Saudi Arabia;
- broaden the scope of ATM and EFTPOS services, for example by introducing centralised bill payment and cash-back at EFTPOS terminals;
- implement and support EMV2000 smartcard-based credit and debit cards;
- support other multi-application smartcard-based services;
- introduce new channels including e-commerce (internet-based) and m-commerce (mobile phone-initiated) banking transactions;
- provide stronger security for payment services based on PKI systems;
- facilitate further consumer and business services, such as full electronic bill presentment and payment (EBPP).

The upgrade project takes place against a background of sustained growth for SPAN.

3.3.2 Cheque clearing

Cheques are cleared at local clearing houses maintained at each SAMA branch. SAMA introduced standards for Saudi cheques, including MICR code lines, and reformed procedures for interbank clearing and settlement in 1985-86.

Clearing computers were installed at the three largest SAMA branches, in Riyadh, Jeddah and Dammam, in 1986. The automated clearing service provided by SAMA at these centres is known as the Automated Clearing House (ACH). The ACH accounts for the bulk of cheques cleared in the Kingdom in volume and value terms; the remaining cheques are cleared through manual clearings at the other seven SAMA branches.

Settlement of all cheques cleared through the clearing houses, both ACH and manual, is handled through SARIE on a net-net basis for each separate exchange.

3.3.3 Credit transfers

SARIE customer payment transactions have increased from 490,000 in 1998 to 8.3 million in 2001. The value of customer payments over SARIE has increased from SAR 284.4 billion in 1998 to SAR 450.4 billion in 2001, while the total value of cheques has increased from SAR 420.4 billion in 1998 to SAR 495.7 billion in 2001.

3.3.4 E-money

Currently, there are no e-money schemes in operation in Saudi Arabia.

4. Securities settlement systems

4.1 Debt market

4.1.1 Government Development Bonds

In Saudi Arabia, the government borrowing programme was launched in 1988. The Ministry of Finance is the borrower on behalf of the government and SAMA is the fiscal agent of the government. Government Development Bonds (GDBs) were first offered to domestic banks and some special government agencies in June 1988.

From a regulatory perspective, banks' GDB holdings are considered as eligible assets for domestic liquidity ratio purposes. Liabilities arising from the repo arrangement are not treated as deposit liabilities, and consequently are not included in the calculation of the capital/deposit ratio. Reverse repos result in secured loans to counterparties. Under the risk-asset-based capital adequacy scheme, GDBs held by the banks for their own account carry a 0% weighting. Under current tax laws, Saudi banks (in the case of joint venture banks, Saudi shareholders) are permitted to deduct GDBs held in their investment accounts from their net assets (net worth) before "Zakat", a special tax on income and trading assets, is calculated.

Ever since the government began to offer GDBs in the primary market, the authorities have been endeavouring to develop a secondary market for GDB trading. For this purpose, SAMA and primary dealers have jointly established procedures governing the market-makers' role.

Domestic banks play several important roles: as investors; as distribution agents; as secondary market-makers; and as subcustodians/paying agents. Banks have found it convenient to buy GDBs and hold them to maturity, particularly as the yield curve has continued to steepen. A small portion of GDB holdings has, however, been earmarked for trading. Secondary market trading is settled through SAMA.

4.1.2 Treasury bills

Treasury bills replaced Bankers' Security Deposit Accounts (BSDAs) in November 1991. BSDAs were SAMA obligations created in 1984 as part of domestic money market reform. Treasury bills can be used by the banks for sale and repurchase arrangements with SAMA to raise liquidity in the amount of up to 75% of their gross Treasury bill holdings.

4.1.3 The money market

Instruments in the riyal money market are limited to deposits and Treasury bills. Treasury bills are used by the banks as short-term investment vehicles and are viewed as an additional cushion for raising liquidity from SAMA through sale and repurchase agreements. The interbank deposit market is up to one year, with the bulk of business taking place in shorter maturities. There is an active foreign exchange swap market, which complements banks' funding/placing operations. The market determines interest rates.

Historically, domestic banks have been net lenders of riyal deposits. Among derivative products, the banks have recently been focusing on riyal FRAs, interest rate caps/floors and currency options, mainly for customer-related operations.

4.1.4 Floating rate notes (FRNs)

Riyal FRNs were introduced in late December 1996 to broaden the range of available instruments and diversify the price risk. In developing countries where banks play an important role in mobilising domestic savings, FRNs suit the banks' balance sheet structure, particularly in a rising interest rate environment.

For the issuer, FRNs are a commonly used financing tool as they attract longer maturities at short-term funding cost. In order to raise financing requirements smoothly, the investment choice among floating and fixed rate instruments is quite helpful.

4.1.5 Trading and settlement

SAMA uses a book entry system for GDB settlements because of the low cost and ease of administration. GDBs, carrying fixed coupons for two- to 10-year maturities (two, three, five, seven and 10), are offered to the domestic banks and some institutions every second Monday of the month. SAMA issues invitations to subscribe on Monday and the banks/institutions respond by Tuesday for settlement Wednesday. The subscription amount is deducted from the current accounts of the banks/institutions in SAMA's books against GDBs posted to their securities accounts. Resident and non-resident investors are eligible to buy GDBs through the domestic banks. One of the most important features linked to GDBs is SAMA's overnight repurchase (repo) facility, under which primary dealers are allowed to sell for repurchase up to 75% of their gross GDB holdings. The repo agreement is based on the nominal value of the issue. Banks receive discounted funds credited to their current accounts with SAMA.

Treasury bills (discounted instruments) are offered by SAMA to the banks every Tuesday, for response on Wednesday and settlement on Thursday. The subscription amount is deducted from the subscribers' current account in SAMA's books and the Treasury bills are added to their securities account. There are no restrictions on Treasury bill trading or ownership.

FRNs are currently issued every month in five- and seven-year maturities at three-month Sibor plus a spread. Spreads are advised to the banks on the last Saturday of the month and coupons are fixed the following Monday for settlement on Wednesday. The payment and delivery procedure is identical to that for GDBs.

All debt market transactions are settled over SARIE on a gross basis.

4.2 The equity market

Saudi joint stock companies had their beginnings in the mid-1930s, when the first such company, the Arab Automobile Company, was established. By 1975 there were 14 public companies. The rapid economic expansion and Saudisation of foreign banks in the 1970s led to the establishment of a number of large corporations and joint venture banks. Major share offerings were made to the public during this period.

The market remained informal until the early 1980s, when the government embarked on a rapid development programme. A ministerial committee, comprising the Minister of Finance, the Minister of Commerce and the Governor of SAMA was formed by Royal Decree in 1984. The Committee is responsible for the regulation and development of the securities market in Saudi Arabia.

The Securities Supervisory Committee, composed of senior representatives of the two ministries and SAMA, reports directly to the Ministerial Committee. The Securities Supervisory Committee supervises, and issues the regulations governing, the securities market. SAMA, through its Securities Control Department, is responsible for the day-to-day operation and regulation of the market.

The Ministry of Commerce is directly responsible for primary market offerings and regulation and supervision of joint stock companies. The Regulations for Companies were issued in 1965 and have been amended several times.

With the aim of improving the regulatory framework, share trading intermediation was restricted to commercial banks. In 1984 the **Saudi Share Registration Company (SSRC)** was established by the commercial banks. The SSRC provides central registration facilities for joint stock companies and settles and clears all equity transactions. Automated clearing and settlement was introduced in 1989.

In 1990 the **Electronic Securities Information System (ESIS)** was launched. This was an electronic floorless share trading and settlement system operated and supervised by SAMA. ESIS almost entirely dematerialised share trading.

Between 1990 and 2000 the transactions traded, in terms of both volume and value, increased dramatically. Market capitalisation has increased by 160% and the all share index has increased by 130%. ESIS has now been replaced by TADAWUL.

TADAWUL (an Arabic word which means "exchange") was launched during 2001, and is the new service for the trading, clearing and settlement of shares in Saudi Arabia. The main features of TADAWUL are:

- it provides a continuous, order-driven market, with up-to-the-minute price, volume and company information;
- it concentrates all local equity trading into one single market;
- it provides an efficient and short trading cycle. Transfer of ownership occurs immediately after matching of buy and sell orders;
- it provides accurate and speedy settlement; 100% of all trades settle on the day of execution;
- it supports straight through processing. Buy and sell orders are processed from order entry to transfer of ownership, thus providing support for order delivery mechanisms such as the internet.

TADAWUL provides for the opening of accounts at both the banks and the depository. Each investor must open an account either with a bank (this is referred to as a Member Account) or directly with the depository (this is referred to as a Global Account). Investors may open several Member Accounts with several banks, but an individual investor may only open one Global Account with the depository. Investors receive from their bank on a regular basis a statement of all transactions and holdings. Investors may only trade through the banks where they have opened accounts.

TADAWUL supports all types of corporate actions. An increase in the number of shares resulting from a corporate action is immediately reflected in the account (or accounts) of the shareholder (investors do not have to collect or wait for the delivery of certificates). Rather than waiting for cheques, cash dividends can be paid directly into the bank account designated by the investor.

4.2.1 Trading and settlement

- Step 1 Buying and selling investors submit orders via the bank where their accounts are maintained. This may be achieved by directly visiting the bank or through delivery channels such as the internet. These orders represent the agreement between the bank and the investor to execute a specific business transaction. TADAWUL automatically validates availability of the shares and investor details.
- Step 2 Orders are entered into the bank's order management system (OMS), providing banks with an effective way of managing and tracking investor orders. In accordance with market conditions and the requirements of the investor, the orders in the bank's OMS are forwarded to TADAWUL via a high-speed network.
- Step 3 TADAWUL attempts to match orders according to price, and then time priority. A variety of order types and special terms are available to the investor. Unmatched orders are maintained in TADAWUL until they match, are taken out of the market or expire.
- Step 4 From matched orders, trades are generated and reported electronically to the central securities depository.
- Step 5 A trade results in the immediate transfer of shares from the account of the seller to the account of the buyer. All trading is conducted in dematerialised form. Cash transfer is performed via the national real-time gross settlement system, SARIE.

4.3 Use of securities infrastructure by the central bank

The Limits and Collateral Policy issued by SAMA sets out the rules governing intraday limits for the SARIE system. The policy states that the intraday overdraft limit must be fully collateralised by Saudi Arabian government-issued instruments which can be readily liquidated and over which SAMA has jurisdiction. The policy lists the instruments that are allowable as collateral. These are:

- Government Development Bonds - 100% of face value;
- Treasury bills - 100% of face value;
- special bonds - 100% of face value;

- floating rate notes - 100% of face value;
- farmers' certificates - 90% of face value.

SAMA holds a Letter of Undertaking from each bank pledging the specified instruments as collateral.

Banks can also access liquidity via sale and repurchase (repo) facilities offered by SAMA. Repos can be intraday, overnight or for longer periods. The banks may sell for repurchase up to 75% of their gross holdings of Government Development Bonds and the same percentage of their Treasury bills. Liabilities arising from repos are not included in the calculation of a bank's capital/deposit ratio.

Statistical tables

Table 1
Basic statistical data

	1997	1998	1999	2000	2001
Population (thousands)	20,001	20,664	21,334	22,009	22,700
GDP (SAR billions)	548	481	535	648	698
GDP per capita (SAR)	27,420	23,286	25,078	29,485	30,749
Exchange rate (SAR/USD):					
<i>Year-end</i>	3.7500	3.7500	3.7500	3.7500	3.7500
<i>Average</i>	3.7500	3.7500	3.7500	3.7500	3.7500

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

	1997	1998	1999	2000	2001
Notes and coin	45.82	45.02	55.06	51.02	49.20
Transferable deposits	95.36	95.25	101.61	114.48	130.19
Narrow money supply (M1) ¹	141.18	140.27	156.67	165.50	179.40
<i>Memo:</i>					
<i>Broad money supply</i> ²	272.00	282.06	301.15	314.15	330.33
<i>Transferable balances held in foreign currencies</i> ³	44.68	50.48	49.42	49.04	50.29

¹ Narrow money supply (M1) is made up of currency outside banks plus demand deposits in SAR. ² Broad money supply (M3) is made of (A) narrow money supply, (B) time and savings deposits and (C) other quasi-monetary deposits which consist of (i) Residents' foreign currency deposits, (ii) deposits for letters of credit, (iii) deposits for guarantees and (iv) outstanding remittances. ³ Transferable balances held in foreign currencies do not form part of M1. These balances are, however, included in M3.

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

	1997	1998	1999	2000	2001
Transferable balances held at central bank	9.64	9.92	11.08	12.91	15.66
<i>Of which:</i>					
<i>Required reserves</i>	9.50	9.83	10.50	11.19	12.60
<i>Free reserves</i>	0.14	0.09	0.58	0.72	0.20
Transferable balances held at other banks	95.36	95.25	101.61	114.48	130.19
<i>Memo: Institutions' borrowings from central bank</i> ¹	0.6	1.9	1.1	0.5	1.4

¹ "Net repos" expressed as daily average.

Table 4
Banknotes and coin
End of year, in billions of SAR

	1997	1998	1999	2000	2001
Total banknotes issued	48.54	47.48	60.33	56.79	52.45
<i>Of which: (denomination details)</i>					
SAR 500	34.66	34.65	42.38	38.11	34.46
SAR 200 ¹	<i>nap</i>	<i>nap</i>	3.32	7.19	8.14
SAR 100	8.99	8.44	9.98	7.30	6.05
SAR 50	3.41	2.80	2.93	2.34	1.89
SAR 20 ¹	<i>nap</i>	<i>nap</i>	0.08	0.14	0.14
SAR 10	0.68	0.73	0.76	0.78	0.80
SAR 5	0.37	0.39	0.41	0.43	0.46
SAR 1	0.43	0.48	0.47	0.50	0.51
Total coin issued ²	0.20	0.20	0.20	0.20	0.20
Total banknotes and coin issued	48.74	47.68	60.53	56.99	52.65
Banknotes and coin held by credit institutions	2.92	2.66	5.47	5.97	3.45
Banknotes and coin in circulation outside credit institutions	45.82	45.02	55.06	51.02	49.20

¹ SAR 200 and 20 notes were first issued in 1999. ² Denomination details are not available.

Table 5
Institutional framework

Categories	Number of institutions	Number of branches	Number of accounts (thousands)	Number of internet-linked accounts	Value of accounts (USD billions)
Central bank	1	10	520	0	17.3
Credit institutions	11	1,199	3,854 ¹	0	74.97
Total	12	1,209	4,374	0	92.27
<i>Of which:</i>					
<i>Virtual institutions</i>	0	0	0	0	0
Branches of foreign banks	1	1	neg	nav	nav

¹ Data for 2001 are not available. The figure given refers to 2000.

Table 6
Payment card functions and accepting devices
End of year

	1997	1998	1999	2000	2001
Cash function					
Cards with a cash function (thousands)	3,052	3,648	3,770	4,775	5,561
Number of networks	1	1	1	1	1
Number of ATMs with a cash dispensing function	1,591	1,808	1,997	2,234	2,577
<i>Of which:</i>					
<i>Open access</i>	1,591	1,808	1,997	2,234	2,577
<i>Limited access</i>	0	0	0	0	0
Volume of transactions (millions)	80.60	96.80	123.80	164.00	219.37
<i>Of which:</i>					
<i>At ATMs with open access</i>	80.60	96.80	123.80	164.00	219.37
<i>At ATMs with limited access</i>	0	0	0	0	0
Value of transactions (SAR billions):	58.40	68.50	83.40	119.20	136.96
<i>Of which:</i>					
<i>At ATMs with open access</i>	58.40	68.50	83.40	119.20	136.96
<i>At ATMs with limited access</i>	0	0	0	0	0
Debit function					
Cards with a debit function (thousands)	3,052	3,648	3,770	4,775	5,561
Number of networks	1	1	1	1	1
Number of terminals	15,679	15,881	16,419	18,537	21,631
Volume of transactions (millions)	8.67	10.90	14.28	17.97	23.96
Value of transactions (SAR billions)	4.11	5.00	6.29	7.50	10.24
Credit function					
Cards with a credit function (thousands)	376	452	474	491	511
Number of networks	1	1	1	1	1
Number of terminals	17,270	17,689	18,416	20,771	24,208
Volume of transactions (millions)	nav	nav	nav	nav	nav
Value of transactions (SAR billions)	nav	nav	nav	nav	nav
Delayed debit cards (charge cards)¹	nap	nap	nap	nap	nap

¹ Figures for delayed debit cards are included in cards with a credit function.

Table 7

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

In millions

	1997	1998	1999	2000	2001
Cheques	8.10	8.07	8.15	7.76	7.69
SPAN - ATM ¹	82.78	97.53	136.96	169.45	219.37
SPAN - POS ²	8.67	10.90	14.28	17.97	23.96
SARIE - customer payments	0.17	0.49	2.20	5.05	8.32
Concentration ratio (in %) ⁴	60	63	86	93	88
SARIE - interbank payments	0.06	0.11	0.14	0.14	0.15
Concentration ratio (in %) ⁴	63	64	63	64	64

¹ Figures are for all ATMs linked by SPAN. ² Figures are for all POS terminals linked by SPAN. ³ SARIE was operationalised on 14 May 1997. ⁴ Market share of the five largest participants, based on the total volume of transactions in SARIE.

Table 8

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

In billions of SAR

	1997	1998	1999	2000	2001
Cheques	1,464.1	420.4	437.3	463.1	495.7
SPAN - ATM ¹	46.6	71.7	103.9	121.3	136.9
SPAN - POS ²	4.1	5.0	6.3	7.4	10.2
SARIE - customer payments	123.9	284.4	323.5	374.7	450.4
Concentration ratio (in %) ⁴	66	68	70	72	73
SARIE - interbank payments	2,415.8	4,947.2	5,297.3	4,870.8	5,355.2
Concentration ratio (in %) ⁴	65	70	70	73	72

¹ Figures are for all ATMs linked by SPAN. ² Figures are for all POS terminals linked by SPAN. ³ SARIE was operationalised on 14 May 1997. ⁴ Market share of the five largest participants, based on the total value of transactions in SARIE.

Table 9
**Indicators of use of various cashless payment
instruments: volume of transactions**
In millions

	1997	1998	1999	2000	2001
Instruments					
Cheques	8.10	8.07	8.10	7.76	7.69
<i>Of which:</i>					
<i>Face-to-face</i>	8.10	8.07	8.10	7.76	7.69
Payments by debit card	8.67	10.90	14.28	17.97	23.96
Payments by credit card	nav	nav	nav	nav	nav
Credit transfers	0.17	0.49	2.20	5.05	8.32
Direct debits	0	neg	neg	neg	neg
Total	16.94	18.65	24.58	30.78	39.97

Table 10
**Indicators of use of various cashless payment
instruments: value of transactions**
In billions of SAR

	1997	1998	1999	2000	2001
Instruments					
Cheques	1,464.1	420.4	437.3	463.0	495.7
<i>Of which:</i>					
<i>Face-to-face</i>	1,464.1	420.4	437.3	463.0	495.7
Payments by debit card	4.1	5.0	6.3	7.5	10.2
Payments by credit card	nav	nav	nav	nav	nav
Credit transfers	123.9	284.4	323.5	374.7	450.4
Direct debits	0	neg	neg	neg	neg
Total	1,592.1	709.8	767.1	845.2	956.3

Table 11a

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

In millions

	1997	1998	1999	2000	2001
Trading platforms					
ESIS (Electronic Securities Information System)	0.46	0.38	0.44	0.50	0.61

Table 11b

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

In billions of SAR

	1997	1998	1999	2000	2001
Trading platforms					
ESIS (Electronic Securities Information System)	62.1	51.5	56.5	65.3	83.6

Table 11c

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

Details are not available.

Table 11d

Outstanding securities

End of year

	1997	1998	1999	2000	2001
Government securities					
Value of securities issued (SAR billions)	342	460	517	544	594
Volume of securities issued	nav	nav	nav	nav	nav
Value of securities registered (SAR billions)	342	460	517	544	594
Volume of securities registered	nav	nav	nav	nav	nav

Table 11e

Netting ratio in clearing systems

Not applicable as there is no system of netting.

Table 12

Participation in SWIFT by domestic institutions

	1997	1998	1999	2000	2001
Members	13	13	12	12	12
<i>Of which: live</i>	13	13	12	12	12
Submembers	1	0	0	1	1
<i>Of which: live</i>	1	0	0	1	1
Participants	0	0	0	0	0
<i>Of which: live</i>	0	0	0	0	0
Total users	14	13	12	13	13
<i>Memo: Total SWIFT users</i>	6,176	6,557	6,797	7,293	7,457
<i>Of which:</i>					
<i>Members</i>	3,070	3,052	2,230	2,307	2,265
<i>Submembers</i>	2,621	2,781	2,825	3,037	3,143
<i>Participants</i>	681	938	1,936	1,949	2,049

Table 13

SWIFT message flows to/from domestic users

	1997	1998	1999	2000	2001
Total messages sent	2,534,077	2,752,121	2,876,165	3,214,426	3,714,013
<i>Of which:</i>					
<i>Category I</i>	1,354,699	1,505,366	1,630,614	1,817,732	2,175,228
<i>Category II</i>	393,974	426,182	416,340	446,946	474,394
Total messages received	1,250,001	1,379,415	1,471,733	1,645,548	1,771,743
<i>Of which:</i>					
<i>Category I</i>	247,489	277,522	300,740	339,514	378,034
<i>Category II</i>	99,357	111,359	118,317	120,902	124,025
Domestic traffic	46,814	58,032	83,042	113,074	109,340
<i>Memo: Global SWIFT traffic</i>	812,117,556	937,039,995	1,076,490,597	1,298,668,103	1,533,906,047

Comparative tables

Table 1
Banknotes and coin in circulation
 End of year

	Total (USD millions) ¹					Value per inhabitant (USD) ¹				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	12,219	12,005	14,683	13,605	13,120	611	581	688	618	578
Belgium	11,953	12,694	12,055	11,045	6,257	1,174	1,244	1,179	1,078	609
Canada	20,704	20,698	25,518	23,539	23,697	688	682	834	762	759
France	44,584	48,303	44,907	41,500	25,822	745	804	745	685	424
Germany	137,688	144,327	131,706	117,149	59,928	1,678	1,759	1,604	1,425	728
Hong Kong SAR	10,404	10,479	12,807	11,770	13,035	1,603	1,601	1,938	1,766	1,938
Italy	61,080	69,410	66,124	64,632	50,806	1,062	1,205	1,147	1,120	877
Japan	405,887	471,446	581,944	539,144	507,160	3,217	3,728	4,594	4,248	3,984
Netherlands	19,205	19,974	17,400	15,753	8,055	1,231	1,272	1,101	989	502
Singapore	6,389	6,110	6,792	6,520	6,412	1,684	1,558	1,719	1,623	1,552
Sweden	9,370	9,579	10,231	9,409	9,162	1,059	1,082	1,155	1,061	1,030
Switzerland	19,796	21,858	19,830	19,562	21,418	2,783	3,065	2,767	2,715	2,950
United Kingdom	40,116	42,339	45,612	45,057	47,102	680	715	767	754	786
United States	428,100	463,300	521,500	535,200	584,900	1,597	1,713	1,911	1,944	2,052

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

Table 1 (cont)

Banknotes and coin in circulation

End of year

	As a percentage of GDP					As a percentage of narrow money				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	8.4	9.4	10.3	7.9	7.1	32.5	32.1	35.1	30.8	27.4
Belgium	5.0	4.8	5.1	4.8	2.8	26.5	23.8	20.4	19.3	11.8
Canada	3.4	3.5	3.8	3.3	3.5	14.2	14.5	15.6	13.7	13.0
France	3.3	3.2	3.3	3.1	2.0	13.1	12.9	12.7	11.9	7.4
Germany	6.7	6.4	6.6	6.2	3.3	27.1	24.1	23.5	21.9	11.3
Hong Kong SAR	6.1	6.4	8.1	7.2	7.9	42.8	45.5	48.5	45.0	44.2
Italy	5.4	5.5	5.9	6.0	4.7	16.1	16.1	14.4	14.3	11.3
Japan	10.1	10.5	11.7	12.1	13.1	25.8	25.3	24.8	25.0	23.7
Netherlands	5.3	4.8	4.6	4.2	2.1	15.7	14.1	12.8	11.4	5.7
Singapore	7.6	7.4	8.0	7.1	7.7	38.9	37.2	36.4	33.9	32.9
Sweden	4.1	4.1	4.3	4.3	4.5	nav	nav	nav	nav	nav
Switzerland	7.8	7.9	8.2	7.9	8.7	15.6	15.5	15.3	15.8	16.7
United Kingdom	3.0	3.0	3.1	3.2	3.3	5.0	5.0	5.0	5.0	5.0
United States	5.1	5.3	5.6	5.4	5.8	39.0	41.4	45.4	48.1	48.6

¹ Converted at end-of-year exchange rates.

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

	Value per inhabitant (USD) ¹					As a percentage of GDP					As a percentage of narrow money				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	1,271	1,229	1,270	1,387	1,529	17.4	19.8	19.0	17.7	18.7	67.5	67.9	64.9	69.2	72.6
Belgium	3,261	3,984	4,609	4,504	4,558	14.0	15.5	19.9	20.0	20.9	73.5	76.2	79.6	80.8	88.2
Canada	4,169	4,010	4,512	4,818	5,091	20.3	20.4	20.3	20.9	23.2	85.8	85.5	84.4	86.3	87.0
France	4,913	5,436	5,127	5,080	5,323	21.5	21.4	22.7	23.3	25.1	86.8	87.1	87.3	88.1	92.6
Germany	4,515	5,542	5,220	5,080	5,712	18.0	20.1	21.6	22.2	25.8	72.9	75.9	76.5	78.1	88.7
Hong Kong SAR	2,140	1,915	2,061	2,160	2,448	8.1	7.7	8.6	8.9	10.0	57.2	54.5	51.5	55.0	55.8
Italy	5,379	6,179	6,798	6,704	6,858	27.4	28.4	35.2	35.7	37.1	81.7	82.4	85.6	85.7	88.7
Japan	9,246	10,988	13,931	12,748	12,854	29.0	31.0	35.4	36.2	42.4	74.2	74.7	75.2	75.0	76.3
Netherlands	6,609	7,740	7,499	7,710	8,294	28.3	29.4	31.5	32.8	35.2	84.3	85.9	87.2	88.6	94.3
Singapore	2,644	2,625	3,007	3,158	3,167	12.0	12.4	13.9	13.8	15.8	61.1	62.8	63.6	66.1	67.1
Sweden	10,487	10,503	10,678	9,972	9,867	40.2	39.7	40.2	40.0	42.8	nav	nav	nav	nav	nav
Switzerland	8,561	9,682	8,714	8,234	8,462	23.9	25.0	25.7	23.9	24.8	47.9	48.9	48.2	47.9	47.8
United Kingdom	12,997	13,718	14,471	14,225	14,960	57.0	57.2	59.0	60.0	62.7	95.0	95.0	95.0	95.0	95.0
United States	2,464	2,398	2,266	2,066	2,143	7.9	7.4	6.7	5.8	6.1	60.2	57.9	53.9	51.2	50.7

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

¹ Converted at end-of-year exchange rates.

Table 3
Settlement media used by banks
 End of year

	Banks' reserves at central bank									
	USD billions¹					As a percentage of narrow money				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	2.6	2.7	3.0	3.4	4.2	6.8	7.1	7.1	7.8	8.7
Belgium	neg	1.0	7.4	6.7	6.7	0.1	1.8	12.5	11.8	12.6
Canada	0.3	0.4	0.9	0.3	0.3	0.2	0.3	0.6	0.2	0.2
France ²	3.8	19.4	24.1	26.0	26.3	1.1	5.2	6.8	7.4	7.5
Germany	23.4	27.7	33.5	33.0	34.3	4.6	4.6	6.0	6.2	6.5
Hong Kong SAR ³	neg	0.3	1.0	0.1	0.1	0.2	1.4	3.9	0.3	0.3
Italy	47.6	11.9	12.2	11.4	11.5	12.6	2.8	2.7	2.5	2.6
Japan	27.7	33.2	94.9	36.9	82.6	1.8	1.8	4.0	1.7	3.9
Netherlands	3.0	9.1	7.3	8.7	9.0	2.5	6.4	5.4	6.3	6.3
Singapore	4.6	3.3	4.5	3.3	3.8	28.0	19.9	24.2	17.1	19.3
Sweden	0.3	0.2	0.5	neg	neg	nav	nav	nav	nav	nav
Switzerland	4.2	5.6	6.6	4.7	4.7	3.3	4.0	5.1	3.8	3.7
United Kingdom	4.5	2.6	3.6	2.5	2.7	0.6	0.3	0.4	0.3	0.3
United States	18.3	15.6	12.4	13.5	17.8	1.7	1.4	1.1	1.2	1.5

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

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

	Transferable deposits at other banks									
	USD billions ¹					As a percentage of narrow money				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	25.4	25.4	27.1	30.5	34.7	67.5	67.9	64.9	69.2	72.6
Belgium	4.9	5.4	6.5	6.6	11.7	10.9	10.1	11.0	11.5	22.0
Canada	3.7	4.2	5.2	4.5	3.3	2.5	2.9	3.2	2.6	1.8
France ²	149.1	183.9	190.7	169.2	165.9	44.0	49.1	53.9	48.4	47.4
Germany	238.9	281.9	114.9	105.5	108.5	47.0	47.1	20.5	19.7	20.5
Hong Kong SAR ³	nap	nap	nap	nap	nap	nap	nap	nap	nap	nap
Italy	55.0	64.2	59.3	88.1	75.0	14.5	14.9	12.9	19.5	16.7
Japan	29.9	30.7	103.1	37.8	52.8	1.9	1.6	4.4	1.8	2.5
Netherlands	1.2	25.0	16.4	49.7	26.9	1.0	17.7	12.1	35.9	19.1
Singapore	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Sweden	11.9	13.9	11.1	7.9	11.7	nav	nav	nav	nav	nav
Switzerland	23.6	37.2	26.2	30.8	27.4	18.6	26.3	20.3	24.8	21.3
United Kingdom	371.1	357.9	358.9	361.4	404.3	46.1	41.9	39.6	40.4	42.8
United States	29.5	32.8	27.5	32.1	34.9	2.7	2.9	2.4	2.9	2.9

¹ Converted at end-of-year exchange rates.

France: ² Change in reserves policy from 16 October 1998.

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

Table 4
Institutional framework

	Number of institutions offering payment services ¹		Number of central bank branches ¹		Number of bank branches ¹		Number of post office branches ¹		Others ¹		Total number of branches offering payment services ¹		Number of accounts on which payments can be made ²	
	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001
Saudi Arabia	0.5	0.5	0.4	0.4	53.8	54.5	nav	nav	0	0	53.8	54.9	0.2	nav
Belgium	11.8	11.2	0.8	0.7	645.1	599.9	135.1	131.1	nap	nap	780.2	731.1	1.2	1.0
Canada ^{3,4}	62.0	54.1	0.0	0.0	270.3	285.9	nap	nap	173.3	172.4	443.6	458.3	nav	nav
France	27.8	26.9	3.5	3.5	423.5	427.7	272.9	185.5	65.3	64.5	765.2	681.1	1.1	1.1
Germany ⁵	33.3	30.6	1.6	1.6	681.1	640.5	nap	nap	nap	nap	682.9	642.0	1.1	1.1
Hong Kong SAR ⁶	23.1	19.8	0.2	0.1	241.3	218.6	nap	nap	nap	nap	241.4	218.7	nav	nav
Italy	13.6	13.3	1.7	1.7	486.4	503.4	241.3	237.0	nap	nap	729.4	742.2	0.6	0.6
Japan	22.3	19.6	0.3	0.3	315.4	304.3	190.4	189.9	nap	nap	506.0	494.5	nav	nav
Netherlands ⁷	7.1	6.9	0.3	0.2	238.0	218.6	137.4	140.4	nap	nap	375.7	359.3	1.4	1.4
Singapore ⁸	54.0	48.9	0.7	0.7	174.7	150.6	nap	nap	nap	nap	175.0	150.8	nav	nav
Sweden	14.3	15.1	0.1	0.1	225.6	229.3	154.7	151.7	nap	nap	380.3	381.1	nav	nav
Switzerland	46.6	45.2	0.8	0.8	395.5	387.5	469.9	437.6	nap	nap	866.2	825.9	nav	nav
United Kingdom	8.4	8.0	neg	neg	252.0	244.9	307.8	291.9	nap	nap	559.8	536.9	2.7	2.6
United States	74.5	71.2	0.1	0.1	282.4	272.9	nap	nap	nap	nap	282.4	273.0	nav	nav

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

¹ Per million inhabitants. ² Per inhabitant.

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

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

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

Netherlands: ⁷ "Number of bank branches" excludes the counters of the postal institution.

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

Table 5
Cards with a cash function and ATMs

	Number of ATMs per million inhabitants (end of year)					Number of transactions per inhabitant					Average value per transaction (USD) ¹				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	80	88	94	102	117	4.0	4.7	5.8	7.5	9.7	193.2	188.7	179.6	193.8	166.5
Belgium	492	564	606	657	669	15.7	15.6	17.4	19.8	21.5	117.9	118.2	111.3	97.5	92.8
Canada ³	652	775	873	1,034	1,142	43.1	47.3	47.2	48.3	47.8	50.4	62.0	65.3	66.6	69.5
France	452	490	538	580	606	14.0	15.5	17.0	17.9	19.1	66.2	62.8	64.8	56.0	54.7
Germany	505	556	563	580	603	nav	17.1	18.4	20.4	19.4	nav	169.5	155.9	134.2	140.2
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	444	487	524	549	593	7.2	8.5	8.7	9.1	9.7	184.9	178.7	170.6	150.3	144.9
Japan ⁴	924	934	944	922	918	3.0	3.1	3.1	3.2	3.1	481.4	433.8	501.3	532.2	474.4
Netherlands	410	418	422	435	445	25.9	27.1	28.5	29.5	28.0	95.9	96.0	93.7	79.7	88.2
Singapore ⁵	499	483	470	446	435	4.0	4.0	2.6	2.1	2.1	149.4	135.0	140.0	138.2	124.7
Sweden	268	281	291	295	289	35.3	37.6	35.0	36.2	37.7	104.5	108.4	100.2	92.1	81.4
Switzerland	603	642	655	675	694	11.4	11.3	12.2	17.8	19.6	186.6	180.3	173.2	117.0	111.9
United Kingdom	393	415	460	552	612	29.6	31.2	33.1	33.9	36.6	84.5	87.8	88.8	84.5	84.0
United States	616	691	832	991	1,137	41.0	41.4	39.9	46.8	47.7	67.7	68.0	68.0	69.6	68.0

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

Table 5 (cont)

Cards with a cash function and ATMs

	Increase in the number of ATMs (%)					Increase in the number of transactions (%)					Increase in the value of transactions (%) ²				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	20	10	10	12	15	22	20	28	32	34	19	17	22	43	15
Belgium	24.3	15.0	7.7	8.6	2.1	3.8	-0.2	11.4	-14.1	9.2	-8.6	0.1	4.9	-0.1	4.0
Canada ³	5.6	19.9	13.7	19.4	11.6	6.1	10.9	0.5	3.3	0.1	1.3	29.9	7.5	3.8	3.0
France	10.4	8.6	10.3	8.4	5.0	9.0	11.4	10.3	5.5	7.7	-5.6	5.7	13.9	-8.9	5.2
Germany	10.1	10.2	1.3	3.1	4.1	nav	nav	7.7	11.0	-4.7	nav	nav	-1.0	-4.4	-0.5
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	5.0	9.8	7.7	5.0	8.3	12.0	18.2	-2.7	5.6	6.6	2.9	14.2	-2.1	-7.0	2.8
Japan ⁴	3.0	1.3	1.2	-2.2	-0.1	4.2	3.3	neg	3.6	-2.2	-7.1	-6.9	15.6	10.0	-12.9
Netherlands	4.0	2.7	1.6	3.7	3.2	1.0	5.2	5.9	4.4	-4.3	-13.1	5.3	3.3	-11.1	5.8
Singapore ⁵	9.2	-0.1	-2.0	-3.3	0.2	10.1	2.0	-34.8	-15.4	2.7	6.6	-7.9	-32.4	-16.5	-7.3
Sweden	-0.4	4.9	3.8	1.4	-1.9	5.1	6.7	-6.9	3.5	4.4	-8.5	10.7	-13.9	-4.9	-7.7
Switzerland	17.4	6.7	2.5	3.7	3.6	8.2	-0.6	8.5	46.9	11.2	-10.4	-4.0	4.2	-0.8	6.5
United Kingdom	4.8	6.0	11.4	20.5	11.1	9.1	6.0	6.4	3.0	8.2	18.0	10.2	7.6	-2.0	7.6
United States	18.6	13.3	21.4	20.3	18.7	2.8	1.8	-2.7	18.3	5.4	2.3	2.3	-2.7	21.1	3.0

¹ Converted at yearly average exchange rates. ² In USD terms, converted using yearly average exchange rates.

Canada: ³ Data on the value of transactions refer to cash withdrawals only.

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

Singapore: ⁵ The transactions refer to shared ATM transactions.

Table 6
Cards with a debit function and POS accepting terminals

	Number of POS terminals per million inhabitants (end of year)					Number of transactions per inhabitant					Average value per transaction (USD) ¹				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	784	769	770	842	983	0.4	0.5	0.7	0.8	1.1	126.4	122.3	117.5	111.3	114.0
Belgium	8,421	9,121	9,746	11,364	14,047	23.6	29.1	34.6	39.8	45.0	59.5	57.5	53.8	47.0	45.1
Canada	10,988	12,982	13,270	14,190	14,843	34.6	44.7	54.3	63.5	71.7	30.6	29.4	29.4	28.5	26.9
France	11,371	12,047	13,261	13,848	14,846	38.5	43.0	48.3	54.3	60.3	52.2	52.2	49.2	42.8	41.5
Germany ³	3,069	4,423	5,761	7,196	5,291	2.8	8.2	10.5	12.7	14.7	74.3	84.7	79.7	67.7	65.7
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	4,886	6,001	7,549	9,884	12,918	2.2	3.0	4.3	5.5	7.3	100.8	90.8	81.5	66.6	61.3
Japan ⁴	155	127	nav	nav	nav	neg	neg	neg	neg	neg	57.9	61.1	243.5	427.1	405.3
Netherlands	7,696	8,533	9,208	9,774	10,333	31.1	37.9	44.3	50.3	59.5	48.8	48.2	48.6	42.9	41.4
Singapore	3,954	4,088	4,506	4,851	5,067	13.4	14.8	16.6	19.1	21.2	45.2	36.5	36.7	35.7	34.9
Sweden	7,778	8,406	9,160	9,822	9,916	13.7	18.1	22.4	28.9	36.6	83.3	76.2	72.7	60.9	54.9
Switzerland	5,834	7,158	8,599	9,375	10,174	13.6	14.9	19.1	23.9	27.8	73.3	63.8	76.0	89.5	100.2
United Kingdom	8,981	10,298	11,765	12,300	12,879	25.9	29.8	35.3	39.9	46.0	50.0	52.2	51.6	50.3	51.7
United States	4,850	6,284	8,610	10,168	12,771	14.6	21.2	27.5	34.7	43.7	41.5	41.6	43.0	43.9	45.9

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

Table 6 (cont)

Cards with a debit function and POS accepting terminals

	Increase in the number of POS terminals (%)					Increase in the number of transactions (%)					Increase in the value of transactions (%) ²				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	12.0	1.0	3.0	13.0	16.7	27.0	26.0	31.0	26.0	33.3	24.0	22.0	26.0	19.0	36.5
Belgium	5.4	8.6	7.1	16.9	24.0	13.5	23.6	19.0	15.5	13.3	-1.0	19.5	11.4	0.8	8.7
Canada	30.6	19.1	3.1	7.9	5.7	53.6	30.3	22.6	18.0	14.1	44.5	25.2	22.8	14.2	7.9
France	2.6	6.3	10.5	4.9	7.8	9.4	12.1	12.8	13.0	11.5	-7.2	12.1	6.4	-1.7	8.1
Germany ³	60.3	44.1	30.3	25.0	-26.3	5.6	198.9	27.7	20.5	16.7	-22.6	240.8	20.0	2.3	13.3
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	30.9	23.0	25.9	31.1	31.1	72.2	38.7	44.2	28.2	33.0	42.3	24.9	29.5	4.7	22.5
Japan ⁴	-15.1	-17.7	nav	nav	nav	-16.7	neg	-20.0	700	93.8	57.5	5.5	219.1	1,303	83.9
Netherlands	25.1	11.6	8.6	6.9	6.5	30.9	22.6	17.7	14.5	19.1	13.3	21.0	18.8	0.9	15.1
Singapore	14.7	6.9	11.0	9.5	7.4	20.0	13.8	13.5	17.0	14.0	16.3	-8.2	14.4	13.7	11.4
Sweden	12.1	8.1	9.1	7.4	1.3	37.5	32.2	23.8	29.3	27.3	18.6	20.9	18.0	8.4	14.7
Switzerland	25.7	23.0	20.7	9.6	9.4	27.0	9.5	28.9	25.9	17.3	-3.6	-4.7	53.4	48.3	31.3
United Kingdom	-3.6	15.1	14.8	5.0	5.0	18.4	15.6	18.8	13.6	15.6	27.6	20.9	17.4	10.7	18.8
United States	48.5	30.8	38.2	19.1	30.0	58.4	46.5	31.0	27.2	30.4	63.0	46.8	35.3	29.9	36.4

¹ Converted at yearly average exchange rates. ² In USD terms, converted using yearly average exchange rates.

Germany: ³ Figures for 1997 exclude POZ and ELV procedures.

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

Table 7

Cards with a credit function and accepting terminals

	Number of accepting terminals per million inhabitants (end of year)					Number of transactions per inhabitant					Average value per transaction (USD) ¹				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	861	856	863	941	1,066	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Belgium	nav	nav	nav	nav	nav	3.9	4.3	4.8	5.2	5.9	110.7	111.1	107.6	94.7	97.3
Canada ³	26,900	27,555	27,233	31,205	32,021	31.8	33.3	37.5	41.2	42.3	64.9	66.2	63.3	65.1	58.6
France	11,371	12,047	13,261	13,848	14,846	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Germany ⁴	13,406	13,911	14,852	16,449	16,252	3.7	3.9	4.1	4.3	4.5	119.4	101.0	100.0	87.6	90.0
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	nav	nav	nav	nav	nav	2.5	3.0	4.0	4.7	5.4	104.8	102.0	97.6	84.6	82.6
Japan ⁵	4,393	5,162	5,488	6,069	6,426	10.1	11.8	12.0	15.8	17.6	117.5	96.9	116.6	100.7	85.3
Netherlands ⁶	nav	nav	nav	nav	nav	2.5	2.7	2.8	2.9	3.0	99.8	103.6	105.7	101.5	99.5
Singapore ⁷	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Sweden	7,778	8,406	9,160	9,822	9,916	5.4	5.9	6.4	7.6	8.3	100.7	86.4	92.5	92.7	76.5
Switzerland	nav	nav	nav	nav	nav	8.5	9.8	12.1	10.4	11.1	139.4	136.3	121.7	115.1	114.3
United Kingdom	8,981	10,298	11,765	12,300	12,879	21.2	23.0	25.0	27.1	29.1	88.5	91.7	95.7	93.6	91.2
United States	41,784	41,773	41,400	45,756	46,312	48.1	49.6	53.5	58.8	60.0	81.0	84.2	86.6	88.7	88.6

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

Table 7 (cont)

Cards with a credit function and accepting terminals

	Increase in the number of accepting terminals (%)					Increase in the number of transactions (%)					Increase in the value of transactions (%) ²				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	12.0	2.0	4.0	9.0	13.3	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Belgium	nav	nav	nav	nav	nav	10.5	11.9	9.7	10.6	13.0	-2.7	12.3	6.3	-2.7	16.1
Canada ³	2.7	3.3	-0.3	15.6	3.7	5.9	5.4	13.8	10.7	3.9	11.5	7.5	8.8	14.0	-6.6
France	2.6	6.3	10.5	4.9	7.8	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Germany ⁴	10.0	3.7	6.8	10.9	-1.0	4.6	4.6	6.1	4.4	5.4	-7.2	-11.5	5.0	-8.5	8.2
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	nav	nav	nav	nav	nav	21.6	24.1	30.9	18.8	15.4	7.0	20.8	25.2	3.0	12.7
Japan ⁵	18.5	17.8	6.5	10.8	6.2	12.7	17.4	1.4	32.3	11.8	-2.7	-3.2	21.9	14.3	-5.3
Netherlands ⁶	nav	nav	nav	nav	nav	7.0	8.2	4.6	6.2	1.5	-12.6	12.3	6.8	2.0	-0.5
Singapore ⁷	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	6.6	-13.1	14.7	15.9	1.1
Sweden	12.1	8.1	9.1	7.4	1.3	9.1	8.3	9.6	17.5	10.4	9.8	5.6	13.6	17.9	-0.9
Switzerland	nav	nav	nav	nav	nav	12.6	15.0	23.6	-13.1	7.1	-3.9	12.4	10.4	-17.8	6.3
United Kingdom	-3.6	15.1	14.8	5.0	5.0	11.3	8.7	9.5	8.6	7.8	21.0	12.7	14.2	6.3	5.0
United States	14.3	0.9	neg	11.5	4.8	5.4	4.0	8.8	10.9	5.6	9.3	8.2	11.8	13.6	5.5

¹ Converted at yearly average exchange rates ² In USD terms, converted using yearly average exchange rates.

Canada: ³ Includes both credit and charge cards.

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

Japan: ⁵ Includes cards with a delayed debit function.

Netherlands: ⁶ Includes cards with a delayed debit function.

Singapore: ⁷ For both credit and charge cards.

Table 8

Cards with an e-money function and accepting terminals

	Number of electronic money cards (end of year, in thousands)					Average value per reloading (USD) ¹				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia ^a	nap	nap	nap	nap	nap	nap	nap	nap	nap	nap
Belgium	31,035	5,606	7,898	8,396	8,543	36.4	32.2	27.9	24.3	27.3
Canada	42	36	58	87	74	nav	nav	nav	nav	nav
France	nap	nap	nap	nap	319	nav	nav	neg	neg	29.8
Germany	35,000	60,700	60,700	60,700	67,333	77.4	60.3	42.7	29.1	25.3
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	62	56	32	45	30	neg	neg	neg	neg	neg
Japan	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Netherlands	9,500	17,900	20,100	20,900	21,000	nav	nav	nav	nav	nav
Singapore	683	2,193	3,464	4,697	5,639	nav	nav	nav	nav	nav
Sweden	nav	205	540	593	557	nav	50.3	36.3	36.3	64.5
Switzerland	nap	2,953	3,137	3,355	3,524	nap	nap	nap	nap	nav
United Kingdom	110	140	160	nav	nav	neg	neg	neg	neg	neg
United States	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav

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

Table 8 (cont)

Cards with an e-money function and accepting terminals

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

¹ Converted at yearly average exchange rates.

Saudi Arabia: ^a There are no e-money schemes in operation in Saudi Arabia.

Table 9
Number of cards¹
 Per thousand inhabitants

	Cards with a cash function		Cards with a debit function		Cards with a credit function		Cards with a debit function issued by retailers		Cards with an e-money function		Cards with a cheque guarantee function	
	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001
Saudi Arabia	217.0	245.0	217.0	245.0	22.3	22.51	nap	nap	nap	nap	nap	nap
Belgium	1,359.6	1,360.5	1,216.8	1,216.5	289.9	296.2	147.1	152.2	819.4	831.0	374.7	272.0
Canada ²	2,104.9	nav	1,165.8	nav	1,360.1	1,505.9	nap	nap	2.8	2.4	nap	nap
France ³	675.8	711.2	609.2	652.3	nav	nav	nav	nav	nav	5.2	nav	nav
Germany	1,293.7	1,480.2	1,206.7	1,405.3	213.8	227.9	129.0	153.0	738.6	817.7	623.5	689.3
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	366.8	394.4	350.0	370.1	293.9	345.2	nap	nap	0.8	0.5	neg	neg
Japan ⁴	2,523.9	2,554.1	nav	nav	1,758.9	1,820.1	nap	nap	nav	nav	nap	nap
Netherlands ⁵	1,633.0	1,608.2	1,318.9	1,315.2	314.0	311.7	nav	nav	1,312.6	1,309.0	nav	nav
Singapore ⁶	742.2	745.1	742.2	745.1	612.5	681.2	nap	nap	1,169.0	1,365.0	nap	nap
Sweden ⁷	551.5	536.0	515.2	541.5	429.6	418.7	nav	nav	66.8	62.6	nav	nav
Switzerland	1,149.2	1,190.6	725.6	745.2	434.6	451.9	nav	nav	465.7	485.4	739.6	762.1
United Kingdom	1,986.1	2,124.5	832.2	906.0	851.0	936.4	nap	nap	nav	nav	947.3	974.4
United States	2,758.1	2,891.7	851.9	889.4	4,539.3	4,329.5	41.0	40.0	nav	nav	nav	nav

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

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

Canada: ² Data on cards with a credit function as at 31 October.

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

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

Netherlands: ⁵ Data on cards with a credit function include cards with a delayed debit function.

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

Sweden: ⁷ Data on cards with a credit function include cards with a delayed debit function.

Table 10
Use of cards

Average number of:

	Cash withdrawals per card with a cash function		Payments per card with a debit function		Payments per card with a credit function		Payments per card with an e-money function	
	2000	2001	2000	2001	2000	2001	2000	2001
Saudi Arabia	nav	nav	3.8	4.3	nav	nav	nap	nap
Belgium	14.5	15.8	32.7	37.0	18.1	20.0	6.1	7.1
Canada	22.9	nav	54.4	nav	30.3	28.1	nav	nav
France ¹	26.4	26.9	89.2	92.4	nav	nav	nav	8.8
Germany	15.8	13.1	10.5	10.5	20.0	19.7	0.4	0.4
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav
Italy	24.9	24.6	15.7	19.7	16.0	15.7	neg	neg
Japan ²	1.3	1.2	nav	nav	9.0	9.7	nav	nav
Netherlands ³	18.1	17.4	38.2	45.2	11.4	9.5	1.2	1.5
Singapore ⁴	nav	nav	25.8	28.5	nav	nav	21.3	18.1
Sweden ⁵	65.6	70.2	56.0	67.7	17.6	19.9	4.9	2.7
Switzerland	15.5	16.5	32.9	37.3	24.0	24.5	5.4	5.6
United Kingdom	17.1	17.2	48.0	50.8	31.8	31.1	nav	nav
United States	17.0	16.5	40.7	49.1	12.9	13.8	nav	nav

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

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

Japan: ² Data on cards with a credit function include cards with a delayed debit function.

Netherlands: ³ Data on cards with a credit function include cards with a delayed debit function.

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

Sweden: ⁵ Data on cards with a credit function include cards with a delayed debit function.

Table 11
Use of cashless payment instruments
 Total number of transactions, in millions

	Cheques					Payments by credit/debit cards				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	8.1	8.1	8.2	7.8	7.7	8.7	10.9	14.3	18.0	24.0
Belgium	95.8	86.9	80.2	70.7	60.1	279.9	341.4	402.1	462.0	523.4
Canada	1,736.3	1,693.0	1,716.4	1,658.2	1,589.0	1,960.7	2,364.2	2,809.0	3,230.9	3,556.6
France	4,903.0	4,825.4	4,479.6	4,493.7	4,338.6	2,301.6	2,580.1	2,911.6	3,292.4	3,670.7
Germany ²	650.3	596.0	423.5	392.2	319.0	529.4	993.0	1,199.4	1,390.9	1,583.4
Hong Kong SAR	149.9	135.8	134.1	138.6	133.5	nav	nav	nav	nav	nav
Italy	656.8	648.7	665.2	602.0	606.2	265.0	346.8	476.7	589.8	737.2
Japan	283.4	260.1	239.3	225.9	208.9	1,275.7	1,497.5	1,517.8	2,010.6	2,250.3
Netherlands ³	64.9	46.6	26.7	14.2	5.3	524.4	637.1	744.4	848.3	1,001.9
Singapore ⁴	87.7	87.6	92.6	91.7	92.0	66.1	73.4	75.8	85.5	96.5
Sweden	18.0	4.0	4.0	2.0	2.0	169.0	213.0	255.0	323.0	400.0
Switzerland ⁵	9.3	7.7	6.7	11.2	7.2	157.6	175.9	223.0	243.5	282.1
United Kingdom	3,090.0	2,986.0	2,859.0	2,699.0	2,565.0	2,631.0	2,960.0	3,406.0	3,788.0	4,257.0
United States ⁶	46,569.4	45,169.7	43,812.1	42,500.0	41,222.6	16,817.3	19,153.1	22,106.4	25,734.9	29,542.8

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

Table 11 (cont)

Use of cashless payment instruments

Total number of transactions, in millions

	Credit transfers					Direct debits				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	0.2	0.5	2.2	5.1	8.3	0	neg	neg	neg	neg
Belgium	697.3	674.7	723.0	656.8	752.4	117.9	117.4	142.3	166.2	176.8
Canada	391.7	463.5	508.5	569.5	591.3	318.5	361.9	405.4	444.4	488.5
France	1,859.8	1,951.8	2,050.7	2,093.6	2,175.5	1,430.3	1,577.9	1,730.6	1,968.6	2,063.5
Germany ²	5,387.3	6,216.6	7,025.3	6,446.3	6,957.9	4,867.7	4,600.5	4,806.0	5,026.7	5,080.3
Hong Kong SAR	13.5	14.8	15.5	16.6	18.1	31.7	32.7	33.5	35.2	37.1
Italy	976.0	971.4	1,003.4	1,018.6	1,038.3	290.1	329.8	496.7	569.8	610.6
Japan	1,105.5	1,143.2	1,166.9	1,215.4	1,269.2	nav	nav	nav	nav	nav
Netherlands ³	1,053.1	1,075.5	1,086.2	1,140.4	1,182.7	642.8	722.6	785.0	836.2	873.8
Singapore ⁴	15.1	15.7	13.9	14.6	16.8	23.2	20.7	17.4	17.3	19.0
Sweden	660.0	633.0	712.0	715.0	697.0	65.0	74.0	85.0	91.0	98.0
Switzerland ⁵	505.0	554.0	586.0	545.2	503.0	25.0	27.0	30.4	46.1	47.6
United Kingdom	1,659.0	1,726.0	1,797.0	1,845.0	1,931.0	1,584.0	1,736.0	1,863.0	2,010.0	2,152.0
United States ⁶	2,488.6	2,899.2	3,167.8	3,486.1	3,890.3	1,347.2	1,530.9	1,676.9	1,947.3	2,385.4

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

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

	Card-based e-money					Total ¹				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	nap	nap	nap	nap	nap	16.9	19.5	24.6	30.8	40.0
Belgium	9.4	28.2	45.5	51.3	60.5	1,200.4	1,248.5	1,393.0	1,407.0	1,573.1
Canada	nav	nav	nav	nav	nav	4,407.2	4,882.6	5,439.3	5,903.0	6,225.4
France	nap	nap	nav	nav	2.8	10,494.7	10,935.1	11,172.5	11,848.3	12,248.3
Germany ²	4.2	13.6	20.7	26.6	29.4	11,438.9	12,419.7	13,474.9	13,282.7	13,970.0
Hong Kong SAR	nav	nav	nav	nav	nav	195.0	183.3	183.2	190.3	188.8
Italy	neg	neg	neg	neg	neg	2,187.9	2,296.7	2,642.0	2,780.2	2,992.3
Japan	nav	nav	nav	nav	nav	2,664.6	2,900.8	2,924.0	3,451.9	3,728.4
Netherlands ³	nav	17.0	22.0	25.0	31.0	2,285.2	2,498.8	2,664.3	2,864.1	3,094.7
Singapore ⁴	0.7	26.3	77.0	100.1	102.2	192.7	223.7	276.6	309.1	326.4
Sweden	nav	2.0	4.2	2.9	1.5	912.0	926.0	1,060.2	1,133.9	1,198.5
Switzerland ⁵	nap	4.1	10.7	18.0	19.8	696.9	768.7	856.8	864.0	859.7
United Kingdom	nav	nav	nav	nav	nav	8,964.0	9,408.0	9,925.0	10,342.0	10,905.0
United States ⁶	nav	nav	nav	nav	nav	67,222.5	68,752.9	70,763.2	73,668.3	77,041.1

¹ Sum of the available data.

Germany: ² Payments by debit cards in 1997 exclude POZ and ELV procedures.

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

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

Switzerland: ⁵ Includes eurocheques, bank cheques, Swiss banker traveller's cheques and, as from 2000, Postcheques.

United States: ⁶ A Federal Reserve study of the cheque clearing system, published in August 2002, estimated that the number of cheques paid in the United States was 49,500 million in 1995 and 42,500 million in 2000. Values for other years are derived from these estimates.

Table 12

Use of cashless payment instruments

Total number of transactions per inhabitant

	Cheques					Payments by credit/debit cards					Credit transfers				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	0.4	0.4	0.4	0.4	0.3	0.4	0.5	0.7	0.8	1.1	0	0	0.1	0.2	0.4
Belgium	9.4	8.5	7.8	6.9	5.8	27.5	33.5	39.3	45.1	50.9	68.5	66.1	70.7	64.1	73.2
Canada	57.7	55.8	56.1	53.7	50.9	65.2	77.9	91.8	104.6	114.0	13.0	15.3	16.6	18.4	18.9
France	81.9	80.4	74.3	74.2	71.2	38.5	43.0	48.3	54.3	60.3	31.1	32.5	34.0	34.6	35.7
Germany ²	7.9	7.3	5.2	4.8	3.9	6.5	12.1	14.6	16.9	19.2	65.7	75.8	85.6	78.4	84.5
Hong Kong SAR	23.1	20.8	20.3	20.8	19.9	nav	nav	nav	nav	nav	2.1	2.3	2.4	2.5	2.7
Italy	11.4	11.3	11.5	10.4	10.5	4.6	6.0	8.3	10.2	12.7	17.0	16.9	17.4	17.6	17.9
Japan	2.2	2.1	1.9	1.8	1.6	10.1	11.8	12.0	15.8	17.7	8.8	9.0	9.2	9.6	10.0
Netherlands ³	4.2	3.0	1.7	0.9	0.3	33.6	40.6	47.1	53.3	62.5	67.5	68.5	68.7	71.6	73.7
Singapore ⁴	23.1	22.3	23.4	22.8	22.3	17.4	18.7	19.2	21.3	23.4	4.0	4.0	3.5	3.6	4.1
Sweden	2.0	0.5	0.5	0.2	0.2	19.1	24.1	28.8	36.4	45.0	74.6	71.5	80.4	80.6	78.3
Switzerland	1.3	1.1	0.9	1.6	1.0	22.2	24.7	31.1	33.8	38.9	71.0	77.7	81.8	75.7	69.3
United Kingdom	52.4	50.4	48.0	45.2	42.8	44.6	50.0	57.2	63.4	71.0	28.1	29.1	30.2	30.9	32.2
United States ⁵	173.7	167.0	160.5	154.3	144.6	62.7	70.8	81.0	93.5	103.7	9.3	10.7	11.6	12.7	13.6

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

Table 12 (cont)

Use of cashless payment instruments

Total number of transactions per inhabitant

	Direct debits					Card-based e-money					Total ¹				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	0	neg	neg	neg	neg	nap	nap	nap	nap	nap	0.9	0.9	1.2	1.4	1.8
Belgium	11.6	11.5	13.9	16.2	17.2	0.9	2.8	4.4	5.0	5.9	117.9	122.4	136.3	137.3	153.0
Canada	10.6	11.9	13.2	14.4	15.7	nav	nav	nav	nav	nav	146.5	161.0	177.8	191.2	199.5
France	23.9	26.3	28.7	32.5	33.9	nap	nap	nav	nav	neg	175.4	182.1	185.3	195.6	201.1
Germany ²	59.3	56.1	58.5	61.2	61.7	0.1	0.2	0.3	0.3	0.4	139.4	151.4	164.2	161.6	169.7
Hong Kong SAR	4.9	5.0	5.1	5.3	5.5	nav	nav	nav	nav	nav	30.0	28.0	27.7	28.6	28.1
Italy	5.0	5.7	8.6	9.9	10.5	neg	neg	neg	neg	neg	38.0	39.9	45.8	48.2	51.7
Japan	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	21.1	22.9	23.1	27.2	29.3
Netherlands ³	41.2	46.0	49.7	52.5	54.5	nav	1.1	1.4	1.6	1.9	146.4	159.1	168.5	179.9	192.9
Singapore ⁴	6.1	5.3	4.4	4.3	4.6	0.2	6.7	19.5	24.9	24.7	50.8	57.0	70.0	76.9	79.0
Sweden	7.3	8.4	9.6	10.3	11.0	nav	0.2	0.5	0.3	0.2	103.1	104.6	119.7	127.8	134.7
Switzerland	3.5	3.8	4.2	6.4	6.6	nap	0.6	1.5	2.5	2.7	98.0	107.8	119.5	119.9	118.4
United Kingdom	26.8	29.3	31.3	33.6	35.9	nav	nav	nav	nav	nav	151.9	158.8	166.8	173.1	181.9
United States ⁵	5.0	5.7	6.1	7.1	8.4	nav	nav	nav	nav	nav	250.8	254.2	259.3	267.3	270.3

¹ Sum of the available data.Germany: ² Payments by debit cards in 1997 exclude POZ and ELV procedures.Netherlands: ³ Payments by credit/debit cards include cards with a delayed debit function.Singapore: ⁴ Interbank transactions only. Payments by credit/debit cards exclude credit card transactions. Credit transfers include large-value transactions (MEPS).United States: ⁵ A Federal Reserve study of the cheque clearing system, published in August 2002, estimated that the number of cheques paid in the United States was 49,500 million in 1995 and 42,500 million in 2000. Values for other years are derived from these estimates.

Table 13

Relative importance of cashless payment instrumentsPercentage of total volume of cashless transactions¹

	Cheques					Payments by credit/debit cards					Credit transfers				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	48.0	41.0	33.0	25.0	19.2	51.0	56.0	58.0	58.0	60.0	1.0	3.0	9.0	16.0	20.8
Belgium	8.0	7.0	5.8	5.0	3.8	23.3	27.3	28.9	32.8	33.3	58.1	54.0	51.9	46.7	47.8
Canada	39.4	34.7	31.6	28.1	25.5	44.5	48.4	51.6	54.7	57.1	8.9	9.5	9.3	9.6	9.5
France	46.7	44.1	40.1	37.9	35.4	21.9	23.6	26.1	27.8	30.0	17.7	17.9	18.4	17.7	17.8
Germany ²	5.7	4.8	3.1	3.0	2.3	4.6	8.0	8.9	10.5	11.3	47.1	50.1	52.1	48.5	49.8
Hong Kong SAR	76.8	74.1	73.2	72.8	70.7	nav	nav	nav	nav	nav	6.9	8.0	8.5	8.7	9.6
Italy	30.0	28.2	25.2	21.7	20.3	12.1	15.1	18.0	21.2	24.6	44.6	42.3	38.0	36.6	34.7
Japan	10.6	9.0	8.2	6.5	5.6	47.9	51.6	51.9	58.2	60.4	41.5	39.4	39.9	35.2	34.0
Netherlands ³	2.8	1.9	1.0	0.5	0.2	22.9	25.5	27.9	29.6	32.4	46.1	43.0	40.8	39.8	38.2
Singapore ⁴	45.5	39.2	33.5	29.6	28.2	34.3	32.8	27.4	27.7	29.6	7.8	7.0	5.0	4.7	5.1
Sweden	2.0	0.4	0.4	0.2	0.2	18.5	23.0	24.1	28.5	33.4	72.4	68.4	67.2	63.1	58.2
Switzerland	1.3	1.0	0.8	1.3	0.8	22.6	22.9	26.0	28.2	32.8	72.5	72.1	68.4	63.1	58.5
United Kingdom	34.5	31.7	28.8	26.1	23.5	29.3	31.5	34.3	36.6	39.0	18.5	18.3	18.1	17.8	17.7
United States ⁵	69.3	65.7	61.9	57.7	53.5	25.0	27.9	31.2	34.9	38.3	3.7	4.2	4.5	4.7	5.0

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

Table 13 (cont)

Relative importance of cashless payment instrumentsPercentage of total volume of cashless transactions¹

	Direct debits					Card-based e-money				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	0	neg	neg	neg	neg	nap	nap	nap	nap	nap
Belgium	9.8	9.4	10.2	11.8	11.2	0.8	2.3	3.3	3.6	3.8
Canada	7.2	7.4	7.5	7.5	7.8	nav	nav	nav	nav	nav
France	13.6	14.4	15.5	16.6	16.8	nap	nap	nav	nav	neg
Germany ²	42.6	37.0	35.7	37.8	36.4	neg	0.1	0.2	0.2	0.2
Hong Kong SAR	16.2	17.8	18.3	18.5	19.7	nav	nav	nav	nav	nav
Italy	13.3	14.4	18.8	20.5	20.4	neg	neg	neg	neg	neg
Japan	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Netherlands ³	28.1	28.9	29.5	29.2	28.2	nav	0.7	0.8	0.9	1.0
Singapore ⁴	12.0	9.2	6.3	5.6	5.8	0.4	11.8	27.8	32.4	31.3
Sweden	7.1	8.0	8.0	8.0	8.2	nav	0.2	0.4	0.3	0.1
Switzerland	3.6	3.5	3.5	5.3	5.5	nap	0.5	1.2	2.1	2.3
United Kingdom	17.7	18.5	18.8	19.4	19.7	nav	nav	nav	nav	nav
United States ⁵	2.0	2.2	2.4	2.6	3.1	nav	nav	nav	nav	nav

¹ Where the total is the sum of the available data.Germany: ² Payments by debit cards in 1997 exclude POZ and ELV procedures.Netherlands: ³ Payments by credit/debit cards include cards with a delayed debit function.Singapore: ⁴ Interbank transactions only. Payments by credit/debit cards exclude credit card transactions. Credit transfers include large-value transactions (MEPS).United States: ⁵ A Federal Reserve study of the cheque clearing system, published in August 2002, estimated that the number of cheques paid in the United States was 49,500 million in 1995 and 42,500 million in 2000. Values for other years are derived from these estimates.

Table 14

Relative importance of cashless payment instrumentsPercentage of total value of cashless transactions¹

	Cheques					Payments by credit/debit cards					Credit transfers				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	92.0	59.0	57.0	55.0	51.8	0.3	0.7	0.8	0.9	1.1	7.7	40.0	42.0	44.0	47.1
Belgium	2.9	3.2	0.6	0.5	0.6	0.2	0.2	0.1	0.2	0.2	96.7	96.3	98.9	99.0	99.0
Canada	97.0	96.5	21.5	14.5	12.7	0.7	0.8	0.5	0.6	0.5	1.8	2.1	77.5	84.8	86.1
France	3.9	2.6	2.9	2.9	2.4	0.2	0.1	0.2	0.2	0.2	95.1	96.6	96.2	96.2	96.6
Germany	7.9	7.1	3.6	3.1	2.7	0.2	0.3	0.3	0.4	0.4	78.2	78.1	83.2	85.4	84.2
Hong Kong SAR	97.3	94.2	93.2	93.1	90.6	nav	nav	nav	nav	nav	2.3	5.0	6.0	6.1	8.4
Italy	3.3	2.9	3.7	3.2	3.0	0.1	0.1	0.1	0.1	0.1	95.9	96.2	94.6	95.1	95.1
Japan	3.0	2.4	2.7	2.7	3.0	neg	neg	neg	0.1	0.1	96.9	97.5	97.2	97.3	96.9
Netherlands ²	0.2	0.1	0.1	0.1	neg	1.0	1.2	1.3	1.3	1.4	93.9	93.8	93.4	93.5	93.6
Singapore ³	5.9	4.9	5.1	4.7	3.6	0.1	0.2	0.2	0.2	0.2	93.7	94.8	94.6	95.0	96.1
Sweden	nav	0.5	0.4	0.3	0.2	1.6	1.9	2.3	2.6	3.2	95.8	94.9	94.3	93.9	93.3
Switzerland	neg	neg	neg	0.1	neg	neg	neg	0.1	0.1	0.1	99.8	99.8	99.8	99.7	99.7
United Kingdom	5.0	4.4	2.8	2.5	2.2	0.3	0.3	0.2	0.2	0.2	93.8	94.4	96.3	96.6	97.0
United States ⁴	5.8	5.5	5.6	5.4	4.9	0.2	0.2	0.2	0.3	0.3	93.0	93.3	93.0	93.2	93.8

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

Table 14 (cont)

Relative importance of cashless payment instrumentsPercentage of total value of cashless transactions¹

	Direct debits					Card-based e-money				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Saudi Arabia	0	neg	neg	neg	neg	nap	nap	nap	nap	nap
Belgium	0.3	0.3	0.3	0.3	0.3	neg	neg	neg	neg	neg
Canada	0.6	0.7	0.5	0.5	0.6	nav	nav	nav	nav	nav
France	0.8	0.6	0.7	0.8	0.8	nap	nap	nav	nav	neg
Germany	13.7	14.4	12.8	11.1	12.8	neg	neg	neg	neg	neg
Hong Kong SAR	0.4	0.8	0.8	0.8	1.0	nav	nav	nav	nav	nav
Italy	0.8	0.9	1.6	1.6	1.7	neg	neg	neg	neg	neg
Japan	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Netherlands ²	4.9	4.9	5.2	5.1	5.0	nav	neg	neg	neg	neg
Singapore ³	0.2	0.2	0.2	0.2	0.2	neg	neg	neg	neg	neg
Sweden	2.5	2.7	3.0	3.2	3.3	nav	neg	neg	neg	neg
Switzerland	0.1	0.1	0.1	0.2	0.2	nap	neg	neg	neg	neg
United Kingdom	1.0	1.0	0.7	0.7	0.6	neg	neg	nav	nav	nav
United States ⁴	1.0	1.1	1.2	1.1	1.1	nav	nav	nav	nav	nav

¹ Where the total is the sum of the available data.Netherlands: ² Payments by credit/debit cards include cards with a delayed debit function.Singapore: ³ Interbank transactions only. Payments by credit/debit cards exclude credit card transactions. Credit transfers include large-value transactions (MEPS).United States: ⁴ A Federal Reserve study of the cheque clearing system, published in August 2002, estimated that the number of cheques paid in the United States was 49,500 million in 1995 and 42,500 million in 2000. Values for other years are derived from these estimates.

Table 15

Features of selected interbank funds transfer systems

End of 2001, unless otherwise noted

	Type ¹	Owner/manager ²	Number of participants		Processing ³	Settlement ⁴	Membership ⁵
			Total	Of which: direct			
Saudi Arabia SARIE	All value	CB	12	12	RTT	RTGS	O
Belgium ELLIPS	L	B+CB	96	17	RTT	RTGS	O
Clearing House CEC	R	B+CB	94	34	RTT	N	O
	R	B+CB	94	33	RTT	N	O
Canada LVTS	L	PA	14	14	RTT	N	O
France CH Paris	R	B/PA	331	27	M	N	RM
CH Province	R	CB	267	219	M	N	O
SIT	R	CB+B/PA	677	17	RTT	N	O
CREIC	R	B/CB	28	28	ACH	N	O
TBF	L	CB	646	195	RTT	RTGS	O
PNS	L	CB+B/PA	468	24	RTT	N/BN/RTGS	RM
Germany RPS (former DTA)	R	CB	2,325	2,325	ACH	GS	O
RTGS ^{plus 9,10}	L	CB	1,612	59	RTT	RTGS	RM
ELS ⁹	nap	nap	nap	nap	nap	nap	nap
EAF (former EAF2) ⁹	nap	nap	nap	nap	nap	nap	nap
Hong Kong SAR HKD CHATS	All value	CMA ¹¹	134	134	RTT	RTGS	RM
USD CHATS	All value	B	180	65	RTT	RTGS	O
Italy BI-REL	L	CB	863	682	RTT	RTGS	RM
Local Clearing	R	CB	124	124	RTT ¹⁴	N	O
Retail	R	CB ¹⁵	nav	209	ACH	N	O
Japan FXYCS	L	B	244	40	RTT	N/RTGS	RM
BOJ-NET Funds Transfer System	L	CB	383	383	RTT	RTGS	RM

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

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

	Type ¹	Owner/manager ²	Number of participants		Processing ³	Settlement ⁴	Membership ⁵
			Total	Of which: direct			
Netherlands							
<i>Interpay</i>	<i>R</i>	<i>B</i>	72	72	<i>ACH</i>	<i>N</i>	<i>RM</i>
<i>TOP</i>	<i>L</i>	<i>CB</i>	164	108	<i>RTT</i>	<i>RTGS</i>	<i>RM</i>
Singapore							
<i>SGDCCS</i>	<i>R</i>	<i>PA</i>	104	40	<i>ACH</i>	<i>N</i>	<i>O</i>
<i>USDCCS</i>	<i>R</i>	<i>PA</i>	53	31	<i>ACH</i>	<i>GS</i>	<i>O</i>
<i>Interbank GIRO</i>	<i>R</i>	<i>PA</i>	45	41	<i>ACH</i>	<i>N</i>	<i>O</i>
<i>EFTPOS</i>	<i>R</i>	<i>B</i>	5	5	<i>RTT</i>	<i>N</i>	<i>RM</i>
<i>MEPS</i>	<i>L</i>	<i>CB</i>	130	86	<i>RTT</i>	<i>RTGS</i>	<i>O</i>
Sweden							
<i>K-RIX</i>	<i>L</i>	<i>CB</i>	20	20	<i>RTT</i>	<i>RTGS</i>	<i>RM</i>
<i>E-RIX</i>	<i>L</i>	<i>CB</i>	15	15	<i>RTT</i>	<i>RTGS</i>	<i>RM</i>
<i>Bankgirot</i>	<i>R</i>	<i>B</i>	21	21	<i>ACH</i>	<i>N</i>	<i>O</i>
<i>Dataclearing</i>	<i>R</i>	<i>B</i>	21	21	<i>ACH</i>	<i>N</i>	<i>O</i>
<i>Postgirot</i> ²¹	<i>R</i>	<i>B</i>	1,200,000	1,200,000	<i>ACH</i>	<i>GS</i>	<i>O</i>
Switzerland							
<i>SIC</i>	<i>L+R</i>	<i>B+CB</i>	313	313	<i>RTT</i>	<i>RTGS</i>	<i>O</i> ²³
<i>DTA/LSV</i>	<i>R</i>	<i>B</i>	155	155	<i>ACH</i>	<i>GS</i>	<i>O</i> ²³
United Kingdom							
<i>CHAPS Sterling</i>	<i>L</i>	<i>B+CB</i>	369	13	<i>RTT</i>	<i>RTGS</i>	<i>RM</i>
<i>CHAPS Euro</i> ²⁴	<i>L</i>	<i>B+CB</i>	85	20	<i>RTT</i>	<i>RTGS</i>	<i>RM</i>
<i>BACS</i>	<i>R</i>	<i>B</i>	62,000	14	<i>ACH</i>	<i>N</i>	<i>RM</i>
<i>Cheque/credit</i>	<i>R</i>	<i>B</i>	516	12	<i>M</i>	<i>N</i>	<i>RM</i>
United States							
<i>Fedwire</i>	<i>L</i>	<i>CB</i>	8,110 ²⁷	8,110 ²⁷	<i>RTT</i>	<i>RTGS</i>	<i>O</i>
<i>CHIPS</i> ²⁶	<i>L</i>	<i>B</i>	58	58	<i>RTT</i>	<i>N/BN</i>	<i>RM</i>
European Union							
<i>EURO1</i>	<i>L</i>	<i>B</i>	73	73	<i>RTT</i>	<i>SOS</i> ²⁸	<i>RM</i>
<i>TARGET</i> ²⁹	<i>L</i>	<i>CB</i>	3,888	1,579	<i>RTT</i>	<i>RTGS</i>	<i>RM</i>

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

Table 15 (cont)

Features of selected interbank funds transfer systems

End of 2001, unless otherwise noted

	Degree of centralisation ⁶	Pricing ⁷	Closing time for same day transactions (local time)	Number of transactions (thousands)		Value of transactions (USD billions) ⁸		Ratio of transactions value to GDP (at annual rate)	
				2000	2001	2000	2001	2000	2001
Saudi Arabia SARIE	C	F	14:00 (Sat-Wed) 12:30 (Thu)	5,053 ^a 140 ^b	8,319 ^a 148 ^b	99.9 ^a 1,298 ^b	120.1 ^a 1,428 ^b	57.8 ^a 752 ^b	64.5 ^a 767 ^b
Belgium ELLIPS	C	F	18:00	1,780	1,842	11,720	12,818	51.3	56.3
Clearing House CEC	D C	V F	15:00 15:00	4,190 885,220	3,528 919,044	97 447	80 455	0.4 2.0	0.3 2.0
Canada LVTS	C	F	18:30	3,544	3,740	17,105	18,061	24.5	26.1
France CH Paris	C	F	nap	682,210	677,765	669	683	0.5	0.5
CH Province	D	N	nap	2,771,691	2,469,057	1,071	883	0.8	0.7
SIT	C	F	13:30	6,485,332	7,131,087	2,264	2,187	1.7	1.7
CREIC	D	V	nap	307,724	270,165	24	21	neg	neg
TBF domestic	C	F	18:00	3,025	3,801	62,765	78,365	48.1	59.8
PNS	C	F	16:00	5,515	8,004	20,117	19,977	15.4	15.3
Germany RPS (former DTA)	D	F	nap	2,226,589	2,197,487	2,067	1,971	1.1	1.1
RTGS ^{plus 9,10}	C	F	18:00	nap	4,829	nap	17,392	nap	9.4
ELS ⁹	nap	nap	18:00	21,534	19,031	48,158	44,109	25.8	23.8
EAF (former EAF2) ⁹	nap	nap	nap	12,988	11,014	38,237	31,343	20.5	16.9
Hong Kong SAR HKD CHATS	C	F	17:30 ¹²	3,410	3,470	11,678	11,134	70.6	67.9
USD CHATS	C	F	17:30	185 ¹³	691	242 ¹³	931	4.5	5.7
Italy BI-REL	C	F	18:00	10,401	10,247	25,584	24,291	23.9	22.3
Local Clearing	C	V	12:00	109,438	105,360	663	641	0.6	0.6
Retail	C	F	nap ¹⁶	1,005,362	1,269,828	1,416	1,551	1.3	1.4

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

Table 15 (cont)

Features of selected interbank funds transfer systems

End of 2001, unless otherwise noted

	Degree of centralisation ⁶	Pricing ⁷	Closing time for same day transactions (local time)	Number of transactions (thousands)		Value of transactions (USD billions) ⁸		Ratio of transactions value to GDP (at annual rate)	
				2000	2001	2000	2001	2000	2001
Japan									
<i>FXYCS</i>	C	V ¹⁷	13:45(N)/17:00(G)	9,298	9,564	57,961	56,587	12.2	13.6
<i>BOJ-NET Funds Transfer System</i>	C	V ¹⁷	17:00	4,715	5,046	328,430	156,640	69.0	37.5
Netherlands									
<i>Interpay</i>	C	F	17:00	2,328,445	2,558,284	1,342	1,409	3.6	3.7
<i>TOP</i>	C	F	18:00	3,725	4,023	16,552	18,514	44.6	48.2
Singapore									
<i>SGDCCS</i>	C	V	16:45 ¹⁸	91,259	91,599	262	233	2.9	2.7
<i>USDCCS</i>	C	V	15:30	390	399	12	11	0.1	0.1
<i>Interbank GIRO</i>	C	V	12:00 ¹⁹	29,980	33,640	42	45	0.5	0.5
<i>EFTPOS</i>	C	V	23:59	76,932	87,728	2.7	3.1	neg	neg
<i>MEPS</i>	C	V	18:30 ²⁰	1,908	2,065	5,542	6,447	60.3	75.3
Sweden									
<i>K-RIX</i>	C	F	17:00	510	655	11,689	10,962	51.1	52.3
<i>E-RIX</i>	C	F	17:00	62	70	1,582	1,265	6.9	6.0
<i>Bankgirot</i>	C	F	²²	351,410	345,200	407	376	1.8	1.8
<i>Dataclearing</i>	C	F	²²	78,217	66,910	147	107	0.6	0.5
<i>Postgirot</i> ²¹	C	F	²²	454,000	450,000	445	367	1.9	1.8
Switzerland									
<i>SIC</i>	C	F	16:15	149,500	161,200	26,425	26,905	110.0	109.4
<i>DTA/LSV</i>	C	F	09:00	105,900	103,700	228	225	0.9	0.9
United Kingdom									
<i>CHAPS Sterling</i>	C	F	17:00	21,705	23,962	74,464	76,189	51.7	53.6
<i>CHAPS Euro</i> ²⁴	C	F	17:00	3,250	2,580	38,358	26,844	26.6	18.9
<i>BACS</i>	C	F	²⁵	3,316,213	3,527,340	2,912	3,119	2.0	2.2
<i>Cheque/credit</i>	D	F	²⁵	2,033,000	1,940,000	2,202	2,073	1.5	1.5
United States									
<i>Fedwire</i>	C	F	18:30	108,300	112,500	379,756	423,867	38.7	42.0
<i>CHIPS</i> ²⁶	C	F	17:00	59,800	60,400	292,147	311,707	29.7	30.9

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

Table 15 (cont)

Features of selected interbank funds transfer systems

End of 2001, unless otherwise noted

	Degree of centralisation ⁶	Pricing ⁷	Closing time for same day transactions (local time)	Number of transactions (thousands)		Value of transactions (USD billions) ⁸		Ratio of transactions value to GDP (at annual rate)	
				2000	2001	2000	2001	2000	2001
European Union									
EURO1	C	F	16:00	24,692	28,633	49,644	58,101	nap	nap
TARGET ²⁹	D	F	18:00	47,980	53,664	263,291	368,469	nap	nap

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

Saudi Arabia: ^a Customer payments only. ^b Interbank payments only.

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

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

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

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

Singapore: ¹⁸ 13:15 on Saturdays. ¹⁹ 09:00 on Saturdays. ²⁰ 14:45 on Saturdays.

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

Switzerland: ²³ With restriction criteria for remote members.

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

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

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

Table 16
Operating hours of selected large-value interbank funds transfer systems
 End of 2001

System	Gross or net	Opening/closing time for same day value (local time)	Settlement finality (local time)	Cutoff for all third- party payment orders (local time)	Cutoff for international correspondents' payment orders (local time)	<i>Memo:</i> <i>Standard money market hours (local time)</i>
Saudi Arabia SARIE	<i>Gross</i>	<i>08:00-15:00^a 09:30-13:30^b</i>	<i>Immediate finality</i>	<i>14:00^a 12:30^b</i>	<i>nap</i>	<i>08:30-15:00^a 09:30-13:30^b</i>
Belgium ELLIPS	<i>Gross</i>	<i>07:00-18:00</i>	<i>07:00-18:00</i>	<i>17:00</i>	<i>18:00</i>	<i>07:00-18:00</i>
Canada ¹ LVTS	<i>Net</i>	<i>07:00-18:30²</i>	<i>19:30</i>	<i>18:00</i>	<i>18:00</i>	<i>nap³</i>
France TBF	<i>Gross</i>	<i>07:00-18:00</i>	<i>Real-time</i>	<i>17:00</i>	<i>nap</i>	<i>09:00-17:00</i>
PNS	<i>Gross/Net</i>	<i>08:00-16:00</i>	<i>Real-time</i>	<i>16:00</i>	<i>nap</i>	<i>09:00-17:00</i>
Germany ⁴ RTGS ^{plus}	<i>Gross</i>	<i>07:00-18:00</i>	<i>07:00-18:00</i>	<i>17:00</i>	<i>nap</i>	<i>08:30-18:00</i>
EAF (former EAF2)	<i>nap</i>	<i>nap</i>	<i>nap</i>	<i>nap</i>	<i>nap</i>	<i>nap</i>
ELS	<i>nap</i>	<i>nap</i>	<i>nap</i>	<i>nap</i>	<i>nap</i>	<i>nap</i>
Hong Kong SAR HKD CHATS	<i>Gross</i>	<i>09:00-17:30⁵</i>	<i>09:00-17:30⁵</i>	<i>17:00</i>	<i>17:30</i>	<i>09:00-17:30</i>
USD CHATS	<i>Gross</i>	<i>09:00-17:30</i>	<i>09:00-17:30</i>	<i>17:00</i>	<i>17:30</i>	<i>09:00-17:30</i>
Italy BI-REL	<i>Gross</i>	<i>07:00-18:00</i>	<i>07:00-18:00</i>	<i>17:00</i>	<i>nap</i>	<i>07:00-18:00</i>
Japan FXYCS	<i>Net</i>	<i>09:00-13:45</i>	<i>14:30</i>	<i>13:45</i>	<i>13:45</i>	<i>09:00-17:00</i>
	<i>Gross</i>	<i>09:00-17:00</i>	<i>09:00-17:00</i>	<i>17:00</i>	<i>17:00</i>	<i>09:00-17:00</i>
BOJ-NET Funds Transfer System	<i>Gross</i>	<i>09:00-17:00</i>	<i>09:00-17:00</i>	<i>14:00</i>	<i>14:00</i>	<i>09:00-17:00</i>
Netherlands TOP	<i>Gross</i>	<i>07:00-18:00</i>	<i>07:00-18:00</i>	<i>17:00</i>	<i>17:00</i>	<i>07:00-18:00</i>

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

Table 16 (cont)

Operating hours of selected large-value interbank funds transfer systems

End of 2001

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

Saudi Arabia: ^a Saturday to Wednesday. ^b Thursday.

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

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

Hong Kong: ⁵ To 12:00 on Saturdays.

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

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

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

Table 17
Features of selected securities settlement systems
 End of 2001

Name of system	Saudi Arabia		Belgium			Canada	
	Government Securities	TADAWUL (equities)	NBB SSS	Euronext-CIK	Euroclear	SSS/BBS	DCS
Type of securities ¹	G	S	G, O	E, O	G, E, O	S, B, O	B, G, O
Owner/manager ²	CB	SE	CB	B	B	B, SE, O	B, SE, O
Number of participants	11	11	130	104	1,750	107	82
<i>Of which: direct participants</i>	<i>11</i>	<i>11</i>	<i>130</i>	<i>104</i>	<i>1,750</i>	<i>nav</i>	6
Settlement of cash leg ³	RTGS	N	G	G	G/N	N	N
Securities settlement (delivery) ³	RTGS	G	G	N	G/N	N	G
Delivery lag (T+n)	T+0	T+0	T+2, T+3 ⁵	T+3	T+3, T+n (OTC)	T+3	T+0, T+1 ⁷
DVP mechanism	DVP1	DVP2	DVP1	DVP1	DVP1	3	2
Intraday finality	Yes	No	Yes	Yes	Yes	No	Yes
Central securities depository	Yes	Yes	NBB	CIK	Euroclear (eurobonds) + others	CDS	CDS
Cash settlement agent ²	CB, B	CB, B	NBB	NBB	Euroclear/NBB	B	CB
Number of transactions (thousands)	nav	50	145	356	161,000 (before netting) ⁶	31,400	1,780
Value of transactions (USD billions) ⁴	145	65.3	2,483	90	117,000 ⁶	1,520	18,570
Ratio of transactions value to GDP (at annual rate)	83.9	37.8	10.9	0.4	nap	2.2	26.8

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

Table 17 (cont)

Features of selected securities settlement systems

End of 2001

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

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

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

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

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

Table 17 (cont)

Features of selected securities settlement systems

End of 2001

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

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

Table 17 (cont)

Features of selected securities settlement systems

End of 2001

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

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

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

France: ⁸ RGV and RELIT combined.

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

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

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

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

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

Singapore: ¹⁸ Number of securities cleared. ¹⁹ By mutual agreement between counterparties.

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

Table 18

Direct participants in real-time gross settlement systems in selected countries

End of 2001

	Saudi Arabia	Belgium	Canada	France	Germany ¹		Hong Kong SAR		Italy	Japan
Name of system	SARIE	ELLIPS	nap	TBF	RTGS ^{plus}	ELS	HKD CHATS	USD CHATS	BI-REL	BOJ-NET Funds Transfer System
Direct participants	12	17	nap	195	59	nap	134	65	682	383
Credit institutions	11	15	nap	165	58	nap	134	64	671 ³	325
Central bank	1	1	nap	1	1	nap	1 ²	1	1	0
Non-banks	0	1	nap	29	0	nap	0	0	10 ⁴	58 ⁵
<i>Of which:</i>										
<i>Public authorities</i>		0		0					1	0
<i>Postal administration</i>		1		1					1	0
<i>Supervised financial institutions</i>		0		28					6	52

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

Table 18 (cont)

Direct participants in real-time gross settlement systems in selected countries

End of 2001

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

Germany: ¹ RTGS^{plus}, the new RTGS system, opened for business on 5 November 2001; for the time being, ELS serves only as a procedure for accessing RTGS^{plus}.

Hong Kong: ² The central bank is not a direct participant.

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

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

Netherlands: ⁶ Includes clearing and settlement organisations.

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

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

Table 19

Direct participants in large-value payment systems in selected countries

End of 2001

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

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

Saudi Arabia: ^a The only interbank payment system in Saudi Arabia is SARIE, which handles both large- and small-value payments. For details please see Table 18.

Germany: ¹ EAF was closed down when RTGS^{plus}, the new RTGS system, opened for business on 5 November 2001.

Hong Kong: ² The central bank is not a direct participant.

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

Table 20
Direct participants in retail interbank funds transfer systems in selected countries
 End of 2001

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

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

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

Table 20 (cont)

Direct participants in retail interbank funds transfer systems in selected countries

End of 2001

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

Saudi Arabia: ^a The only interbank payment system in Saudi Arabia is SARIE, which handles both large- and small-value payments. For details please see Table 18.

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

Table 21
Access criteria for real-time gross settlement systems in selected countries
 End of 2001

	Saudi Arabia	Belgium	Canada	France	Germany ¹		Hong Kong SAR	Italy
Name of system	SARIE	ELLIPS	nap	TBF	RTGS ^{plus}	ELS	HKD RTGS	BI-REL
Access criteria	+	+		+	+	nap	+	+
Written rules	+	+		+	+	nap	+	+
Minimum level of data or ratios representative of financial strength	-	+		-	-	nap	+	-
Minimum number of transactions	-	-		-	-	nap	-	-
Payment of an entry fee	-	+		+	-	nap	+	-
Approval from the owner/manager or the direct participants	+	+		+	+ ²	nap	+	+ ³
Approval from the local central bank	+	+		+	+	nap	+	+
Technical requirements	+	+		+	+	nap	+	+
Removal rules	+	+		+	+	nap	+	+

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

Table 21 (cont)

Access criteria for real-time gross settlement systems in selected countries

End of 2001

	Japan	Netherlands	Singapore	Sweden		Switzerland	United Kingdom	United States
Name of system	BOJ-NET Funds Transfer System	TOP	MEPS	K-RIX	E-RIX	SIC	CHAPS Sterling/Euro	Fedwire
Access criteria	+	+	+	+	+	+	+	+
Written rules	+	+	+	+	+	+	+	+
Minimum level of data or ratios representative of financial strength	+	-	+	+	+	-	-	-
Minimum number of transactions	- ⁴	-	-	-	-	-	-	-
Payment of an entry fee	-	-	-	+	+	+	+	-
Approval from the owner/manager or the direct participants	+ ⁵	+ ⁶	+	+	+	+	+	+
Approval from the local central bank	+	+	+	+	+	+	+	+
Technical requirements	+	+	+	+	+	+	+	+
Removal rules	+	+	+	+	+	+	+	+

Key: + = yes; - = no.

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

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

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

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

Table 22
Access criteria for other large-value payment systems in selected countries
 End of 2001

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

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

Table 22 (cont)

Access criteria for other large-value payment systems in selected countries

End of 2001

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

Key: + = yes; - = no.

Saudi Arabia: ^a The only interbank payment system in Saudi Arabia is SARIE, which handles both large- and small-value payments. For details please see Table 21.Germany: ¹ EAF was closed down when RTGS^{plus}, the new RTGS system, opened for business on 5 November 2001.Hong Kong: ² Not applicable to indirect participants.Italy: ³ The only large-value payment system in Italy is BI-REL. For details please see Table 21.

Table 23

Risk control measures in large-value net settlement systems in selected countries

End of 2001

	Saudi Arabia	Belgium	Canada	France	Germany	Hong Kong SAR	Italy	Japan
Name of system	nap^a	nap	LVTS	PNS	EAF⁸	nap	nap⁹	FXYCS
1. Settlement in central banks' accounts		+	+	+	nap			nap
2. Same day settlement		+	+	+	nap			nap
3. Compliance with Lamfalussy standards		nap	+	+	nap			nap
a. Legal framework <i>Contractual (+) or advisory (-) netting</i> <i>If contractual: legally enforceable (+) or not (-)</i>			+ ¹	nap ⁵				
b. Participants' awareness			+	+				
c. Risk management <i>Monitoring of intraday balance</i> <i>Multilateral limits</i> <i>Collateral requirements</i> <i>Intraday closures</i>			+ + ² + + ³	nap ⁶ nap ⁶ nap ⁶ + ⁷				
d. Timely settlement completion <i>Risk-sharing agreements</i> <i>Full collateralisation of largest net debit position</i>			+ + + ⁴	nap ⁵ nap ⁶				
e. Fair open access			+	+				
f. Technical reliability			+	+				

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

Table 23 (cont)

Risk control measures in large-value net settlement systems in selected countries

End of 2001

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

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

Table 23 (cont)

Risk control measures in large-value net settlement systems in selected countries

End of 2001

Key: + = yes; – = no.

Saudi Arabia: ^a There are no large-value net settlement systems in Saudi Arabia.

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

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

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

Italy: ⁹ There are no large-value net settlement systems in Italy.

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

Table 24a

SWIFT traffic: message flows in selected countries in 2001

Number of messages

From/to	Saudi Arabia	Belgium	Canada	France	Germany	Hong Kong SAR	Italy	Japan	Netherlands
Saudi Arabia	109,340	16,365	34,279	78,600	126,616	49,518	65,022	61,959	28,654
Belgium	21,121	12,995,706	353,048	3,727,906	4,105,345	716,344	2,203,562	1,164,432	5,208,089
Canada	20,080	366,647	7,158,444	402,969	452,341	351,216	214,254	352,220	145,120
France	60,621	3,447,868	393,963	25,415,355	5,969,142	575,098	3,134,653	1,020,489	2,143,824
Germany	58,078	4,018,613	398,968	5,880,406	13,159,502	765,380	6,112,299	1,282,659	4,781,369
Hong Kong SAR	18,354	550,693	456,753	381,191	727,261	4,461,437	291,873	2,601,265	164,888
Italy	33,405	2,168,151	164,562	3,188,759	5,499,486	305,062	5,168,788	512,290	1,018,552
Japan	40,474	1,130,503	308,211	872,599	1,234,693	1,681,134	524,895	6,700,827	272,457
Netherlands	20,976	4,334,125	160,884	2,103,537	5,258,309	275,948	1,036,059	335,091	23,006,779
Singapore	16,471	305,324	132,969	291,150	573,385	1,339,822	119,347	1,785,429	170,535
Sweden	9,221	1,100,515	73,647	710,564	1,519,762	145,618	380,183	130,450	591,271
Switzerland	38,640	2,041,931	459,655	2,835,950	5,963,165	551,681	1,765,559	1,113,826	1,413,276
United Kingdom	212,534	6,161,061	2,031,516	9,871,087	14,035,055	3,825,604	7,128,511	9,410,453	7,954,165
United States	477,463	5,410,909	4,622,431	6,989,284	9,458,996	8,679,708	4,968,205	10,535,035	5,017,012
Others	634,965	10,646,353	2,176,168	16,234,868	35,609,990	6,470,854	12,193,496	7,081,394	8,139,593
Total all countries	1,771,743	54,678,699	18,891,219	78,905,625	103,566,432	30,144,906	45,241,684	44,025,860	60,026,930

Source: SWIFT.

Table 24a (cont)

SWIFT traffic: message flows in selected countries in 2001

Number of messages

From/to	Singapore	Sweden	Switzerland	United Kingdom	United States	Others	All countries
Saudi Arabia	22,429	14,675	41,614	285,220	789,175	1,990,547	3,714,013
Belgium	406,113	417,463	2,719,460	13,861,751	7,733,088	11,281,145	66,893,452
Canada	134,771	64,195	512,291	2,351,642	6,003,923	3,046,059	21,556,392
France	257,652	400,431	2,385,605	18,807,811	11,745,415	12,262,630	87,959,936
Germany	420,787	971,645	4,957,461	19,091,911	15,360,345	29,855,208	107,056,553
Hong Kong SAR	1,465,880	79,766	505,281	4,710,374	8,760,384	8,889,583	34,046,629
Italy	98,257	217,565	1,601,768	11,121,026	6,450,279	8,677,542	46,192,087
Japan	1,199,388	104,198	1,067,379	9,594,033	11,805,166	7,940,034	44,435,517
Netherlands	151,095	419,662	2,045,002	14,602,228	7,202,837	7,023,838	67,955,394
Singapore	2,790,820	74,373	444,930	2,657,771	5,000,492	4,183,204	19,869,551
Sweden	87,968	3,969,098	439,644	5,754,545	3,290,066	6,380,157	24,573,488
Switzerland	402,815	370,595	12,589,813	12,524,420	12,183,276	11,575,189	65,791,151
United Kingdom	1,783,317	3,518,718	6,779,079	76,019,159	35,748,310	35,683,493	219,949,528
United States	3,897,894	1,947,100	11,543,847	29,728,668	67,346,377	81,836,760	251,982,226
Others	4,345,188	5,466,285	12,410,001	50,399,360	75,711,894	228,758,699	475,644,143
Total all countries	17,441,945	18,021,094	60,001,561	271,224,699	274,341,852	457,393,541	1,533,906,047

Source: SWIFT.

Table 24b
Geographical breakdown of SWIFT message flows in selected countries
 In 2001

	Messages sent			Messages received		
	Total	To domestic users (% of total)	To CPSS countries (% of total)	Total	From domestic users (% of total)	From CPSS countries (% of total)
Saudi Arabia	3,714,013	2.94	43.46	1,771,743	6.17	57.99
Belgium	66,893,452	19.43	63.71	54,678,699	23.77	56.76
Canada	21,556,392	33.21	52.66	18,891,219	37.89	50.59
France	87,959,936	28.89	57.16	78,905,625	32.21	47.22
Germany	107,056,553	12.29	59.82	103,566,432	12.71	52.91
Hong Kong SAR	34,046,629	13.10	60.79	30,144,906	14.80	63.73
Italy	46,192,087	11.19	70.02	45,241,684	11.42	61.62
Japan	44,435,517	15.08	67.05	44,025,860	15.22	68.70
Netherlands	67,955,394	33.86	55.81	60,026,930	38.33	48.11
Singapore	19,869,551	14.05	64.90	17,441,945	16.00	59.09
Sweden	24,573,488	16.15	57.88	18,021,094	22.02	47.64
Switzerland	65,791,151	19.13	63.27	60,001,561	20.98	58.33
United Kingdom	219,949,528	34.56	49.21	271,224,699	28.03	53.39
United States	251,982,226	26.73	40.80	274,341,852	24.55	47.85

Source: SWIFT.

Table 24c
SWIFT members, submembers and participants in selected countries
 In 2001

	Number of users of the SWIFT network			
	Members	Submembers	Participants	Total number of users
Saudi Arabia	12	1	0	13
Belgium	23	44	16	83
Canada	14	33	12	59
France	60	120	68	248
Germany	114	113	48	275
Hong Kong SAR	23	154	28	205
Italy	142	78	35	255
Japan	125	101	33	259
Netherlands	25	47	32	104
Singapore	9	155	17	181
Sweden	8	10	12	30
Switzerland	101	87	66	254
United Kingdom	60	293	113	466
United States	96	327	207	630
Total all countries	2,265	3,143	2,049	7,457

Source: SWIFT.

Table 24d

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

In 2001

	Share of messages (%)		Share of total (%)		Share of equity holding	
	Sent	Received	Members	Users	Quantity	Percentage
Saudi Arabia	0.24	0.12	0.53	0.17	607	0.70
Belgium	4.36	3.56	1.02	1.00	2,425	2.79
Canada	1.41	1.23	0.62	0.79	1,965	2.26
France	5.73	5.14	2.65	3.33	6,723	7.75
Germany	6.98	6.75	5.03	3.69	6,706	7.74
Hong Kong SAR	2.22	1.97	1.02	2.75	1,802	2.08
Italy	3.01	2.95	6.27	3.42	3,334	3.85
Japan	2.90	2.87	5.52	3.47	4,790	5.53
Netherlands	4.43	3.91	1.10	1.39	3,910	4.51
Singapore	1.30	1.14	0.40	2.43	573	0.66
Sweden	1.60	1.17	0.35	0.40	1,532	1.77
Switzerland	4.29	3.91	4.46	3.41	4,344	5.01
United Kingdom	14.34	17.68	2.65	6.25	5,563	6.42
United States	16.43	17.89	4.24	8.45	16,152	18.63

Source: SWIFT.