
COMMITTEE OF GOVERNORS OF THE CENTRAL BANKS
OF THE MEMBER STATES
OF THE EUROPEAN ECONOMIC COMMUNITY

PAYMENT SYSTEMS IN EC MEMBER STATES

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PREPARED BY AN AD HOC WORKING GROUP ON
EC PAYMENT SYSTEMS

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FOREWORD

On 8th January 1991, the Committee of Governors created an Ad Hoc Working Group on EC Payment Systems. Its mandate included the task of undertaking "a fact-finding review of payment systems in Community countries with a view to current and future issues of direct concern for central banks".

To fulfil this task the Ad Hoc Working Group has drawn up a descriptive guide to the payment systems in EC countries – which has become known as the "Blue Book". The Blue Book was designed to serve two important purposes. Firstly, it provided the foundations for the Working Group's analysis of issues of common concern to EEC central banks in the field of payment systems; secondly, it was intended to meet the growing demands for a reference guide to payment systems in Europe.

The Blue Book has many similarities with the manual on "Payment systems in eleven developed countries" (the so-called "Red Book") whose latest edition was published in April 1989 by the "Group of Experts on Payment Systems" of the central banks of the Group of Ten countries. However, it is not solely an extension of the "Red Book" to those EC countries outside of the G-10. The Blue Book also takes into account new developments that have occurred in the last three years. Moreover, it places additional emphasis on cross-border arrangements, on the role of central banks and on large-value funds transfer systems, which are particularly relevant to the concern of central banks to limit systemic risks.

The Blue Book contains thirteen chapters, one for each of the twelve EC countries (Chapters 1 to 12) and a final one (Chapter 13) on cross-border arrangements. Each country chapter has been drafted by the respective central bank in line with overall guidance laid down by the Ad Hoc Working Group. Accordingly, the different chapters are based on a common outline; a common set of definitions ("the glossary"); and a common methodology for compiling statistics (in order to prepare comparative tables). The outline, the glossary and the comparative tables are added to the report. The texts were edited through bilateral exchanges between members of the Group, and by the Secretariat of the Committee of Governors.

Chapter 13 covering cross-border arrangements has been included for two reasons; firstly, it was considered useful to avoid repetitive references in country chapters to systems which are common to several EC countries; secondly, and more importantly, it was felt that there was a need for information on cross-border arrangements at a time when the EC Commission and EEC central banks are focusing their attention on promoting cost-efficient and secure arrangements for transferring funds from one country to another, especially within the Community.

Chapter 13, however, does not endeavour to cover all of the recent initiatives in the cross-border field. It is purely descriptive and based on examples. No conclusion on EEC central banks' preferences should therefore be drawn from the fact that some systems are described while others are not. It is for this reason that, while the names of some interbank systems are mentioned, references to proprietary systems promoted by individual banks are avoided.

PART I

PAYMENT SYSTEMS IN THE TWELVE COUNTRIES

1. Belgium

BELGIUM

Introduction

During the last decade, evolving payment habits and technological innovations thoroughly changed the Belgian payment systems, in line with previous trends.

Cash payments became relatively less important, which was reflected in the declining share of cash in the money supply (M1). Nearly everyone in Belgium holds a bank account. Among traditional cashless payment instruments, the credit transfer and its derivatives predominate.

The development and spread of new payment systems and instruments available for customers of financial institutions (ATMs, POS-terminals) was facilitated in Belgium by the early application of electronic technology. The rationalisation of the processing of traditional payment media within the banking system (truncation, automated clearing) was similarly facilitated and the National Bank of Belgium played an important role in this.

Until now, credit institutions have been able to balance competition and co-operation with the latter taking the form of shared technical infrastructures and common interbank standards.

Non-banks, such as issuers of credit, travel and entertainment cards, large retail chains and issuers of luncheon vouchers are becoming more and more involved in payment systems, although so far only on a small-scale.

Recent developments indicate that the era of payment services offered "free-of-charge" will soon be over.

SECTION 1: THE INSTITUTIONAL ASPECTS

1.1. General legal aspects

Apart from one legal text which deals with cheques (Law of 1st March 1961), there is no specific legislation concerning payment instruments or systems. There is therefore no specific provision at present governing other "traditional" payment media or electronic payment systems. Relations between financial institutions and consumers/retailers are governed by private contracts. On a more general level, the problem of authentication in systems not involving manual signature, is not covered by specific legislation.

The financial sector is covered by the general anti-trust regulation (Law of 5th August 1991) which forbids practices which restrict competition. The description of this concept has largely been based on Articles 85 and 86 of the EEC Treaty.

1.2. Financial intermediaries that provide payment services

There are three broad categories of financial intermediaries within the banking system. Their numbers at 31.12.1990, subdivided into Belgian and foreign institutions, are given in the following table:

Institution	Total number	Belgian	Foreign	
			EEC	non-EEC
Commercial Banks	87	53	19	15
Savings Banks	28	27	1	0
Public Credit Institutions	6	6	0	0

To these three broad categories must be added the "Postcheque", which constitutes the financial department of the Postal Administration.

Although each of these types of financial institution was originally fairly specialised in terms of markets and products, these distinctions have become progressively blurred since the mid-1970s. Even the "Postcheque" has recently been allowed to offer credit cards linked to customers' sight accounts.

Non-bank institutions are also represented in the payment media market, in particular:

- companies issuing credit and travel and entertainment cards (four companies, only one of which has no connection with the banking sector);
- commercial companies issuing in-house cards, these being essentially either petrol companies or large retailers;
- companies issuing luncheon vouchers.

1.3. The role of the central bank

As the issuing authority, the central bank – the National Bank of Belgium (NBB) – issues notes on its own behalf and coins on behalf of the Treasury¹. While the production of notes takes place in its own printing department, the minting of coins is the prerogative of the Royal Mint of Belgium, responsible to the Ministry of Finance.

Banknote distribution is carried out at the NBB's head office in Brussels, as well as in three branches (of which one is in Luxembourg) and twenty agencies.

Monetary policy is determined and implemented by the National Bank of Belgium. It also manages the national gold and foreign exchange reserves. As lender of last resort, the central bank grants credit against commercial bills and public debt instruments, giving banks the opportunity to obtain cash. Finally, the NBB handles, as a financial intermediary on behalf of the government, the receipts and expenses for the Treasury, as well as the administration and accounting of government bonds. It is not involved in retail activities.

The NBB is greatly involved in the interbank clearing mechanisms: the traditional clearing house (located in Brussels and at the branches and agencies of the central bank), the automated system (C.E.C.) and the Securities Clearing. It also plays a leading role in setting standards for the financial system.

The National Bank of Belgium is not in charge of banking supervision. The supervision of individual credit institutions is undertaken by a legally autonomous institution: the Banking and Finance Commission (BFC). One member of the Board of Directors of the NBB is a member of the Board of the BFC as of right. The BFC must consult the central bank before publishing regulations concerning solvency and liquidity. The National Bank of Belgium collects the periodic and annual prudential returns made by the credit institutions and transmits them to the BFC.

At the present time, supervision of the "Postcheque" and of five of the six public credit institutions is undertaken by various ministries, but a law, which has not yet been implemented, provides that, in future, the BFC will also supervise the public credit institutions.

Neither the central bank nor any other authority exercises powers of supervision specifically in respect of payment systems.

1.4. The role of other private and public sector bodies

There are three main interbank organisations operating in the payment system field:

- the Clearing House of Belgium (see Section 3);
- the non-profit-making C.E.C. (Centre for the Exchange of operations to be Cleared), founded in 1974 by the banking sector as a whole, in order to automate the exchange of payment transactions (see Section 3);
- the Banksys society which manages a large shared network of ATMs and POS terminals (see Section 2).

The Belgian Banker's Association ("Belgische Vereniging der Banken" – "Association Belge des Banques") and the Association of Belgian Savings Banks ("Belgische Spaarbankenvereniging" – "Groupement Belge des Banques d'Épargne") are two professional organisations whose aim is to defend their affiliates' professional interests, mainly through economic studies and fiscal, legal and technical advice.

In 1990, both associations set up a new function within their organisations to settle small disputes – including those in the field of payment systems – between their affiliates and their customers.

¹ Within the framework of the Belgium-Luxembourg Economic Union (BLEU), Belgian coins and notes are legal tender in the Grand Duchy of Luxembourg, but the reverse is not the case.

SECTION 2: SUMMARY INFORMATION ON PAYMENT MEDIA USED BY NON-BANKS

2.1. Cash payments

Cash comprises notes in denominations of BEF 100, 500, 1,000 and 5,000 and coins in denominations of BEF 0.50, 1, 5, 20, 50 and 500. There has been a shift between notes and coins in recent years, in the form of a substitution of notes by coins of BEF 20 and 50. There are plans to issue banknotes of BEF 10,000, probably at the beginning of 1993. Among the notes, the BEF 5,000 denomination represents the largest share of the total stock of notes in circulation (69% by value at end-1990), despite the growing success of ATMs, which only deliver notes of BEF 1,000 (which accounted for 24.9% of the value of notes in circulation at 31st December 1990). Bank-notes constitute 96.0% of total cash in circulation and coins 4.0%. The issue of coins is legally restricted to BEF 20 billion. Most denominations of coins are legal tender only up to a certain amount.

It is impossible to estimate the value or number of payments made using cash. The only indication available lies in the share of cash in M1, which has recorded a marked decline over a number of years. It amounted to 30.4% at end-1990, compared with 43.7% at end-1980. The total stock of cash in circulation at 31st December 1990 amounted to BEF 446.3 billion.

2.2. Non-cash payments

Deposit money comprises sight deposits held by non-financial economic agents with financial intermediaries legally entitled to receive such deposits (banks, savings banks, public credit institutions and the "Postcheque").

There is no legal definition of sight accounts. According to the regulation² governing the financial data which the banks have to submit monthly to the central bank and the Banking and Finance Commission, sight accounts are those in which money which has been deposited can be immediately withdrawn.

The Royal decree No. 56 of 10th November 1967 obliges businesses to hold an account to which credit transfers can be made by their customers. Generally, these are sight accounts, although this is not strictly necessary.

The usual practice in respect of "ordinary" customers as regards value dates is as follows:

- accounts are debited one working day before the transaction date;
- accounts are credited one working day after the transaction date (in the case of cheques in the course of collection, the credit is in suspense).

There are no regulations governing these practices or setting maximum time-limits for crediting counterparties.

The principle of allowing providers of payment services to charge sight account holders for such services was adopted in 1990, enabling financial institutions to charge a maximum of BEF 5 per debit operation (see also Section 2.3.1.).

Deposit money is rather heavily concentrated: amongst banks and savings banks, the three largest institutions account for 80% of deposits by value.

2.2.1. Credit transfer

The most commonly used payment medium in Belgium is the credit transfer. The order is given by the customer making the payment to his bank either in paper form – handed in at his bank branch or sent by post – or in automated form (diskette, magnetic tape, telecommunication). An estimated 501.5-million credit transfers were made in 1990.

The standing order is a form of credit transfer created to enable recurring payments (payment of rent, etc.) to be made automatically. In 1990, an estimated total of 116.3 million payments were made in the form of standing or variable standing orders.

² Royal decree of 24th November 1937.

One significant development is the growing dematerialisation of payment orders transmitted by customers. More and more firms are communicating their payment orders via magnetic media or telecommunications, which obviates the need to capture the data within the financial system. For 1990, it is estimated that 158 million payment orders – or 31.5% of total credit transfers and payments made in the form of standing and variable standing orders – were submitted in paperless form.

There is also a hybrid payment instrument, called the inpayment transfer offered chiefly by the “Postcheque”, which enables a payment to be made to a holder of a (bank or postal) sight account on the basis of a cash inpayment at a post office. This instrument is primarily intended for payers who do not have a sight account. In 1990, 94.7 million inpayment transfers were made for a total value of BEF 6,886 billion, giving an average of BEF 72,718 per transaction.

2.2.2. Cheques

The cheque is the second most frequently used cashless payment instrument after the credit transfer. In order to promote the use of the cheque, financial institutions increased its acceptability to creditors by supplying creditworthy customers with cheque guarantee cards. This card serves as a guarantee that any cheque drawn will be honoured up to an amount of BEF 7,000, whether or not the drawer’s sight account has sufficient cover. To make the guarantee effective, the number of the cheque guarantee card must be written on the reverse of the cheque. It is the duty of the payee to check the validity of the card and to see whether the information on the card corresponds with what is written on the cheque. The cheque guarantee card carries an automatic overdraft facility of BEF 25,000 (BEF 30,000 or 50,000 with some institutions) on which interest is charged. The only restriction is that a permanent debit balance for more than three consecutive months is not allowed. On 31st December 1990, there were 4.65 million cheque guarantee cards in circulation (3.34 million of them were Eurocheque cards), equivalent to an average of forty-seven cards for every one hundred sight accounts.

In addition to cheques issued by individual financial institutions and postal cheques, the Eurocheque is commonly used domestically. 90.6 million Eurocheques out of a total of 175.1 million cheques were issued in 1990. Unlike other cashless payment instruments, the cheque can be used for several successive payments, by means of endorsement. This practice is, however, relatively limited.

The “Postcheque” issues a special category of cheque, known as the postal draft. This is a payment order, sent by post, which the recipient can cash at a post office or at a financial institution of which he is a customer. This payment medium enables a payment to be made to a payee who has no sight account or whose sight account number is not known by the initiator of the transaction. The draft is drawn on a postal current account, possibly with a financial institution as intermediary. The government and its various services make extensive use of the postal draft system. In 1990, 31.5 million postal drafts were issued for a value of BEF 503.9 billion.

2.2.3. Direct debits

The direct debit is a mechanism created in 1980 whose purpose, like that of the standing order and variable standing order, is to simplify the execution of regular payments. In 1990, it was estimated that 57.8 million payments were executed under direct debit agreements, including 0.67 million refunds. Direct debits are mainly used to pay electricity and telephone bills and for subscriptions.

2.2.4. Payment cards

(a) Debit cards

Apart from cheque guarantee cards, which are not, strictly speaking, a payment medium, the financial institutions and the “Postcheque” issue debit cards which can be used at ATMs and, usually, at POS terminals.

Two recent developments are underway in this field:

- the gradual amalgamation of the debit card and cheque guarantee card, with the magnetic stripes which characterise the debit card function being affixed to the cheque guarantee card so as to create a single multi-function card;

- the increasing promotion of the logo of the issuing financial institution, whereas, in the early years of their development, debit cards primarily bore the trademark of the interbank network to which they provided access.

All debit cards have magnetic stripes and require a personal identification code (PIN) to be keyed in on the keyboard of the terminal before the services can be accessed. For payment transactions accepted by the system (on-line authorisation), the retailer who is paid by means of a debit card is guaranteed payment, with no limit on the amount.

On 31st December 1990, there were some 5.25 million debit cards in circulation, 5.16 million of them with access to both ATMs and POS terminals. This represents a ratio of fifty-two cards for every one hundred sight accounts and, also, fifty-two cards for every one hundred inhabitants. These figures, however, have to be put into perspective against low rates of utilisation; it seems, in fact, that up to 35% of these cards are never used.

The cost to the consumer of using debit cards – at ATMs and POS terminals – consists, in theory, of an annual fee only, set at BEF 165 for 1990. It should be noted, however, that the large retail sector decided in November 1987 to pass on to consumers the fee of BEF 2 per transaction which the interbank network imposed on them and which businesses belonging to other sectors had themselves already been paying.

In the last few years, the use of debit cards has started to become internationalised. At the ATM level, there is a reciprocal agreement between the “Postcheque” and its counterpart organisations in the Grand Duchy of Luxembourg and France. Holders of Banksys cards also have access, within the framework of the Eurocheque community to ATMs in an increasing number of European countries (currently ten), with reciprocity for foreign Eurocheque card holders (see also Section 4.1).

(b) **Credit cards and travel and entertainment cards**

Credit cards and travel and entertainment cards are widely accepted in Belgium. They can be used at a large number of outlets. These cards (American Express, Diners Club, Eurocard and VISA) were for a long time the prerogative of an elite minority of Belgians and foreign visitors. But, as a result of vigorous promotion efforts, by the companies concerned, the number of cards in circulation has shown a considerable increase: from some 326,000 at end-1985 to around 1,235,000 at end-1990. In 1990, 16.54 million transactions were effected in Belgium for a total of BEF 69.4 billion, 5.8 million of which were payments by foreign cards (for BEF 23.8 billion). These cards were joined by the AirPlus card, launched by a group of European airlines and represented in Belgium by SABENA (the Belgian World Airlines company). This card is intended for use in other sectors, not just that of air transport.

A growing number of issuers have recently begun automating their payment procedures. At some points of sale not only does authorisation take place electronically on-line, but details of the transaction are immediately recorded by the issuing company’s computer system and a slip evidencing the transaction is automatically printed out.

(c) **Retailers cards**

Retailers cards issued by petrol companies and large retailers can, by their nature, only be used at points of sale controlled by their issuers. A distinction can be made between in-house cards which use the issuers’ own infrastructure and those which are, in fact, managed at the operational level by another commercial card issuer (interbank network or credit card issuer). The latter category comprises cards issued by petrol companies. Some of these retailers cards, moreover, are linked with POS terminals, whereas others can only be used “manually”. One of the best known cards, issued by a large retailer, can be used either as a debit card (through the direct debiting technique) or as a credit card, the choice being made by the cardholder on making a purchase.

688,000 cards were in circulation at 31st December 1990; 10.7 million transactions were recorded for a value of BEF 20.6 billion; payments at POS terminals represented 94.2% of the total volume and 91.0% of the overall turnover effected by means of retailers cards.

(d) **Prepaid cards**

Prepaid cards were launched in Belgium in 1979 with the RTT-Telecard, which enables national and international telephone calls to be made from public telephone boxes. Prepaid cards for car parks will be tested in 1992.

Six million Telecards were sold in 1990; 40% of the public telephone boxes were equipped for Telecard use and 58% of public telephone calls were paid for with them. The corresponding figures for 1985 were: 1.9 million, 14% and 31%, respectively.

(e) **ATM and POS Networks**

Up until 1989, there were two ATM and POS networks: Mister Cash, which had been operational since the end of 1978 and Bancontact, which commenced operations in mid-1979. These two networks merged in 1989, forming an entity called Banksys. This network manages ATM and POS terminals on-line, accessible by means of magnetic stripe cards and secret PIN codes. In addition, there are two ATMs owned by American Express and an in-house Postomat network owned by the "Postcheque", which operates only ATMs.

The possible transactions at ATMs are withdrawals, checking of balances (of sight accounts and savings accounts), ordering of documents (cheques, credit transfer forms) and transfers from sight accounts to savings accounts. Each transaction triggers various immediate checks:

- blacklist (stolen cards, etc.);
- balance on current account, on the basis of the balance at the previous day's close, taking into account the total of the day's operations effected by means of the card and the amount of the daily and weekly transactions caps.

At 31st December 1990, 939 ATMs and 28,253 POS terminals had been installed, mainly by the Banksys network. Of a total of 939 ATMs, only twenty-six had been installed at non-bank sites.

While the POS terminals installed at filling stations and large retail outlets are, like ATMs, heavyweight terminals linked via leased lines to the networks' computer centres, those installed at small retail outlets and in the other sectors are of the "teledataphone" type or "CZAM" type, which involve use of the switched telephone network.

The interbank network can be accessed not only by bank debit cards but also by a range of in-house cards issued by petrol companies which can be used exclusively at filling stations selling their brand. These companies make use of the infrastructure of the interbank network, but offer additional services aimed at attracting corporate customers with fleets of vehicles.

2.2.5. Other payment instruments

Other instruments are also used in Belgium, the main ones being:

- luncheon voucher;
- traveller's cheque; and
- commercial bill³.

The only instrument for which data is available is the luncheon voucher, which may only be used for the payment of a restaurant bill or for the purchase of food products. These vouchers are issued by two French-owned companies ("Le Chèque-Repas" and "Ticket Restaurant") and, since end-1990 (figures showing usage are therefore not included in the statistics), by a subsidiary of a public credit institution ("Publichèque"), to any other firm wishing to distribute them to its employees as part of their remuneration package.

For reasons of an essentially fiscal nature, use of the luncheon voucher has increased very considerably in the course of the last few years⁴: 95 million were issued in 1990 (against 37 million in 1985) for a total value of BEF 15.9 billion (against BEF 6.6 billion in 1985).

³ It is arguable that the commercial bill and its variants are not payment instruments as such because settlement of the transaction underlying the bill has to be in the form of another payment medium (cash or deposit money). The commercial bill can, however, be passed to a third party by means of endorsement.

⁴ The tax advantages accruing to the employer and the employee under the luncheon voucher system have, however, been progressively reduced recently.

2.3. Recent developments

2.3.1. Pricing of payment services

In an increasingly competitive environment, and faced with quite a large number of paper-based transactions in spite of the marked expansion of the Banksys network, the financial system has moved towards pricing payment services offered to holders of sight accounts. The principle of not charging for such services, which was formerly standard practice, has been abandoned, and limited pricing of debit operations is now allowed. Charges are as follows:

- cheque guarantee card issued for a fee set at BEF 300;
- Bancontact/Mister Cash card issued for a fee of BEF 165;
- foreign transactions subject to a commission. A pricing scheme has also been adopted for the following services, each institution being free to levy charges;
- account management and mailing of statements of accounts;
- a basic package of forty-eight debit operations, priced at BEF 150 plus maximum BEF 5 per operation for additional transactions.

This package allows a minimum of transactions for a limited amount and aims to maintain access to payment services for everyone.

Pricing decisions are made individually by each institution, though they remain subject to the advice of the Pricing Commission and require the authorisation of the Minister of Economic Affairs.

The objective is twofold: to reduce the net costs of processing “traditional” payment media and to encourage consumers to make still greater use of electronic payment systems, in which considerable sums have been invested.

2.3.2. Telebanking

Data exchange between financial institutions and their customers has been facilitated by the use of EDI (Electronic Data Interchange).

Telebanking came into operation in Belgium at the end of the 1970s with the automation of payment orders and the transmission of abstracts of accounts and other information, recently also with home banking. Information is exchanged in these processes either by means of file transfers of standing orders, inpayment transfers, direct debit orders and cheques or by means of on-line, interactive interrogation of accounts. These developments have been made easier thanks to the existing national standards, which are based on structured information for the different payment media. The most widely used networks are the telephone network and the Data Communication Service network. The use of videotex, allowing access to several service providers (including financial institutions), has not been widely developed in Belgium. In 1990, about 8,000 terminals were connected, mainly within companies.

Home banking is specifically aimed at private customers and small enterprises and is generally free of charge. Communication links are based upon push-button telephones, or modem-equipped personal computers.

SECTION 3: INTERBANK EXCHANGE AND SETTLEMENT CIRCUITS

3.1. General overview

There are two domestic systems for effecting interbank transfers in Belgium: (1) the Clearing House of Belgium and (2) the C.E.C. – Centre for the Exchange of operations to be Cleared – an automated clearing house whose net balances are settled at the Clearing House of Belgium.

Of these two transfer mechanisms, neither one is dedicated explicitly to the processing of large-value transfers.

The Clearing House of Belgium, which operates from Brussels as well as several other cities in Belgium, is a paper-based clearing house, and is still the most important system for large-value transfers: 95% of the value exchanged, concentrated in only 5% of the cleared transactions, passes through the Clearing House. The C.E.C. mainly processes small-value transfers: 95% of the transfers are cleared via C.E.C., representing only 5% of the value. Recently, however, a new C.E.C. application has

been created, which is used exclusively for large-value transfers (minimum of BEF 5 million). These payments are processed according to a specific time schedule. The new application also incorporates some technical differences, as compared with the other C.E.C. applications, such as obligatory use of telecommunication, encryption etc.

3.2. Structure, operation and administration

3.2.1. Major legislation, regulations and policies

There is very little specific legislation in the field of interbank payments.

The financial institutions themselves determine the by-laws and rules governing the Clearing House of Belgium and the C.E.C.

The Clearing House of Belgium (an association without specific legal structure) is governed by a board of directors composed of representatives of the most important members. Most of the rules are determined solely by this board, though some of them also require the approval of the general assembly.

The C.E.C. is a non-profit-making organisation. As in the case of the Clearing House, the board of directors takes most of the decisions on new rules.

The National Bank of Belgium acts as chairman and operational manager of the two clearing mechanisms mentioned above. Although the National Bank of Belgium cannot impose decisions, it plays an important part in its role as chairman, in safeguarding the smooth functioning of the systems.

3.2.2. Participants in the systems

Membership of the Clearing House of Belgium is granted by a decision of its general assembly. There are no restrictions or separate criteria according to its by-laws for foreign applicants. In practice, the "Postcheque" and all financial institutions included on the list of institutions recognised by the Banking and Finance Commission participate in the Clearing House of Belgium; these include both Belgian financial institutions and the Belgian branches of foreign financial institutions. Participation can be direct or indirect; in the latter case, the financial institution is represented in the Clearing House by another financial institution. Each direct participant is held responsible for the transactions of those indirect participants which it represents.

The statutory criteria for participation in the C.E.C. is very similar to that applied as a general rule for the Clearing House.

At present, non-resident financial institutions do not participate in the Clearing House or C.E.C.

3.2.3. Types of transactions handled

At the Clearing House of Belgium, all types of paper-based payment instruments can be handled: cheques, credit transfers, commercial bills, redemptions of securities and coupon payments, liabilities incurred in Belgian francs in respect of foreign exchange transactions (see also Section 4.1.) and netted positions of the Securities Clearing System of the National Bank of Belgium.

The C.E.C. is used mainly for exchanging data on retail payments and interbank operations. These include credit transfers (with a special application for transfers exceeding BEF 5 million), cheques up to BEF 250,000, unpaid cheques, ATM POS transactions and direct debits (see table E in the statistical annex).

The "Postcheque" and three major financial institutions provide nearly 60% of the number of transactions processed in the systems.

3.2.4. Operation of the transfer systems

The Clearing House of Belgium handles paper-based transfer orders within the various branches of the Clearing House and between the branches (by mail or courier service). Balances resulting from the C.E.C. and from the Securities Clearing System of the National Bank of Belgium are added in the afternoon, after which multilateral net balances are calculated. Payments become final the same day.

An overview of the cut-off times for transactions presented at the Clearing House of Belgium is given below:

OPERATIONS	CUT-OFF TIME
paper-based securities and coupons	09.00
cheques	11.45
credit transfers	13.00
C.E.C.-balances (detail in next table)	14.00
debits, rectifications	14.15
unpaid cheques, specific credit transfers	14.30
operations centralised outside Brussels	15.30
securities clearing balances	16.00
final settlement	17.00

Revocation of operations is not possible, unless bilaterally agreed. Participants with a positive net final balance are able to transfer this balance to the Re-discount and Guarantee Institute (HWI-IRG), a semi-official market-maker in discount bills. Those with a negative net final balance can borrow from the National Bank of Belgium, on a fully collateralised basis (for more details, see Section 5.3.).

The C.E.C. transfer system operates on a round-the-clock basis, five days a week. Data are sent to the C.E.C. by the participants by telecommunication, tapes, cassettes or diskettes. Exchange of paper payment documents (including cheques) does not occur, as they are "truncated" and retained by the institution which receives them from the customer. Encryption is obligatory for telecommunication transfers in the "large-value" application and will, in due course, be extended to all telecommunication transfers. The participants may inquire about their position by telecommunication throughout the day. They cannot revoke their operations.

OPERATIONS	CUT-OFF TIME FOR SETTLEMENT ON DAY D	
	Teleprocessing users	Others
Direct Debits	D: 08.00	D - 1: 22.00
Credit Transfers	D: 11.50	D: 09.15
Large-Value		
Credit Transfers	D: 13.00	not allowed
Cheques	D: 13.30	D: 13.05

At 14.00, the multilateral net balances of the C.E.C. are communicated to the Clearing House of Belgium. Exchange of data extends beyond this deadline, but is settled on the next value date.

3.2.5. Transaction-processing environment

Until recently, The Clearing House of Belgium was a fully manual, paper-based operation. Since March 1992, an automation project has been implemented. Paper-based payment documents continue to be exchanged; the data on the operations are, however, announced on terminals, either in the Clearing House or in the head offices of member banks. Operations are electronically confirmed by the addressee after the latter has received the payment documents. The National Bank of Belgium exercises a controlling function and closes the clearing at the end of the day, when all operations have been confirmed and when the provincial clearing houses have given their fiat. The advantages of this system are, amongst others, that members can observe their treasury positions on-line and that the figures from the C.E.C. and the Securities Clearing System can be entered automatically.

Data exchange between the C.E.C. and its members happens through magnetic media or by telecommunication; 31% of input data and 52% of output data are currently handled by teleprocessing.

The C.E.C. operates with a very high degree of reliability (up to 99.99%). Immediate back-up facilities exist both within the National Bank of Belgium as well as in a back-up centre provided by a computer firm.

3.2.6. Settlement procedures

The National Bank of Belgium is the only settlement agent. For all clearing mechanisms, finality occurs at the end of the day, when the multilateral netted positions of the participants are entered in their settlement accounts at the National Bank of Belgium. If a participant has a net debit position which exceeds its facility to borrow from the National Bank of Belgium, all of its payments have to be bilaterally "unwound" (see also Section 5.3.).

3.2.7. Pricing policies

The cost of the Clearing House of Belgium is borne by the National Bank of Belgium, with the exception of some small costs which are recouped from the participants. There are no transaction fees, though it is intended that the costs of the automation project will be recouped from the participants.

The cost of the C.E.C. system is shared between its members on the basis of transaction volumes, so that the National Bank of Belgium's operating and capital costs are fully covered. The price of a transaction is presently BEF 0.26.

In addition to these system costs, an interbank pricing system exists through which every receiving bank pays a certain sum to compensate for the remitter's data capture cost. At present, these prices average at BEF 3.5 for credit transfers and BEF 2.1 for cheques, though they will probably be marked up substantially in the near future.

3.2.8. Credit and liquidity risks

Each participant⁵ must have a settlement account at the National Bank of Belgium. Overnight credit extended by the National Bank of Belgium has to be fully covered by collateral.

There are no intra-day arrangements nor intra-day controls on net debit balances.

Loss sharing rules do not exist. The "unwinding" of all operations of a defaulting bank is the only solution in the event of serious problems at the end of the day.

At present, credit and liquidity risks and, therefore, systemic risks exist in the Belgian system⁶. Hitherto, considerable mutual confidence among the participants made it possible to find solutions in those rare cases where, due to miscalculations or technical problems, one of the participants incurred problems. Nevertheless, there is growing awareness of these risks, and measures to limit them are being studied.

3.3. Main projects and policies being implemented

A new computer program, replacing the present one, for the administration of current accounts at the National Bank of Belgium is planned for 1992. This may have some important consequences for certain types of large-value transfers.

SECTION 4: SPECIAL USE OF INTERBANK TRANSFER SYSTEMS FOR INTERNATIONAL AND DOMESTIC FINANCIAL TRANSACTIONS

4.1. Exchange and settlement systems for international transactions

Making international payments is the domain of correspondent banking business. There are no exchange control regulations in existence which have an effect on payments.

⁵ With the exception of the "Postcheque" Office, the net balances of which are incorporated in the accounts of the State's Cashier.

⁶ Liquidity risks are, however, very limited as a result of the collateralised credit lines granted by the National Bank (see Section 5.3.).

Instructions for payments in BEF, originating from foreign bankers, are generally transmitted via S.W.I.F.T. The global amounts of these payments are settled at the Clearing House of Belgium. Some banks submit individual paper-based payment orders at the Clearing House. Nearly all banks which undertake correspondent business are direct members of the Clearing House.

There is no automated settlement system for international BEF-denominated transactions, nor a specific large-value settlement system.

Correspondent banking business tends to be concentrated among a limited number of commercial banks. The three largest commercial banks probably account for most of the business and they are each participating in the ECHO-netting project (see also Chapter 13).

In the context of international payments made face-to-face, the most commonly used payment instruments are Eurocheques, credit cards, debit cards, banknotes and traveller's cheques. No data are available on the use of banknotes and travellers' cheques.

Payment Instruments 1990	Transactions abroad by Belgians		Transactions in Belgium by foreigners	
	number (millions)	value (billions of BEF)	number (millions)	value (billions of BEF)
Eurocheques	3.4	17.1	1.7	6.9
credit cards	7.7	33.5	5.8	23.8
debit cards at ATMs	0.32	1.65	0.22	0.85

4.2. Exchange and settlement systems for securities transactions

There exist in Belgium a clearing system, mainly for government-issued securities, called the Securities Clearing System of the National Bank of Belgium, and a depository house for the exchange of all kinds of securities, called CIK⁷. Furthermore, Euro-clear is located in Belgium (see Chapter 13).

4.2.1. The Securities Clearing System of the National Bank of Belgium

In January 1991, the National Bank of Belgium launched a securities Clearing System for dematerialised Treasury certificates and linear bonds (OLO's⁸). Since October 1991, commercial paper and certificates of deposit in book-entry form have also been handled by the system, as have over-the-counter transactions in standard government securities since 7th January 1992.

An extension of the Securities Clearing System to ECU-denominated securities, to be issued by the Belgian government, has been decided; it is planned that this should be operational by 1st July 1992.

The Clearing System is based on four main principles:

- book entry (the National Bank of Belgium acts as central depository);
- double notification of the transactions (matching);
- delivery versus payment;
- automatic bond-lending facilities.

All financial institutions and stockbroking companies established in Belgium or Luxembourg may become direct participants in the securities clearing house, provided they subscribe to the membership-agreement. Other participants are the Treasury and the National Bank of Belgium itself. Institutions such as CIK (see Section 4.2.2.), Cedel and Euro-clear are allowed to participate, but only on behalf of their foreign customers. A system of sub-participation (representation by another participant) also exists.

⁷ CIK: "Caisse Interprofessionnelle de dépôts et de virements de titres" – "Interprofessionele Effectendeposito – en GiroKas".

⁸ OLO's: Linear Bonds i.e. long term bonds with fixed rate, term and repayment value, issued by monthly portions via a system of auctions.

Notifications are received throughout the day and can be communicated by S.W.I.F.T. or telefax (in the latter case authenticity and integrity of messages are guaranteed by the Trasec-system⁹). Teletransmission will soon be possible. Inputs of transactions with due date on the same day are possible until 15.00.

Final settlement is initiated at 15.30: the Securities Clearing System determines the balance of each participant in each kind of security and centralises all cash transactions in order to determine one single cash balance for each participant.

Participants whose securities accounts have debit balances can borrow, via an automatic bond-lending system, from a "pool" which is provided by those participants and their clients who have securities in their portfolios that they do not have to dispose of immediately. Market-operators wishing to join this system have to enter into an agreement with the National Bank of Belgium which manages the securities clearing house. Only those participants which have joined the consortium of lenders are themselves given the right to borrow. Bond lending has to be covered by collateral and is automatically effected without any intervention of lenders or borrowers; consequently, notifications are not needed. Bond lending is anonymous in the interests of confidentiality.

Cash balances are notified by the Securities Clearing System to the Clearing House of Belgium (for participants which are members of the clearing house) and to the National Bank of Belgium's Current Account Division (for other participants such as stockbrokers and Luxembourg participants).

After the close of the Clearing House, balances are settled, computer files are up-dated and security accounts are debited and credited.

4.2.2. The Securities Deposit and Clearing Office of the Financial Sector (CIK)

The CIK is a limited liability company, established according to the terms of the Royal decree n° 62 of 10.11.1967, and owned by the financial community. Credit institutions, stockbrokers and similar foreign institutions may become members. The CIK aims to ensure the circulation of Belgian and foreign securities by means of transfer between current securities accounts opened in the name of the depositors of those securities. The CIK does not intervene, however, in the settlement of the underlying transactions. It can therefore be considered as a depository and exchange house for securities, but not as a settlement system.

Settlement of stockbrokers' and some other transactions at the CIK is effected by order of the Clearing Centre for Operations of the Brussels Stock Exchange (C.C.C.: "Caisse de Compensation du Comptant près de la Bourse de Bruxelles" – "Vereffeningskas van de Kontantverrichtingen bij de Beurs van Brussel") through the current account system of the National Bank of Belgium. The C.C.C. calculates the multilaterally netted positions and sends these to the National Bank of Belgium, where only one debit or credit per stockbroker has to be registered to their respective current accounts. Only when sufficient financial provision is available do the corresponding securities transfers in the book-entry system of the CIK become effective.

SECTION 5: THE ROLE OF THE CENTRAL BANK IN INTERBANK SETTLEMENT SYSTEMS

5.1. General responsibilities

The National Bank of Belgium is governed by an organic law and by its by-laws. The following paragraphs of the by-laws are relevant to payment and settlement services offered by the Bank:

- Article 17, 2° allows the central bank to extend overdraft facilities on accounts if backed by collateral;
- Article 17, 3° allows the central bank to receive deposits of money;
- Article 18, 1st paragraph: "the Bank can perform all transactions and offer all services concomitant to or following from its mission" (unofficial translation);

⁹ Trasec: Transmission Security is a system protecting the integrity of data transfers and providing authentication, there is however no encryption of data.

- Article 31: “the Bank may carry out all operations designed to facilitate the transfer of money” (unofficial translation).

On this basis, and in the light of its historical tradition, the National Bank of Belgium assumes general responsibility for the smooth functioning of the payment system. It oversees the operation of these systems, though it does not exercise any powers of supervision in respect of payment systems.

The internal audit department of the National Bank of Belgium concerns itself with the different Clearing systems (Clearing House of Belgium, C.E.C. and the Securities Clearing) to the extent that the National Bank of Belgium is de facto responsible for the operational organisation of these systems.

5.2. Provision of settlement and credit facilities

The National Bank of Belgium currently provides:

- settlement accounts for all members of the Clearing House;
- an overdraft facility for all settlement accounts if covered by collateral;
- accounts for other financial institutions (e.g. sub-members of the Clearing House and Luxembourg banks) with overdraft facilities if covered by collateral;
- accounts for all stockbrokers which are members of the Stock Exchange, some of which participate in the securities Clearing System, mentioned under Section 4.2.1;
- sight accounts – without overdraft facility – for international institutions, foreign central banks and foreign private banks;
- accounts with developing countries under the terms of financial assistance agreements.

Though the legal framework exists, financial institutions in Belgium are not at present subject to monetary reserve requirements; they hold practically no overnight balances on their accounts at the central bank.

The Clearing House of Belgium, the C.E.C. and the Securities Clearing System are all physically located at the National Bank of Belgium. They are operated on the Bank’s computer system by the Bank’s own personnel.

By virtue of the Law of 2nd January 1991, The National Bank of Belgium was entrusted with the task of organising a dematerialised securities clearing system.

In its capacity as “neutral” manager, the National Bank of Belgium handles day-to-day operations on behalf of the C.E.C. and the Clearing House of Belgium.

The level of charges set by the Bank for the services it offers is determined, inter alia by a desire to cover the cost of those services. This, however, is by no means a requirement. If price competition with a private sector supplier of a comparable service was to ensue as a result, that would be acceptable, but not intentional.

The National Bank of Belgium offers end-of-day credit facilities to Belgian and Luxembourg financial institutions, as described in the next paragraph. There is no system for explicit intra-day credit.

5.3. Monetary policy and payment systems

In the new arrangements for monetary policy (which came into force on 29th January 1991), the National Bank of Belgium may use a wide range of intervention techniques: purchases and sales of public securities on the market, both spot and forward, repurchase agreements in respect of these securities, lending and borrowing operations on the interbank market, foreign currency swaps, etc. The central bank uses these instruments primarily for fine-tuning its monetary policy day-by-day – a process which may serve two different purposes: (1) direct “steering” interventions in order to adjust interest rate developments, and (2) the need to correct, as far as possible, certain autonomous, disruptive influences emanating from the money market itself. The settlement of the central bank’s operations generally happens through the Clearing House of Belgium.

The main purpose of these “neutralising” operations is not to influence the trend of interest rates but to ensure a degree of stability in the financial intermediaries’ cash position. To this end, the central bank will endeavour to counteract fortuitous or seasonal imbalances on the money market in order to minimise their disruptive influence on interest rates. For example, the central bank will, in principle, try to counteract the contracting or expanding effect on liquidity of a sudden increase or decrease in the

demand for banknotes or to a purely random fluctuation in the demand for and supply of foreign currencies.

In fact, the creation of a smoothly operating securities clearing system, administered by the National Bank of Belgium, constitutes a necessary complement, enhancing the effectiveness of the new instruments of monetary policy.

The instruments for regulating money market liquidity are supplemented by a new arrangement for covering any deficits and using any surpluses with which the various financial intermediaries may end the day. This mechanism replaces the former guaranteed call money market, which used to enable the financial intermediaries to exchange their daily final balances just before the closing of the Clearing House session.

To cover their residual deficits, Belgian and Luxembourg financial intermediaries can now have recourse to the central bank's current account advances, for which they have been granted generous individual credit lines.

Within its credit line, each financial intermediary may fix the usable amount of its available credit as it wishes, by providing collateral. This collateral, which can be increased or reduced at any time, must consist of securities denominated in Belgian or Luxembourg francs which are tradeable on the stock exchange or on the money and capital markets and are issued or guaranteed by the Belgian or Luxembourg Government or issued by international financial institutions of which Belgium or Luxembourg are members. The possibility of using other categories of securities as collateral is being studied. The coverage required is 100/95 of the market value of the provided collateral.

These daily closing credits can be used in the form of current account advances, with interest payable daily. The interest rate on these advances is announced by the National Bank of Belgium in advance and can be adjusted every day if necessary. It is fixed at a level above the current market rate (generally the reference market rate plus 0.50%). In view of the specific liquidity risks connected with the activities of the primary dealers¹⁰, this higher interest rate is not applicable to part of their daily closing deficits, which they can meet at the reference market rate used by the central bank.

Advances in excess of the credit line can also be granted if sufficient collateral is present, but a much higher interest rate (at present about 2.75% above the market reference rate) is charged.

In the new system, financial intermediaries can also use any cash surpluses they are left with after the close of the Clearing House to form interest bearing deposits, remunerated at a rate below the current market rate. These deposits cannot, however, be made directly with the central bank but are accepted by the Re-discount and Guarantee Institute, which reinvests them with the National Bank of Belgium. The applied rate is the reference market rate minus 0.50% for surpluses not exceeding 5% of the individual credit line and the reference rate minus 2% for amounts exceeding it. Here again, the primary market dealers can deposit part of their residual cash surpluses on market terms.

5.4. Main projects and policies being implemented

In view of international developments, the National Bank of Belgium plans to pay special attention to large-value payments (see also Section 3.3.); these are at present largely processed manually in the Clearing System. In the central bank and among the financial institutions, awareness of netting risks is growing thanks to the studies that have been undertaken at international level. These considerations will undoubtedly affect projects to be implemented.

Conclusion

In Belgium, as in most other industrialised countries, the volume of payment transactions has increased dramatically over the last decade: payments to be cleared have quadrupled in value and tripled in number. These increases were absorbed smoothly by means of increased automation in the Belgian Clearing System. Recently, the National Bank of Belgium confirmed the key role it has always played in the Belgian payment system by setting up an efficient Securities Clearing System.

In the decade to come, major changes in payment habits and systems may emerge from the European unification process and from technological innovations – among them EDI.

¹⁰ Financial intermediaries, selected by the Minister of Finance, which have undertaken to promote, as market makers, the secondary market for linear bonds and Treasury certificates.

Basic Statistical Data

(1990)

Population: 9,987,000
 Gross Domestic Product: BEF 6,121 billion (1) (ECU 144.26 billion)
 GDP per capita: BEF 612,900 (ECU 14,445)
 Exchange rate: 1 ECU = BEF 42.43

(1) Source: Eurostat

Table A.: Monetary aggregates

(average of end of month)

	billions BEF		Per capita (BEF)
	1989	1990	1990
Notes and coins	408.7	406.9	40,739
Transferable deposits in local currency	811.5	882.0	88,318
Others	0	0	0
Total money supply (M1)	1,220.2	1,288.9	129,057

Notes:

Table B.: Credit Institutions offering payment services (end of 1990)

Categories of Institutions	Number of Institutions	Number of branches	Number of accounts (thousands)	Share of market (%)	Value of accounts (BEF billions)	Share of market (%)	Average Value of accounts (BEF)
Central bank	1	(1) 23					
Commercial banks	87	(2) 3,487	4,150	41.7	580.9	64.3	140,000
Savings banks	28	(3) 3,853	1,530	15.4	73.5	8.1	48,000
Post Office	1	3,208	1,140	11.5	92.8	10.3	81,400
Public Credit Institutions	6	(4) 2,904	3,130	31.5	156.0	17.3	49,800
TOTAL	123	13,475	9,950	100%	903.2	100%	90,800

(1) Including one branch in Luxembourg.

(2) 105 non-full-size branches excluded.

(3) 8,285 non-full-size branches excluded.

(4) 925 non-full-size branches excluded.

Table C.: Cash dispensers, ATMs and EFT/POS terminals

	Cash dispensers and ATMs						EFT/POS			
	Number of			Value of transactions (BEF billions)			Number of			
	Networks	Machines	Transactions (millions)	Networks	Machines	Transactions (millions)	Networks (1)	Machines	Transactions (millions)	
end 1989	3	913	67.89	5	24,644	228.63	5	24,644	66.48	100.28
end 1990	3	939	70.86	5	28,253	248.52	5	28,253	79.04	135.69
increase 89/90		3%	4%		15%	9%		19%		35%

(1) 4 non-bank networks (2 large retailers and 2 credit card issuers)

Table D.: Number of payment cards (end of 1990)

	Number of cards (thousands)	Number of cards per 1,000 inhabitants
Cards with a cash function 1)	6,377	639
Cards with a debit/credit function 1)	6,393	640
Cards with a cheque guarantee function	4,651	466
Retailers Cards	688	69

Note A card which has several functions appears in several lines and therefore the figures in this table cannot be added.

1) Including data partly of the Grand Duchy of Luxembourg.

Table E.: Payments exchanged through the official payment systems

Name	Number of transfers (millions)		Value (billions BEF)	
	1989	1990	1989	1990
C.E.C.	549.65	610.33	8,125	9,529
– direct debits	39.10	45.32	218	259
– truncated cheques, ATMS & POS	234.51	260.07	1,427	1,548
– credit transfers	276.04	304.92	6,480	7,474
– large value transfers	–	0.01	–	248
Clearing House of Belgium (excl. C.E.C.)	31.63	27.87	164,687	181,193
– Call money	0.02	0.02	3,073	2,648
– Postal drafts	3.19	2.90	63	41
– FX Transactions	0.06	0.07	16,225	14,037
– Debits	6.50	5.87	11,858	20,820
– Ordinary credits	3.98	3.86	102,160	115,828
– Bilaterally exchanged credits*	8.89	6.92	209	162
– Others	0.03	0.02	21,836	18,206
– Province	8.96	8.21	9,264	9,451

* Via magnetic media, for which one global amount is cleared at the Clearing House of Belgium. Figures for 1989 are estimates.

Table F: Relative importance of cashless payment instruments in the payment system

Instruments	Number of transactions (millions)		Value of transactions (billions)		Percentage of total volume	Number of transactions per capita	Average value per transaction
	1989	1990	1989	1990			
Cheques issued (1)	219.80	206.57	13,076	12,179	24.0	20.7	58,958
Payments by cards (2)	78.67	95.58	153	205	11.1	9.6	2,146
Paper-based credit transfers: (3)	5.97	5.61	108,841	122,389	0.6	0.6	21,816,221
customers initiated interbank*							
Paperless credit transfers:	460.60	495.89	151,001	163,437	57.6	49.7	329,584
customers initiated interbank*							
Direct debits	50.19	57.82	277	325	6.7	5.8	5,622
TOTAL	815.23	861.47	273,348	298,535	100%	86.6	346,542

* or large-value

(1) Postal cheques and drafts included. No distinction available for cheques used to get cash.

(2) Including data partly of the Grand Duchy of Luxembourg.

(3) Inpayment transfers included. All transfers effectuated within the same financial institution were considered as paperless.

2. Denmark

DENMARK

Introduction

A key feature of the Danish payment system is the high degree of co-operation within the financial sector on its technical infrastructure. This co-operation has resulted in unified systems for cheque truncation as well as for the fast growing electronic payment media (debit cards, direct debit and credit facilities). Another important result of this co-operation is the advanced – and unified – system for the handling of securities in book-entry form.

The payment system is largely based on agreements. The central function of the Danmarks Nationalbank (the central bank) is to provide settlement facilities and, in general, to act as the common central counterparty to banks.

SECTION 1: THE INSTITUTIONAL ASPECTS

1.1. General legal aspects

The Danish payment system is only to a limited extent regulated by law. The general principles for the use of notes, coins, cheques and payment cards are stipulated in legislation. The Cheque Act of 1932 is based on the Geneva Convention of 1931 and covers rules on the issuing and design of cheques and legal issues in relation to the transfer of cheques etc. The Payment Cards Act of 1984 is primarily concerned with the protection of the cardholder (debit or credit cards). The Act determines, among other things, the sharing of responsibility between the card issuer and the cardholder in cases of misuse. The monitoring of compliance with the Act – as well as the compliance of the payment system with the legislation on marketing – is solely a matter for the consumers' ombudsman.

There are no specific laws governing the organisational and technical aspects of handling payments. The payment system is to a large extent based on agreements entered into between members of the Danish Bankers' Association, some of which also involve the Danmarks Nationalbank.

1.2. Financial intermediaries that provide payment services

Bank accounts and postal-giro accounts provide the basis for nearly all non-cash payments made by households and enterprises in Denmark. Thus, the banks and the GiroBank¹ hold a dominant position in the payment system. "Pengeinstitutternes Betalings Systemer" (PBS – Danish Payment Systems Limited), which is jointly owned by the banks, operates most of the electronically-based payment media. The GiroBank dominates the market for paper initiated credit transfer facilities.

The role of the Nationalbank in the payment system is confined to the issuing of notes and the handling of final settlement on banks' current accounts with the Bank. Stockbroking companies hold accounts with the Nationalbank for use in the securities clearing.

1.2.1. The banks

Permission to perform banking activities in Denmark is granted under the Commercial Banks and Savings Banks Act of January 1991 by the Danish Financial Supervisory Authority ("Finanstilsynet"). This body, which is under the control of the Ministry of Industry, is responsible for the supervision of the whole financial sector. According to the 1991 Act, which implemented all EC directives on banking regulation, banks have the exclusive right (in common with the central government) to solicit deposits from the general public.

Traditionally banks have been divided into commercial banks, (incorporated as limited companies), savings banks (organised as independent institutions) and credit co-operatives (which are

¹ On June 1 1991, the government enterprise "Postgiro" was converted to a bank and renamed GiroBank.

co-operative societies). By 1989 commercial banks held about 70% of all deposits and savings banks just under 30%, while credit co-operatives, all very small, only accounted for 0.5% of deposits.

The inclusion, in 1975, of commercial banks and savings banks under one consolidated act put commercial banks and savings banks on an equal footing in terms of allowable activities, solvency requirements etc. With a revision of the Act in 1988, savings banks were given the opportunity to incorporate as limited companies. This opportunity has so far only been taken by the largest savings banks. Savings banks are allowed to use the term "savings banks" in their name even if they convert to limited companies.

As the legislation is identical in all important areas, the distinction between commercial banks and savings banks is no longer of any significance. Thus from a customer's point of view there is, in principle, no difference between holding an account with a commercial bank or a savings bank. The term "bank" is, therefore, used in this chapter to refer to both commercial banks and savings banks.

In 1990, six of the largest banks merged to form two institutions, "Den Danske Bank" and "Unibank". The result is a marked concentration of the banking sector. By the end of 1990, the two large banks together accounted for almost 60% of all Danish banks' deposits. The fourteen largest banks together accounted for almost 90% of all Danish bank deposits.

By the end of 1990 there were 189 banks in Denmark with about 3,000 branches. The number of deposit accounts amounted to 11 million, which is more than two accounts per capita. Nearly 100% of the population have at least one bank account.

Of the 189 banks which are Danish institutions, two small banks are subsidiaries of foreign non-EC banks. In addition, six foreign banks have a branch in Denmark, of which four have headquarters in another EC-country. The total balance sheet of these six branches amounted to only 0.5% of the total of Danish banks by the end of 1990.

1.2.2. The PBS

Nearly all electronically based payment media available to Danish bank customers, i.e. direct debit and credit facilities and card systems, are operated by one company, the "PBS". The PBS is jointly-owned by all Danish banks (commercial banks, including GiroBank since mid-1991, and savings banks) and was established as a result of early recognition by the banks, that there are no advantages to be gained from competing over the technological development of basic infrastructure for payments.

The development of the PBS started in the late 1960s, when the banks formed a joint company with the purpose of developing and operating a common computer-based, wage-payment system for the banks' corporate customers. In the early 1970s, a new joint company was established, creating an interbank transfer centre to develop direct debit systems for all bank customers. This was followed in the late 1970s and early 1980s by the formation of joint companies to develop and maintain a common debit card system, including ATMs and point-of-sale terminals (EFT POS). All these jointly owned companies were merged in 1986 into one company, the PBS; all of the Danish banks' joint automated payment systems are today operated by the PBS.

1.2.3. The GiroBank

In June 1991 the Postgiro, an independent enterprise within the wholly state-owned National Postal and Telegraphic Services Group, was converted into GiroBank Ltd. The central government retains – for a minimum of seven years – a stake of 75%, whilst the remaining 25% is to be sold to private investors (20%) and the employees (5%) after the stocks have been listed on the Copenhagen Stock Exchange.

The legal framework of the Postgiro used to be an executive order under the Postal Act, which defined the activities of the Postgiro as that of performing postal-giro business (without defining this any further), while at the same time obliging all government agencies and institutions to use the Postgiro for their payment services whenever convenient. Traditionally, the main function of the Postgiro has been the handling of payments via Postgiro deposit accounts. These accounts were in principle similar to bank sight accounts. However, all transactions on Postgiro accounts have to be effected via post offices or written correspondence to the Postgiro on pre-printed forms, or – in recent years – automatically via direct debit facilities (for large-value transfers also electronic credit transfers would be possible). To date the Postgiro has dominated the paper initiated crediting system in Denmark.

The almost complete separation of the Postgiro system from the banking system was relaxed slightly in the 1980s. Thus, the rapid development of banks' electronic payment facilities, in particular the pre-authorised direct debit system of the PBS, encouraged the Postgiro to develop a similar product for use in connection with Postgiro accounts. An agreement between the banks and the Postgiro ensured that account holders could join either the PBS or the Postgiro direct debit scheme, irrespective of whether the account was held with a bank or with the Postgiro. At the same time, it became feasible for the banks' common debit card, the DANKORT, to be linked to a Postgiro account and for it to be used in the PBS's ATMs and EFT POS terminals.

However, in the light of the increased competition from the banks in offering payments services (which resulted from the rapid development of electronic systems within the banking system), the Postgiro wanted to enlarge its range of activities to put it on more equal terms with the banks. This led to the conversion from Postgiro to GiroBank Ltd in mid-1991.

As a consequence of the conversion, the GiroBank is now a commercial bank authorised under the Commercial Banks and Savings Banks Act. The GiroBank has become a member of the Danish Bankers' Association, as well as of the PBS, and has signed all agreements relating to payment system activity. Therefore, there is no longer any formal separation of the Postgiro from the banking system, except that, as part of the agreement with the banks, the GiroBank is not allowed to expose itself to any major credit risk as long as the central government holds a 75% stake. The GiroBank, therefore, has to "insure" its loans with a credit institution.

The GiroBank intends to keep on providing the same services as before, supplemented by only a narrow range of bank products (i.e. borrowing facilities). The local post offices will continue to provide the branch network of the GiroBank, a service for which GiroBank is charged by the postal authority. The GiroBank will still have its own direct debit system but with a free choice for customers between this and the bank system.

1.2.4. The handling of central government payments

Central government institutions (such as the tax authorities) hold accounts with the Nationalbank. However, with some exceptions, disbursements from and payments to central government institutions to or from the non-governmental sector (for example pensions and tax payments, respectively), have hitherto been handled via the Postgiro. Thus funds have been transferred from accounts with the Nationalbank to the relevant institutions' Postgiro accounts prior to disbursement and, conversely, payments to central government institutions have been transferred from the institutions' Postgiro accounts to the accounts with the Nationalbank upon receipt, either automatically or by a specific request from the relevant institution.

Now that the Girobank has the status of a bank, there is no longer any legal provision singling it out in the choice of providers of payment services for the central government. From now on – subject to some transitional rules – all banks (including the GiroBank) may offer themselves as payment intermediaries between the central government and the non-governmental sector. Central government institutions are accordingly free to choose the bank which can offer the best value in handling its payments.

1.2.5. The Danmarks Nationalbank

The Danmarks Nationalbank is the central bank of Denmark. The Nationalbank is organised as a self-governing institution. Formally, it is not owned by the government. However, the Bank's profits after allocation to reserves, are transferred to the government. Its legal framework is laid down in the National Bank of Denmark Act of 1936.

The Royal Bank Commissioner – the Minister of Economic Affairs – constitutes the formal link between the Nationalbank and the government and monitors the Bank's observance of its obligations under the Act. However, the Board of Governors is in charge of the execution of monetary policy and the choice of instruments; in so doing, it is in practice independent of the government.

According to the Act, the overall objectives of the Nationalbank are to maintain a safe and secure currency and to facilitate and regulate the circulation of money and the extension of credit.

The Nationalbank performs the banking functions of the central government. Traditionally, payments to and from the government's accounts with the Nationalbank have passed through the Postgiro, which acted as the state's money transmission bank vis-à-vis the banking system. With the conversion of the Postgiro into GiroBank Ltd, this system has been revised (see above). Some large-value transfers of the central government have always been handled directly by the Nationalbank. Furthermore, a large part of the central government's payments to and from abroad are handled by the Nationalbank.

The Nationalbank has the sole right to issue notes as legal tender.

The other key function of the Nationalbank in the payment system is the provision of settlement facilities and a fund-transfer service for banks (see Section 3–5).

Banking supervision is not performed by the Nationalbank but is – as mentioned above – the responsibility of the Danish Financial Supervisory Authority.

SECTION 2: PAYMENT MEDIA USED BY NON-BANKS

2.1. Cash

The Nationalbank is permitted to put notes into circulation according to demand. The Coinage Act (1988) authorises the Nationalbank to control the administration of minting coins, while the overall responsibility for the mint remains with the Ministry of Industry. Coins are legal tender up to a maximum of 25 of each denomination in circulation in connection with a single payment transaction.

The printing of notes takes place in the Nationalbank building, while the minting of coins is done in the Royal Mint. Besides Danish notes, the Nationalbank also prints notes with the same values, but a different design, for separate circulation in the Faroe Islands.

Notes and coins are circulated by the Nationalbank via the banks according to public demand. Twenty-two cash depots in banks throughout the country ensure a continuous supply and have rendered the remaining branches of the Nationalbank superfluous. The last two Nationalbank branches were closed in 1989. Four of the cash depots are run by the PBS and serve ATMs in particular. In 1990, notes were circulating in denominations of 1000, 500, 100, and 50 kroner, and coins in denominations of 20, 10, 5, and 1 kroner, and 50 and 25 øre. The note and coin circulation at the end of 1990 amounted to DKK 24.5 billion and DKK 2.5 billion, respectively. DKK 3.5 billion of the notes and coins were held by the banks.

Since the mid-1960s, it has been common for wages to be paid into bank accounts. Cash transactions therefore play only a relatively minor role in the payment system, when measured in value terms. A very rough estimate, made by the Danish banks, indicates the relative magnitudes; for the year 1988, cash was estimated to be the means of payment in 65% of all transactions measured in volume terms, while only 5% measured in value terms.

2.2. Non-cash payments

2.2.1. Cheques

The widespread use of bank accounts for wage payments has meant wide ownership of bank accounts in Denmark for many years. As the cheque has until relatively recently, been the major means of payment readily available to bank customers, it has traditionally been the most important non-cash medium of payment in Denmark.

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

The cheques have individual designs according to the bank on which they are drawn, though there are standard requirements on the size of the cheques as well as the placement of certain data on the cheques and in particular on the attached code line (CMC-7) containing information required to identify the drawee bank and the account holder by electronic reader sorters.

The cheque system is regulated by four agreements within the banking sector covering the opening of a cheque account, the cashing of cheques, the collecting etc. of cheques and the clearing; the last-mentioned agreement also involves the Nationalbank.

A special kind of cheque (for limited purposes) is the so-called standard cheque, which allows local authorities and private enterprises to write a large number of cheques drawn on different banks on the same form. Standard cheques are used, for example, for some payments of pensions.

During most of the 1980s, the number of cheques issued annually was stable at around 200 million, which is equivalent to 40 cheques per capita. From 1988, the use of cheques has fallen significantly, to 156 million in 1990 (30 per capita), reflecting the rapid development of the debit card-based EFT POS system and the increasing use of the direct debit systems.

Sight deposit accounts with cheques generally bear a near-zero rate of interest if there is no limit attached on the number of cheques used. It is possible to obtain a higher interest on a cheque account, but subject usually to a ceiling on the number of cheques which the customer may issue without penalty, e.g. 25 per year with a fee payable per cheque issued beyond this maximum.

The agreements between the banks on the handling of cheque payments and withdrawals, described further in Section 3.1.2., operate with a maximum guarantee for the drawee bank. In cases where there is no reason to believe that a cheque is forged when a cheque payment or withdrawal is made, the drawee bank must always honour the cheque, if it is below DKK 1,000, whether or not there are funds on the customer's account. Cheques above DKK 1,000 are received by retailers or banks at the recipient's own risk, if there turns out to be no cover.

2.2.2. Cards

(a) DANKORT

Despite the highly-developed system for truncation, cheques are expensive for the banks to handle. As part of their technological co-operation banks therefore began in the late 1970s, to consider the possibility of replacing cheques with a general card system. This led to the introduction in 1983 of the joint bank debit card, DANKORT (Dancard), to be issued by all banks as well as the Postgiro (now GiroBank). It took some years for the DANKORT to break through, particularly due to disagreements between retailers and the banks on the sharing of costs etc., but in the past couple of years there has been strong growth in use of the card, resulting in the aforementioned reduction in the use of cheques.

The card is linked to the cardholder's bank account, though not on-line. While the card is standardised in terms of the magnetic stripe and DK-logo on the reverse, the drawee bank is identifiable by its logo on the front of the card, together with the name and account number etc. in embossed printing, the signature and a photograph of the holder, enabling the use of the card in imprinters and as an ID-card (also for payments with cheques). The retailer is responsible for checking the ID and whether the card is blocked when an imprinter is used. When used in ATMs and EFT POS terminals, identification is based on PIN-codes, which are checked by way of an on-line connection to the banks' joint company, PBS.

The interest terms for sight deposit accounts with DANKORT debit card facilities are generally better than for accounts with cheques as there is no maximum on the number of transactions made free of charge with a DANKORT, even if the card is linked to one of the banks' higher-interest bearing deposit accounts. As in the case of cheques, any overdraft facility is subject to negotiation between the cardholder and the bank. When used in ATMs there is a small fee per withdrawal and a general upper limit on the amount withdrawn per day, which is checked by way of the mandatory on-line connection from each ATM to the PBS. There are no limits or fees connected with the use of the DANKORT in EFT POS terminals or imprinters.

By the end of 1990, there were 1.9 million DANKORT in issue (0.4 per capita) for use in about 1000 ATMs (mainly in banking halls) and 16,000 EFT POS terminals.

The EFT POS terminals are operated by the PBS. The installation of individual bank-owned ATMs is restricted by an agreement between the banks with the purpose of ensuring the development of a unified system and to avoid the excessive investment which could have been the result of open competition. As part of this agreement, the banks' freedom to install ATMs in branch lobbies and

externally ("through the wall") is regulated by quotas, according to the size of the banks. The quotas have not been fully utilised.

On the other hand, the agreement has not restricted the installation of ATMs inside banking halls for use only within banks' opening hours. Some banks have thus installed ATMs with more advanced facilities for their own customers (account transfer, balance statements etc.), besides the normal withdrawal facility for all DANKORT holders.

In 1990, 81 million payments were made with the DANKORT of which 61 million were made through EFT POS terminals (PIN-based) and the rest by way of imprinters. This equates to 50% of the volume of cheque payments that year. The development has been very rapid. In 1986, only 3 million payment transactions were made with the DANKORT.

When paying with the DANKORT in EFT POS terminals, the transaction is reported directly to the PBS. There is no balance check in this connection but the amount is debited from the cardholder's account the next day. Paper-vouchers are sent to the banks from the retailers and are truncated in the same way as cheques.

As is the case for cheques, the agreements between banks on the handling of cash withdrawals on the DANKORT also operate with a guarantee given by the drawee bank up to a maximum amount.

The rules applying to the DANKORT are somewhat more attractive to retailers (or the bank providing cash) than the rules for cheques. The maximum guaranteed by the drawee bank is DKK 1,000 for imprinter transactions, DKK 2,000 for withdrawals in banks or ATMs, and DKK 3,000 for payments in EFT POS terminals. Furthermore, compared with cheques, the maximum amount remains covered by the drawee bank in the case of payments above the maximum. Thus, for example for a payment in an EFT POS terminal amounting to DKK 4,000, the retailer's maximum risk is DKK 1,000. If the same payment transaction is made with a cheque the risk for the retailer is the whole amount, i.e. DKK 4,000, if there is no cover on the customer's account.

(b) Other cards

Through the PBS, the banks offer to customers the possibility of attaching a VISA facility to the DANKORT, thus making it possible to use the card as a debit card abroad. By the end of 1990, 230,000 of the 1.9 million DANKORT were combined VISA/DANKORT. Foreign VISA and Eurocheque cards as well as Eurocards/MasterCards have access to the ATM network.

The PBS offers separate Eurocards and Eurocheque cards to more frequent travellers.

Generally, the market for cards in Denmark is dominated by the systems operated by the banks via the PBS. Of the major international card systems, Diners and American Express are active in Denmark. In addition, Danish department stores, petrol companies etc. operate their own retailer card systems.

Plans for issuing a prepaid card for general use, largely to reduce the need for coins, have made considerable progress in 1991. Thus the PBS, together with Copenhagen Telephone Ltd, has formed a limited company, "DANMØNT" (Dancoin), which is going to develop a system for these cards.

The system will be open in the sense that the card will be issued by many different issuers for use in all outlets joining the system. Nationwide implementation is expected in 1993.

2.2.3. Paper-initiated credit facilities

Before the development of the direct debit system (see below), most bills in Denmark were paid through paper-initiated credit transfers to the creditors' accounts with the Postgiro. The debtor could pay either by cash or by cheque in any post office or by ordering on preprinted forms a transfer from his own account with the Postgiro.

Because there has been no operational connection between the systems of the banks and the Postgiro, paper-based bills have only to a limited extent been settled through the banking system. However, as bank cheques and – more recently – the DANKORT have come into wider use in connection with these payments, the Postgiro has played an important role in the daily clearing of payments.

In spite of the introduction of direct debit systems, the paper-initiated Postgiro system is still widely used for non-recurrent payments and for debtors who do not want to enter any automated debit system.

After the conversion of the Postgiro to the GiroBank in mid-1991, the paper-initiated credit system changed from a postal system to a generalised bank system with the introduction of banks' standardised paper-initiated crediting orders, on which payments can be made in any bank (including the GiroBank). However, GiroBank is likely to continue to operate its own paper-initiated credit transfer system for transfers between accounts within the GiroBank and in relation to cash payments made at post offices.

In 1990, the number of paper-initiated credit transfers to the Post Giro was 196 million (39 per capita). In the statistical annex, (table F) the paper-initiated credit transfers are included under "paperless credit transfers" because the processing of the transfers does not involve any exchange of paper but is done electronically.

2.2.4. Direct debit

Since the mid-1970s, the banks have operated a system of pre-authorised direct debits with the name "Betalingsservice" (Payment Service) under the auspices of the PBS. The system is for private customers with frequent and recurrent payments. A creditor joins the scheme by instructing his bank to arrange for automated payments. The bank then informs the PBS, which links up with the creditor and provides him with a creditor's code. The creditor will then advise his debtors that it is possible for them to have all payments automatically transferred from their respective bank accounts, if they wish to join the scheme. When a debtor joins the scheme, he must issue a payment authorisation to his bank allowing the transfers in question. Accordingly, the bank will register him as a debtor in the system.

By the end of each month, the debtor receives a list of the payments to be made during the subsequent month with a list of the creditors, the time of payment and the amounts, the latter being solely determined by the creditor. Any time before the seventh banking day of the following month, the debtor is entitled to cancel the payment.

The regular information to debtors and creditors as well as the data on account transfers to the banks are provided by the PBS.

The system of pre-authorised direct debits is free of charge for the debtor, whereas the creditors are charged according to the number of transactions. There are no formal rules limiting the types of payments which can be handled in the direct debit system. The system is entirely based on agreements.

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

The GiroBank (former Postgiro) also operates a system of pre-authorised direct debits ("Plan Total Giro") working in a similar fashion to the PBS system, but for Giro-account holders only. As mentioned in Section 1.2., an agreement established between the PBS and the Postgiro has made it possible for debtors and creditors to effect payments across the system boundaries.

In 1990, 57 million transfers were made within the PBS system, which is equivalent to 11 per capita. 2 million people, or 40% of the total population, were registered as debtors in the system.

The GiroBank system gave rise to about 4 million account transfers in 1990.

2.2.5. Direct credit

As early as the 1960s, it became common to receive wages directly into bank accounts. The first of the predecessors of what later became the PBS was, therefore, an agreement among the banks to co-operate on the technical handling of wage payments.

Today, the direct credit system of the PBS handles the large majority of account-to-account transfers in connection with payments of wages and pensions and other recurrent crediting.

The recipient of wages or pensions is free to choose the bank account to be credited (including accounts with GiroBank).

In the credit system, the PBS receives from the debtor, which can be a public or a private employer, electronically readable information on the wage and pension transfers to be made. If the employer so desires, the PBS today also offers services for calculating the net wages to be paid after deduction of tax etc. Furthermore, the PBS provides the banks with the data necessary for their bookkeeping.

Recently some banks have begun to offer some direct credit services in their own name to employers.

In 1990, 58 million transfers, almost 12 per capita, were made within the PBS direct credit system. The direct credit facilities run by banks on an individual basis gave rise to only 6 million transactions.

SECTION 3: INTERBANK EXCHANGE AND SETTLEMENT CIRCUITS

3.1. General overview

3.1.1. Interbank circuits

All transfers of funds between banks in Denmark take place via their current accounts with the Nationalbank.

All banks have the option of linking up to the Nationalbank's on-line and real-time screen-based balance inquiry and transfer facility, through which banks may transfer funds from their current account with the Nationalbank to that of any other bank via a terminal in their own headquarters. This system, referred to below as "DN Inquiry and Transfer System" ("DN-Forespørgselsservice"), is used for most large-value fund transfers between banks during the day. The system is described in Section 3.2.1. below.

Some banks use the S.W.I.F.T. network to transfer – mostly large-value – funds to other domestic banks. The domestic S.W.I.F.T. transfer orders are accumulated by the Nationalbank and settled in batches a limited number of times per day. Domestic S.W.I.F.T. transfers are described in Section 3.2.2. below.

3.1.2. Retail clearing

Payments by way of the non-cash payment media described in Section 2 are processed for clearing through the circuit referred to below as the "retail clearing". The calculation of the net net amounts resulting from that clearing (i.e. the final net credit or debit position for each clearing bank), as well as the final settlement, is performed by the Nationalbank once every banking day. Banks which are not clearing banks participate indirectly via one of the clearing banks.

(a) Major Agreements

There is no legislation covering the clearing processes and the exchange and settlement circuits of banks. The system is based entirely on agreements.

All clearing banks must sign and follow the rules of the *clearing agreement* between the Nationalbank and the Danish Bankers' Association. This agreement obliges clearing banks to link up to the DN Inquiry and Transfer System, to sign all agreements between members of the Danish Bankers' Association on clearing between banks and to respect the relevant technical requirements, including time limits. The agreement further stipulates that the costs of the clearing are to be covered jointly by the clearing banks.

The agreements mentioned below are all entered into between members of the Danish Bankers' Association and are signed by virtually all banks.

The *agreement on the cashing of cheques* obliges banks to cash cheques drawn on other banks up to a limit of DKK 1,000. This agreement predates cheque truncation. Since the implementation of the truncation system in the early 1980s, the central agreement in connection with cheques is the

“Document of Agreement on Truncated Clearing”. The Document stipulates the basis for sharing of risks and responsibilities between banks and refers to three other papers as forming an integrated part of the agreement on truncated clearing: firstly, the “Handbook for the Handling of Payments”, which defines the technical standards etc. for the system; secondly, an agreement on the collection of cheques etc; and, lastly, the clearing agreement (see above). Thus, by signing the Document of Agreement, banks are obliged also to sign the other agreements (except possibly the clearing agreement, as a bank may choose to clear via a clearing bank instead of becoming a clearing bank itself).

With regard to the card system, the banks have signed a separate agreement parallel to the agreement on the cashing of cheques, obliging banks to accept withdrawal requests by DANKORT in other banks than the cardholder’s own. However, the most important basis for the debit card system is *the agreement between the shareholders of the PBS* – in practice all banks – stipulating the terms of the PBS systems, including the DANKORT. As already mentioned, banks’ freedom to install individual ATMs is limited by a separate agreement.

Recently, the banks have signed an *agreement on interbank fees* in connection with withdrawals (with cheques or DANKORT) in banks other than the drawee bank. This agreement stipulates a fee to be paid per transaction from the drawee bank to the bank providing cash. In the case of ATMs, the fee is higher when the withdrawal is made at night or on public holidays. Furthermore, the agreement allows the bank providing cash to charge customers of other banks a fee for cashing cheques or paying out cash on a DANKORT.

(b) **Participants in the systems**

All Danish banks may become clearing banks, and thus take direct part in the retail clearing. In practice, however, only 46 (i.e. one quarter of all banks) are clearing banks; the remaining smaller banks participate indirectly via one of the clearing banks. No branches of foreign banks have yet applied to become clearing banks.

The banks’ computer (bookkeeping) centres play an important role in the clearing process. All banks are linked up to a computer centre. Only the very large banks operate their own, whereas the smaller banks share computer centres. In total, there are six computer centres in Denmark, covering all banks. One, the BEC, which was established and is owned by 28 small banks, is also the computer centre for the Nationalbank.

(c) **The retail clearing process**

There are fundamentally two different channels through which retail non-cash payments are processed; both end in one final settlement on the clearing banks’ current accounts with the Nationalbank.

One channel is in effect a *bilateral clearing*, in which each of the computer centres itself performs the processing and calculation of net claims on other banks, hands over clearing information to these banks and reports the total net claims to the Nationalbank. In this way, truncated cheques, vouchers from debit card transactions in imprinters, withdrawals from bank ATMs and transactions within banks’ individual direct credit systems are processed. The banks’ standardised paper-based credit orders, which were introduced in the autumn of 1991, will also be cleared through this channel. The process is as follows: each bank reports transactions involving account holders of other banks to its computer centre. Every evening, data is collected in each computer centre on magnetic tapes, one tape for each of the other computer centres. These tapes, containing the detailed clearing information, are physically exchanged between the computer centres during the night (with the PBS acting as the “meeting point” for the exchange). At the same time the total claims on each of the other banks are transmitted electronically from each of the computer centres via the banks’ information network, PI-NET, or – in some cases – by tape, to the Nationalbank’s computer centre, the BEC.

For the computer centres in the western part of Denmark it is not feasible to transport magnetic tapes to Copenhagen every night for the exchange. The detailed clearing information from these computer centres is therefore transmitted on the PI-NET to the PBS, which collects the data on magnetic tapes and hands them over to the other computer centres in the east, and conversely transmits the clearing information back from east to west.

The other channel is, in effect, a *central clearing*. The PBS processes all payment transactions made on payment media operated by the PBS. These include the PBS direct debit and credit facilities, payments with the DANKORT in EFT POS terminals and transactions with Eurocheque or VISA card. Every evening, the PBS collects the detailed clearing information on magnetic tapes, one for each of the banks' computer centres, and the tapes are physically exchanged together with the tapes from the retail clearing (see above). Furthermore, the PBS reports to the Nationalbank's computer centre, via the PI-NET, the net claims to be settled between the banks.

It should be noted that the "retail clearing" does not necessarily involve small transfers only. There may, for example, be large cheques in the clearing.

(d) The multilateral netting in the BEC

During the night, the Nationalbank's computer centre, the BEC, receives information on the net credit or debit positions of all clearing banks vis-à-vis each other from the various computer centres and from the PBS. Under normal circumstances the information is sent via the banks' network, the PI-NET, and must reach the BEC by 4.30 a.m. The BEC validates each transmission and returns a receipt to the computer centres, indicating whether or not the transmission has been accepted. At 7.40 p.m., if all data has been received, the net settlement position of each clearing bank is calculated. These positions are released for authorisation by the Nationalbank at 8.30 a.m. The authorisation takes place at 9 a.m., after which the settlement is valid (legally binding), and the clearing banks get access to information on the outcome of the clearing via the DN Inquiry and Transfer System. In case of delays or errors the entire time schedule may be changed.

3.2. Structure, operation and administration of major large-value systems

3.2.1. The DN Inquiry and Transfer System

Whereas the above-mentioned clearing process forms an essential part of the payment system, the large majority of transfers between the banks, measured in value terms, takes place outside this process in the gross real-time settlement system operated by the Nationalbank under the name DN Inquiry and Transfer System ("DN-Forespørgselsservice"). With an average daily value of payments of DKK 37 billion, resulting from about 3,000 payment orders, this system is in practice, a large-value system. By comparison, an average of only around DKK 11 billion per day is cleared via the retail clearing.

The DN Inquiry and Transfer System is a screen-based on-line system, which enables banks (and stockbroking companies – see Section 4.2.) to make balance inquiries and to transfer funds from their own current account with the Nationalbank to other Nationalbank accounts via a terminal situated in their own headquarters. The system is operated by the Nationalbank's computer centre, the BEC, to which participating banks must have a direct line (commonly via their own computer centres). Credit transfer orders can be given between 9 a.m. and 15.30 p.m. on banking days and are immediately carried out. The system is open for balance inquiries as well as access to the Nationalbank's market information ("DN-nyheder") between 8.00 and 18.00 on banking days.

All banks hold a current account with the Nationalbank, but only some (the retail clearing banks and 23 others) are linked up to the DN Inquiry and Transfer System. The remaining small banks instruct the Nationalbank to transfer funds from their accounts via telephone or by telefax.

(a) Pricing policies

Banks have to pay an entry fee when joining the DN Inquiry and Transfer System, plus a fixed fee per account every quarter. Additionally, an extra quarterly fee is charged per address, terminal or printer connected to the system. There is a standard fee for each balance inquiry and transfer made within the system.

In addition, clearing banks have to pay a fixed fee per clearing day, which is the same for all clearing banks.

(b) Credit risk

Since settlement via the DN Inquiry and Transfer System is real-time the system does not involve any credit risk for the banks. Credit transfers simply result in changing the balances of the accounts with the Nationalbank.

As explained in detail in Section 5.2., since 1st April 1992, banks have no longer been granted access to overnight borrowing on their current accounts with the Nationalbank. Intraday, however, they have access to borrowing, without collateral, up to a maximum of 100% of each bank's own funds. Credit transfers are allowed as long as they do not result in excess overdraft, i.e. a net debit position beyond this maximum. If they do, the transfer requests are rejected. The credit risk in relation to the DN Inquiry and Transfer System is thus carried by the Nationalbank and concerns the access to intraday credit. This access is only granted to banks, which have been established for two full financial years. It should be noted that access is not a formal right for banks, and it may be restricted for individual banks in special circumstances.

3.2.2. S.W.I.F.T. for domestic use

Even though the S.W.I.F.T. network is primarily a system for international messages, it is also used for some domestic, large-value interbank transfer instructions as an alternative to the DN Inquiry and Transfer System. In the case of domestic S.W.I.F.T. payment messages, the credit transfer information is received and stored by the Nationalbank, which, when a certain number of transfer instructions have been received, authorises the credit transfers in batch runs (without netting) up to eight times per day. The S.W.I.F.T. messages used domestically are not in principle different from those used internationally.

Forty-one Danish banks are S.W.I.F.T. members. The daily domestic S.W.I.F.T. payments amount to about DKK 15 billion. This is less than half the daily payments within the DN Inquiry and Transfer System. However, with a value per transaction averaging DKK 47 million, the S.W.I.F.T. system is used to carry higher-value payment orders than the DN Inquiry and Transfer System, which operates with an average of about DKK 13 million per credit transfer.

The DN Inquiry and Transfer System has the advantage, compared with S.W.I.F.T., that it is an on-line, real-time system whereas the S.W.I.F.T. settlements are made in batches. The most likely motive for using S.W.I.F.T. seems to be that there are much wider possibilities for automating messages related to the transfer instructions in S.W.I.F.T. than in the DN Inquiry and Transfer System. In addition, S.W.I.F.T. is often a natural message carrier for domestic payment orders initiated abroad, e.g. a credit transfer from a foreign bank to a Danish bank which is to be transferred on to another Danish bank, or for a foreign-exchange deal involving Danish kroner.

Domestic S.W.I.F.T. payment orders (as well as those arising from the retail and securities clearing) are always carried out regardless of the size of the resulting net debit positions of some banks vis-à-vis the Nationalbank. If the Nationalbank's credit caps (see Section 5.2.) are exceeded in connection with a S.W.I.F.T. payment order (or the clearing), the bank in question is contacted by the Nationalbank and required to cover the excess amount immediately.

SECTION 4: SPECIAL USE OF INTERBANK TRANSFER SYSTEMS FOR INTERNATIONAL AND DOMESTIC FINANCIAL TRANSACTIONS

4.1. Exchange and settlement systems for international transactions

All remaining exchange controls were lifted in 1988. However, for statistical purposes, payments between residents and non-residents exceeding a certain minimum must be reported to the Nationalbank. For tax control reasons, there are certain reporting requirements for residents' accounts abroad.

The total payment turnover between Denmark and abroad in 1990 amounted to DKK 1,700 billion. 15% of the payments were made from or to residents' bank accounts abroad; the remaining part was settled via foreign-exchange dealers (largely banks).

Large-value payments

Payments to and from abroad are almost exclusively handled via the S.W.I.F.T. network and correspondent banks, including Danish banks operating abroad. A rough estimate by Danish bankers indicates that 85/90% of transfers to and from abroad – measured in value terms – are handled via S.W.I.F.T.

By the end of 1990, Danish banks had 17 subsidiaries and 28 branches abroad. A number of small banks handle foreign transactions via larger Danish banks. 41 Danish banks are S.W.I.F.T. members.

Retail payments

Among the non-cash payment instruments used for *travel* purposes, the instruments administered by the PBS (see Section 1.2.) play a significant role. The most widely used credit card is the Eurocard which, in 1990, was used abroad by residents in 1.4 million transactions, each transaction averaging about DKK 1,000. VISA cards (combined with the DANKORT) were used in 1 million transactions abroad by residents. Danish residents also used 0.7 million Eurocheques abroad in 1990.

Another popular non-cash payment instrument for use abroad is the travellers' cheque, for which, however, no statistics are available. Postal cheques were used by residents abroad in 200,000 transactions in 1990.

EUROCARD, EUROCHEQUE and VISA transactions are settled on a net settlement basis. The PBS collects data on the use of instruments, but the role of the settlement bank is performed by a private bank with which all other Danish banks must hold an account if they are to offer the instruments to customers.

4.2. Exchange and settlement system for securities transactions

4.2.1. Institutional framework

The Danish system for securities registration and trading is highly centralised. All listed Danish securities are registered in book-entry form with "Vaerdipapircentralen" (the VP, The Danish Securities Centre). Futures and options guaranteed by the Guarantee Fund for Danish Options and Futures are registered with the Guarantee Fund, but the technical infrastructure is provided by the VP. Unlisted Danish securities, which are of relatively little significance in the Danish market, may be registered with the VP. Foreign securities, listed as well as unlisted, may likewise be registered with the VP.

The VP is a private, independent non-profit-making institution, which has been functioning since 1983. The amended Act of 14th May 1980 provides the statutory framework for the registration of securities. The board members of the VP represent the issuers of securities, custodians, brokers/dealers and investors, and the Nationalbank has a seat on the Board in its own right. Dematerialisation of paper-based securities has been accompanied by safeguards; it is stipulated in the Act that the VP shall be liable for damages in the event of any loss resulting from errors in connection with registration or with payments, even if these errors are accidental. This contingent liability is borne by the VP, but the VP is, in turn, backed by its founding authorities (inter alia the Nationalbank), institutions and companies.

Stockbroking companies (which, together with the Nationalbank, have the exclusive right to trade securities on the Copenhagen Stock Exchange), banks, credit institutions with a special authorisation and large issuers of bonds are registered by the VP as *authorised institutions*. Only authorised institutions may open accounts with the VP and only authorised institutions are entitled to make registrations on the VP accounts (i.e. issues, trading and ownership of securities etc.). The institution which opened a particular account is the only one entitled to obtain information about the account and to make registrations on behalf of the account holder. Consequently, private individuals and companies cannot order transfers directly via the VP.

As described below, the VP also has a central function in the netting of securities trading besides being the central securities depository.

4.2.2. The clearing and settlement of securities trading

Payments in connection with trading in securities registered with the VP are normally settled on the third day following the trade day. The settlement takes place on authorised institutions' accounts with the Nationalbank. In the case of banks, their current accounts are used for this purpose. Stockbroking companies and credit institutions with a special authorisation hold special non-interest-bearing securities-settlement accounts with the Nationalbank. In contrast to banks' current accounts, net debit positions are allowed on the special settlement accounts only to the extent that a satisfactory guarantee has been provided. Issuers of securities do not have direct access to the settlement process.

The clearing and settlement process works as follows: by the end of the day, the Nationalbank informs the VP of the net credit positions – taking into account the cover from guarantees – on each of the settlement accounts. During the night, the VP nets all trades to be settled the following day, calculating the net debit or credit position for each of the participants.

If none of the net debit positions of the stockbrokers or credit institutions with a special authorisation exceed their net credit positions (including guarantees) reported by the Nationalbank, the VP gives a “Green Light” to the Nationalbank and the settlement on the accounts is carried through, normally at 9 a.m.

If the net debit position exceeds the net credit position on any of the settlement accounts (a so-called “Yellow Light” situation), the participants in question are told to provide a guarantee covering the excess amount before 10.30 a.m. When this is provided, settlement is executed. In the meantime, the entire settlement process is held up.

If a guarantee cannot be provided, the overall settlement process does not proceed (“Red Light”). Instead, an unwind procedure begins, isolating the transactions of the participant in question, before a new settlement round can be initiated. In practice this has not occurred so far.

Information on coupon payments and payments at redemption are channelled to the holders of securities via the authorised institutions holding the securities account with the VP. The VP nets these payments and reports the net position of each of the authorised institutions to the PBS, which releases the net positions into the daily retail clearing with the Nationalbank.

The settlement of payments in connection with transactions in futures and options guaranteed by the Guarantee Fund for Danish Options and Futures, including the adjustment of the balances on margin accounts, is handled via the same channels as the clearing of payments in connection with securities transactions. Margin-account facilities are provided by the Nationalbank. In case of large price fluctuations, an extra clearing of margin accounts may be demanded by the Guarantee Fund for Danish Options and Futures. In contrast to the securities-settlement accounts, interest is paid on the margin accounts at the rate for banks’ current-account deposits with the Nationalbank.

The system ensures delivery-against-payment for all securities transactions among participants in the clearing and settlement process.

As is the case for the clearing process (described in Section 3.1.2.), the main risk in the settlement of securities transactions lies with the Nationalbank, and consists of the general risk related to overdrafts on banks’ current account (see Section 5.2.).

4.2.3. Settlement of securities denominated in foreign currency

From the late 1980s, a growing number of bonds denominated in foreign currencies, in particular in SEK and NOK, have been listed on the Copenhagen Stock Exchange. A few of the SEK bond series have, in addition, been registered with the VP. In order to encourage this development and following a request from market participants, the Nationalbank in early 1990 introduced a foreign-currency settlement facility for payments in connection with securities transactions.

The system is open to the VP authorised institutions, who may open foreign-currency settlement accounts (hereafter called currency accounts) with the Nationalbank – one separate account per currency. For each currency in the system (so far only SEK and ITL), the Nationalbank maintains an account with a commercial bank in the home country of that currency. Transfers of funds to/from a currency account are effected in one of two ways: by payment order from/to another currency account with the Nationalbank (of the same currency), or by payment order to/from the Nationalbank’s account in the home country of the currency.

The clearing and settlement process is integrated into the standard process for the handling of DKK securities. The netting is performed by the VP, which every morning reports the resultant net credit or debit positions of each participant, for each account, to the Nationalbank.

In addition, the VP calculates the DKK equivalent of each of the currency net positions and adds these to the participants’ DKK net position in the DKK securities clearing. If none of the resulting net debit positions of stockbroking companies or credit institutions with a special authorisation exceed the net credit positions reported the night before, the settlement on accounts is carried through,

normally at 9 a.m. If there are net debit positions exceeding the net credit position, the settlement is held up, until a guarantee is provided (see the description of the DKK settlement above).

For net purchasers of foreign-currency securities, the settlement will result in a debit position on their relevant currency accounts, and vice versa for the net sellers. Since the currency accounts are non-interest bearing, the net sellers will normally want to have the funds transferred to a correspondent account in the home country of the currency. In order to get same-day value, credit transfer orders must be sent on the day prior to the settlement day to the Nationalbank, which debits its account in the relevant country. Similarly, the net debtor is required to cover its position by transferring funds to the Nationalbank's account with value on the settlement day. In case of delay, the debtor is charged the overdraft interest rate.

Coupon payments and redemptions of foreign-currency securities registered with the VP may likewise be channelled via the currency accounts.

The system has so far operated on only a relatively small scale.

SECTION 5: THE ROLE OF THE CENTRAL BANK IN INTERBANK SETTLEMENT SYSTEMS

5.1. General responsibilities

As mentioned in Section 1, the National Bank of Denmark Act defines the objectives of the Nationalbank as, inter alia, those of maintaining a secure currency system while at the same time facilitating the circulation of money. Of particular relevance to the Nationalbank's role in the interbank settlement system, is the Act's stipulation that among the central functions of the Bank is the taking of deposits on current account. Thus, besides a general objective and an obligation to receive deposits from banks, the Nationalbank has no specific statutory responsibility for the settlement system. However, as a consequence of the general objective, the Nationalbank has an obvious interest in the smooth working of the system. Furthermore, since the Nationalbank is the only institution with which all Danish banks hold accounts, it seems natural for the Nationalbank to accept the role of central counterparty to banks in the clearing as well as in interbank transactions in general.

The agreements which form the basis of the settlement system have already been described in Section 3. In addition to these agreements, the general provisions in relation to banks' use of their current accounts with the Nationalbank are of central importance (see Section 5.2. below).

In terms of audit and supervision, the Nationalbank's functions are limited to the Bank's own systems, including banks' current accounts and the agreements between the Nationalbank and the banks. The Nationalbank has no supervisory or auditing function in relation to the PBS or to the banks' computer centres. The general supervision of the financial sector is the responsibility of the Danish Financial Supervisory Authority.

5.2. Provision of settlement facilities

As is apparent from Sections 3 and 4, the Nationalbank has a central role in the payment system as provider of settlement facilities, not only for banks but also, inter alia, for stockbroking companies. The graph in the annex illustrates the various types of accounts which are held with the Nationalbank and the procedures and actions during the day which affect positions on these accounts.

For stockbroking companies and credit institutions with a special authorisation, the right to hold a settlement account with the Nationalbank does not entail a right to borrow money.

On the other hand, banks have access to intraday credit as an essential feature of their current accounts with the Nationalbank. Banks also used to have access to overnight borrowing on their current accounts. However, in connection with a change of the Nationalbank's monetary policy instruments on 1st April 1992, this access was discontinued. Instead, a new system based on certificates of deposit was introduced.

5.2.1. The Nationalbank's monetary policy instruments

As a main feature of the new system, the Nationalbank will issue certificates of deposit to the banks. The certificates will normally have a maturity of two weeks and will usually only be sold on the

penultimate banking day of every week. The certificates of deposit are registered in book-entry form at the Nationalbank. They may only be traded between the banks and with the Nationalbank, and cannot be pledged as collateral. In contrast to transactions in securities, settlement will take place on the day of the transaction. The interest rate on certificates of deposit will serve as the Nationalbank's key rate for managing the decisive money-market rates. The Nationalbank will buy certificates of deposit from the market or conduct sale and repurchase operations in Treasury bills to supply liquidity when needed.

Banks' access to overnight borrowing on current account will lapse. In the event that a bank's current account shows a negative balance at 15.45, the Nationalbank will contact the bank and request immediate cover for the amount, charging an administration fee of 1/16% of the amount, with a minimum of DKK 100 and a maximum of DKK 10,000. There is no formalised procedure for a situation in which the bank does not cover its overdraft. In practice, this has never happened.

In addition, the freedom of banks to make interest-earning deposits on their current accounts will be limited to a monthly average of 5% of their own funds. Such deposits will be remunerated at market rates, whilst deposits above the ceiling be unremunerated. The current account with the Nationalbank will therefore serve as a buffer only, and banks will have a strong incentive to invest excess liquidity in certificates of deposit or other money-market instruments.

The official discount rate will continue to serve as key rate for the overall orientation of monetary policy.

The only criterion for a bank's freedom to open a current account with the Nationalbank is authorisation to perform banking activities from The Danish Financial Supervisory Authority. However, in order to receive interest on deposits and to have access to intraday borrowing the bank must sign a credit-policy agreement with the Nationalbank. This agreement obliges the bank to respect any Nationalbank directive in the form of credit ceilings, reserve requirements etc.

5.2.2. Daylight credit

Banks have access to daylight credit with the Nationalbank up to 100% of each bank's own funds. A bank must have been established for two full financial years in order to obtain access to unsecured intraday loans (See also Section 3.2.1.).

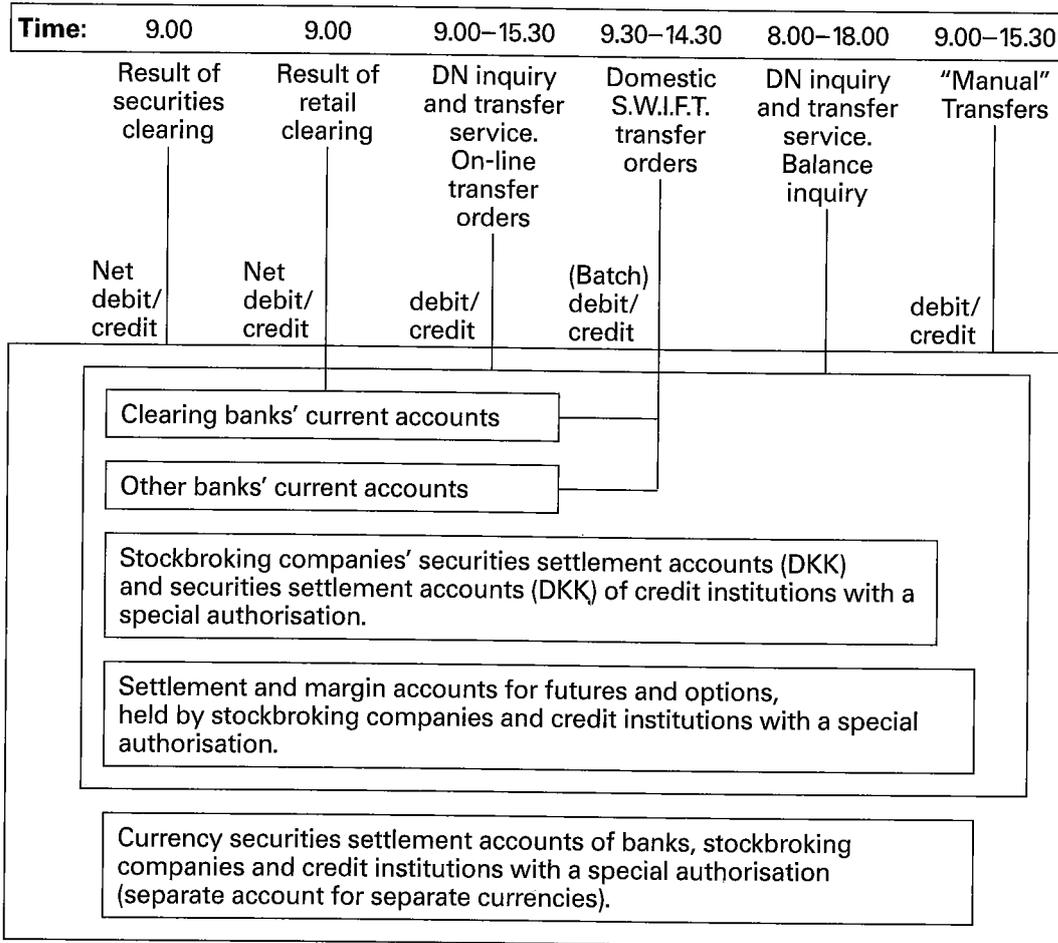
Credit transfers within the DN Inquiry and Transfer System are automatically suspended if they result in an overdraft beyond the limit. However, the retail and securities clearing is always carried through, irrespective of the resulting excess overdrafts of a bank; the same applies to S.W.I.F.T. transactions. In both cases, banks are requested to find cover for the excess amount immediately.

5.3. Monetary policy and payment systems

In order to maximise efficiency in the transmission of monetary policy signals, it is essential that the interbank market works smoothly and with a high degree of transparency. A precondition for this is an efficient and smoothly functioning clearing process and system of interbank circuits. The Danish system for clearing and interbank transfers, which is technically highly developed, seems clearly to meet this requirement.

At the same time, the fact that the Nationalbank is central counterparty in the unified system for settlement of payments gives the Bank a good view of the overall liquidity situation of the economy. This is an advantage for example in crises such as those experienced in some countries in 1987 related to large price swings in securities markets and liquidity consequences via the futures and options markets.

INTERBANK SETTLEMENT SYSTEM IN DENMARK



Basic Statistical Data
(1990)

Population: 5,135,000
 Gross Domestic Product: DKK 792.432 billion (1) (ECU 100.87 billion)
 GDP per capita: 154,320 (ECU 19,644)
 Exchange rate: 1 ECU = DKK 7.856

(1) Source: Eurostat

Table A.: Monetary aggregates
(average of end of month)

	billions DKK		Per capita (DKK)
	1989	1990	1990
Notes and coins	21.44	22.49	4,380
Transferable deposits in local currency	186.54	187.45	36,504
Others	0	0	0
Total money supply (M1)	207.98	209.94	40,884

Notes:

Table B.: Credit Institutions offering payment services (end of 1990)

Categories of Institutions	Number of Institutions	Number of branches	Number of accounts (thousands)	Share of market (%)	Value of accounts (DKK billions)	Share of market (%)	Average Value of accounts (DKK)
Central bank	1	1					
Commercial banks (1)	189	3,073	9,447	93.6	268.72	92.2	28,445
Savings banks	0	0	0	0	0	0	0
Co-operative & rural banks	33	33	neg	neg	1.22	0.4	n/a
Post Office (2)	1	1,392	647	6.4	21.56	7.4	33,315
TOTAL	224	4,499	10,094	100%	291,49	100%	28,878

(1) Including Savings banks. The number and value of accounts include some short-term time deposits.

(2) Post giro has been transformed into a bank (GiroBank) in 1991. It uses the branches of the Post Office.

Table C.: Cash dispensers, ATMs and EFT/POS terminals

	Cash dispensers and ATMs						EFT/POS			
	Number of			Value of transactions (DKK billions)			Number of			
	Networks	Machines	Transactions (millions)	Networks	Machines	Transactions (millions)	Networks	Machines	Transactions (millions)	
end 1989	1	925	n/a	1	12,602	41.44	1	12,602	41.44	19.45
end 1990	1	1,000	n/a	1	15,804	61.54	1	15,804	61.54	27.45
increase 89/90		8%	n/a	0	25%	49%	0	25%	49%	41%

Table D.: Number of payment cards (end of 1990)

	Number of cards (thousands)	Number of cards per 1,000 inhabitants
Cards with a cash function	2,022	395
Cards with a debit/credit function	2,022	394
Cards with a cheque guarantee function	240	47
Retailers Cards	1,323	258

Note: A card which has several functions appears in several lines and therefore the figures in this table cannot be added.

Table E.: Payments exchanged through the official payment systems

Name	Number of transfers (millions)		Value (billions DKK)	
	1989	1990	1989	1990
DN Inquiry and Transfer System				
– Large-value transfers	0.690	0.719	8,329	9,216
S.W.I.F.T. (Domestic)				
– Large-value transfers	0.088	0.082	3,576	3,899
DN retail Clearing	307.108	329.119	2,197	2,076
– Cheques	139.094	126.370	1,746	1,557
– Direct Debits	51.579	56.851	168	197
– Paperless credit transfers	57.916	60.783	254	281
– Payments by debit cards				
– at EFTPOS	41.443	61.542	19	27
– by paperslip	13.623	19.640	8	11
– Payments by credit cards	3.453	3.933	2	3
Girobank				
– Retail transfers 1)	225.523	236.214	3,275	3,431

1) As some credits involve cheques, some transactions are registered both under cheques and Girobank credits. No correction is made for this.

Table F: Relative importance of cashless payment instruments in the payment system

Instruments	Number of transactions (millions)		Value of transactions (billions)	Percentage of total volume		Number of transactions per capita	Average value per transaction
	1989	1990		1989	1990		
Cheques issued	174.5	156.3	2,495	26.2	30.4	13,807	
Payments by cards	58.5	85.1	30	14.3	16.6	482	
Paper-based credit transfers: (1)	225.5	236.2	3,275	39.6	46.0	14,526	
customers initiated interbank*	225.5	236.2	3,275	39.6	46.0	14,526	
Paperless credit transfers: (2)	58.7	61.6	12,159	10.3	12.0	217,468	
customers initiated interbank*	57.9	60.8	254	10.2	11.8	4,622	
Direct debits (3)	51.6	56.9	168	0.1	0.2	16,393,750	
TOTAL	568.8	596.1	18,127	100%	116.1	3,462	32,248

* or large-value

(1) See note 1), table E

(2) Payments via PBS only (Danish Payment Systems Limited)

3. Germany

GERMANY

SECTION 1: THE INSTITUTIONAL ASPECTS

1.1. General legal aspects

Under the Banking Law (of 1961, revised in 1985), the execution of cashless payments and their settlement (giro business) is a banking activity. This requires a licence from the Federal Banking Supervisory Office, except in cases where special laws authorise individual institutions (e.g. the Bundesbank, the Post Office) to execute payment transactions. Hence, the problem of non-banks handling cashless transactions does not arise. It is defined in the Banking Law that "Banks are enterprises conducting banking business, if the scale of such business calls for a commercially organised business undertaking. Besides giro business, the following are further examples of banking business: securities business (= the purchase and sale of securities for the account of others) and safe custody business (= the safe custody and administration of securities for the account of others).

The Deutsche Bundesbank Law (of 1957) lays down the responsibilities and powers of the central bank in Germany.

There are no specific laws governing the organisational and technical aspects of handling payments. The provisions of the Civil Code (of 1896) apply, in particular those concerning the law of agency. In addition, the provisions of the Cheques Law (of 1933) must be complied with as far as the collection of cheques is concerned. In order to manage the large volume of payments efficiently, the agencies handling payments have formulated certain rules on the execution of payments, within the framework laid down by law. In particular:

- the relationship between the banks and the Post Office is regulated by agreements between the central associations of the banking industry, the Federal Ministry of Post and Telecommunications and the central bank (see Section 1.4.);
- the relationship with bank customers is regulated by the general terms of business of the banks, the Post Office and the central bank and by special regulations, notices and standardised forms.

According to the Act to prevent restriction of competition (of 1966) every standardised arrangement for handling payments (whether contractual or not), must be reported to the Federal Cartels Office via the Federal Banking Supervisory Office, accompanied by an explanatory statement. These agencies have to ensure in each case that the arrangements are not likely to result in undesirable developments from the banking supervisory point of view or in an excessive restriction of competition, and in particular that they will not place other participants in the payment system (especially bank customers) at an unfair disadvantage. Any such arrangements that are not notified are null and void.

1.2. Financial intermediaries that provide payment services

1.2.1. Payment networks

In Germany the responsibility for providing the economy and the population with cash and for handling cashless payments lies with the credit institutions, the Post Office (Postbank) and the central bank. In addition, the credit card companies engage in credit card business.

Most of the 4,711 credit institutions (with around 44,000 branches at the end of 1990, excluding post offices and sub-post offices) are actively involved in handling payments. Within the framework of the universal banking system these credit institutions all belong to one of the following three banking categories, which form separate giro networks based on internally agreed handling and clearing procedures (see Annex 1 on clearing systems):

- commercial banks, the three largest of which (the "Grossbanken") have each set up an extensive giro network linking their branches;
- savings banks (the overwhelming majority of which are public-law institutions), whose operations are restricted to a particular locality. The 769 savings banks and their twelve central institutions form a single payment network, within which most transactions between savings banks are processed;

- co-operative banks, whose markets are likewise limited to a particular locality. Like the savings banks, the 3,380 co-operative banks and their four central institutions form a single giro organisation.

The postal giro offices of the Post Office form a further giro network for handling the cashless transactions of their account holders. Since the credit institutions also hold postal giro accounts, the postal giro offices, to some extent, provide an interface for payments to and from the bank networks. Nevertheless, the Bundesbank's giro network is the most important channel for traffic between the banks and the postal giro offices (see Sections 1.3.2. and 5.2.).

In the former German Democratic Republic (GDR), both cashless payments and accounts were handled in a centralised system, the Uniform System of Electronic Accounting ("ESER: Einheitliches System der Elektronischen Rechentechnik") operated by the State Bank of the GDR. The system had a single data-processing organisation, a standard system of account numbers and a uniform range of services to be offered by savings banks, co-operative banks and other associated credit institutions. After monetary union and the political reunification of Germany in 1990, the banking groups and the Deutsche Bundesbank extended their operations to the territory of the former GDR. Arrangements for the transfer of cashless payments between the two existing payment systems were laid down in an agreement among the banking associations, the State Bank and the Bundesbank. The ESER system at the State Bank had to be retained for a transitional period until all the credit institutions in the former GDR had changed over to West German standards for cashless payments. (This transitional period ended on 31st December 1991).

At the end of 1990 the credit institutions and the postal giro offices managed around 75 million giro accounts for domestic non-banks with sight deposits totalling DEM 445 billion. The market for giro accounts and sight deposits respectively is shared as follows: commercial banks: 19% of accounts and 40% of deposits, savings banks: 49% and 36%, co-operative and rural banks: 25% and 20%, Postbank: 7% and 5%. 139 foreign banks (of which fifty-six domiciled in EC member states) operated in Germany at the end of 1990, with which domestic non-banks held about DEM 10 billion in sight deposits (= 2%).

1.2.2. The bank code number

Bank branches which engage in payment transactions are identified by bank code numbers in accordance with an agreement between the Deutsche Bundesbank and the central associations of the banking industry. The bank code number is also the branch's giro account number with the Deutsche Bundesbank. Cashless payments processed in the Bundesbank's giro network are passed to the giro account indicated by the bank code number. The Bundesbank is responsible for the allocation, replacement and withdrawal of bank code numbers.

1.3. The role of the central bank

1.3.1. Cash payments

Under the Deutsche Bundesbank Law, the Bundesbank (the central bank) is required to regulate the volume of money in circulation, at the same time providing the economy with banknotes and coins in the denominations required. For this purpose, the Bundesbank is vested with note-issuing powers, under which it is responsible for producing, supplying and regularly renewing banknotes, replacing damaged notes, calling in notes and checking money in circulation for counterfeits. The Bundesbank does not, however, operate its own note-printing works. The right to produce coin (the minting prerogative), on the other hand, lies with the Federal Ministry of Finance: the Bundesbank acquires the coin needed for circulation from the Federal Government at face value.

1.3.2. Cashless payments

The Deutsche Bundesbank Law requires the central bank to ensure that banking arrangements are made to handle domestic payments. It fulfils its statutory obligations by providing the banks and the

Post Office with a giro network, in the form of its clearing facilities, that has a neutral impact on competition (see Section 5.2. for details). With 210 branch offices or subsidiaries (as at the end of 1990) and eleven computer centres, it forms the link between the giro networks of the banking industry and the Post Office. The central bank also exerts a certain influence on the banks' terms for handling payments by means of its own terms of business, its handling procedures, its terms for debiting and crediting and its scale of charges.

The German credit institutions make extensive use of the central bank giro system, especially for inter-network payments. In 1990, a total of 2,695 million credit transfers, cheques and direct debits were transmitted via the Bundesbank's payment facilities, representing more than one-third of the payment orders received by banks from customers. It is left to the credit institutions to decide whether and to what extent they route payments via the Bundesbank instead of through their own networks, and whether they use the central bank's local clearing or its intercity system. The central bank can regulate the extent to which they use its facilities via its fees and conditions (see Section 5.2.5.). The central bank's giro network is virtually the only means available to the smaller private commercial banks to execute payments to other credit institutions on behalf of their customers without having to depend on their competitors.

In addition to the clearing and settlement function it performs for the banking industry, the central bank acts as banker to the Federal Government and, to a limited extent, to the "Länder" and handles their payments. Legislation obliges the Federal Government and the Länder Governments to deposit all their liquid funds on giro accounts with the Bundesbank. Only with the approval of the Bundesbank may public cash balances be deposited in the banking system.

1.3.3. Banking supervision

The Banking Law (of 1961, revised in 1985) forms the legal basis for banking supervision. The purpose of the Law is to safeguard the banking sector's ability to function, by providing protection for depositors, as the sector is particularly vulnerable to loss of confidence. The Law seeks to achieve this objective while respecting free market principles. The activities of the credit institutions are restricted only by quantitative requirements and by the obligation to open their books to the supervisory authorities.

Banking supervision is carried out by the Federal Banking Supervisory Office in conjunction with the Deutsche Bundesbank. The Law confers the central role in banking supervision on the Federal Banking Supervisory Office. The Bundesbank is involved mainly in the day-to-day monitoring of credit institutions, primarily through the analysis of banks' reports and returns.

1.4. The role of other private and public sector bodies

Within the limitations set by Germany's anti-trust legislation, the banking industry has used the Management Working Party of the industry's central associations for the past thirty years as a forum for coordinating organisational and technical procedures in order to ensure a cost-effective, rapid and secure payment system. Credit institutions belonging to the various banking categories are represented on the Working Party by their respective central associations. As a result of this co-ordination, a series of agreements have been reached to standardise the handling of interbank payments, and consequently payment transactions on behalf of customers. The Bundesbank participates in the discussions and has itself acceded to most of the agreements in order to ensure, in the interests of an efficient payment system, that procedures are standardised and that vouchers and data records can pass from one network to another.

Since 1982 the German banking industry has had a national payments body in the form of the Payment Systems Company (GZS = Gesellschaft für Zahlungssysteme mbH), which concerns itself primarily with the Eurocard and Eurocheque card systems and their further development. The commercial banks and the savings banks each hold 40% and the co-operative banks 20% of the capital of the GZS.

SECTION 2: SUMMARY INFORMATION ON PAYMENT MEDIA USED BY NON-BANKS

2.1. Cash payments

In Germany, households use cash for most of their everyday payment requirements.

Currency in circulation consists of banknotes in eight denominations (DEM 5, 10, 20, 50, 100, 200, 500 and 1,000) and federal coin in eight denominations (1, 2, 5, 10 and 50 Pfennig and DEM 1, 2 and 5). There are also small quantities of DEM 10 coins, but these are principally collectors' items and rarely turn up in payment transactions. Bank-notes and coins are legal tender, although coins have to be accepted only up to a certain amount. At end-1990 total currency in circulation – including cash in bank vaults – amounted to DEM 180 billion, with banknotes accounting for DEM 167 billion (93%) and coins for DEM 13 billion (7%). Cash in bank vaults amounted to DEM 22 billion.

The use of machines for cash withdrawals is increasing in Germany. This is especially true of the standardised system of cash dispensers (see Section 2.2.3. (d)).

2.2. Non-cash payments

2.2.1. *Sight deposits of domestic non-banks*

Businesses and households in Germany hold their transactions' balances predominantly as sight deposits with the credit institutions, not in the form of cash. As at the end of 1990 the sight deposits of domestic non-banks totalled DEM 445 billion. These deposits (payable on demand or at less than one month's notice) are used for the execution of cashless payment transactions and little interest is paid on these accounts (e.g. 0.5%; no interest is paid on Bundesbank accounts). Time deposits (at one month to four years) and savings deposits are considered to be close substitutes for money.

2.2.2. *Payments by means of credit transfers, cheques and direct debits*

In Germany cashless payments are effected by means of credit transfers (51% of the total number of transactions in 1990), cheques (10%) and direct debits (37%). Other payment media and payments using credit or debit cards are relatively unimportant, accounting for less than 2% of transactions.

(a) **Credit transfer**

The credit transfer traditionally predominates in Germany, although the percentage of total payments for which it accounts is lower than it used to be (in the savings bank sector it has fallen from 72% of customers' cashless payments in 1966 to 67% in 1972, and 52% in 1990), because, for specific purposes, the economy uses other more appropriate payment methods, particularly direct debits.

Customers can also give their banks standing orders for regular payments to specific payees (e.g. rent to the landlord). The bank then undertakes to execute a credit transfer on the date specified (e.g. the last day of the month).

Payers with electronic data processing (EDP) equipment are obliged to use electronic data media (magnetic tape or, for smaller quantities, diskettes or cassettes) to submit regular bulk payments (e.g. wages, salaries, state social insurance payments) to the banks for execution via the magnetic tape clearing.

As early as 1984 the banking associations and the Post Office, with the participation of the central bank, signed an agreement on the conversion of paper-based credit transfers into data records and their transmission within the electronic payment transfer (EPT) system (EZÜVerfahren = EPT procedure). Since January 1992, the first bank in the chain to handle a paper-based intercity credit transfer for DEM 10,000 or more is required to convert it into a data record (EPT requirement). Independent of this agreement, the banks have made considerable progress in recent years with the integration of vouchers into the electronic payment system. The savings banks, for example, already convert all credit transfers for DEM 500 or more for transmission within their own network, and some branches of the three major banks even convert inter-network payments.

In parallel with their efforts to convert paper media, the banks are trying to persuade corporate customers to submit not just their instructions for bulk payments but also those for other

credit transfers on diskette or via data transmission in order to eliminate paper from the outset. They are increasingly providing customers with appropriate electronic banking products for this purpose.

Incoming electronic credit transfers can be automatically booked through to a customer's account and the details printed out in his statement of account. Paper-based credit transfers, on the other hand, are delivered to the payee.

In 1990 approximately 2.1 billion credit transfer orders were presented in paperless form. The remaining 2.0 billion transfers, predominantly single transfer orders from corporate customers without appropriate EDP equipment and from banks' private customers, were issued in paper form and most were then processed in that form through the optical reading of their OCR-A code-lines. The proportion of paperless credit transfers (including those vouchers converted within the EPT procedure) executed in 1990 amounted to around 55%.

(b) Cheque

In Germany, the cheque has never acquired the same importance as in most other western countries; in 1990 it accounted for only 10% of total cashless transactions by number and 16% by value. Businesses predominantly use credit transfers and direct debits, as these are more easily automated.

The cheques circulating in Germany are mostly Eurocheques which are backed by the Eurocheque card; these are used by individuals to pay for consumer goods and services. In this context the guarantee of payment associated with the Eurocheque card has greatly contributed to the spread of cheques in Germany (for the Eurocheque system see also Section 4.1.2. and Chapter 13).

Under the German Cheques Law, the drawee bank may not certify a cheque in such a way as to signify that it is obliged to pay against it. The purpose of this prohibition is to prevent cheques acquiring a function similar to that of banknotes. An exception is made of the central bank, which may confirm that, if cover is available, it will pay against a cheque drawn on it.

The fact that cheques must in principle be collected and presented in paper form has proved a serious disadvantage as far as payments automation is concerned. In 1985, the banking industry, the Post Office and the central bank therefore agreed on a paperless procedure for cheque collection, consciously dispensing with the presentation requirement. At present this cheque truncation procedure applies to cheques for less than DEM 2,000. As far as possible, the cheques are retained by the first bank involved and are then collected on the basis of the information contained in the code-lines via the paperless exchange of data media (magnetic tape clearing) together with direct debits. The original cheques are usually microfilmed and destroyed after two months. As a result, approximately 70% of all cheques are now truncated. Like direct debits, truncated cheques can be automatically charged to the issuer's account and the details printed out in his statement of account.

(c) Direct debit

The direct debit, which was introduced by the banking associations in 1963, has greatly simplified the collection of regular payments (subscriptions, rents, public utility bills, taxes, etc.). Nowadays more than one-third of all cashless payments in Germany take the form of direct debits and their importance in relation to other payment media is continually increasing.

The direct debit is made out by the creditor (payee) and presented to his bank for collection of the amount from the debtor's (payer's) bank. In contrast to the credit transfer, the payment operation is initiated by the payee, who is thus himself responsible for ensuring that his claim on the payer is settled on time. This presupposes, however, that the payer authorises the payee to collect the amount (authorisation of collection) or, by agreement with the payee, authorises his bank to debit his account with direct debits issued by that payee (authorisation of debit).

Customers with EDP equipment are in principle obliged to use magnetic tape to submit direct debits to banks and postal giro offices for collection. As with credit transfers, small numbers of direct debits are also accepted on diskette or cassette. The banks collect the remaining paper-based direct debits together with cheques and use optical character readers to process them. As in the case of credit transfers, the banks have now reached an agreement (the Electronic Direct Debits (EDD) Agreement) whereby paper-based direct debits are converted into data records at the first bank involved, for example via a visual display unit (VDU) or OCR system, and collected electronically in the magnetic tape clearing together with the direct debits already submitted by customers on a paperless basis.

2.2.3. Payments by card (credit and debit cards)

(a) Credit cards

Credit cards still do not play a major role in Germany, but their use has increased significantly in recent years. The number of cards issued by the major credit card organisations (Amexco, Diners, VISA, Eurocard in association with MasterCard/Access) has risen from around 1.8 million at the end of 1987 to more than 5 million today. There has been a parallel increase in the number of enterprises accepting credit cards, to an estimated 200,000 at the end of 1990, most of them in retailing and the hotel trade. In 1990 sales to domestic credit card holders amounted to DEM 22.4 billion. The share of payments by credit card in the total value of cashless payments thus amounted to 0.1%. The latter figure shows that credit cards are still used far less frequently than other payment instruments in Germany.

In view of the commission charged, which by 1990 had fallen to an average of 3.5%, and the considerable effort involved in authorisation and payment procedures, credit cards are not always welcomed by retailers, and their use is confined largely to shops selling luxury goods and with a high proportion of foreign customers. In addition, the introduction of the POS "Electronic cash system" (see Section 2.2.3. (e)) offers retailers a further option for card payments.

Until 1989 the Payment Systems Company issued the Eurocard as a credit card for German credit institutions, but since then the banks have been able to distribute the Eurocard themselves. Competition between banks and credit card organisations for credit card business is therefore increasing. The banks view credit cards primarily as payment instruments and hence as account transaction instruments that can cement existing customer relations and attract new customers. Credit cards have therefore developed into multifunctional, universal payment instruments.

Retailer credit cards issued by some large retailing companies to promote customer loyalty are in competition with traditional credit cards. The customer cards of the largest issuer entail no costs or charges, and the card holder has up to six weeks before payment is due.

(b) Debit cards

Debit cards are payment cards issued by credit institutions that enable customers to effect transactions on their account remotely (e.g. withdrawals from cash dispensers).

The most widely distributed debit card in Germany is the Eurocheque card. The addition of a magnetic stripe means that it can now be used not only in the traditional way as a cheque guarantee card but also, in conjunction with a personal identification number (PIN), as a debit card without a cheque (see Section 2.2.3. (d)).

The credit institutions have also created special debit cards for use at a given bank or at banks belonging to a particular association so that customers who are not eligible for a Eurocheque card (on grounds of creditworthiness, for example) may also have access to electronic self-service banking.

(c) Prepaid cards

Prepaid cards store prepaid purchasing power and can be used instead of small amounts of cash to pay anonymously for services. One example of a stored-value card is the telephone card with an integrated microchip issued by the Post Office.

(d) EC-cash dispensers

Bank customers can now increasingly use their magnetic-stripe Eurocheque card in combination with their PIN to obtain cash up to a certain limit from the cash dispensers of their own or other banks. By the end of 1990, around 9,300 cash dispensers had been installed nationwide. Recently, it has also become possible to use credit cards in cash dispensers. In order to prevent fraudulent or other inadmissible withdrawals, all transactions are checked on-line against a register of cancelled cards and a register of transactions at the authentication centres of the central associations of the banking industry and the Post Office, which are interconnected by data transmission links. As an alternative, it is also possible for authorisation to be granted by the cardholder's bank ("on the customer's account") instead of centrally. Withdrawals from cash dispensers are cleared using the normal direct debit procedure via the magnetic tape clearing (see Section 2.2.2. (c)). The procedure is also gradually being extended to include withdrawals made by German Eurocheque cardholders in other European countries, and vice versa.

(e) **Electronic cash system**

In February 1990, after many years of discussion, the banking industry concluded the "Agreement on a nationwide system for cashless payments at automated tills" (Electronic cash system), which opens the way for a bank-based POS system based primarily on use of the Eurocheque card as a debit card. The new system will make it possible to use cards issued by the German banking industry to purchase goods and services without the use of cash or cheques and, as before, to obtain cash from Eurocheque cash dispensers.

Each banking association can decide how to organise its authorisation system, e.g. authorisation by the cardholder's bank, up to a given limit, etc. The vouchers for the retailer and the purchaser are receipted with a verifiable "electronic signature". The payment is rejected if the card holder's payment limit is exceeded, if the card has been stopped, if the wrong PIN is input several times, etc.

Relations between firms using POS terminals and the banking industry are governed by negotiable terms. The retailer pays a fee of 0.3% of the transaction value, or at least 15 Pfennig, for the banking services (provision of the data base link, payment guarantee). It is generally assumed that within the Electronic cash system, the various networks of terminals for use with the Eurocheque card (which belong to different, competing network operators) will be connected with the banking sector's authorisation systems at a high level of security via predetermined interfaces. A network operator is responsible, among other things, for obtaining authorisation, collecting transaction details from all terminals in the network, transferring the details to the credit institution which the retailer has nominated to process his payments, and crediting the related fees to the accounts of the relevant card-issuing credit institutions. The retailer is free to decide who should collect payment for purchases made using the system; he simply notifies the network operator of the bank to which payments collected in the operator's computer should be sent and how they should be delivered. The number of POS terminals connected to the system has risen steadily: by June 1991 around 7,000 had been installed, 75% of which were at petrol stations.

2.3. Recent developments

The Post Office's videotex service (BTX), which has been available throughout the Federal Republic since 1984, enables the banks to offer home-banking services. Using either facilities in their own home (a suitably adapted television set or a PC with videotex capability) or a public videotex terminal, customers can communicate on a two-way basis with their bank's computer centre via the telephone network and take advantage of various banking services. Videotex is used mainly by corporate customers for their own purposes as an inexpensive method of data transmission and less by private customers. In accordance with international practice, the banks also offer cash management systems; these are not operated as videotex systems, but use formats and transmission routes specific to the particular bank or banking association.

Uniform worldwide standards for electronic business and trade communications are currently being developed under the acronym EDIFACT (Electronic Data Interchange for Administration, Commerce and Transport). With a view to the future handling of both international and national payments in accordance with EDIFACT, the German credit institutions and the banking associations are preparing for the possible processing of EDIFACT messages and are participating in the committees which are drafting the standards. The Bundesbank is involved in the various German groups engaged in standardisation and will take the EDIFACT standards into consideration in the payment system in due course.

SECTION 3: INTERBANK EXCHANGE AND SETTLEMENT CIRCUITS

3.1. General overview

3.1.1. Execution of payments within the giro networks

In Germany, giro networks for the execution of cashless payment transactions exist within each of the major banks, the savings banks' association, the credit co-operatives' organisation and the

Postbank (see Section 1.2.1). Moreover, the Deutsche Bundesbank provides the credit institutions with its own interbank payment network between its branches, which has a neutral impact on competition (see Section 1.3.2.).

(a) It is left to the credit institutions to decide whether and to what extent they route payments via the Bundesbank instead of within their own networks, and whether they use the central bank's local clearing or its intercity system.

Both paper-based and paperless intra-network payments intended for other credit institutions in the same giro network are usually forwarded and settled within the network itself, unless a credit institution prefers to pass all non-internal material unsorted via the central bank, for example, in order to take advantage of the comparatively favourable account-crediting terms the central bank offers for the "simplified cheque and direct debit collection procedure" ("Vereinfachter Scheck- und Lastschriftinzug" – see Section 5.2.3.). At some stage in the payment process, inter-network payments must be fed into a clearing system to which the recipient institution belongs; at the latest, this must occur when the payments reach the place where the recipient institution is located. How they are handled depends on the routes and clearing facilities available in each case. The following two possibilities exist for local payments (payee at the same local area as the payer):

- direct interbank exchange of the payment instruments and settlement of the countervalues in accounts that the banks maintain in each other's books, at central clearing institutions or at the central bank; or
- delivery of the payment vouchers or data carriers to the central bank, if it has a branch in the same local area, for forwarding to the recipient's credit institution and settlement in the giro accounts held at the central bank by the two banks concerned (= conventional local credit transfer system, see Section 3.2.2.).

The first institution to receive instructions for intercity payments (payee not in the same location as the payer) addressed to unrelated credit institutions can channel them into either:

- the institution's or association's giro network, or
- the central bank giro network for forwarding to the bank of the payee/payer (see Section 5.2.3.).

Usually, credit institutions keep large-value paper-based credit transfers, and all transfers transmitted via the magnetic tape clearing, within their own giro networks for as long as possible and only pass them to the recipient institution, or its computerised accounting centre, at the last possible stage (i.e. in the local clearing); this practice has advantages for the paying institution in terms of liquidity. By contrast, other credit transfers and items sent for collection (cheques, debits relating to truncated cheques and direct debits) are sent at the earliest opportunity either directly to the recipient institution's giro network or to the central bank. The use of different routes for different instruments explains why the central bank is far less involved with credit transfers than with collection items (21% of credit transfers are channelled via the central bank, compared with 50% of non-bank collection instructions).

(b) It is not customary in the different giro networks to distinguish between bulk (or retail) payments and wholesale (or large-value) payments. In some cases are the practices of specific systems linked to particular value thresholds (e.g. large-value payments of DEM 10,000 and above in the central bank's "express electronic intercity credit transfer system" ("Eiliger Zahlungsverkehr") (see Section 3.2.1.).

Banks usually transmit large-value payments in the form of telegraphic messages or in the form of individual express telecommunication transfers through their own giro systems, particularly when the receiving bank participates in the same system. A growing number of large-value transfers originated by bank customers are processed through the "paperless exchange of data media", either because at the customer stage transfer orders are given by electronic means (such as magnetic tapes, diskettes or telecommunication) or because the banks convert their customers' paper-based credit transfers into electronic data records. Telecommunication is increasingly being used in the "paperless exchange of data media" instead of the exchange of magnetic tapes between the banks.

3.1.2. Execution of payments via the Bundesbank

The Deutsche Bundesbank considers that, by providing a non-competitive giro system as a link between the various categories of banks that are engaged in payments, it is performing an

important regulatory function. The central bank also influences fees, terms and other conditions in the transfer systems operated by the various groups of banks and exerts its influence to promote the development and increased use of paperless processing.

Apart from the systems to be described in Section 3.2., the Bundesbank provides two systems especially designed for the execution of bulk payments. These are:

- the “machine-optical voucher reading procedure” (MAOBE = “Maschinell-optische Beleglesung”), and
- the “paperless exchange of data media” (DTA = “Belegloser Datenträgeraustausch”).

Both systems are used for credit transfers and the collection of cheques and direct debits. The MAOBE is a paper-based system employing optical character recognition (OCR) to read the code-lines on the bottom of the vouchers. The DTA employs electronic data carriers (magnetic tapes, diskettes and cassettes) instead of vouchers. In both systems the processing is centralised in the eleven computer centres of the Bundesbank. There the vouchers and the data records are sorted according to the bank code numbers (see Section 1.2.2.).

The highest volume occurs in the paperless collection of bulk direct debits of relatively low individual value (1,476 million direct debits and truncated cheques in 1990 with a total value of DEM 719 billion).

The highest value relates to the paper-based collection of cheques of relatively high individual value (325 million cheques and direct debits with a total value of DEM 2,609 billion).

Credit institutions use these systems in particular for the collection of cheques and direct debits because the countervalue is credited to the presenter’s giro account, “subject to collection” on the working day following the day of presentation (“simplified cheque and direct debit collection procedure”) (see also Section 5.2.3.).

In 1990, a total of 2,695 million payments with a total value of DEM 134,111 billion were routed through the Bundesbank’s cashless payment facilities; of these, 237 million payments (9%) worth DEM 111,173 billion (83%) were settled via the conventional and electronic clearing procedures. Local credit transfers account for the bulk of clearing traffic in both volume (83%) and value (99%) terms.

The Bundesbank’s “conventional clearing facility” handled a total of 234 million payments (credit transfers, cheques and other collection items) worth DEM 86,180 billion in 1990. Frankfurt accounted for around 12% of the total by volume and 96% by value. In 1990, 2.3 million payments with a total value of DEM 24,993 billion were exchanged via the “electronic clearing” in Frankfurt, in which twenty-two banks participated at the end of July 1991. This was equal to 1% of all cleared payments and 22% of the total value of clearings at the Bundesbank. The “electronic clearing” accounts for around 50% of the total volume of bank clearing in Frankfurt.

Although different transfer systems are operated in Germany by each of the banking industry, the PTT authority and the Bundesbank, Section 3.2. concentrates on those Bundesbank procedures through which are processed a considerable number of large-value transfers, particularly interbank transfers.

3.2. Structure, operation and administration of major large-value systems

Two gross settlement systems are managed by the Bundesbank. They are: (Section 3.2.1.) the central bank’s “Express Electronic Intercity Credit Transfer System” (Eiliger Zahlungsverkehr) and (Section 3.2.2.) the central bank’s “Express Conventional Local Credit Transfer System” (“Platzüberweisungsverkehr”). Also covered are (Section 3.2.3.) the central bank’s “Daily Local Clearing System” (“Abrechnung”), and (Section 3.2.4.) the central bank’s “Daily Electronic Clearing with File Transfer” (“EAF” = “Elektronische Abrechnung mit Filetransfer”). These last two systems are based on net settlement with multilateral clearing and are discussed especially with respect to the exchange of credit transfers.

Though all of the first three systems are used for both large and small-value transfers, the average values of the transactions are high. Outside these systems, only about 1% of payments processed via the Bundesbank’s bulk payment procedures are over DEM 10,000. Since the average value of transactions conducted via the bulk payment procedures is low, they are not discussed here.

After a general overview, the fundamental characteristics of each system are summarised in the following sections.

3.2.1. The central bank's Express Electronic Intercity Credit Transfer System ("Eiliger Zahlungsverkehr")

(a) General overview

The general purpose of the Express Electronic Intercity Credit Transfer System is to process express credit transfers and large-value credit transfers between the central bank's branches. The banks, as the major originators of the payments, use the system for their own and their customers' credit transfers.

The new electronic system is a same-day processing and transfer system in which transfers are made by means of data telecommunication. All giro payments marked "by cable" (previously transmitted by telex) as well as all urgent large-value credit transfers of DEM 20,000 or more (as of January 1992, DEM 10,000 or more and previously transmitted in paper form) are handled using this system. The system, which began operating in 1988, is operated by the Bundesbank which has set up its own internal communication network linking of all its branches. The sending and receiving of diskettes and the connection of account holders to the appropriate Bundesbank branch via data telecommunication ("Electronic Counter", see Section 5.2.3.) started in January 1992.

(b) Major legislation, regulations and policies

The system operates under the Civil Code, the Commercial Code, the Law Governing Standard Terms and Conditions and the Standard Terms and Conditions of the Deutsche Bundesbank. The latter are laid down by the Bundesbank. The Bundesbank generally also participates in the conventions and agreements between the central associations of the various banking groups and the German PTT. All decisions on payment policy are taken by the Central Bank Council of the Deutsche Bundesbank. There are no maximum or minimum limits for users on the value of transfers remitted. The deadline for submitting payment orders to a Bundesbank branch is midday.

(c) Participants

The Deutsche Bundesbank owns, operates and controls the transfer system. The participants in the system are the branches and the head office of the Bundesbank. The users are all holders of giro accounts at the Bundesbank: banks, public authorities, enterprises hold accounts at Bundesbank branches whilst account holders at the Bundesbank's head office include foreign central banks and correspondent banks. These giro accounts are identical with the normal deposit accounts held at the central bank in which obligatory reserves are held.

(d) Operation of the system

For electronic transfers, which can be sent from any central bank branch to another, messages can be displayed on VDU screens and the data encrypted. Credit transfers are executed only if adequate cover is available in the payer's (user's) giro account. Before messages or vouchers are sent, the user's giro account is debited (or the cover for a later debit entry is secured by arranging a memo random entry, see also Section 5.2.4.). Accounting entries at the remitting and receiving branches are reconciled centrally to provide settlement control.

The Express Electronic Intercity Credit Transfer System is used to process national and regional interbank transactions, such as reserve management operations and money market dealings. The system is also used to execute credit transfer orders for bank customers and public authorities, provided these orders are designated as urgent payments and are delivered to the central bank branch separately from the bulk payments.

In this system, all transfer orders are still paper-based. But, in January 1992, provision by the Bundesbank of a general Electronic Counter ("Elektronische Öffnung") began with facilities for electronic receipt; facilities for the electronic forwarding and delivery of payments will also be available in due course. Moreover, at that time an obligation agreed within the banking industry to convert paper-based intercity payments of DEM 10,000 or more into data records (EPT requirement = "EZÜPflcht") came into force (see Section 5.2.3.), so that a further decline in vouchers is to be expected. The telecommunication system has a good operating record with cold stand-by in the large central bank branches and back-up for encryption by personal computers at all offices.

In the Electronic Counter of the Bundesbank, intercity transfers will cost DEM 0.01 per transfer; "by cable" transfers will cost DEM 20 plus DEM 2 for voucher recording, if not transmitted via the Electronic Counter.

(e) Settlement and finality

In accordance with the Bundesbank Law and the Standard Terms and Conditions of the Bundesbank, credit transfers are executed only if there is sufficient cover, the originator's giro account being debited before the payment is sent (see Section 5.2.4.). Given these settlement rules, the central bank and the receiving bank are not exposed to credit or liquidity risk since funds are not made available to the ultimate recipient prior to settlement.

The receiving branch (payee's branch) does not credit the payee's giro account until it has received the voucher or electronic message from the Bundesbank branch originally instructed (payer's branch). Funds are thus made available with full and final value to the beneficiary of a giro account transaction on the day the transfer is received at the payee's branch. In the case of the Electronic Counter this means that the payer's branch receives the payer's order on the same day. If necessary, incoming funds are used to cover an outstanding debit balance. A credit balance (at the end of the day) in the giro account is counted towards the minimum reserve requirement. The giro account holder can only draw on the proceeds of credit transfers received during banking hours.

From a legal standpoint, the central bank can reverse credit transfer orders as long as the funds have not been credited to the payee's giro account. However, since each credit transfer order is processed only upon receipt of cover, settlement failures or unwinding do not occur.

(f) Central bank participation

The central bank both operates the system and participates in it. As well as orders received from banks and their customers, the central bank processes orders from public authorities and enterprises which hold a giro account with one of its branches. The Express Electronic Intercity Credit Transfer System also serves the central bank as the most cost-effective and efficient way of processing its own transactions (e.g. for the redemption of maturing securities which it holds as depository). The central bank ensures that the system is available to all of its giro account holders; it also has audit responsibility for the system.

**3.2.2. The central bank's Express Conventional Local Credit Transfer System
("Platzüberweisungsverkehr")**

(a) General overview

The general purpose of the Express Conventional Local Credit Transfer System is to provide same-day processing and settlement of paper-based credit transfers submitted outside the automated bulk credit transfer system, which does not settle the same day. The system allows funds to be transferred between giro account holders at the same central bank branch. In addition to forwarding orders received from bank customers, the system processes interbank payments, such as interbank money market transactions. In 1990, a total of 23.1 million transactions, valued at DEM 8.400 billion, were processed. 11% of the volume and 7% of the value of all local credit transfers (i.e. transfers within the local area of a Bundesbank branch) were executed within this system. The major regulations that apply (the participation rules, the role of the central bank and the settlement and finality features) are similar to those of the Express Electronic Intercity Credit Transfer System described in Section 3.2.1.

(b) The operation of the system

The system is based on the manual processing of paper-based credit transfers to and from giro accounts at the same branch of the central bank. Here, too, the cover principle applies (see Section 5.2.4.).

Banks which hold giro accounts use the system to execute credit payments on behalf of individuals and corporations, and for interbank payments such as the settlement of money market transactions and interbank loans. The transfers are submitted for same-day execution. The system is used by banks located within the area covered by a single central bank branch.

The system is at present strictly paper-based, although the electronic execution of these payments within the framework of the Electronic Counter is planned (see Section 5.4.). Transactions are processed free of charge.

3.2.3. The central bank's Daily Local Clearing System ("Abrechnung")

(a) General overview

Banks which hold accounts at the same Bundesbank branch are able to exchange cheques, direct debits and other claims as well as credit transfers with one another in the Daily Local Clearing System. Banks can use this system, for instance, to exchange paper-based credit transfers, and magnetic tapes or diskettes containing credit transfer data, at a central bank branch; processing is separate both from the central bank's bulk payment systems (see Section 3.1.) and from the Express Conventional Local Credit Transfer System described in Section 3.2.2. Unlike the Express Electronic Intercity Credit Transfer System and the Express Conventional Local Credit Transfer System, the Daily Local Clearing System is a net-settlement system with multilateral clearing. After netting has taken place at the end of the business day, the balances are settled through the banks' giro accounts at the central bank branch. In major financial centres, notably in Frankfurt, significant amounts of interbank money market and foreign exchange market transactions are also cleared through this system (see Section 5.2.2.).

(b) Major legislation, regulations and policies

The major legislation that created the framework for the Daily Local Clearing System (and the EAF, see Section 3.2.4.) is defined in Germany's Civil Code, Commercial Code, and, for collection items, the Laws on Bills of Exchange and Cheques. The Standard Terms and Conditions of the Bundesbank and the specific terms and conditions of the clearing office also govern the system. Participation is governed by the Terms and Conditions of the clearing office, which are issued by the Bundesbank after consultation with the banking industry.

The Daily Local Clearing System at present imposes no limits on the value of transactions processed. Credit transfers and collection items are deposited by bank messengers for clearing by the deadlines specified in the Terms and Conditions (normally several times between 8.15 a.m. and 1.30 p.m.). The Terms and Conditions further specify a specific point in time after which mutual claims and liabilities are considered to be settled. This is the time when all debit balances have been covered and all balances have been entered in the accounts of the participants.

(c) Structure, operation and administration

The Deutsche Bundesbank owns, operates and controls the clearing system. Clearing offices have been established at 190 of the 210 central bank branches (as at end-1990) in order to operate this system. The Daily Local Clearing System is used only by the local banks and the central bank office itself (the latter only as receiver of credit transfers for giro account holders not taking part in the clearing). All banks can use the system if they have a giro account with the central bank. A total of 1,856 credit institutions took part in the clearing at the end of 1990.

Each clearing participant sorts and totals credit transfer vouchers for each of the other participants and deposits them for clearing. The clearing office groups the deposits according to receiving bank, writes out delivery slips and matches them with the value of the items deposited. The clearing office then establishes the balance of items deposited and delivered, including collection items.

The system is used primarily to process transactions between local banks (e.g. interbank money-market transactions) for same-day clearing and net net settlement. It is also used for the execution of credit transfer orders received from bank customers. The central bank is required to make clearing and settlement facilities available, but is liable only for its own faults in carrying out the daily clearing.

The majority of credit transfers are on magnetic tape and follow the procedures for the automated "paperless exchange of data media". In the clearing process, only the total shown is to be cleared. Large-value items, particularly those in connection with international payments, can also be submitted as paper-based credit transfers.

The clearing offices provide their processing services to the participants free of charge.

(d) Settlement and finality

According to the clearing office's Terms and Conditions, banks' debit and credit balances arising from the clearing are settled daily through their giro accounts with the central bank. In this system (and the EAF, see Section 3.2.4.) banks with debit balances must arrange for there to be adequate cover (incoming credits to their account or lombard loans, see Section 5.2.4.) in order to avoid overdrafts. If necessary, extensions (to the closing of the books, which means 4 p.m. at the latest) can be granted to allow banks to send cover payments through the Express Electronic Intercity Credit Transfer System or through the central bank's Express Conventional Local Credit Transfer System.

Notwithstanding the legal position regarding credit transfers, the clearing office's Terms and Conditions stipulate that the clearing participants are merely safekeepers of the credit transfers deposited with them until such time as the clearing balances have been posted and all debit balances have been covered.

The Terms and Conditions of the clearing system point out that credits resulting from the clearing are subject to completion of the clearing. Thus, the proceeds of the credit transfers are finally available only when all clearing balances have been booked in the giro accounts of the clearing participants and the debit balances resulting from the clearing have been covered.

Credit transfers cannot be reversed. It is generally accepted that participants are entitled to recall transfers from other participants as long as the receiving bank has not credited the proceeds of the transfer to its customer.

In theory, the rules provide that in the event of default by a clearing participant the clearing must be repeated without that participant. In practice, however, there has been no call to use this procedure since solvent participants generally arrange cover for debit balances on the money market before the books are closed and insolvencies are usually detected and excluded from clearing on the day of default before the start of the clearing procedure.

Clearing participants are exposed to risk in the system if they credit their customers' accounts before settlement has been completed and, thus, final funds are available. In effect, banks give their customers short-term loans by allowing them to use the credits received as early as possible. Such short-term loans expire upon completion of the clearing process. Banks that are willing to assume this credit exposure monitor the exposure in accordance with their own criteria.

When a clearing office finds that there is insufficient cover for a clearing participant's debit balance, the latter is requested to remit cover within a specified period of time (cover principle: see Section 5.2.4.). The participant obtains funds on the interbank money market and remits (final) funds through the Express Electronic Intercity Credit Transfer System (see Section 3.2.1.) or the Express Conventional Local Credit Transfer System (see Section 3.2.2.). Each individual clearing participant is responsible for timely remittance of cover. If cover is remitted using the central bank's Express Electronic Intercity Credit Transfer System, there may be a problem with bottlenecks and delays arising in the processing and transmission of transfers. If a bank cannot provide cover within the specified time-limit, the clearing must, in principle, be repeated without the problem bank.

(e) Central bank participation

The central bank regulates the clearing procedure and provides technical facilities for its operation. The central bank's clearing offices link the giro systems of the various banking groups by means of an exchange, clearing and settlement facility for banks in the same city. The clearing procedure supplements the central bank's Express Conventional Local Credit Transfer System (see Section 3.2.2.), in which, in contrast to the Daily Local Clearing System, payers have to provide immediate cover and payees obtain the final funds without delay and unconditionally since all debit balances are covered before transactions take place.

The Bundesbank provides the system as a separate service. It determines the procedures used by the clearing offices after consultation with the banking industry, it runs the clearing houses on its own premises and monitors the overall clearing process. It also ensures that the system is available continuously and operates smoothly.

3.2.4. The central bank's Daily Electronic Clearing with File Transfer (EAF = Elektronische Abrechnung mit Filetransfer)

(a) General overview

To support the large-value clearing, the Bundesbank has introduced a new electronic system known as EAF ("Elektronische Abrechnung mit Filetransfer"). In this system, paperless credit transfers can be exchanged between participants by telecommunication via a Bundesbank computer centre. To participate in the system, all customers must have the necessary telecommunication equipment or cooperate with partners with the necessary equipment. All banks from the entire region of a Land Central Bank ("Landeszentralbank") may participate. Electronic clearing has been in operation since 23rd March 1990 at the Land Central Bank in Hesse in Frankfurt/Main.

(b) Major legislation, regulations and policies

The EAF system accepts domestic payments for DEM 10,000 or more in DTA (paperless exchange of data media) format and S.W.I.F.T. payments without minimum amounts. Participants submit their payment exchange files via telecommunication. The Terms and Conditions further specify a point in time after which mutual claims and liabilities are considered to be settled. This is the time when all debit balances have been covered and all balances have been entered in the accounts of the participants. The electronic clearing procedure is legally identical with the Daily Conventional Local Clearing System procedure for the exchange of paper-based payments. Nevertheless, a region's EAF and its Daily Conventional Local Clearing System are legally independent with separate clearing procedures.

Traditional Bundesbank procedures for processing payments and thus paper-based clearing will, of course, continue to exist alongside electronic clearing. The overall purpose of the EAF is to achieve settlement finality at an earlier moment in time (e.g. at 1 p.m.) than is possible in the paper-based Daily Local Clearing System which in Frankfurt, as a rule, becomes final between 1 p.m. and 4 p.m. For the processing and settlement of the EAF a special schedule providing earlier finality has been drawn up:

- the deadline for submitting files of credit transfers is midday;
- the calculation of clearing balances, with the exception of credit on EAF members' accounts, information about uncovered balances and provision of covering funds takes place between 12.15 p.m. and 12.45 p.m.;
- the booking of clearing balances on the EAF members' accounts at the Bundesbank branch holding the giro account is effected at 12.45 p.m.;
- in theory, the rules provide that if an EAF member cannot cover its debit balance, the close-out procedure is to be implemented. The Bundesbank informs participants immediately. Clearing balances are recalculated excluding all payments from and to the disqualified party;
- if all debit balances are covered at 1 p.m. the Bundesbank sends a message to all EAF members, who receive an itemised clearing balance. (See also Section 3.2.3.).

(c) Participants

The Deutsche Bundesbank owns, operates, and controls the clearing system. Not only local banks (e.g. in Frankfurt) but all banks in the same "Land" (e.g. in Hesse) are able to participate by connecting up to the relevant Bundesbank computer centre, provided they are equipped with the necessary technical facilities. If a bank is not independently established (e.g. if it is present only as a branch), it can employ the services of a bank participating directly in the EAF clearing. Payments delivered for indirect participants are routed to the appropriate direct participants and settled through their balances. Apart from the central bank's clearing offices, there are no other clearing houses linking the various systems for the exchange of credit transfers between local banks. At the end-of-1990, there were 14 participants in EAF in Frankfurt.

(d) Operation of the system

Under the EAF, depositing banks are able to submit unsorted credit transfer files by telecommunication using the Datex-P network. The transfers are sorted according to payee on the mainframe of the central bank computer centre concerned and delivered to the receiving participants.

The principles of the EAF are similar to those of the paper-based Daily Local Clearing System performed at almost all of the Bundesbank branches. The Land Central Bank computer centre: (i) continuously receives files up to midday, containing payment exchange records formatted according to the requirements of the "paperless exchange of data media" and S.W.I.F.T.; (ii) delivers, every twenty (or thirty) minutes, the data records received, batched as files, to recipient banks; and (iii) balances claims and liabilities of banks participating in electronic clearing.

The continuous input and delivery at short intervals allows the notification of recipient banks of incoming payments earlier than is possible in the Daily Local Clearing System. Dispatching banks are therefore obliged not to delay payments submitted to them and destined for the EAF.

The system is used primarily to process transactions between banks in the same region (e.g. interbank money market transactions) for same-day clearing and net net settlement. It is also used for the execution of credit transfer orders received from bank customers. The central bank is required to make clearing and settlement facilities available, but is liable only for its own faults in carrying out the daily clearing.

In the EAF, the Bundesbank provides a standardised communications interface based on non-proprietary, internationally standardised protocols (ISO/OSI FTAM protocol). In taking this decision, the Bundesbank has recognised the variety of different computing systems in operation at banks. Interbank communication with giro account holders is processed by the Bundesbank via this interface on dedicated gateway systems. Payments data then proceed from the gateway systems through the Bundesbank's internal network to the processing systems concerned. The security requirements (protection against unauthorised access and identification of sender and integrity of data) are met through the use of dynamic passwords and cryptographic keys at all relevant points. Back-up arrangements are based on an exchange of magnetic tapes.

In the EAF, participants are charged DEM 0.01 per credit transfer (data record); the clearing participants also have to pay for hardware, software and data transmission.

(e) **Settlement and finality**

The settlement rules are similar to those of the Daily Local Clearing System (see Section 3.2.3.). In particular, the processing of payments received by the EAF before final clearing has been signalled is at the participants' own risk.

In the EAF, earlier finality is achieved by the special schedule mentioned under (b) above. The Bundesbank will introduce earlier finality into the Daily Local Clearing System after a transitional period. Credits are not posted to the giro accounts of the clearing participants with net net credit balances until all net net debit balances resulting from the clearing have been funded.

(A comparison of the time schedules of the traditional Daily Local Clearing System and the EAF based on the situation at the Land Central Bank in Frankfurt is to be found in Annex 2).

(f) **The role of the central bank**

The Bundesbank provides the system as a separate service (see also Section 3.2.3.). By introducing a tighter schedule for processing and final settlement in the EAF system, and subsequently in the conventional procedure, the Bundesbank aims to reduce credit risks.

3.3. Main projects and policies being implemented

The following medium and long-term developments in cashless payments can already be foreseen:

- Further decline in paper-based payments in favour of paperless payments;
- Further increase in the use of data transmission instead of the physical exchange of data media in cashless payment transactions:
 - more widespread use of data transmission in the linking of the various payment networks of the banking industry, a process in which the central bank will play an important role as an intermediary as a result of the Electronic Counter (see Section 5.4.);
 - closer contacts between customers and their banks by means of cash management systems, PCs with videotex capabilities and computer links for the secure transmission of data files.

- Harmonisation of electronic payment procedures. As part of the process of European integration and as a result of international standardisation, the future European internal market will, in the opinion of the Bundesbank, require a standardised electronic payment system that goes beyond S.W.I.F.T. Other developments designed to integrate payment system messages with firms' (i.e. bank customers') electronic messages (e.g. EDIFACT) will probably also necessitate modifications to the payment system.

SECTION 4: SPECIAL USE OF INTERBANK TRANSFER SYSTEMS FOR INTERNATIONAL AND DOMESTIC FINANCIAL TRANSACTIONS

4.1. Exchange and settlement systems for international transactions

4.1.1. General overview

International cross-border movements of money are not restricted by the Government in Germany. However, the present legislation on foreign trade and payments requires that for statistical purposes incoming or outgoing payments to residents or from residents (or for the account of residents) must be reported to the central bank. Certain payments (e.g. payments up to DEM 5,000) are exempt from this reporting requirement.

In Germany international payments are handled mainly by the credit institutions. The Bundesbank, the Post Office and, to a minor extent, the credit card companies are also involved in foreign payments traffic.

The arrangements for processing international payments differ from those for domestic payments. There is no interbank network for foreign payments of the kind that exists for domestic transactions in Germany, as national giro networks are not interconnected across national borders. The credit institutions have therefore established a worldwide network of correspondent banks. This network is supplemented by 128 foreign branches in all major financial centres of twenty-seven German credit institutions as well as 214 subsidiaries of German credit institutions abroad (as at end-1990).

Since 1977 German banks have been able to route foreign payments via S.W.I.F.T. International agreements have also been reached between national banking groups to handle particular types of cross-border payments.

Although the Bundesbank, under Article 3 of the Deutsche Bundesbank Law, is responsible for ensuring that banking arrangements are made to handle international payments, it does not play a central role in this; it leaves the credit institutions to handle foreign commercial payments and only acts on behalf of institutions that have no facilities to process foreign payments themselves. In order to fulfil this role (e.g. to execute cross-border payments as fiscal agent to the Federal Government), at the end of December 1991, the Bundesbank had a network of 298 correspondent banks (of which 224 were S.W.I.F.T. users) out of a total of 103 countries, forty eight of which were member countries of S.W.I.F.T., and maintained accounts with fifteen international banks and organisations. In terms of numbers, only about 2% of German foreign payments pass via the Bundesbank.

In Germany, foreign payments are not usually divided strictly between bulk/small-value payments and large-value payments.

4.1.2. Payment media available to bank customers for foreign payments

(a) Cash payments

Cash payments in foreign currency (foreign banknotes and coins) are confined almost entirely to private and business travel.

(b) Credit transfer

The credit transfer is the predominant instrument for foreign payments in Germany. Only fragmentary statistics are available on the routes German banks use for foreign payments, but it is estimated that 85% of all cross-border payments take the form of transfers, with between 70% and 80%

of these being effected on a paperless basis via the S.W.I.F.T. system in correspondent banking relationships. In 1990, German credit institutions participated in S.W.I.F.T. with around 28 million messages, equal to 9.3% of the total. The 197 German institutions connected to the S.W.I.F.T. network (of which 147 are member banks) sent 5.5 million customer transfers in the form of S.W.I.F.T. messages, 3.7 million of which were directed to other EC countries; past experience shows that the number of incoming payments from abroad is around 160% of the volume originating in Germany.

(c) **Cheques**

The use of personal cheques has also increased considerably in recent years, a development that in Germany is attributable largely to the Eurocheque system. Of the more than 40 million Eurocheque cards issued up to July 1991, Germany accounted for around 30.3 million. In 1990, customers of German credit institutions issued 19.3 million Eurocheques abroad in local currency, with a total value of around DEM 5.8 billion. In the same year, 5.3 million Eurocheques for around DEM 1 billion were issued in Germany by customers of foreign banks.

(d) **Travellers' cheques**

Travellers' cheques are gradually declining in importance as a result of the increasing use of Eurocheques and credit cards as international payment instruments.

(e) **Credit cards**

The use of credit cards for payments abroad has grown in line with the general increase in their importance in Germany (see Section 2.2.3.).

(f) **Statistics on foreign payments**

In contrast to domestic payments, no systematic statistics are available on foreign payments and the relative importance of the various payment instruments. It is estimated that customers' foreign payments to other EC countries (transfers and cheques, but excluding Eurocheques and postal giro payments) were equivalent to just under 0.2% of the volume of domestic payments.

German residents spent DEM 48 billion abroad on foreign travel in 1990. The receipts of the German tourist trade from foreign visitors amounted to DEM 17 billion in the same year. The relative importance of the various payment instruments has changed over the years, at the expense of cash. In 1990, the respective shares of each payment instrument in foreign travel expenditure and receipts were as follows: cash 50% and 53%; credit cards 12% and 19%; Eurocheques 15% and 9%; travellers' cheques 7% and 16%; and bank transfers 17% and 3%.

4.1.3. Large-value payments

Large-value transfers are usually also channelled via the S.W.I.F.T. system. In addition, banks operating internationally may use their own networks. Payments are made across accounts held at branches abroad or correspondent banks.

Since no fundamental distinction is made between small and large-value payments, the national clearing systems in Germany are also used for the international settlement of balances resulting from large-value payments (see Section 3.2.). For example, the high turnover of the Frankfurt clearing (97% of the total clearing turnover at Bundesbank branches in Germany) is due mainly to the fact that banks in Frankfurt channel a large proportion of their money market and foreign exchange business via the clearing at the Bundesbank.

The EAF at the Land Central Bank in Frankfurt (see Sections 3.2.4. and 5.2.2.) is already being used for incoming S.W.I.F.T. payments of any amount. It is foreseen that at a later stage in the development of the Bundesbank's Electronic Counter (see Section 5.4.) foreign payments channelled via the Bundesbank will be integrated with other electronic traffic. The payments concerned are payments to recipients abroad (in Deutsche Mark and foreign currency) and incoming payments from abroad. It is intended that the Bundesbank's Electronic Counter will also handle S.W.I.F.T. payments for onward transmission electronically to banks in Germany.

4.2. Exchange and settlement systems for securities transactions

4.2.1. System of central depositories

Giro securities transactions, in which no physical exchange of instruments takes place, are carried out by the "Deutscher Kassenverein AG" (DKV), a body jointly owned by the German banking industry. The DKV has branches in the following centres, each of which have stock exchanges, Berlin, Düsseldorf, Frankfurt (the main branch), Hamburg, Hanover, Munich and Stuttgart. The shareholders, of which there are currently seventy-seven, are at present exclusively credit institutions, with holdings ranging from 0.01% to a maximum of 13%. Only credit institutions which are subject to the legally required audit of deposited securities or comparable audits and securities brokers and securities trading firms that meet special requirements may become account holders. For all practical purposes, all banks active in the business of securities trading and custody hold accounts with the DKV. The DKV is a specialised bank with a limited range of business and is subject to official supervision by the Federal Banking Supervisory Office.

The DKV is the central custodian for securities held in giro-transferable collective custody and the central agency for the securities transfer system. Roughly 80% (in terms of value) of all securities in the Federal Republic are held in custody by the DKV.

4.2.2. Centralised stock exchange transaction-processing system

The DWZ (German Securities Data Centre), a wholly-owned subsidiary of the DKV, provides automated data processing for the whole of the German stock exchange and central securities depository system. Stockbrokers and banks can enter their securities transactions for processing via VDU terminals. Every working day the EDP system issues contract notes – which are to be checked by the counterparties – in respect of stock exchange transactions. Errors must be reported before the start of the next trading session. If the contents of contract notes are not disputed within the set time-limits, the underlying transaction is considered to have been firmly accepted. Thus, there is no provision for confirmation between counterparties. According to established stock exchange practice all transactions must be settled on the second trading day following the date of the trade. Over-the-counter transactions have also been entered in the system.

4.2.3. Individual orders

Securities transactions are carried out only after prior matching. These transactions are entered into the DWZ computer by the parties concerned and matched by the system.

With effect from the beginning of 1992 orders may be submitted for same-day settlement if they are matched before 10 a.m.

It is difficult to estimate the scale of over-the-counter (OTC) activity. Trading before and after the official sessions in officially listed securities or those traded on the unofficial market represents around 30% to 40% of turnover in shares, and around 90% of that in fixed-income securities.

4.2.4. Delivery against payment

Stock exchange transactions are recorded by the DKV only on a simultaneous basis, i.e. the cash and securities entries made in the DKV's internal clearing accounts are effective at the same time. (Although for technical reasons the book-entries are made in advance, they are legally effective only when securities account statements have been delivered to the DKV's customers. The cash accounts are balanced at the same time via the DKV branch accounts held with the Land Central Banks). Securities transfers arising from individual orders in OTC trades are also executed in the same simultaneous cash clearing.

In 1990, approximately 16.2 million securities transfers (single counting) were cleared, with simultaneous cash clearing totalling DEM 3.078.3 billion. This is equivalent to a daily volume of approximately DEM 12 to 13 billion transactions. In addition there were about 6 million transfers of securities without cash clearing via the DKV.

4.2.5. Transfer of ownership of securities

Ownership of securities is transferred via actual delivery (in 1990 approximately 0.4 million individual items) or via book-entry transfer of shares in the collective holding (in 1990 approximately 21.7 million items). Book-entry transfers, like payment transactions, are executed on a local or an intercity basis depending on the location of the depository branch involved. The DKV's branches have accounts with one another and are interconnected via telecommunication. According to the DKV's terms of business, ownership¹ of shares in the collective holding is transferred when the daily securities account statement has been sent or delivered to the account holder. Statements are sent, as a rule, after completion of cash clearing via the Land Central Bank, once it has been established that there is cover for all due amounts.

The DKV does not carry out securities netting. Securities transfers take place on a trade-by-trade basis. It is therefore unnecessary to set up a special guarantee fund.

4.2.6. Cash clearing

The debit or credit balance arising out of all trades on each account holder's internal DKV cash account is squared on the performance date via the account holder's current account with the Land Central Bank. To this end the DKV sends the Land Central Banks a daily list of the debit balances of all clearing participants. Clearing is only carried out in Deutsche Mark.

Cash clearing takes place the day after delivery of securities transfer orders or delivery lists to the DKV (i.e. two trading days after a stock exchange transaction). The amounts owed in cash clearing must be available at 11 a.m. on cash-clearing day in participants' current accounts with the Land Central Bank. In the nationwide cash clearing of intercity stock exchange transactions, balances are squared by DKV branches by means of telegraphic transfer between their accounts with the Land Central Banks.

SECTION 5: THE ROLE OF THE CENTRAL BANK IN INTERBANK SETTLEMENT SYSTEMS

5.1. General responsibilities

Under Article 3 of the Deutsche Bundesbank Law, the Bundesbank is required to ensure that banking arrangements are made to handle domestic payments and payments between Germany and other countries. It fulfils this obligation by providing the competing credit institutions belonging to the various banking categories with a giro network that has no impact on competition. Under the Bundesbank Law, the Bundesbank may execute payment orders only if cover is available; credit may be granted only in the form of lombard credit (against pledged securities) in the context of the giro lombard overdraft facility (cover principle, see Section 5.2.4.). The Bundesbank Law also sets out the powers conferred on the central bank in relation to monetary policy (e.g. minimum reserve policy, see Section 5.3.).

5.2. Provision of settlement facilities

5.2.1. Giro accounts

The Bundesbank's clearing facilities are available on equal terms to all credit institutions engaging in payment transactions. As a prerequisite for access to the Bundesbank's giro system, credit institutions must open giro accounts with the Bundesbank: these non-interest-bearing accounts must always remain in credit. At the end of 1990, credit institutions held a total of 6,174 giro accounts with the central bank.

5.2.2. Local clearing

Banks in places where the central bank has a branch are able to exchange cheques, direct debits and other claims as well as credit transfers with one another in the Daily Local Clearing System (see Section 3.2.3.).

¹ In most cases, it is co-ownership of collective holdings.

In addition to this paper-based clearing, EAF has been operating in Frankfurt since March 1990. In this system, credit transfers for DEM 10,000 or more in the format for paperless exchange of data media and incoming S.W.I.F.T. payments of any amount can be exchanged between banks by means of data transmission. At present, electronic clearing only operates on a regional basis so that only credit institutions in the area covered by the Land Central Bank of Hesse can participate; this means primarily banks situated in Frankfurt (see Section 3.2.4.).

Besides these net procedures, it is possible for all account holders to deliver local credit transfer orders of any amount to any Bundesbank branch for another account at the same branch Express Conventional Local Credit Transfer System (see Section 3.2.2.); which is a gross settlement system in which credit transfer orders are executed item by item, provided sufficient cover is available.

5.2.3. Intercity clearing

Every credit institution in Germany can be reached via the central bank's giro network. The intercity payment system can handle payments in paper, paperless (recorded on magnetic tape or diskette), or telegraphic forms, or those that constitute urgent, large-value transfers. The banks can use the Bundesbank's "simplified cheque and direct debit collection procedure" to collect cheques and both paper-based and paperless direct debits.

In 1990, the Bundesbank's intercity payment system was used for 2.4 billion payments, of which 0.6 billion were credit transfers with a total value of DEM 10.888 billion, and 1.8 billion were cheques and direct debits worth DEM 3.615 billion.

The Bundesbank's eleven computer centres (one in each of the former West German "Länder") automatically record, reconcile and sort 99% of intercity payments and summarise them according to various criteria for onward transmission, booking and statistical purposes. In order to speed up intercity payments routed via the centres, in the last few years, the Bundesbank has linked the centres together by a data transmission network, via which, all paperless, undated credit transfers for less than DEM 10,000, and direct debits for DEM 1,000 or more, are transmitted. As a result, the time taken for paperless intercity payments to be effected via the Bundesbank's network has been reduced by one day to a maximum of twenty-four hours.

There is also a data transmission network between the Bundesbank's branches for the rapid handling of large-value payments within the central bank's Express Electronic Intercity Credit Transfer System; it is used to execute telegraphic transfers on the same day, and large-value transfers (at present DEM 10,000 or more) usually on the same day (see Section 3.2.1.).

In January 1992, the Bundesbank extended the facilities offered to all giro account holders by providing a general Electronic Counter, in addition to data transmission for urgent payments and the electronic clearing procedure, so as to speed up and rationalise cashless payment transactions by means of the electronic receipt, forwarding and delivery of payments. Giro account holders who do not have data transmission equipment will be able to submit and receive payments to and from the Electronic Counter on diskettes, and thus participate in paperless payments traffic as both originating and recipient banks. By attaining the objective of once-for-all data capture and multiple data usage, the new procedure will mean more economic handling of payments for all participants and, in some cases, shorter processing times.

As far as individual domestic credit transfers are concerned, it is envisaged that the Bundesbank's Electronic Counter will receive and forward domestic telegraphic transfers of any amount, urgent domestic transfers for DEM 10,000 or more, and local transfers. By handling payments via the Electronic Counter, the Bundesbank is fulfilling the requirement agreed within the banking industry for paper-based intercity payments of DEM 10,000 or more to be converted into data records from January 1992 onwards (EPT requirement = "EZÜ-Pflicht"). As in the case of local payments, the Bundesbank will execute intercity payment instructions only after cover has been received; hence, the Bundesbank accepts no risks here either, and the payee has final and unreserved title to incoming funds once they have been credited to his account.

In the "simplified cheque and direct debit collection procedure" ("Vereinfachter Scheck- und Lastschriftinzug"), the Bundesbank collects Deutsche Mark cheques, payments stemming from the cheque truncation procedure, and direct debits drawn on places throughout Germany for credit

institutions holding a giro account with the Bundesbank. The countervalue is credited to the presenter's giro account "subject to collection" on the working day following the day of presentation. In 1990, the banks presented 1,807 million cheques and direct debits with a total value of DEM 3,615 billion to the Bundesbank for collection in this manner. Only 0.4% of all items sent for collection via the central bank payments network are not processed by machine. Of the 324 million paper-based cheques and direct debits presented for automated collection in 1990, 87 million cheques were converted into data records by the Bundesbank (cheque truncation procedure ("Belegloser Scheckeinzug"), see Section 2.2.2. (b)).

5.2.4. Cover principle

Giro accounts at the Bundesbank are maintained only on a credit basis; overdrafts are not permitted. The credit institutions are allowed a degree of latitude so that strict adherence to the cover principle laid down in accordance with the Deutsche Bundesbank Law does not delay the processing of payments in the course of the day:

- cheques and direct debits credited "subject to collection" can be used by the Bundesbank as cover for credit transfer orders;
- the giro account may be overdrawn in the course of the day up to the value of security lodged as collateral (giro lombard overdraft). In this situation, a memorandum entry is made during the day.

Under the giro lombard facility, the Bundesbank grants the German credit institutions refinancing credit against pledged securities, to protect the Bundesbank in the event of accounts being overdrawn in the course of the day. Such loans, known as lombard loans, may be granted by the Bundesbank against bills of exchange or bonds. The limit up to which credit may be granted differs according to the type of collateral (e.g. up to 90% of the face value of bills of exchange and up to 75% of the market value in the case of bonds). The banks can also use assets pledged for normal lombard credit to secure overdrafts on their giro accounts. A credit institution authorises the Bundesbank to cover any debit balance on its giro account by taking out a lombard loan on its behalf. As a rule, the Bundesbank does not do so unless the bank's account still shows a debit balance at the close of clearing. Debit balances arising during the day are disregarded, provided sufficient unused lombard facilities are available. Any debits that exceed the collateral value of the securities pledged (as a result of telegraphic payment orders, for example) are not executed. Banks may alter the level of their collateral or revoke the loan authorisation only with the agreement of the Bundesbank.

Interest on lombard credit is calculated on the debit balance outstanding at the close of clearing, for at least one day. The credit institution can also authorise the Bundesbank to reverse a lombard loan using the proceeds of credits received the following day (giro lombard overdraft with automatic repayment). Most banks make use of this facility as it minimises their interest costs.

5.2.5. Pricing policy

The Bundesbank's policy with regard to the conditions and charges it applies in its dealings with credit institutions is essentially based on the consideration that it is directly involved in payment transactions so long as the existing network structures are maintained. The Bundesbank sees its role mainly in large-value payment transactions, which it wants to encourage. No more than in the past does it seek to establish a monopoly in the bulk payments field. Until 1991 the Bundesbank charged only for special services associated with cashless payments (e.g. the telegraphic execution of a credit transfer), but now all of its payment facilities carry a fee (except the Express Conventional Local Credit Transfer System – see Section 3.2.2. and the Daily Local Clearing System – see Section 3.2.3.). The new scale of payment charges is designed to encourage efficient procedures and, for example, to place the more labour intensive paper-based traffic at a relative disadvantage; in addition, the Bundesbank aims gradually to reduce the high proportion of bulk payments traffic which it handles. Banks continue to pay no charges on their giro accounts; other giro account holders (non-banks, private individuals), for whom accounts may be opened in exceptional circumstances, pay a bookkeeping fee of DEM 30 per month.

5.2.6. The role of the central bank in securities settlement agreements

The Deutsche Bundesbank makes its payment system available to the branches of the "Deutscher Kassenverein AG" (DKV), which effects the settlement of securities transactions, and the members of its clearing system. This enables them to settle securities for delivery against final payment in central bank money. Payments are cleared through standardised simultaneous booking nationwide on seven German stock exchanges (Berlin, Düsseldorf, Frankfurt, Hamburg, Hanover, Munich and Stuttgart).

5.3. Monetary policy and payment systems

The Bundesbank Law provides the Deutsche Bundesbank with a range of interest rate and liquidity policy instruments to carry out its tasks. The central bank is thus in a position to influence – e.g. by setting the discount and lombard rates – short-term interest rates and money market conditions in pursuit of its monetary objectives. The Bundesbank's policy is mainly designed to influence the banks' lending policy, and the demand for money and credit in the economy, indirectly through changes in bank liquidity and through the interest rate mechanism in the financial markets. The money market enables domestic credit institutions to make their excess central bank balances available to other banks; these money market transactions thus mainly serve the purpose of horizontal liquidity adjustment within the banking system.

Changes in the banks' minimum reserve requirements are an important instrument of liquidity policy. According to the present minimum reserve regulations, the Bundesbank may require banks to hold a specific percentage of their liabilities arising from sight deposits and other liabilities as balances on giro accounts with it (minimum reserves). The ratios set by the Bundesbank may not exceed certain limits, for example, 30% for sight liabilities. Balances held with the Bundesbank during the course of the month (actual reserves) must at least reach the ratios fixed by the Bundesbank (required minimum reserves), which are calculated on the basis of the average amount of liabilities subject to reserve requirements which a credit institution holds. No interest is payable on minimum reserve balances. Since the minimum reserve requirement has to be met only on average over a month, the banks can use their central bank balances for payment purposes and, if necessary, withdraw them temporarily, provided that they maintain correspondingly higher balances on other days during the period concerned. The balances they maintain with the central bank to comply with their minimum reserve requirement are therefore at the same time "working balances" because the banks do not need to hold other central bank balances in addition to their minimum reserves to be able to handle current payments. In fact, the excess reserves (i.e. the amount by which the average balances exceed the required reserves) are generally very low (less than 1% of the reserve requirement). In December 1989 and December 1990, excess reserves amounted to DEM 764 million and DEM 2,011 million, respectively.

Whether the Bundesbank's involvement in cashless payment transactions has significance for monetary and credit policy depends primarily on whether the banks' requirement for central bank money can be substantially influenced in this way. Traditional wisdom has it that giro networks "save" central bank money, as incoming and outgoing payments tend to offset one another and the payment balances remain small. Overall, the Bundesbank's participation in cashless payment transactions in accordance with legal provisions has no particular implications for monetary and credit policy.

5.4. Main projects and policies being implemented

The further development of cashless payment transactions at the Deutsche Bundesbank will be shaped by the Electronic Counter (see Section 5.2.3.). The implementation of which has already begun and which will offer all participants a valuable medium for handling electronic payments efficiently.

All giro account holders who have appropriate data transmission equipment will have access to the Electronic Counter. Those who do not have such facilities can submit material on data carriers. According to current plans, the Electronic Counter will be implemented in several stages and will provide the following services:

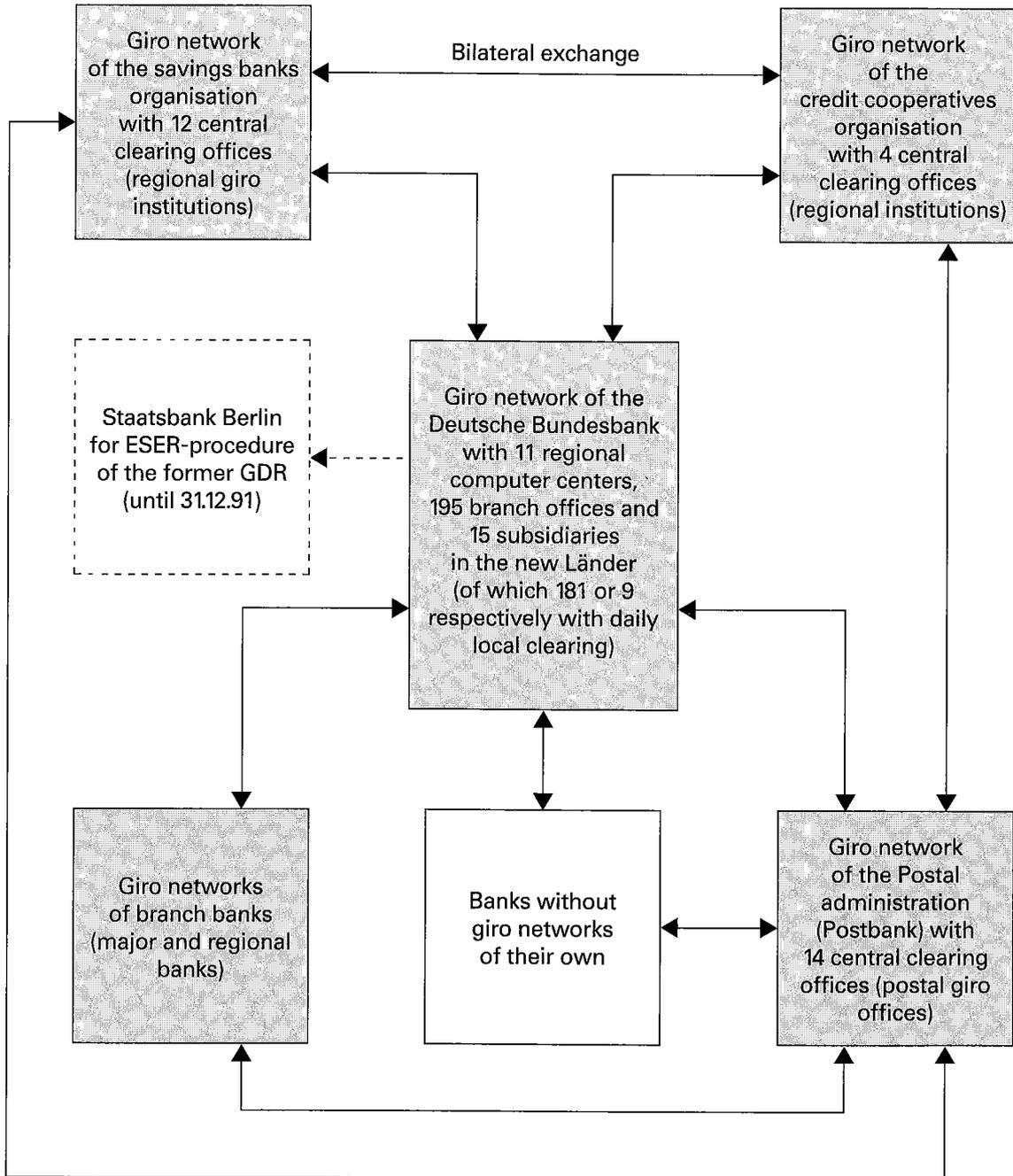
- electronic clearing with file transfer, which has already been in operation at the Land Central Bank in Hesse since March 1990 (see Sections 3.2.2. and 5.2.2.). It is planned to extend the system in stages to provide inter-regional clearing:

- Electronic Counter at Bundesbank branches, the first stage of which came into operation in January 1992 (see Section 5.2.3.). In subsequent stages the range of cashless payment services will be extended (e.g. the Bundesbank will incorporate local credit transfers as well as foreign payments processed via the central bank into the electronic exchanges of data with giro account holders);
- electronic account information, allowing participants in the Electronic Counter or the electronic clearing system to call up account information (e.g. statements of account) via data transmission lines.

In the light of experience since the introduction of electronic clearing, it can be expected that an increasing number of giro account holders will participate in the Bundesbank's Electronic Counter.

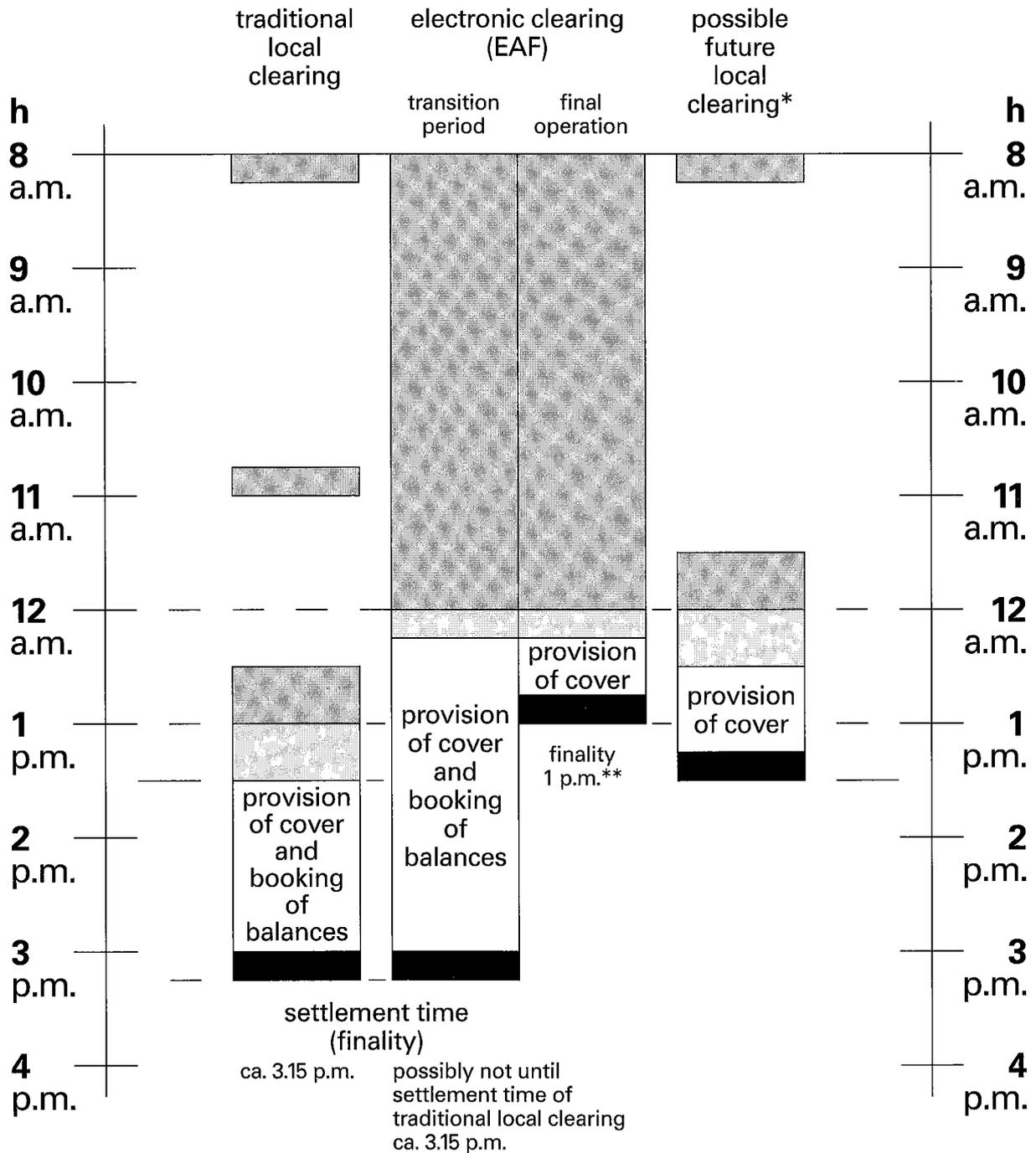
Clearing system in the Federal Republic of Germany

for credit transfers, cheques and direct debits



as at end of 1990

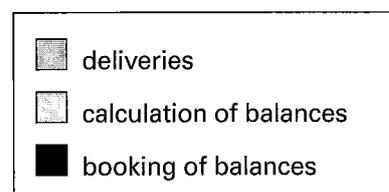
Comparison of the *time schedules* of traditional clearing and electronic clearing based on the situation at the Land Central Bank in Frankfurt/Main



* Changes according to local requirements; settlement time not earlier than EAF; objective: finality of traditional local clearing is to be brought forward, too.

** Technical delays (about 30 minutes) as long as the electronic counter and the automated link to the accounting system are not available.

as at 01.10.1991



Basic Statistical Data

(1990)

Population: 79,671,000 (old Länder: 63,560,000)
 Gross Domestic Product (1) (2): DEM 2,336.789 billion (ECU 1,138.786 billion)
 GDP per capita (2): DEM 36,765 (ECU 17,917)
 Exchange rate: 1 ECU = DEM 2.052

(1) Source: Eurostat

(2) Old Länder only

Table A.: Monetary aggregates

(average of end of month)

	billions DEM		Per capita (DEM)
	1989	1990	1990
Notes and coins	141.97	148.26	1,861
Transferable deposits in local currency	272.35	325.91	4,091
Others	0	0	0
Total money supply (M1)	414.32	474.17	5,952

Notes:

Table B.: Credit Institutions offering payment services (end of 1990)

Categories of Institutions	Number of Institutions	Number of branches	Number of accounts (thousands)	Share of market (%)	Value of accounts (DEM billions)	Share of market (%)	Average Value of accounts (DEM)
Central bank (1)	13	210	37	neg	20.3	4.6	548,650
Commercial banks (2)	415	7,186	14,363	19.2	156.1	35.1	10,868
Savings banks	781	20,128	36,700	48.9	160.8	36.1	4,381
Co-operative & rural banks	3,384	20,819	18,900	25.2	87.3	19.6	4,619
Post Office (3)	14	29,193	5,000	6.7	20.3	4.6	4,060
TOTAL	4,607	77,536	75,000	100%	444.8	100%	5,931

(1) 1990: The Bundesbank as a legal entity comprises the Directorate (in Frankfurt am Main) and 11 Land Central Banks as well as 195 branches (1989: 196 branches) in the old Länder; in addition it has established the Provisional administrative office (Vorläufige Verwaltungsstelle) in East Berlin and 15 subsidiaries in connection with the monetary union as of 1st July 1990 with the former German Democratic Republic.

(2) Including mortgage banks, instalment sales financing institutions, banks with special functions and building and loan associations.

(3) number of institutions – Postal giro offices (Postgiroämter)

Table C.: Cash dispensers, ATMs and EFT/POS terminals

	Cash dispensers and ATMs				EFT/POS			
	Number of		Value of transactions (DEM billions)	Number of	Number of		Value of transactions (DEM billions)	
	Networks	Machines			Networks	Machines		Transactions (millions)
end 1989	4	9,300	n/a	5	10,928	0.80	0.10	
end 1990	4	11,300	n/a	11	23,152	3.50	0.20	
increase 89/90		22%	n/a		112%	338%	100%	

Table D.: Number of payment cards (end of 1990)

	Number of cards (thousands)	Number of cards per 1,000 inhabitants
Cards with a cash function	n/a	n/a
Cards with a debit/credit function	32,222 (1)	404
Cards with a cheque guarantee function	27,225	342
Retailers Cards	1,400	18

Note. A card which has several functions appears in several lines and therefore the figures of this table cannot be added.

(1) Including 27,225 Eurocheque cards, eligible for cash and debit functions, if they are issued with a personal identification number

Table E.: Payments exchanged through the official payment systems

Name	Number of transfers (millions)		Value (billions DEM)	
	1989	1990	1989	1990
Maschinell-optische Beleglesung (MAOBE) (1)	635.3	677.5	2,602.4	2,920.6
– Cheques and direct debits	346.1	324.5	2,361.9	2,609.0
– Credit transfers	289.2	353.0	240.5	311.6
Belegloser Datenträgeraustausch (2)	1,513.3	744.5	879.4	1,134.2
– Truncated cheques and direct debits	1,306.2	1,475.7	570.1	718.7
– Credit transfers	207.1	268.8	309.3	415.5
Eiliger Zahlungsverkehr (3)	4.0	5.4	7,683.4	9,469.1
– of which express intercity credit transfers	1.4	2.5	6,682.5	8,422.9
of which "by cable"	0.8	0.9	5,786.5	7,277.4
Platzüberweisungsverkehr (4)	45.1	23.1	7,057.8	8,405.2
Daily local clearing procedure	248.3	234.4	104.1	86,180.2
– Cheques and other collection items	44.3	40.1	674.0	698.3
– Credit transfers	204.0	194.3	103,463.9	85,481.3
Elektronische Abrechnung mit Filetransfer (EAF) (5)				
– Credit transfers		2.3		24,993.2

(1) Machine-optical voucher reading procedure.

(2) Paperless exchange of data media.

(3) Direct traffic between branches/Subsidiaries of the Deutsche Bundesbank (credit transfers).

(4) Express conventional local credit transfer system (credit transfers).

(5) Daily electronic with file transfer.

Table E.: Relative importance of cashless payment instruments in the payment system

Instruments	Number of transactions (millions)		Value of transactions (billions)	Percentage of total volume	Number of transactions per capita	Average value per transaction
	1989	1990 (1)				
Cheques issued	661.0	784.0	4,644.0	9.7	9.8	5,098
Payments by debit and credit cards (2)	82.6	121.78	15.9	1.5	1.5	186
Paper-based credit transfers:						
customers initiated	1,864.1	2,007.4	123,801.0	24.7	25.2	53,771
interbank* (3)	1,659.0	1,812.0	13,455.0	22.3	22.7	8,029
	205.1	195.4	110,346.0	2.4	2.5	477,953
Paperless credit transfers:						
customers initiated	1,872.1	2,264.5	9,597.8	27.9	28.4	15,741
interbank* (3)	1.1	3.5	6,234.0	0	0	9,012,286
Direct debits	2,589.0	2,939.5	2,025.0	36.2	36.9	876
TOTAL	7,068.8	8,117.1	140,083.7	100%	101.9	18,502

* or large-value

(1) Including payments with and within the New Länder as of 1st July 1990.

(2) For 1989, only Eurocheque card POS trial in Berlin, Munich and Regensburg. For 1990, electronic cash transactions only.

(3) Only via Bundesbank large-value systems (see table E).

4. Greece

GREECE

Introduction

The Greek banking system has been subject to direct controls by the Greek Government for a long time, both via the State and the central bank (the Bank of Greece). In the years following the Second World War, the State issued laws aimed at selectively channelling bank credit towards economic sectors deemed essential for economic reconstruction. The bulk of banking transactions were placed under direct or indirect control of the Government and the largest banks and their affiliated institutions were passed under the indirect control of the State. Most of these regulations were gradually abolished in the last few years.

The Greek banking system has expanded steadily throughout the country, providing support for greater use of cashless payments. Although cash is used more in Greece than in any other Community country (most salaries are still paid in cash and there are only eight sight accounts per 100 inhabitants), cashless payments are nonetheless developing quickly. The cheque is still the most often-used payment instrument but in recent years credit cards, EFT POS and the automatic crediting of salaries to bank accounts have gained greater importance.

These developments are monitored by the Hellenic Bank Association and are supported by the State of Greece and the Central Bank.

SECTION 1: THE INSTITUTIONAL ASPECTS

1.1. General legal aspects

There are no special regulations governing payment systems in Greece. Only cheques are regulated by a law which dates back to December 1933. However, the Government, in close co-operation with the Bank of Greece exercises a general and regulatory influence on the operation of the Greek payment system.

The operations of the banking system were until recently heavily regulated. Both bank deposit and lending rates were determined by the authorities and selective controls were used to channel funds to desired economic activities. In recent years, however, the Bank of Greece has made significant steps towards deregulating and liberalising banking operations. Selective credit controls were abolished and interest rates were liberalised. As a result, banks are now setting freely the interest rates on more than 90 per cent of their loans, while the only deposit rate which is still set by the Bank is the minimum rate on savings deposits. Moreover, with the exception of consumer credit, which is still subject to some restrictions, banks have been permitted to extend loans, on their own terms to all sectors of economic activities and to offer new financial services and products. The main goal of the Bank of Greece in promoting and facilitating the transformation of the credit system has been the strengthening of competition between credit institutions and thereby the improvement of the efficiency of the Greek credit system.

Law No 5076 concerning "Companies Limited by Shares ("sociétés anonymes") and Banks" passed in 1931, provided the first legal framework for banks in Greece.

Law 703/26.9.77; "For the monopolies and oligopolies and the protection of free competition", sought to protect free competition and to prevent monopolistic and oligopolistic practices. Two organisations are responsible for the implementation of these anti-trust laws: the Competition Protection Service whose task is to ensure that the law is applied and observed; and the Competition Protection Committee (in which the Bank of Greece participates) which adjudicates on suspected misdemeanours and gives expert opinions as required by the law. These committees co-operate with the European Community as regards the application of EC competition rules.

1.2. Financial intermediaries that provide payment services

Commercial banks and specialised credit institutions are the main providers of payment services in Greece. The role of the central bank in this respect is dealt with in Section 1.3.

1.2.1. Commercial banks

Commercial banks are banks which accept all kinds of deposits and offer diversified payment services. They are also entitled to grant loans to all sectors of the economy. Some of the commercial banks have subsidiaries which specialise in insurance, mutual funds and credit card business.

There are thirty-eight commercial banks. Nineteen of them are Greek-owned and the other nineteen are Greek branches of foreign-based banks (eleven with their head offices in other EC countries). Greek banks are also shareholders in some foreign banks. The two largest Greek commercial banks have affiliated banking enterprises abroad.

Of the nineteen Greek banks, eight are indirectly controlled by the State and the others are private. Three of the State-controlled banks (National Bank of Greece, Commercial Bank of Greece and Ionian Bank of Greece) account for 74% of the deposits with the commercial banks.

Institutions outside the banking industry only contribute a minor part of the total financing needs of the Greek economy. Only 10% to 12% of the funds available for investment are drawn from the Stock Market, and the only significant financing agents are the mutual funds (insurance companies have not developed credit activities in Greece). Therefore, the Greek banking system provides the majority of the loans which finance the country's economy.

Services provided by commercial banks also include those offered to various social groups: for instance, the collection of some social security contributions.

1.2.2. Specialised credit institutions

There are eight credit institutions which are specialised in granting loans to specific sectors of the economy: three development banks (the Hellenic Industrial Development Bank, the National Investment Bank for Industrial Development and the Bank of Investment); two mortgage banks (the National Mortgage Bank and the National Housing Bank); the Agricultural Bank; the Postal Savings Bank; and the Deposit and Loans Fund.

- (a) The three development banks usually extend long-term loans to the industrial sector. They are members of the country's payment system and they have recently begun to accept deposits from the public.
- (b) The two mortgage banks provide medium and long-term loans to individuals, to the state-owned enterprises which build houses for people on low-incomes, and to finance construction programmes (e.g. hotels). These banks accept deposits and they are members of the payment system.
- (c) The Agricultural Bank of Greece, which offers all types of credit to the agricultural sector. It also supports and supervises agricultural co-operatives. It has an extensive network of branches throughout the country and it is responsible for the implementation of the agricultural policy of the Greek State and of the European Community. It accepts deposits from the public and offers payment services.
- (d) The Postal Savings Bank (P.S.B.) is under the control of the Ministry of Transport. The P.S.B. operates through an extensive network that includes all the country's post offices (which operate as agents for the P.S.B.). It accepts deposits on savings accounts, which are guaranteed by the State, and it offers an interest rate which is higher than that of the commercial banks. It also takes other deposits on the same terms as commercial banks. The funds collected by the P.S.B. are used to finance public enterprises and public organisations and to grant housing loans to public servants.
- (e) The Deposits and Loans Fund is directly controlled by the State. It accepts deposits made by various public entities (particularly local authorities). It accepts deposits from the public and is involved in the payment system. It finances part of the Public Investment Programme and it also grants loans to local authorities and housing loans to public servants.

1.2.3. Other providers of payments services

In addition to the above-mentioned institutions, the following firms also provide payment services:

- (a) Two non-bank companies which issue credit cards (Diners Club and Fisher's Club), in co-operation with Greek banks;
- (b) Five Greek credit card companies which are subsidiaries of Greek banks and which have been authorised by the Bank of Greece;
- (c) Companies which issue luncheon vouchers;
- (d) The Greek Post Offices which do not accept deposits but which offer payment services in that they issue money orders (it is quite common in Greece to pay taxes or subscriptions to magazines or newspapers with postal money orders), and cash pension cheques. The only connection between the P.S.B and Greek Post Offices is that they use the same buildings and sometimes the same personnel.

1.3. The Bank of Greece

The Bank of Greece was established in 1928 under Law 3424/7.12.27, as a "Société anonyme".

The Bank of Greece has the sole right of note issuance in Greece. It issues banknotes on its own behalf, and coins on behalf of the Greek State. The printing of notes and the minting of coins are both carried out by the Bank of Greece.

The Bank of Greece has twenty-seven branches and sixty-seven agencies all over the country. It offers the following payment services:

- (a) Account services: Although anyone in Greece is entitled to open an account with the Bank of Greece, only banks and public entities (which have to deposit their excess funds at the central bank) have done so. It should be noted however that no interest can be paid on accounts opened by individuals;
- (b) Retail payment services: These are offered to individuals and firms for payments to the Government and other public organisations;
- (c) Exclusive cashier of the Greek State: The Bank of Greece handles all the banking and fiscal activities of the Greek State. It also provides credit to the Government and it undertakes the issuance and the administration of the public debt;
- (d) Chairmanship of the Athens clearing Office (see Section 3.2.);
- (e) Credit facilities to the banks (see Section 5.2.);
- (f) Supervision: All institutions which provide payment services are under the supervision of the Bank of Greece, even if they do not hold a banking licence.

Other functions of the Bank of Greece are dealt with in Section 5.1.

1.4. The Hellenic Bank Association (H.B.A.)

The H.B.A was established in 1928. It has presently twenty-three member-banks. Two other banks and the Postal Savings Bank maintain a relationship with the association.

The objectives and purposes of the H.B.A. are all of an advisory nature. The major ones are the following:

- (a) To improve banking in Greece;
- (b) To assist its members when they have an operating problem or there is a misunderstanding among some of them;
- (c) To contribute to the development of the Greek economy;
- (d) To improve banking co-operation in the fields of payment, credit and financial operations.

SECTION 2: SUMMARY INFORMATION ON PAYMENT MEDIA USED BY NON-BANKS

2.1. Cash payments

Cash comprises banknotes and coins. The current denominations of banknotes are GRD 5,000, 1,000, 500, 100 and 50 and the denominations of coins are GRD 50, 20, 10, 5, 2 and 1.

A new design of banknotes is made approximately every ten years and the same issue cannot be in circulation for a period greater than twenty years, while coins are produced with a new date every two years.

The GRD 5,000 denomination banknotes represented 84% of the total value of banknotes in circulation, while the GRD 1,000 denomination accounted for 14% of the total, at the end of 1990.

The percentage of cash transactions is very high. For instance, almost all the salaries of public servants, taxes up to GRD 250,000, and electricity and telephone bills are paid in cash. Although no figures are available, the wider use of cheques and electronic means of payment in recent years has lessened somewhat the importance of cash payments.

2.2. Cashless payments

2.2.1. Accounts

Cashless payments are effected through accounts held with the banks. The most widely used types of accounts are the following:

- (a) **Sight accounts** are accounts which can be debited and credited with cheques. Traditionally, sight accounts did not yield interest; however, in 1992, some banks have begun to pay interest on sight accounts held by individuals. Sight accounts are used for payment services and, at the end of 1989, there were 759,486 sight accounts (5.43% of the total number of accounts).
- (b) **Savings accounts** are the most common type of deposit account (at the end of 1989 there were 12,854,830 accounts or 87.84% of the total). These accounts yield interest to the depositors. Savings accounts may be used indirectly for payment services, since many customers first deposit their money in savings accounts and then either withdraw cash or transfer the funds to sight accounts when the need arises.
- (c) **Time deposits** are accepted by banks for a fixed period agreed between the bank and the depositor, and bear higher interest rates than savings accounts. If the depositor withdraws all or part of the money before the end of the agreed time, he loses all or part of the accrued interest. At the end of 1989, there were 984,522 time deposits or 6.73% of the total.
- (d) **Deposits with notice** are a form of time deposits, the difference being that the depositor warns the bank of his intention to make a withdrawal three, six or twelve months before the required date according to the previous agreement between the bank and the depositor.

2.2.2. Instruments

The following cashless payment instruments are used in Greece:

- cheques, denominated in drachmas or in foreign currencies;
 - credit transfers;
 - bills of exchange;
 - postal orders;
 - cards.
- (a) The cheque is the most commonly used cashless payment instrument. In an effort to facilitate automation and to minimise the risk of fraud, the Bank of Greece and the Hellenic Bank Association have decided to introduce a unified form of cheque.

Since there exists no cheque guarantee scheme in Greece, the law is very strict in the case of uncovered cheques. When a customer makes out an uncovered cheque, he is registered on a "black list", which means that he cannot use cheques for one to three years. In addition, the penalties prescribed by the courts are very high.

Most cheques are not deposited in bank accounts, but are cashed by the beneficiaries.

A specific category of cheque is the pension payment cheque of Insurance Organisations whose payment is guaranteed by the Government, since social security in Greece is provided mainly by public institutions.

Eurocheques, mainly used by foreigners, are always denominated in drachmas, and are settled at the National Clearing Office which operates in the National Bank of Greece. This office is a member of the European Eurocheque Clearing Centre (see Chapter 13).

“Foreign exchange cheques” are less common. They are cheques denominated in foreign currencies, mostly issued by non-residents and drawn on banks located outside Greece. They can be handled by the Athens Clearing Office (see Section 3.2.). In 1990, the A.C.O. processed 88,685 foreign exchange cheques for a value of GRD 112 billion.

(b) **Credit Transfers**

Most credit transfers are still paper-based but customers are now able to use ATM cards to transfer money to beneficiaries who hold accounts in the same bank branch. Some banks have also developed automated networks between their branches which enable cashless credit transfers initiated in one of their branches to be automatically credited to accounts held in other branches of the same bank.

(c) **Bills of exchange** are payment orders for a specific amount to be paid at a future date. They are mainly used to facilitate commercial transactions. The law on unpaid bills is strict and provides for high penalties.

(d) **Postal money orders** are made through post offices. They are printed payment orders by means of which any individual can send money, for instance to any organisation or company, to any payee without a bank account and to the State for tax payments. In 1989, 5,160,000 orders were processed through the Post Office with a value of GRD 162,6 billions.

(e) **Card payments** have developed rapidly in the past few years. Several cards can be used in ATMs which operate 24 hours a day for both deposit and withdrawal of money. Some of these machines allow customers to check the balance on their accounts and the current rate of interest offered by the bank. Customers can also receive a statement of account or can transfer money from one account to another.

Some banks which handle Visa and Eurocard/Mastercard allow foreign owners of these cards to withdraw cash through ATMs.

The organisations which issue credit cards guarantee payment to the retailer up to a certain amount (currently GRD 20,000 in most cases). At the end of 1991 there were about 815,000 credit cards issued and the number is continuously increasing at a fast pace.

The issuer of the card (bank or non-bank) sends a monthly statement to the user of the card who usually settles the balance in cash.

2.2.3. Main projects

The automation of payment transactions, using modern means of telecommunication, is an important target of the Greek banking system. This should improve the services to customers through the reduction of costs and processing time.

Progress towards automation is being made both at the level of each individual bank as well as at the interbank level through the modernisation of the A.C.O. and the implementation of the new DIAS system (see Section 3.3.).

SECTION 3: INTERBANK EXCHANGE AND SETTLEMENT CIRCUITS

3.1. General overview

Each bank in Greece has its own way of offering payment services to its customers and of settling retail payments. Correspondent banking in a domestic context is still very important in Greece.

There are three major payment networks for the processing of cashless payments in Greece: the credit transfer system; the bilateral exchange of cheques; and the Athens Clearing Office (A.C.O.). The latter is described in Section 3.2.

3.1.1. The credit transfer circuit

If the beneficiary of the credit transfer holds an account in the payer's bank, his account is credited, unless he wants to be paid in cash. If he does not hold such an account, the payer's bank credits the other bank's vostro account and sends all the relevant information (name, account number, sum, payer's name etc.) to the bank of the beneficiary which in turn credits the account of the beneficiary in its books.

3.1.2. The bilateral exchange of cheques

When a bank pays out a cheque drawn on an account which is kept in another bank in the same town, the settlement of the cheque is made either through the Athens Clearing Office, if it has a branch in that town, or by transferring the cheques to the drawee bank, usually for cash settlement.

When the cheque is drawn on a bank which is located in another town, the bank to which the cheque is presented for payment sends it to its branch in the town where the account to be debited is held. The cheque is then settled in cash or through the local branch of the A.C.O. (if there is one). If the bank to which the cheque is presented does not have a branch in the town where the drawee bank is located, the former will use the services of another bank which does. Out-of-town cheques are usually paid after seven days.

3.2. Structure, operation and administration of the major large-value system: The Athens Clearing Office (A.C.O.)

The Athens Clearing Office (A.C.O.) was established on 5th December 1928 and its operations began on 23rd January 1929 based in the Bank of Greece.

Its initial purpose was the settlement of cheques issued by or drawn on member banks. Since 1984, the A.C.O. has begun to expand the services it offers to its members and to develop slowly but steadily towards an integrated system for interbank transactions.

The A.C.O., despite its name, is a nation-wide payment system with sixty-seven branches throughout the country based in Bank of Greece branches and agencies.

3.2.1. Major legislation, regulation and policies

The legal basis of the A.C.O. is Article 55 of the Statutes of the Bank of Greece. Its operation depends on its statutes and on the agreements made between banks which participate in its administrative board.

The A.C.O. is managed by its council i.e. a six-member board consisting of one representative of the Bank of Greece, which chairs the council, four representatives of the state-controlled banks and one representative of the private banks.

The Clearing Office is located in the central bank's head office and is staffed by Bank of Greece personnel. Its operating hours are from 8 a.m. to 3 p.m.

3.2.2. Participants in the system

Greek and foreign banks, public or private organisations, as well as special credit institutions, are entitled to become A.C.O. members. In order to do so, an application has to be submitted to the A.C.O. by the interested party, and has to be approved by four of the six members of the Administration Board.

No criteria, other than acceptance of the A.C.O.'s statutes and payment of an entrance fee, have to be met to become an A.C.O. member. At the end of 1991, only banking institutions had been admitted and membership consisted of thirty-five banks and two special credit institutions. Three additional banks have been admitted to participate only in respect of interbank loans.

3.2.3. Types of transactions handled

The A.C.O. processes retail and large-value payments. Since 1984, it has handled three types of transaction:

- (a) Cheques in drachmas (issued in the same town);
- (b) Interbank money market loans;
- (c) Foreign exchange cheques (except Eurocheques which are settled by the National Clearing Office, see 2.2.2.).

Up to 2 p.m., the A.C.O. collects information about the amounts which are going to be settled between the thirteen largest banks and informs them of those amounts by telephone in order to enable them to determine their policy in the Interbank Money Market.

The following table shows the evolution of the average daily volume and value of transactions that has taken place in the last five years through the A.C.O.

DAILY AVERAGE TRANSACTIONS THROUGH A.C.O.

Year	cheques in drachmas		cheques in foreign exchange		interbank loans	
	volume	value	volume	value	volume	value
1986	36,331	22,259	222	131,504	87	20,750
1987	39,246	27,117	293	213,608	78	20,807
1988	41,241	34,909	319	297,489	91	32,890
1989	45,055	42,794	338	387,117	103	55,635
1990	48,314	57,141	352	443,063	113	71,421

(values are in GRD millions)

The A.C.O. is a multilateral net-settlement system which settles in the books of the Bank of Greece. In 1971, the progressive computerisation of the A.C.O. began and, today, both the head office in Athens as well as its branches use computers that are linked with the mainframe of the Bank of Greece.

The outcome of the clearing operations in respect of the cheques in drachmas and interbank loans is transmitted by the A.C.O. to the Bank of Greece through these electronic links in order to debit or credit the corresponding amounts to the current accounts of the banks. Any error which may occur during the settlement of cheques in drachmas is dealt with between the banks with the assistance of the A.C.O.; in the case of interbank loans, approval of the relevant department of the Bank of Greece is needed. The A.C.O.'s automation therefore concerns its internal transactions and transactions with the Bank of Greece only; it is unable to accept external electronic orders from its member-banks.

In the event that a bank has insufficient credit balances to book the clearing results, the Bank of Greece may allow current accounts to remain in a debit position overnight (see Section 5).

3.2.4. Pricing policy

The operating expenses of the system are covered by its members. The Council of the A.C.O., at the beginning of each year, sets the percentage of the expenses to be charged to each member, according to the average number of transactions presented during the previous year. The minimum charge is 1% of the total costs.

Each bank or other credit institution which becomes an A.C.O. member has to pay an entrance fee, the level of which is determined by the Council.

The Bank of Greece is treated differently with regard to operational expenses; its participating percentage is reduced to reflect its costs in providing the premises, the computer facilities and the staff.

3.2.5. Credit and liquidity risks and their management

At present, no measures have been taken to control the potential risks in the clearing procedure.

There are no unwind clauses in the A.C.O. rules. There has been no case of a Greek bank going into insolvency liquidation as yet.

3.3. Main projects and policies being implemented

There are two main projects concerning the Greek payment system: firstly, the modernisation of the A.C.O.; and secondly the creation of a new payment system called "DIAS".

The Council of the A.C.O. has accepted the need for the modernisation of the Athens Clearing Office. An ad hoc working group has already started to examine the position. The study will be finished by the end of 1992. This examination has two main objectives: the establishment of new services and the introduction of automation.

Under the Hellenic Bank Association initiative, a national interbank payment system, called "DIAS" S.A., will be established.

Although the main features of DIAS are not yet finally decided, it is expected that it will operate as an ACH and that payments will be cleared on a multilateral net basis. Settlement will probably be implemented on the books of the Bank of Greece. The way in which non-banks might participate in DIAS is still under review. The Bank of Greece has recently decided to participate in the system, which operate outside the Bank.

The operations which will be processed through the new system are:

- Automated credit transfers (e.g. salaries and pensions);
- Automated payment of electricity and telephone bills;
- Automated payment of bills of exchange;
- Truncated cheques;
- Cash withdrawals or deposits through ATMs;
- Settlement of purchases through EFT POS.

It is anticipated that this new system will operate sixteen hours a day, and the objective is a capacity of 500,000 transactions per day.

SECTION 4: SPECIAL USE OF INTERBANK TRANSFER SYSTEMS FOR INTERNATIONAL AND DOMESTIC FINANCIAL TRANSACTIONS

4.1. Exchange and settlement systems for international transactions

Foreign exchange controls no longer exist in Greece except for those included in Article IV of the EC Council Directive No 361/24.6.88 (OJEC L 178/17/8.7.88).

For international transactions, Greek banks use both their branches abroad and correspondent banks. Most international credit transfers are sent through S.W.I.F.T. Cheques drawn by Greek banks on their correspondents abroad are also used.

Retail face-to-face payments are mainly made in cash, by cards or with Eurocheques. Payments with international credit cards are settled through the specific systems of the issuing companies. Eurocheques are collected by the Eurocheque National Clearing Centre and are sent through Eurocheque International to the National Clearing Centres of the country of the payer (see Chapter 13).

4.2. Exchange and settlement systems for securities transactions

In Greece, there is no system specifically devoted to the clearing of securities transactions. Securities are still recorded on paper and a central depository institution for shares was recently established by the Athens Stock Exchange.

Equities are traded between brokers in the Stock Exchange in Athens. Settlement between brokers is usually made against cash. Customers pay the brokers either in cash or by cheque. Banks may act as intermediaries between customers and brokers, especially outside Athens.

Customers mostly buy Government bills and bonds on the primary market with the assistance of their bank. They pay either in cash by cheque or by debit on their account. The secondary market for government securities is not very active.

SECTION 5: THE ROLE OF THE CENTRAL BANK IN INTERBANK SETTLEMENT SYSTEMS

5.1. General responsibilities

The Central Bank is not responsible for the management of the interbank payment system but it supervises the banking system and oversees the risks for banks and their customers in the functioning of the payment system. As a member of the A.C.O., the Bank of Greece has the same obligations as the other members (see Section 3.2.). The central bank is also responsible for the implementation of monetary policy and for insuring stability in the financial markets.

The Currency Committee, created in 1946, was responsible for the design of the monetary and credit policy as well as for the completion of the legal framework that regulates banking activities. The Bank of Greece implemented the Committee's decisions. In 1982, the Committee was abolished and most of its functions were taken over by the Bank of Greece. In addition to those mentioned in Section 1.3., these responsibilities include the following:

- the setting of "primary" and "secondary" reserve requirements (see Section 5.2.1.);
- the setting of minimum levels of interest on deposits and loans;
- the administration of the country's foreign exchange reserves, the implementation of foreign exchange controls and the determination of exchange parities against the drachma.

5.2. Provision of settlement facilities

5.2.1. Use of central bank accounts for payment services

There are three types of accounts held by banks at the central bank: current accounts; reserve requirement accounts; and optional deposit accounts.

- (a) Current accounts are used by banks for liquidity purposes. According to the rules and regulations set by the Bank of Greece, banks are not allowed to use their central bank's accounts to offer payment services directly. However, commercial banks can use these accounts to cover their liquidity needs and to settle interbank transactions.

Uncollateralised debit balances are allowed, for which the central bank charges a penalty rate of interest if such balances are maintained overnight.

- (b) Reserve requirement accounts are set in proportion to the level of deposits with each bank (9% at present). Reserve requirements are calculated on a monthly basis. The Bank of Greece pays interest on half of the total amount. In addition, commercial banks are required to deposit with the Bank of Greece their unused balances of the funds earmarked for the financing, at privileged terms, of small and medium-sized enterprises.
- (c) Optional deposit accounts (also known as "secondary reserve requirements") are made by banks on a voluntary basis. They are mainly used as a cash management tool by the banks. The level of interest paid by the central bank is a monetary policy instrument.

The Bank of Greece also maintains interest bearing accounts with other banks, which are mainly used to facilitate payments, especially in towns where the Bank of Greece does not have a branch.

5.2.2. Provisions of credit facilities

The central bank offers the following credit facilities to other banks:

- (a) Although the Bank of Greece provides rediscount facilities as required by its statutes, there is no active commercial bills market in Greece. Consequently the Bank cannot intervene in this market at present to control liquidity. The current discount rate is 19% as from January 1988.
- (b) The refinancing of certain categories of loans granted by banks, at a lower than market rate of interest (e.g. loans to victims of natural disasters, housing loans, loans to the organisation which builds houses for people on low-incomes and loans to entities which stabilise the prices of agricultural products).
- (c) The Bank of Greece may, at its discretion, allow in exceptional cases and for short periods of time uncollateralised overdrafts on banks' current accounts. The current interest rate applied to overdrafts fluctuates from 26% to 30%.

5.3. Monetary policy and payment systems

The Bank of Greece uses reserve requirements to pursue its monetary policy. Changes in reserve accounts are determined by the Governor of the Bank of Greece. The reserve requirements are fixed according to the average amount of deposits during a four-week period.

Basic Statistical Data
(1990)

Population: 10,046,000
 Gross Domestic Product: GRD 10,149 billion (1) (ECU 50.39 billion)
 GDP per capita: 1,010,253 (ECU 5,016)
 Exchange rate: 1 ECU = GRD 201.41

(1) Source: Eurostat

Table A.: Monetary aggregates
(average of end of month)

	billions GRD		Per capita (GRD)
	1989	1990	1990
Notes and coins	969	1,162	115,668
Transferable deposits in local currency	296	421	41,907
Others	253	298	29,664
Total money supply (M1)	1,518	1,881	187,239

Notes:

Table B.: Credit Institutions offering payment services (end of 1990)

Categories of Institutions	Number of Institutions	Number of branches	Number of accounts (thousands)	Share of market (%)	Value of accounts (GRD billions)	Share of market (%)	Average Value of accounts (GRD)
Central bank	1	94 (1)	4	0.5	94.12	25.3	2,353,000
Commercial banks	32	1,132	771	95	254.15	68.4	329,600
Postal Savings banks	1	47	5	0.6	1.54	0.4	308,000
Co-operative & rural banks (2)	1	213	32	3.9	21.71	5.8	678,438
Specialised credit inst.	6	180	n/a	0	0	0	0
TOTAL	41	1,599	812	100%	371.52	100%	457,537

(1) 27 full branches and 67 agencies (which only offer payment services).

(2) Agricultural Bank of Greece.

Table C.: Cash dispensers, ATMs and EFT/POS terminals

	Cash dispensers and ATMs						EFT/POS		
	Number of			Value of transactions (GRD billions)	Number of		Value of transactions (GRD billions)		
	Networks	Machines	Transactions (millions)		Networks	Machines		Transactions (millions)	
end 1989	n/a	n/a	n/a	n/a	0	0	0		
end 1990	n/a	326	n/a	n/a	0	0	0		
increase 89/90	0	0	0	0	0	0	0		

Table D.: Number of payment cards (end of 1990)

	Number of cards (thousands)	Number of cards per 1,000 inhabitants
Cards with a cash function	n/a	n/a
Cards with a debit/credit function	n/a	n/a
Cards with a cheque guarantee function	n/a	n/a
Retailers Cards	n/a	n/a

Note: A card which has several functions appears in several lines and therefore the figures in this table cannot be added.

Table E.: Payments exchanged through the official payment systems

Name	Number of transfers (millions)		Value (billions GRD)	
	1989	1990	1989	1990
Athens Clearing Office	11,420	12,244	24,801	32,452
– Cheques in drachmas	11,309	12,127	10,741	14,342
– Interbank Loans	26	28	13,964	17,998
– Cheques in foreign exchange	85	89	96	112

1) Source: Athens Clearing Office

2) There is no data about Retail Payment and Payment Order Systems available

Table F: Relative importance of cashless payment instruments in the payment system

Instruments	Number of transactions (millions)		Value of transactions (billions)		Percentage of total volume		Number of transactions per capita	Average value per transaction
	1989	1990	1989	1990	1989	1990		
Cheques issued	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Payments by cards	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Paper-based credit transfers: customers initiated	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
interbank*	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Paperless credit transfers: customers initiated	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
interbank*	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Direct debits	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Others								
TOTAL	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

* or large-value

5. Spain

SPAIN

Introduction

Key characteristics of the Spanish Payment Systems are as follows:

- In terms of institution, the Spanish banking system's role in providing payment services is more important, as a result of the widely extended network of bank branches, than the role of the postal system.
- Payments other than between banks are very frequently made in cash. The most widely used cashless instruments in terms of value are cheques and in terms of volume direct debits. Important factors here are both the increasing size of networks of automated teller machines and point-of-sale terminals and the progress of co-operation among financial institutions.
- Also with regard to interbank clearing and settlement, progress has been achieved in process automation by means of the creation of the National Electronic Clearing System (in Spanish SNCE) that is replacing the traditional clearing houses. The SNCE is based on the exchange, through computer links among participants, of data on transactions to be cleared.
- In the specific field of interbank loans and other transactions involving large-value payments, the Money Market Telephone Service (in Spanish STMD) has had its role as an interbank clearing and settlement system consolidated by the creation of the Government Debt Book-Entry System which settles interbank transactions through the STMD.
- Finally, the Bank of Spain plays an important role, both in the supervision of the payment system as a whole and in the management and co-ordination of interbank clearing and settlement systems.

SECTION 1: THE INSTITUTIONAL ASPECTS

1.1. General legal aspects

There is no legal body which regulates in a systematic way everything allied to payment systems in Spain, and references in legislation to a domestic "payment system" are very rare. It is necessary, therefore, to resort to the provisions in civil, business and public law which regulate the instruments and institutions which are involved in or which supply payment services.

In its capacities as banker to banks and as the institution entrusted with monetary policy in its domestic and foreign aspects, the Bank of Spain is the supervisory institution for payment systems. Its functions and its internal organisation, are regulated in the 30/1980 Act of 21st June.

The Royal Legislative Decree 1298/1986 of 28th June defines deposit taking institutions as those which (without time limits or operational restrictions other than those affecting credit institutions in general) include among their typical and usual activities the taking of funds from the public in the form of deposits, loans, repo agreements, or similar transactions associated with reimbursable obligations, and the application of such funds to loans, investments or transactions of a similar nature for their own account.

The banking system is regulated by the Banking Laws 1/1946, of 31st December and 2/1962, of 14th April. These were adapted to European Community Legislation by the Royal Legislative Decree 1298/1986, of 28th June.

The Royal Legislative Decree 1144/1988, of 30th September regulates the creation of new banks and the entrance of foreign banks.

Apart from financial intermediaries, there are other suppliers of payment instruments which are not specifically regulated, such as the institutions which market or manage credit cards, and retail firms which issue retailers' cards.

The general anti-trust regulation (Act. 16/1989 of 17th July) applies to the payment industry.

1.2. Financial intermediaries that provide payment services

Commercial banks, savings banks and cooperative and rural banks are the main suppliers of payments services in Spain. Commercial banks and savings banks together maintain 96% of the sight accounts in Spain (49% for commercial banks and 47% for savings banks). These two groups of banks now operate under very similar conditions and they offer very similar payment services.

The degree of concentration is higher in commercial banks than in savings banks. 51% of the total of commercial bank deposits are controlled by five banks, while 51% of the total of savings bank deposits are controlled by eleven savings banks (this is related to the traditional territorial distribution of savings banks).

There are fifty nine foreign banks, thirty three of which are EC banks. The size of these banks is not large: EC banks control 4.6% of the total of commercial bank deposits and non EC banks control 1.7% of same total.

Because the Spanish banking system was heavily regulated until the mid-eighties both with regard to limitation and segmentation of fields of business and to interest rates, the opening of new branches was the key competition factor between banking institutions.

Co-operative and rural banks provide financial and payment services to their members. They are important in rural areas, but their size is small compared to commercial and savings banks.

In Spain, the post office offers payment services such as postal giros and cheques, but it plays a marginal role in the payments industry.

Certain institutions are admitted by the Tax Authorities as "co-operating institutions" for the settlement of certain tax debts.

1.3. The role of the central bank

1.3.1. Issuing banknotes and putting legal tender coins in circulation

The Act of 9th November 1939 states that "banknotes issued by the Issuing Bank are legal tender instruments pursuant to law, with full power to discharge liabilities". The Bank of Spain has the monopoly of banknote issue.

Coins, on the other hand, are manufactured for the account of the State by the Mint ("Fabrica Nacional de Moneda y Timbre") and delivered to the Bank of Spain, which credits to the Treasury the face value of those assigned to the market for circulation.

Budget Acts indicate maximum coin circulation during the relevant period.

The Ministry of Economics and Finance, when deciding on the issue of each denomination of coin, determines the maximum amount which individuals are obliged to accept as a payment instrument; coins are accepted by public cashiers under all circumstances without limitation.

1.3.2. Current accounts for deposit institutions and other financial intermediaries

In performing its role as banker to banks, the Bank of Spain provides for the settlement of payment obligations with or between financial institutions by making available to them two types of accounts: ordinary current accounts and centralised accounts.

The first are available at each of the fifty-two branches and they are operated by conventional means (cheques and transfers), the amounts moved across them being determined by the liquidity requirements of the banks' customers in each location.

The centralised account is regulated by Circular number 5/90 of the Bank of Spain on the Money Market Telephone Service (STMD) (see Section 3.2.1). This type of account was created for making wholesale payments resulting from the activities of the different organised financial markets which settle through the Bank of Spain: the interbank loans market, the public debt market, the stock markets, and the markets for commercial paper as well as those for futures and options. Multilateral settlements from the clearing houses and the National Electronic Clearing System are also made across these accounts (see Sections 3 and 5).

The Bank of Spain opens accounts for financial institutions other than banks, and also for insurance companies when they participate as members in the Government Debt Book-Entry market.

1.3.3. The Treasury Service

The Bank of Spain provides treasury services to the Government free of charge. The amended text of the General Budget Act, approved by Royal Legislative Decree 1091/1988 of 23rd September, sets out the regulations governing the Treasury's current account with the Bank of Spain. The account shall not accrue interest and may show a credit or a debit balance. All the revenues and payments of Government and of Government agencies are centralised in the Bank of Spain. The General Revenue Rules ("Reglamento General de Recaudación") in Royal Decree 1684/1990 of 20th December, make it compulsory for the amounts collected for the account of the Treasury by agencies and institutions to be channelled through the Bank of Spain.

There is a limit to the debit position of the Treasury at the end of each year: by law it cannot exceed the debit position at the end of 1989.

1.3.4. Banking supervision

An authorisation from the Minister of Finance is necessary to open a bank. The decision takes into account the conclusions of a report by the Bank of Spain.

In accordance with the Act 30/1980 of 21st June, the Governing Bodies of the Bank of Spain carry out the role of regulating and inspecting Credit and Savings Institutions registered with the Bank. The main group of suppliers of payment services are, therefore, supervised by the Bank of Spain.

1.4. The role of other private and public sector bodies

Two associations play a predominant role in the development of regulations and the codification of practices relating to the various payment instruments: the High Banking Council and the Spanish Confederation of Savings Banks.

1.4.1. The High Banking Council (CSB)

The CSB was created in 1946 (Article 50, Law on Banking Regulation of 31.XII.1946) as an advisory body to the ministry of Finance on banking matters. It represents all banks operating in Spain, whether domestic or foreign; membership is compulsory. Among its functions, the High Banking Council is required to:

- act as a link between the Ministry of Finance and banks, conveying to the latter the regulations, agreements or recommendations of the Ministry;
- forward to the relevant Ministries the requests, reports or suggestions of private banks concerning general issues;
- codify banking practices on a national or local basis.

In fulfilment of this last function, the High Banking Council issues circulars setting forth the regulations applicable to given aspects of banking transactions, such as clearing of reciprocal liabilities (bills of exchange, commercial paper, transfers), standardisation of information to be reported on current accounts, standardisation of payment instruments, truncation of commercial paper, etc.

Some of these regulations were used as a basis for the creation and development of the National Electronic Clearing System (see Section 3.2.).

1.4.2. The Spanish Confederation of Savings Banks (CECA)

The CECA was created by Royal Order of 21.IX.1928 with the purpose of promoting and facilitating the national and international role of the member savings banks.

Like the High Banking Council, it has a basis in law and it performs very similar functions. It is also required to offer such financial services as savings banks may consider necessary, and to foster and stimulate the creation of the technological infrastructure that will allow them to optimise those services.

Its regulations are binding on member savings banks and are parallel to the circulars issued by the High Banking Council, which acts in concert with the Spanish Confederation of Savings Banks.

SECTION 2: SUMMARY INFORMATION ON PAYMENT MEDIA USED BY NON-BANKS

2.1. Cash payments

In Spain, payment in cash plays a very significant role, as shown by the relatively low number of cashless payments in Spain (23 per inhabitant in 1990) even though salaries are normally paid through transfers to bank accounts. This relative importance of cash can also be measured in relation to GDP (8.4% in 1990).

In recent years, cash in circulation has even shown a growth trend (it represented only 7.4% of GDP in 1984). This can be explained both by the introduction of VAT in Spain in 1986, which stimulated the underground economy, and by the increasing spread of ATMs over the country, which have facilitated cash withdrawals.

After a relatively competitive start, banks have finally decided to co-operate by setting up linkages between their ATM networks.

In Spain, notes circulate in the denominations of ESP 10,000, 5,000, 2,000 and 1,000, and coins in the denominations of ESP 500, 200, 100, 50, 25, 10, 5 and 1.

2.2. Non-cash payments

Transferable deposits include current and sight savings accounts. The paying of interest on these accounts has been completely liberalised. Close substitutes for transferable deposits are, among others, term deposits and "repos" on public debt, which have shown a remarkable growth trend in recent years. In a typical "repo" operation, a customer of a financial institution buys Public Debt from the institution's portfolio, and the institution has the obligation to repurchase it at a later time, at a previously fixed price. The main reason for the development of the "repo" operations is the creation of the Public Debt Book-Entry System in 1987 (see Section 4.2.1), which has increased the liquidity and efficiency of this market.

Direct debits represent 55% of the cashless instruments used in Spain, but, because the average value of these payments is very low, they represent only 3% of the estimated value of cashless payments made in the country. They are followed by cheques (30%), payments by cards (9%) and credit transfers (6%). Cheques are the most important instrument in terms of value.

Consequent upon legal reforms introduced by the new "Ley Cambiaria y del Cheque" (Act 19/1985, dated 18th July), which have granted stronger legal protection to the cheque, together with cost savings on processing as a result of the progressive implementation of electronic clearing systems, a continuing increase in the use of this instrument may be foreseen.

Credit and debit cards have a small market share for the time being, although their use is expected to grow substantially in the coming years. Due to fierce competition among retailers, Spain has a very high number of EFT POS terminals in operation but the number of transactions per machine is still very low (250 on average in 1990).

The use of cards is governed by the general and special conditions of their issue (as long as these do not violate current regulations), as well as by normal banking practice, Business and Civil Law, consumer rights regulations, antitrust rules, the prohibition of unfair competition, and although not binding, the European Commission's recommendation dated 17th November 1988.

Retailers cards are very common in Spain. It is estimated that in department stores, half of the purchases are paid for in this way.

2.3. Recent developments

One area of pending development is that of new types of cards such as:

- pre-paid cards which serve to make electronic payments (road tolls, telephones, service stations etc.);
- the future introduction of "intelligent" cards which carry one or more chips, thus increasing their security and their functions.

However, the most important area of current developments is the integration of ATM networks so that an ATM of a certain institution can accept cards related to current accounts opened in other institutions. (See Section 2.1).

SECTION 3: INTERBANK EXCHANGE AND SETTLEMENT CIRCUITS

3.1. General overview

Few domestic payments are processed through correspondent banking in Spain. Most of them make use of the three interbank payment networks operating in the country.

- The traditional Clearing Houses;
- The National Electronic Clearing System (in Spanish SNCE);
- The Money Market Telephone System (in Spanish STMD), which performs, clears and settles transactions related to the market in interbank loans and to the book entry market in Government Debt. It is also used by the Bank of Spain for monetary policy purposes.

Of the three above mentioned networks, only the STMD is a system specifically for large-value payments.

The following table which refers to the first two systems gives an indication of the rapid development of automation in Spain.

	Number of cleared transactions		Value of cleared transactions	
	1989	1990	1989	1990
Paper	51.9%	43.4%	67.5%	58.5%
Magnetic media	34.0%	34.4%	22.0%	24.1%
Computer links	14.1%	22.2%	10.5%	17.4%
	100.0%	100.0%	100.0%	100.0%

The obvious growth in use of automated systems is especially significant in clearing and settling cheques, which are the most commonly used payment instruments, in terms of value.

In Spain, there are now fifty-one *clearing houses* in operation, one for each provincial capital. Financial entities operating in each province are entitled to belong to their respective clearing house as direct or indirect members. The Bank of Spain is a member of and presides over all the clearing houses. The clearing houses clear paper cheques, direct debits, and bills of exchange in the traditional way, as well as the countervalue in pesetas of transactions in the foreign exchange market. Settlement of all transactions is entered in the respective institutions' accounts with the Bank of Spain. In the Madrid, Barcelona and Bilbao Clearing Houses, transactions are settled with value date on the day following that of the exchange of documents. This exchange takes place on the day of receipt by the respective institutions. The operating cycle for the three above mentioned Clearing Houses, which account for more than 90% of the total amounts exchanged, is therefore two days. For other clearing houses that cycle is three days.

In the course of the last decade, as an intermediate step prior to introducing electronic exchange of documents, procedures were introduced which facilitated the exchange of payment instructions – e.g. cheque and bill truncation. Such transactions are carried out through the Interbank Cooperation Centre (in Spanish CCI) and are settled through the Madrid Clearing House. This circuit is losing its functions as those transactions are more and more processed through SNCE.

The main qualitative advance in the automation of the exchange of payment orders from customers has been the creation of the National Electronic Clearing System (SNCE) in 1987. This system, to which the main banks and savings banks belong, is designed to clear cheques, credit transfers, bills of exchange, direct debits and credit and debit card transactions, all by means of electronic systems, through computer interfaces. (See Section 3.2.2.).

The Money Market Telephone Service (STMD) is a system for making, clearing and settling payments, which is managed by the Bank of Spain. It was created in 1976, in order to facilitate and support the interbank loans market. (See Section 3.2.1.).

The activity of the STMD significantly increased in 1987 when the Bank of Spain introduced the Book-Entry System for Government Debt Securities. In this market, dealing, clearing and settlement are carried out through the STMD. (See Section 4.2.).

Likewise, the STMD settles the daily intervention by the Bank of Spain in the markets (whether open market transactions or loans) and makes interbank transfers in response to orders from the banks which are members of the system.

3.2. Structure, operation and administration of major large-value systems

3.2.1. The Money Market Telephone Service (STMD)

(a) Definition and regulation

The Money Market Telephone Service (STMD) is a multilateral netting scheme for large-value payments to which a large number of financial institutions have access. It provides a clearing and settlement mechanism for interbank loans, government debt transactions and, to a lesser extent, for large-value interbank credit transfers. With STMD, the Bank of Spain assumes direct responsibility for settlement of the greater part of the country's financial markets. The regulation of the STMD was updated by Bank of Spain's circular 5/1990, of 28th March.

(b) Participants in the system

Participants in the system are those institutions which, in the Bank of Spain's judgment, comply with the requirements for solvency and management capacity and which commit themselves to complying with STMD operating regulations.

Provided they comply with such requirements, the following institutions may become direct participants:

- institutions which form part of the interbank loans market; private banks, savings banks, the Postal Savings Bank, credit cooperatives and government credit institutions, money market mediation companies, mortgage credit companies, financing institutions and financial leasing companies;
- institutions which are members of the Book Entry market in Government Debt.

Likewise, other groups of institutions may be admitted pursuant to specific rules. The total number of member institutions was 301 at the end of 1989. Foreign banks established in Spain participate in this system.

(c) Types of transactions handled

The STMD executes, clears and settles transactions carried out in the interbank money market and debt book entry markets, as well as interbank transfer transactions.

Interbank money market transactions consist of interbank loans which are contracted over the phone. Each counterparty sends a confirmation to the Bank of Spain which checks that they match. The corresponding credit transfer is then presented in STMD. When the loan matures, another credit transfer, from the borrower to the lender is automatically created.

(d) Operation of the system and settlement procedures

Communications are made by a telefax message followed by confirmation by accredited telex. In early 1992, the participants in the system have started to send the messages through computer links with the Bank of Spain.

Communication time schedules are as follows:

- *First session*: 3 p.m. to 5 p.m. (value date on the following day or subsequent days);
- *Second session*: 8 a.m. to 1 p.m. (value date on the same day or subsequent days).

The timing for telex confirmation is from 8 a.m. to 1.30 p.m.

The Bank of Spain supplies the duly accredited individuals with an operator code (which must be used by such individuals solely for these purposes), plus an operational code for the institutions. Both are confidential.

Orders are processed by the Bank of Spain after confirmation and after it has ensured that there are no discrepancies between the two communications referring to the same transaction. The settlement of STMD transactions is carried out in a specific current account, the centralised account.

It is possible to make transfers from the centralised account of an institution to a normal current account with any branch office of the Bank of Spain or to the centralised account of another institution.

At the close of business, each participating institution must have a sufficient balance available in the centralised account to cover its net position resulting from the settlement process. All entries are, therefore, provisional until close of business.

(e) Credit and liquidity risks and their management

No transactions settled by the Bank of Spain are final until the existence of a sufficient balance in the relevant accounts is verified at the close of business. Should the balance be insufficient, the participant concerned is invited to look for a lender in the interbank market and the STMD may, for the purpose of covering the daily clearing of transactions for which orders have been received, authorise a late transfer of funds from any participant in the system, subject to a penalty.

If, in spite of the above, the institution does not have sufficient funds or securities, and settlement is therefore impossible, the STMD must leave all or some orders unsettled. In selecting transactions not to settle, the STMD may exercise discretion, with a view to minimising settlement disruption and the harm done to third party institutions.

The Bank of Spain is also entitled, on a fully discretionary basis, to provide liquidity to participants which experience difficulties in funding their accounts. It does so very rarely, only when the unwinding of transactions might involve systemic risk.

In these circumstances, the Executive Board of the Bank of Spain is entitled to request guarantees.

(f) Pricing policies

Pursuant to the STMD regulations, the Bank of Spain charges participant institutions relevant monthly fees. The rates are approved by the Executive Board of the Bank of Spain and cover all the costs which are directly attributable to the Service: staff, communications, computer time, etc.

Currently, rates are made up of a fixed monthly amount of ESP 150,000 and a variable fee per transaction, which for interbank transfers and money market transactions is currently ESP 600 for each counterparty in the contract.

There is also a system of penalty fees for transactions carried out other than in the ordinary sessions.

3.2.2. The National Electronic Clearing System (SNCE)

(a) Definition and regulation

The SNCE is a clearing system for payment orders, based on the use of electronic systems.

It was created in 1987 by Royal Decree 1369/1987, dated 18th September, and Ministerial Order of 29th February 1988.

The Bank of Spain acted as co-ordinator in the creation of the SNCE. It also acts as manager and supervisor of the system and publishes the relevant operating rules.

(b) Participants in the system

The following institutions are entitled to become participants in the SNCE: Bank of Spain, banks, savings banks and credit co-operatives, the Postal Savings Bank and official credit institutions, provided they comply with the requirements (membership by means of a contract with the Bank of Spain, compliance with the Rules, compliance with solvency requirements, adequate technical capacity, scale of activity, discipline and financial support for the system).

There are two means of participation:

- as a direct participant i.e. participating in the exchange stage of the clearing on the institution's own behalf and, when doing so, representing one or more indirect participants, and subsequently taking part in the settlement stage;
- as an indirect participant represented by a direct participant – (requirements for indirect participation are less onerous and an indirect participant does not take part in the settlement stage of the clearing).

At the end of 1989 there were 25 direct participants and 106 indirect participants. There are no restrictions on participation in the SNCE by non resident banks. Recently, 14 foreign banks established in Spain have for the first time been admitted as indirect participants.

(c) Types of transactions handled

Clearing in the SNCE is currently limited to current account cheques and promissory notes. The number and value of the transactions is shown in Table E of the Statistical Annex. Credit transfers, direct debits and card payments are to be included at a future date.

(d) Operation of the system and settlement procedures

Clearing of cheques started in February, 1989. Exchange is carried out through links between the computers of the SNCE member institutions, which communicate the data represented by the cheques, clearing their amounts. Thus, a net balance between each pair of institutions is obtained.

These balances are reported to the Bank of Spain. The Bank of Spain obtains a net net balance (credit or debit balance) by consolidating the net bilateral balances, for each institution. These are then settled over the relevant centralised accounts.

The schedule for communicating transactions between institutions is from 9 p.m. to 11.30 p.m., with value date on the following day.

Settlement over the centralised accounts is performed at 11.30 a.m. although the settlement is not final until the close of business, in the afternoon.

If any discrepancies are found between the bilateral net balance reported by any two institutions, the Bank of Spain arbitrates. As discrepancies must be removed in a short period of time, so as to supply information to institutions on their real net position, the following criteria for resolving them are applied:

- For discrepancies representing a sum equal to or below ESP 10 million, the figure reported by the debtor institutions shall be settled;
- If the discrepancy is above ESP 10 million, the institutions involved must resolve their differences during a half hour reconciliation period, reporting back to the Bank of Spain the correct amounts;
- If the reconciliation period has elapsed and the settlement amount remains unreconciled, the net amount of the bilateral position in the first report received from the institution having the net debtor position shall be settled;
- If the above rule cannot be applied, the bilateral net position is removed from the settlement process.

In case of any incident of a technical nature which prevents communication within the set timetables, the Bank of Spain is free to extend the timetable, or to open a special session, or, as a last resort, to permit alternative procedures to solve the problems encountered.

(e) Credit and liquidity risks and their management

This is essentially similar to the STMD, entries being provisional up to the close of business.

(f) Pricing policies

It is intended that each institution participating in the system will pay a "contribution to expenses" fee according to its use of the system. Such a fee is not yet charged. Each institution is charged ESP 2,500 for each entry made in the centralised account, which represents only the net-net amount for each institution.

3.3. Main projects and policies being implemented

For the SNCE the main lines of development concentrate on extending the use of computer links for the exchange of payment media other than cheques. The next subsystem to be commissioned will be one for transfers which are currently cleared using magnetic media. Later on, other payment instruments will gradually be included in the SNCE.

As for the STMD, the focus of attention in the near future will be enhancement of automation, so that transmission of orders in the main markets is made in real time through computer links. This would allow real time monitoring of the institutions' positions and would represent a significant advance towards reducing the risks to which the system is presently subject as intraday overdrafts are generated.

An intermediate stage in this process began in early 1992 with the installation of Bank of Spain computer terminals in the main offices of the relevant institutions; this will permit those institutions to ascertain their current positions throughout the day.

Another plan being considered is the introduction of incentives to boost the volume of orders transmitted in the first business hours of the morning as well as the volume of late orders with value date on the following day; most settlements would thus be entered as soon as possible in order to reduce the degree of uncertainty associated with the close of the daily settlement operations in the financial markets as well as reducing the overall risks of the system.

The aim is to gradually reduce the risks by means of real-time monitoring of transactions and by setting limits to net debtor positions assumed throughout the day by each institution, either by specific quantification of such limits or by compulsory collateral requirements.

SECTION 4: SPECIAL USE OF INTERBANK TRANSFER SYSTEMS FOR INTERNATIONAL AND DOMESTIC FINANCIAL TRANSACTIONS

4.1. Exchange and settlement systems for international transactions

Early in 1992 the remaining foreign exchange controls which affected international payments were removed.

4.1.1. Retail operations

The retail category includes the following operations:

- In the case of credit cards, payments made in other countries are centralised through the card company (for instance, VISA), which notifies each card issuer (commercial bank, savings bank, etc.) of the amounts to be debited to its customers;
- The treatment of foreign currency cheques generally depends on bilateral agreements between the collecting bank and its correspondents, as regards means of remittance and settlement of balances through mutual accounts, interest due, etc.;
- Eurocheques, most of which are denominated in pesetas, are paid by the institution which represents this means of payment.

4.1.2. Large-value international payments

Large-value international payments total sizeable amounts and include various types of transactions.

(a) Clearing of international transfers in pesetas is carried out at the Madrid Clearing House among its member institutions.

Clearing takes place in two sessions held every day from Monday to Friday. In the first session, member institutions notify the clearing house by fax of the amounts they have to credit to the other members. This session starts at 10 a.m. and lasts 30 minutes. It allows the clearing house to determine the net net positions for multilateral settlement between the various members.

The second session starts at 11.30 a.m. and also lasts 30 minutes. In this session, which takes place at the clearing house, members exchange the documents which have been received from their correspondents through the S.W.I.F.T. network as evidence of the amounts notified. This session is in process of being replaced by the direct exchange of documents between members through S.W.I.F.T. messages. This latter exchange must take place before 11 a.m.

The net net amount resulting from multilateral clearing is settled with value date on the same day over the centralised accounts held by member institutions with the Bank of Spain. A list of settlement amounts is sent by the clearing house to the Bank of Spain.

(b) The peseta leg of foreign exchange purchases and sales entered into by credit institutions by order of their customers are cleared at the Madrid Clearing House. At the session of the clearing house closing at 23.00 on the day before settlement, the seller of the foreign currency presents a debit

order in pesetas to the paying counterparty. If several currencies have been traded, the debit order covers all of them.

The resulting net net amounts are integrated with the other transactions cleared at the clearing house, the final result being settled over the centralised accounts held by member institutions with the Bank of Spain.

A project is being studied to establish a clearing system for payment orders in the most traded foreign currencies. This system will be used to clear deposit transactions, as well as any other payment instrument in foreign currencies which is currently settled through correspondent banks.

The system would be operated in the following way. Participants would exchange payment orders in the various foreign currencies via S.W.I.F.T. Each institution would notify the clearing house of the payments to be made to the other institutions, a separate clearing being conducted for each foreign currency. The clearing house would perform the multilateral clearing, thus obtaining the net net debit or credit positions of each participant for each foreign currency cleared.

The resulting amounts would be notified by the clearing house to the Bank of Spain, which would settle them. This settlement process is still being studied and two alternatives are envisaged. The first one would consist of effecting settlement on current accounts held with the Bank of Spain by each institution in each foreign currency. The second one would consist of effecting settlement through the correspondents with whom the Bank of Spain usually operates. From the outset, the first alternative was considered very costly by the Bank of Spain. The second alternative is currently under study.

Another issue under discussion is the guarantees to be provided by participants to offset the risks derived from settlement which the Bank of Spain would assume as settlement bank.

The statistics available on transactions carried out through the clearing house are as follows:

	INTERNATIONAL TRANSFERS		PURCHASES AND SALES OF FOREIGN CURRENCIES	
	Number of transactions	Values (Billion ESP)	Number of transactions	Values (Billion ESP)
1989	1,035,429	185,656	162,834	47,048
1990	1,122,479	244,252	168,858	53,012

4.2. Exchange and settlement systems for securities transactions

4.2.1. Government securities

The above-mentioned Book-Entry System for Government Debt was created by the Bank of Spain in 1987. Currently, more than 99% of the ESP 16,000 billion of negotiable Government debt outstanding in Spain is evidenced by book entries. Moreover, a series of steps have been taken to organise the market and to guarantee its efficient operation, ensuring an adequate level of liquidity and transparency. The market is organised in three tiers. The first consists of market makers selected from among the most active of the institutions which channel the Bank of Spain's interventions in the market and which undertake to provide market liquidity through the continuous quotation of supply and demand prices. This tier is based on the participation on screen of brokers who conceal the identity of the parties to each transaction. The second market tier consists of financial institutions which are members of the market. A selected number of these institutions are authorised to hold book-entry debt on their own account and on that of their customers. The rest of them may only operate on their own account. The third tier consists of the ultimate investors, most of whom are individuals or non-financial firms.

In fact, the development of the Government debt market in Spain has been founded on the book-entry system, which made possible a reduction in operating costs and an increase in the transparency and efficiency of the secondary market; at the same time it increased market security by providing a quick and safe clearing and settlement mechanism. For instance, the Central Book-Entry Office guarantees that securities purchased in a repo transaction cannot be sold in another repo

transaction with a longer maturity period. The Central Book-Entry Office also maintains the principle of payment upon delivery in all the transactions entered into. In this market, more than 90% of the transactions are carried out with value date on the same day.

Interbank transactions in book-entry Government debt are carried out through the Money Market Telephone System described in Section 3.

These developments have been completed with the recent creation of the futures and options on Government Debt markets, which are fully operative at this moment.

4.2.2. Private sector securities

Private securities in Spain are still evidenced by paper. Recently, the *Association of Financial Asset Intermediaries* (in Spanish AIAF) has been created; the purpose of this association (consisting of 115 institutions, including the major banks, savings banks and securities companies) is to bring into operation a system similar to the Central Government Debt Book-Entry Office for the trading of private sector fixed income securities. The market is divided in two different segments: one for commercial paper, mortgage bonds and other domestic bonds, and the other for Matador bonds, which are bonds issued by foreign institutions in the Spanish market. The association's activities encompass organising the market and establishing a deposit, trading, clearing and settlement system such that settlement is effected on the day following trade date, based on the principle of delivery against payment. The Espaclear S.A. company is in charge of the association's clearing and settlement services; settlements are entered in accounts at the Bank of Spain.

With regard to the settlement systems of *stock exchanges*, the extensive reform experienced by the Spanish stock market after the Securities Market Law was issued in 1988 includes an in-depth reorganisation of settlement processes, so as to increase flexibility, reduce risks and guarantee the principle of financial neutrality¹. A settlement company has been created for this purpose and will centralise all transactions. Moreover, the market will move towards a book-entry system applicable to all the securities traded.

SECTION 5: THE ROLE OF THE CENTRAL BANK IN INTERBANK SETTLEMENT SYSTEMS

5.1. General responsibilities

Article 3 of the 30/1980 Act dated 21st June on the Governing Bodies of the Bank of Spain lists as functions of the Bank, inter alia, the following:

Firstly, as banker to banks, it has the role of lender of last resort and of supervisor of the clearing and settlement of reciprocal liabilities between credit institutions. Being the authority vested with responsibility for the national payment system, the Bank of Spain coordinates and supervises the clearing in the banks' networks of their transactions for individuals.

Secondly, the Bank of Spain is responsible for formulating monetary policy both in its domestic and foreign aspects; hence, the Bank's responsibility and its close control and supervision must extend to the efficiency, security and transparency of payment systems in general and to the settlement and clearing systems in particular.

A representative of the Bank of Spain chairs an advisory Committee of the National Electronic Clearing System, which is made up of eight representatives of credit institutions. The functions of this Committee are:

- to prepare and modify the operating regulations for the National System, which must subsequently be submitted to the Bank of Spain for approval;
- to co-ordinate, supervise and promote the development and use of data processing systems;
- to submit to the Bank of Spain proposals for the resolution of cases in which a member institution of the SNCE considers that its freedom of access to the system has been impeded;
- to prepare official statistics on electronic clearing in Spain.

The Bank of Spain also presides over all the clearing Houses.

¹ In this respect, a reduction and standardisation of the settlement period has been envisaged in line with the proposals of the "Group of 30". The ultimate target would be to perform settlement in 5 days, as a maximum.

5.2. Provision of settlement facilities

As mentioned in Section 1.3., credit institutions may have two types of account with the Bank of Spain: ordinary current accounts which may be opened at any of the fifty-two branch offices of the Bank, and the centralised account.

Transactions over the former – the ordinary accounts – are entered gross, movements being related to the liquidity requirements of the credit institutions’ customers in each location. No loan facilities are granted by the Bank of Spain on these accounts, nor are daylight overdrafts permitted.

In the case of the centralised account, entries are made in respect of net transactions. The centralised account was created in order to effect the settlement of large-value payments derived from the operation of the various organised financial markets. All movements are provisional up to the close of business at 16.00 when all institutions must have sufficient balances in their accounts.

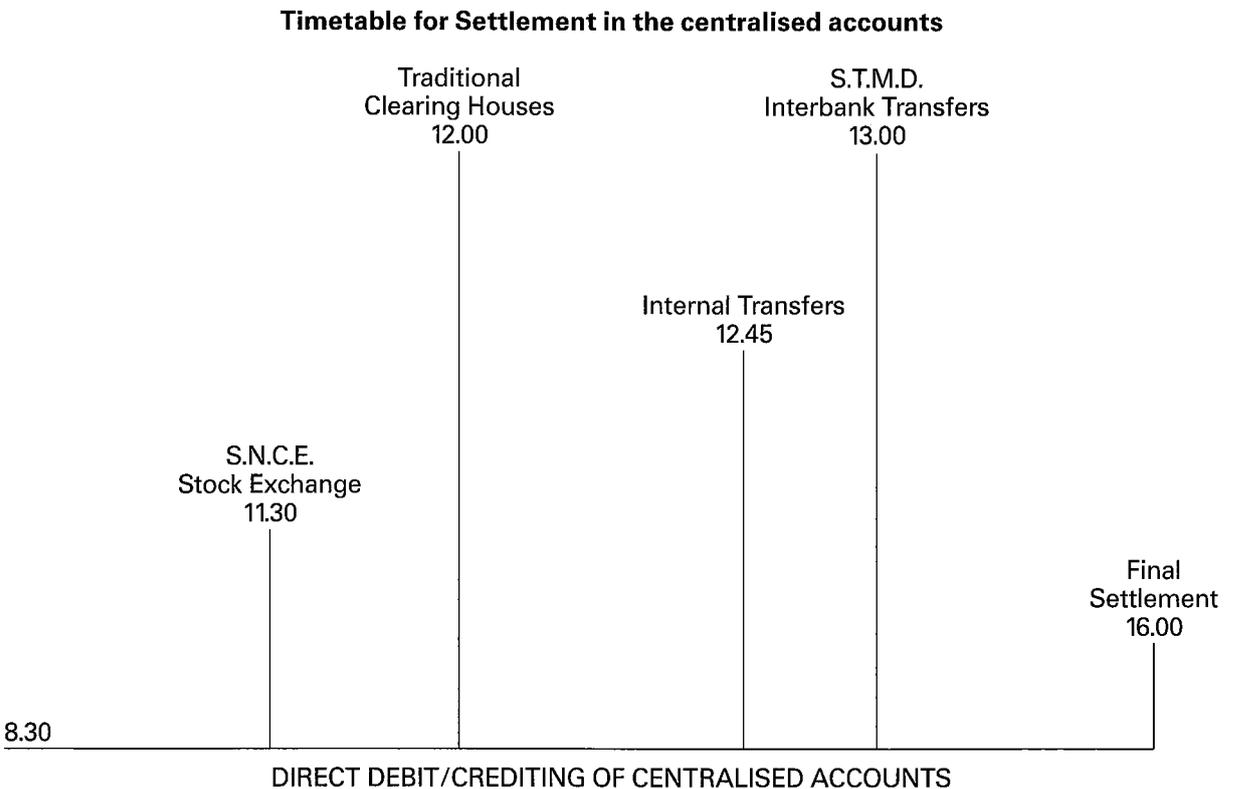
The method of operation of the centralised accounts implies that the Bank of Spain grants financial institutions unlimited daylight overdrafts. However, it must be said that debit balances at close of business are very rare. When a problem does occur, it is solved with the necessary discretion, so that multilateral settlements derived, for instance, from Clearing Houses or Stock Exchanges, are not affected. In 1989, eight transactions were cancelled from a total 300,000 entries in the centralised account; in 1990 and from January up to August 1991 five transactions, out of a total of 369,600 entries, were cancelled. The penalties applied are a disciplinary factor which up to now has worked in a satisfactory way.

As regards the settlement of securities, the Bank of Spain acts as manager and supervisor of the Book Entry System for Government Debt, as mentioned in Section 4.2. Since this system was created, transactions in Government Debt have substantially increased and this market has become the largest financial market in the country.

All Book-Entry transactions in Government debt are entered in the securities account opened by member institutions with the Book-Entry Centre of the Bank of Spain.

Cash movements resulting from multilateral clearing in other securities markets – Stock Exchange, commercial paper market and Futures and Options market – are likewise entered in the centralised accounts.

The following chart shows the timetable for settlement over the centralised accounts.



5.3. Monetary policy and payment systems

The implementation of monetary policy in Spain is based on reserve requirements. Financial institutions are required to maintain reserves in their accounts with the Bank of Spain. Currently, these reserves amount to 5% of their deposits and other liabilities, calculated on the basis of a ten-day average. During that ten-day period, financial institutions are allowed to use these compulsory reserves to effect payments. As a result, liquidity pressures are shifted to the last day of each ten-day period.

The Bank of Spain regulates the overall liquidity level by injecting or draining funds through very short-term instruments, specifically repos on Government Debt and on Bank of Spain Certificates. These transactions are settled through the Money Market Telephone Service.

An auction of repos on Bank of Spain Certificates for a ten-day period takes place at the beginning of each ten-day period for amounts ranging from ESP 1,000 to 1,500 billion. These auctions are supplemented with repos, generally overnight, for variable amounts according to the situation of the money markets.

Implementation of monetary policy may be a factor that influences the development of payment systems. In Spain, for instance, the high level of reserve requirements, imposed on financial institutions until 1990, has promoted the development of the inter-bank deposits market and, together with it, the main clearing and settlement system for large payments. In fact, the reduction of reserve requirements to 5% in May 1990 was a factor that increased concern about settlement risks in the large-value payment systems.

5.4. Main projects and policies being implemented

Future projects to be implemented by the Bank of Spain have been described in Section 3.3.

Other plans relevant to international transactions include the creation of an organisation for clearing foreign currency transactions carried out between institutions resident in Spain. Settlement in this clearing house would be entrusted to the Bank of Spain through the correspondents with which the Bank regularly operates (see Section 4.1.).

Conclusion

Co-operation among financial institutions has proved to be fundamental to the development of the Spanish Payment System. The extension of the networks of automatic teller machines and point-of-sale terminals, as well as the creation of an advanced clearing system for payment instruments such as the National Electronic Clearing System are largely due to this co-operation.

The Bank of Spain has played an important role in the progressive automation of the System, both as co-ordinator and, in some cases, such as the Government Debt Book-Entry System and the Money Market Telephone Service, as main promoter and manager.

Projects for the near future aim at achieving further progress in process automation through the extension, for instance, of the National Electronic Clearing System to all payment instruments.

Alongside this technical progress, the main issue to be considered is the implications for the payment system of increasing internationalisation of the economy, both in retail transactions and large-value interbank payments, within the framework of European Economic and Monetary Union.

Basic Statistical Data

(1990)

Population: 38,960,000
 Gross Domestic Product: ESP 46,762,7 billion (1) (ECU 361.6 billion)
 GDP per capita: ESP 1,200,000 (ECU 9,281)
 Exchange rate: 1 ECU = ESP 129.32

(1) Source: Eurostat

Table A.: Monetary aggregates

(average of end of month)

	billions ESP		Per capita (ESP)
	1989	1990	1990
Notes and coins	3,417	3,934	101,000
Transferable deposits in local currency	13,969	16,035	412,000
Others	0	0	0
Total money supply (M1)	17,386	19,969	513,000

Notes:

Table B.: Credit Institutions offering payment services (end of 1990)

Categories of Institutions	Number of Institutions	Number of branches	Number of accounts (thousands)	Share of market (%)	Value of accounts (ESP billions)	Share of market (%)	Value of accounts (ESP billions)	Share of market (%)	Average Value of accounts (ESP)
Central bank	1	52							
Commercial banks	154	16,835	25,330	36.1	9,303	52.6	367,000		
Savings banks	65	15,476	40,840	58.2	7,685	43.4	188,000		
Co-operative & rural banks	107	2,919	3,950	5.6	709	4.0	179,000		
TOTAL	327	35,282	70,120	100%	17,697	100%	252,000		

Table C.: Cash dispensers, ATMs and EFT/POS terminals

	Cash dispensers and ATMs						EFT/POS			
	Number of			Value of transactions (ESP billions)			Number of		Value of transactions (ESP billions)	
	Networks	Machines	Transactions (millions)	Networks	Machines	Transactions (millions)	Networks	Machines	Transactions (millions)	Value of transactions (ESP billions)
end 1989	3	11,260	279	3	217,000	71	3	217,000	71	701
end 1990	3	14,000	355	3	311,900	79	3	311,900	79	870
increase 89/90		24%	27%		44%	11%				24%

Table D.: Number of payment cards (end of 1990)

	Number of cards (thousands)	Number of cards per 1.000 inhabitants
Cards with a cash function	23,600	606
Cards with a debit/credit function	23,600	606
Cards with a cheque guarantee function	0	0
Retailers Cards	n/a	n/a

Note: A card which has several functions appears in several lines and therefore the figures in this table cannot be added.

Table E.: Payments exchanged through the official payment systems

Name	Number of transfers (millions)		Value (billions ESP)	
	1989	1990	1989	1990
Clearing Houses	213,400	197,800	62,500	60,300
– Cheques	88,600	56,100	58,500	56,000
– Paper-based credit transfers	1,500	–	400	
– Direct debits	123,300	141,700	3,600	4,300
SNCE 1	197,400	257,600	30,035	42,760
a) Computer Link				
– Cheques	58,000	101,000	9,717	17,975
b) Magnetic tape				
– Cheques	68,500	52,900	12,800	11,800
– Credit Transfers	34,000	54,000	7,200	12,300
– Direct debits	28,700	35,100	300	650
– Petrol Cheques	8,200	14,600	18	35
STMD	440	553	671,000	907,000
– Interbank loans market	216	224	478,000	535,000
– Book-entry debt market	208	310	179,000	357,000
– Interbank transfers	16	19	14,000	15,000

1. As a rule, the SNCE should involve only transactions cleared through computer links. However, an intermediate step in the development of electronic means has been the exchange of magnetic tapes.

Table F: Relative importance of cashless payment instruments in the payment system

Instruments	Number of transactions (millions)		Value of transactions (billions)	Value of transactions (billions)		Percentage of total volume	Number of transactions per capita	Average value per transaction
	1989	1990		1989	1990			
Cheques issued	263	270	90,035	95,810	29.7	6.9	355,000	
Payments by cards	71	79	701	870	8.7	2.0	11,000	
Paper-based credit transfers:								
customers initiated	1.5	0	400	0	0	0	0	
interbank*	1.5	0	400	0	0	0	0	
Paperless credit transfers:								
customers initiated	37.2	58.3	350,176	474,029	6.4	1.5	8,131,000	
interbank*	37.0	58.0	7,800	13,300	6.4	1.5	229,000	
Direct debits	0.2	0.3	342,376	460,729	0	0	1,536,000	
TOTAL	452.0	501.0	13,900	16,950	55.2	12.9	33,832	
	824.7	908.3	455,212	587,659	100%	23.3	647,000	

* or large-value

6. France

FRANCE

Introduction

Two main features distinguish the French payment system. The first is its homogeneous legal framework, provided especially by the Banking Law of 24th January 1984, which gives credit institutions the exclusive right to issue and administer payment media. The second is the major role played by cheques within a highly diversified range of cashless payment media.

The administration of payment media has become an industry in its own right, notably in terms of the scale of the investments being made to modernise the exchange and settlement systems. The administration of more than 9 billion cashless payments a year calls for wholesale processing and represents about 35% of the banks' activities and overhead expenses.

This activity is in the throes of far-reaching change: it grew by 10% annually during the most recent years, five times more than the GDP. Over the past ten years, considerable efforts have been made to reduce the cost of bank intermediation. Prominent among these have been measures to promote the automation of payment media, which now accounts for 49% of cashless payments, and the rationalisation of interbank exchange circuits.

Investment in modernisation of exchange circuits over the past decade has lowered processing costs in constant franc terms. Today, automation-related productivity gains have, for the most part, been achieved in respect of all payment instruments except cheques, 95% of the latter continue to be exchanged physically. So, the last main project to be undertaken in order to progress the modernisation of the French payment system is the dematerialisation of interbank cheque exchanges.

Finally, in keeping with the recommendations of the report of the Committee on Interbank Netting Schemes on minimum standards for payment systems, the Banque de France has embarked on consultations with the banking industry to implement a risk-prevention programme for interbank settlements.

SECTION 1: THE INSTITUTIONAL ASPECTS

1.1. General legal aspects

Banking activities and the conditions in which they are carried out in France are governed by the Banking Law of 24th January 1984.

Only credit institutions may conduct banking operations, including the issue and administration of payment instruments as a regular element of their business.

A handful of institutions not included within the scope of the Banking Law (namely the Treasury, the Post Office, the "Caisse des Dépôts et Consignations" (deposit and consignment office) and the Banque de France), may also conduct banking operations and consequently provide payment services.

1.1.1. Representative bodies

Credit institutions are collectively represented vis-à-vis the public authorities through a two-tier system:

– firstly, institutions which are not members of banking networks (see Section 1.2.1. (b)) subject to special legal status must belong to a professional association acting in the general interest such as the "Association Française des Banques" (French Bankers' Association) for banks, or the "Association Française des Sociétés Financières" (French Association of Finance Companies) for certain finance companies, for example. In the case of banking networks, this task is performed by their central body;

– secondly, the central bodies of banking networks and professional associations mentioned above are affiliated to the "Association Française des Etablissements de Crédit" (AFEC – French Association of Credit Institutions), which represents all credit institutions, provides information to its

members and the public, studies all issues of common interest and prepares relevant recommendations with a view, where appropriate, to promoting co-operation between networks. It may also devise and administer services of common interest.

1.1.2. The "Conseil National du Cr dit" (CNC: National Credit Council)

The CNC is chaired by the Minister of the Economy, Finance and Budget, while its vice-chairman is the Governor of the Banque de France. The CNC performs a consultative role and serves as a forum for discussion of broad monetary and credit policy. It also studies the conditions in which the banking and financial system operates.

This body serves as a forum for very broad consultation between the representatives of all parties involved in the economic and financial life of the country. As regards payment instruments, it has studied the new electronic payment instruments, focusing in particular on the legal and international aspects of payment cards.¹

1.1.3. Regulatory committees

There are three of these:

(a) "Comit  de la R glementation Bancaire" (Banking Regulations Committee) lays down, in particular, general regulations applicable to credit institutions (on credit policy), security standards to be complied with, rates and terms for financial operations, and regulations governing the setting-up of networks;

(b) "Comit  des  tablissements de cr dit" (Committee of Credit Institutions) is primarily responsible for taking all decisions concerning individual credit institutions, such as granting a licence or giving specific authorisations or exemptions.

(c) "Commission Bancaire" (Banking Commission) is responsible for supervising credit institutions. It is chaired by the Governor of the Banque de France and its Secretariat is staffed by Banque de France personnel. The Banking Commission has a mandate to oversee credit institutions' compliance with regulations governing their industry, to examine their operating conditions and ensure the quality of their financial structure, and to enforce compliance with the rules of professional conduct. The Banque de France is responsible for organising and conducting on-the-spot inspections of credit institutions on behalf of the Commission.

1.2. Financial intermediaries that provide payment services

1.2.1. credit institutions

According to the 1984 Banking Law, these belong in the following broad categories:

(a) Banks or commercial banks

These are all-purpose institutions with full authorisation to engage in a very broad range of activities. In particular, they perform all types of banking operations – notably taking all types of deposits and carrying out related operations such as foreign exchange transactions, and marketing securities and financial products.

Among the 231 banks under French majority control², three stand out in terms of their size, namely the "Banque Nationale de Paris" (BNP), "Cr dit Lyonnais" and "Soci t  G n rale". These three alone operate more than half of the full-time branches of all commercial banks and take more than 50%

¹ This work has given rise to several reports, including "Aspects Europ enes et internationaux des cartes de paiement" (European and international aspects of payment cards) (March 1988) and "Nouveaux travaux sur les cartes de paiement" (Further studies on payment cards) (October 1990).

² These are banks established in metropolitan France and Monaco – 225 have their registered office in France and are incorporated under French law, six have their head office in the Principality of Monaco and operate under the Monegasque Law. Eighteen banks are established in the French Overseas Departments and Territories and are not included in the statistics referred to in this study.

of the funds collected by them. There have been nineteen state-owned banks since the end of 1987³, including two of the three major banks, namely BNP and Crédit Lyonnais.

Foreign banks have a strong presence in France, with 172 institutions under foreign control⁴, i.e. more than 42% of all banks established in France. 40% of these foreign banks (sixty-nine institutions) have their home base in other member countries.

(b) **A series of structured networks of banks**, comprising the mutual banks (“Banques Populaires”, “Crédit Agricole”, “Crédit Mutuel”), co-operatives, conventional savings banks (as opposed to the “Caisse Nationale d’Epargne” (National Savings Bank), which is run by the Post Office), and the municipal credit banks, which are also authorised to receive all types of deposits but whose banking activities are limited in certain respects by the legislation or regulations governing them.

These network banks do not usually compete with the others in the same network because each of them operates within an exclusive territorial area. At the national level, central bodies covered by the Banking Law of 24th January 1984, are responsible for organising the networks and providing members with administrative, technical and financial assistance. They also have a supervisory role.

(c) **Finance companies.** Except where specifically exempted, these are not allowed to take deposits from the public for less than two years and are further restricted in their activities in accordance with their basic status. There are 1,015 such institutions. Their chief business is either lending or securities trading operations.

(d) **Specialised financial institutions** are entrusted by the state with a permanent public interest mission and, except incidentally, may not engage in banking operations other than those pertaining to that mission.

1.2.2. Other institutions

A certain number of institutions or bodies administer accounts and carry out banking operations although they are not covered by the Banking Law. Among these are the Post Office and “Trésor Public” (Treasury).

(a) Post Office

The Post Office’s financial services play a significant role in the French financial system, with 8.9 million sight accounts (most of them held on the books of the “Centres de Chèques Postaux” – Postal Cheque Centres) and 21 million time accounts (managed by the “Caisse Nationale d’Epargne” – National Savings Bank).

(b) Trésor Public (Treasury)

The Treasury’s receiving and paying officers manage bank accounts for customers (764,000 sight accounts) and carry out a certain number of banking operations.

1.3. The role of the central bank

In addition to its general supervisory role (see Section 5), the Banque de France is involved in the field of payment instruments by virtue of the legal responsibilities vested in it by the 1973 Law, for issuing bank-notes, for keeping the accounts of credit institutions and for administering the interbank payment systems.

³ Under the Privatisation Law of 6th August, 1986, nineteen of the thirty-eight banks previously belonging to the public sector were privatised.

⁴ Six of these are established in Monaco and incorporated under Monegasque Law.

1.3.1. Cash payments

The Banque de France alone is empowered to issue bank-notes which are accepted as legal tender in metropolitan France⁵, and it circulates coins on behalf of the Treasury.

The Banque de France itself designs and prints bank-notes, replaces worn or damaged notes and detects forgeries. Through its 214 branches and sub-offices, it circulates bank-notes and coins, and ensures that the needs of the public are met in both quantitative and qualitative terms.

The central bank is currently modernising the manufacture of the different bank-notes in order to improve their quality and prevent forgery, and the series of notes in circulation is expected to be renewed entirely in the coming years.

1.3.2. Administration of accounts

Under its governing statutes, the Banque de France administers the account of, and is exclusive banker to, the Treasury and accordingly has responsibility for all Treasury payments and for the collection of receivables.

One or more current accounts are opened in its books in the names of credit institutions. In particular, these receive entries relating to the interbank funds transfer systems, for which the Banque de France is in all cases the settlement agent and in most cases also the clearing agent.

It may also open accounts in the name of brokerage firms or other bodies, its statutes allowing it broad discretion in this area.

It administers, albeit not exclusively, accounts opened in the name of certain public corporations such as "Electricité de France" and "Gaz de France" and the "S.N.C.F." (French Railways), as well as a small number of accounts opened in the names of a few private and commercial customers.

1.3.3. Administration of interbank exchange systems

The Banque de France manages all 102 provincial clearing houses, the computer clearing centres, the SIT accounting system, the regional cheque record exchange centres (CREIC) and SAGITTAIRE (see Section 3.1.2.).

1.4. The role of other private and public sector bodies

Apart from CNC (see Section 1.1.2.), several bodies have been established to study problems arising from the evolution of the payment system, primarily from a technical point of view and from that of standardisation. The Banque de France plays an active role in these bodies.

The main bodies concerned are:

(a) "Comité Français d'Organisation et de Normalisation Bancaires" (CFONB – French Committee for the Organisation and Standardisation of Banking Practice), chaired by the Banque de France. This Committee works through a large number of working groups, studying issues of common interest relating to the simplification of banking operations, and to the rationalisation and codification of methods and documents used by banks;

(b) Several "Groupements d'Intérêt Economique" (GIE – Economic Interest Groups), notably the S.W.I.F.T. users' group in France, the GSIT (Interbank Teleclearing System Group) (see Section 3.1.2. (d)) and the "Groupement des Cartes Bancaires" (Bank Card Consortium) which exists to study, standardise and promote the National System for Payments by Cards and combat fraud (see Section 2.2.6.).

⁵ Its geographical competence is confined to the territory of metropolitan France. While the notes distributed by it also circulate in French Overseas Departments, they are issued to the public in these territories by the institutions that hold the privilege of issuing currency in the Overseas Department.

SECTION 2: SUMMARY INFORMATION ON PAYMENT MEDIA USED BY NON-BANKS

2.1. Cash payments

The amount of currency in circulation in the metropolitan territory (France and Monaco) at the end of 1990 was FRF 255.5 billion, of which bank-notes accounted for FRF 238.4 billion and coins for FRF 17.1 billion. Both these components are legal tender, but the acceptance of coins is compulsory only within certain limits.

There were five denominations of bank-notes (20, 50, 100, 200 and 500 francs) and nine types of coins (5, 10, 20 and 50 centimes, 1, 2, 5, 10 and 100 francs⁶ in fiduciary circulation at the end of 1990.

The percentage of cash in circulation in the M1 monetary aggregate has tended to stabilise at around 15% (14.9% in 1989 and 15.4% in 1990), while its share in M3 continues to decline very slowly (6.20% in 1987 and 5.71% in 1990), and is now moving towards an equilibrium level.

The annual number of cash transactions is not known precisely. According to the latest estimates in 1988, there were approximately 22 billion transactions worth more than FRF 10 at shops and for services alone (excluding motorway tolls and administrative payments). So cash payments clearly prevail in terms of number (more than 75% of all payments), while in value terms their share represented slightly over 2% in 1988.

The importance of this type of payment varies depending on the nature of the trade. As a rough guide, 38% of cash transactions take place in the retail food trade, 7% in supermarkets and 13% in hotels and restaurants.

Customers use two principal means of cash withdrawals:

- by using a card in one of the 14,400 Automated Teller Machines or cash dispensers. 548 million withdrawals were recorded in 1990, representing a total value of FRF 243 billion. 446 million of these (i.e. FRF 202 billion) were carried out using interbank cards i.e. cards bearing the "Groupement des Cartes Bancaires" (Bank Card Consortium) logo (see Section 2.2.6.). All the automatic cash dispensers installed outside banks can be accessed by the 19.5 million cards issued by this Consortium's members. For reasons of security, a standard withdrawal ceiling of FRF 1,800 per seven day period has been set, but the card-issuing institution may raise this ceiling; moreover, since 1st July 1990, ATMs and cash dispensers have been operating on-line. Other cards, issued by banks to give access to specific services provided by them allow holders to withdraw cash from their own ATMs and cash dispensers; an estimated 102 million withdrawals were made via these cards;

- by writing cheques (approximately 227 million in 1990 for an average amount of approximately FRF 1,508⁷).

The current volume of cash in circulation is not expected to vary substantially in the foreseeable future. Two main trends are forecast on the one hand, the density of the network of ATMs and cash dispensers installed is likely to bolster the use of bank-notes; on the other hand, the foreseeable development of token or prepaid cards is likely to curtail the use of cash for small local payments notably for parking, tollbooth or automatic telephone-type machines.

2.2. Non-cash payments

Customers of banks and quasi-banking institutions enjoy access to a broad range of instruments. The cheque predominates despite increasing recourse to automated payment instruments to the detriment of traditional "paper-based" forms.

The body of statistics used as a basis for the comments on cashless payment instruments covers both operations carried out through the official exchange circuits⁸ and those that are not carried out in

⁶ Silver 100 franc coins are used very little for payments.

⁷ These figures also include cash withdrawals from conventional bank branches by means of bank cards (or "emergency withdrawals").

⁸ The Paris Clearing House, the provincial clearing houses, the regional cheque exchange centres, the Banque de France, the computer clearing centre and the Interbank Teleclearing System.

that way⁹, regardless of whether they are issued by banks or quasi-banking institutions (e.g. postal cheques). Data on the latter has been obtained by means of a sample survey, so the figures should be treated as approximate.

Most of the payment instruments described below are considered to be “universally accepted”, i.e. the paying institution is bound to accept them when presented to it in the exchange system. Certain particular features may nevertheless exist, depending on the nature of the receiving account (for example, certain savings accounts may not accept direct debits). There are, moreover, certain “non-universally accepted” operations, which are accepted only by prior agreement between receiving and presenting banks. For the time being, this chiefly concerns exchanges of truncated cheques and bank card payments.

2.2.1. Cheques

The cheque is the most widely used payment instrument in France: approximately 4.9 billion cheques were written in 1990¹⁰, i.e. 54.6% of all cashless payment instruments.

Nevertheless, the rate of growth of payments by cheque has slowed down since 1982, and even declined in absolute value terms in 1987 for the first time in the history of this payment instrument. This slowdown is attributable primarily to the very rapid growth in the use of cards for face-to-face payments and, to a lesser extent, to the use of automated payment media (direct debits, and interbank payment orders) for remote payments.

However, bank customers still exhibit a clear preference for cheques. The traditional success of this instrument is mainly due to its simplicity of use, the fact that no charge is made, and the fact that it lends itself to all types of use. For example, it can be used by companies and government agencies as well as by individuals. Although it is not possible to distinguish the amount issued by each of the categories with precision, an estimated 1 billion cheques were written by the first two categories combined and 3.9 billion by the last in 1990.

Individual bank account holders write approximately 120 cheques per year. It is estimated that 52% of cheques written in France are for amounts less than FRF 300.

Face-to-face payments and remote payments account for 3.2 and 1.7 billion operations respectively, according to available estimates.

Efforts by the banking industry have significantly lowered the cost of cheques:

- processing and forwarding procedures have been modernised by the introduction of magnetic character reading technology (standard CMC7) and the use of reader-sorter machines;
- the major networks have adopted the principle of non-circulation of cheque forms in their internal organisation: only the cheque details are now circulated in computerised form. This “truncated cheque” circulation procedure is still marginal in interbank exchanges: although the SIT (Interbank Teleclearing System) technically permits the continuous exchange of truncated cheques via the SNEIC (“Système National d’Echange d’Images-Chèques” – National Cheque Record Exchange System), the project has been blocked by the banking industry since November 1989 for the following economic and financial reasons:
 - paperless collection will generally reduce execution and settlement times; this will affect institutions differently depending on whether they are presenters or drawees;
 - the terms applied to customers, particularly major customers, will tend to come into line with interbank settlement lags;
 - the administrative organisation of interbank exchange circuits has been simplified.

When processed via an official interbank exchange, the cheque may be:

- presented physically through a clearing house (94.6%); interbank settlement lags for presentation on D day are set at:

⁹ Instruments exchanged directly between networks or within the same group, as well as within a single institution.

¹⁰ The total number of cheques issued also includes the 227 million cash withdrawals from bank branches, most of which are made by means of cheques made out to the account holder.

- D + 1 when the cheque is presented through a clearing house to which the drawee branch belongs (joint procedure instituted in October 1980);
- D + 3 when the cheque is not presented through the territorially competent clearing house (optional “outside-area” exchange procedure introduced in February 1984);
- paperless (5.4%); the data record containing particulars needed to enter the cheque is exchanged through the CREIC (“Centres Régionaux d’Echanges d’Images Chèques” – Regional Cheque Record Exchange Centres); the interbank settlement lag, generally D + 1, is set by agreement among the centre’s members.

Cheques may be presented either directly by the receiving bank, the drawee institution or via a collecting agent (third-party bank or Banque de France) which then seeks collection through the clearing system. Cheques are generally free of charge for both drawer and receiver, which means that their administration by credit institutions represents a substantial expense. However, attempts by banks to bill for the use of cheques have generally come to nothing, notably due to the hostility of consumers’ associations demanding something in return, and particularly the payment of interest on sight deposits.

The sharp rise in the number of dishonoured cheques, notably resulting from the growth of cashless payments in recent decades, has induced the Government and Parliament to intervene on several occasions. The 3rd January 1972 Act, later modified by the 3rd January 1975 Act, introduced a procedure whereby persons writing cheques with insufficient funds may be prohibited from holding a cheque book for one year. The “Fichier Central des Chèques” (FCC – Central Cheque Register), administered by the Banque de France, forms the heart of this system, centralising all information relating to payment incidents and to bank or court-ordered prohibitions. It is systematically consulted by account-holding associations before issuing the first cheque book to a new customer or to a formerly banned customer.

Although the rate of growth has slowed down in the last three years, falling from 12.7% in 1988 to 9.6% in 1989 and to 5.1% in 1990, the number of dishonoured cheques reported by the banks to the FCC has continued to rise. So the number of cheques with insufficient funds is continuing to grow in both absolute and relative terms. The macro-economic impact of this phenomenon is limited, insofar as the number of cheques that remain definitively unpaid may be estimated at approximately one-thousandth of the total number of cheques exchanged between banks. However, it affects certain categories of economic agents in particular, notably shopkeepers, and the mass of litigation entailed seriously overloads the courts and auxiliary services.

This situation has called for the further intervention by the authorities in order to tighten up existing systems of prevention and sanctions, and to provide greater protection for victims of dishonoured cheques. A bill to adapt and strengthen security with regard to cheques and payment cards has thus been drawn up in consultation with the various parties concerned and has become Law on 30th December 1991. Essentially, the Law provides for:

- stronger preventive measures: the Banque de France will systematically inform banks of prohibitions placed on their customers by any other bank; this will prevent persons who have been prohibited from using cheque books, but who hold several accounts, from continuing to write cheques drawn on a bank other than the one that reported the incident;
- a mechanism to encourage persons who dishonour their cheques to settle up: such persons may be removed from the FCC at any time;
 - and thus regain their entitlement to write cheques;
 - by honouring the cheque in question together with payment of a fixed penalty.
 Conversely, the person will remain on the register for 10 years unless he or she honours the cheque, whereas at present the prohibition on writing cheques automatically expires after one year.

Moreover, the “Fichier National des chèques déclarés volés ou perdus” (FNCV national register of cheques reported stolen or lost) came into operation in January 1991. This mechanism was developed within the framework of joint venture between the “Conseil National du Commerce” (national retail trade council) and the Banque de France, under whose authority it operates. It allows shopkeepers and providers of services to combat cheque fraud by enabling them to verify whether or not the cheques received in payment have been reported stolen or lost to the police (or the “gendarmerie”) or to the account-holding institutions.

The Act of 30th December 1991 (mentioned above), states that the FNCV will also register the references of closed accounts and the account numbers of persons who have been prohibited from using cheque books.

The chief purpose of this register is to provide shopkeepers or suppliers of services with an effective means of reducing their losses related with dishonoured cheques, which is the source of considerable losses to the retail sector. It also strengthens the effectiveness of efforts to combat crime relating to stolen cheques, by supplying information on complaints received to the law enforcement authorities. To ensure that the information compiled is as reliable and comprehensive as possible, the register is continuously updated by both the account-holding institutions and the police and "gendarmerie". The register covers both metropolitan France and the Overseas Departments.

2.2.2. Bills of exchange

Approximately 170 million bills of exchange are processed by banks each year. The use of this instrument as a settlement medium between companies and its popularity among them is due in particular to the widespread use of suppliers credit in France.

Bills of exchange are issued either as electronic bills of exchange or as electronic promissory notes, or in the form of a conventional paper bill of exchange or promissory note. The electronic bill of exchange and electronic promissory note systems were designed to rationalise and automate the collection of bills of exchange. Money is exchanged between banks not in paper form but on magnetic media, through a computer clearing centre (see Section 3.1.2. (b)) or the SIT (see Section 3.1.2. (d)). Prior to each payment date, the payer receives a list of bills for which payment is due. He transmits his instructions to the paying agent by returning the list appropriately annotated.

Since 1987, moreover, conventional paper bills of exchange may, if the payer has no objection, be converted to electronic form. The amounts are then collected under the same conditions as the LCRs and BORs once the information has been entered. This reform has boosted the number of bills exchanged on automated media from 35.7% in 1987 to 81.8% in 1990.

The bills of exchange are settled between the banks two working days after their exchange through a clearing house and five working days after their exchange through the computer clearing centre or the SIT.

In general, no charge for these operations (except where the paying bank provides additional services) is levied on the drawee of the bill of exchange or writer of the promissory note. On the other hand, a commission is charged by the collecting bank, which must pay an interbank commission to the paying bank in the case of LCRs and BORs.

2.2.3. Credit transfers

With 1.3 billion operations in 1990, credit transfers rank third behind cheques and cards by number of transactions. They account for 14.9% of exchanges. These statistics cover both bank transfers and postal transfers¹¹.

For the most part, this instrument is used for payments made by companies, government agencies and local authorities. Credit transfers are used very little by individuals.

Until recently, only recurrent credit transfers (such as the payment of salaries, for example) were automated, while ad hoc payments (such as those to suppliers) were exchanged on paper-based media. This distinction is tending to disappear as credit transfers are becoming increasingly used as exchanges on magnetic media, and in 1990 more than 93% of all operations were automated.

Ordinary transfers are settled on the day of presentation. On the other hand, credit transfers for payment at due date are presented two or three days in advance of interbank settlement.

Ordinary transfers are generally made at no charge. Nevertheless, the sender may have to pay any ancillary charges in case of telegraph or telex transmission. When exchanged through a computer clearing centre or the SIT, an interbank commission is charged on due-date credit transfers. This commission varies according to the due date and is paid by the sending bank to the receiving bank.

¹¹ Credit transfers represent a high percentage (63.5%) of total cashless instruments in value terms, but this statistic has little significance owing to the very high value of transfers made for cash management purposes.

Moreover, automation of credit transfers increasingly relies on data links, giving birth to new formulas such as "teletransfers" (initiated by the company or from computer terminals designed for general public use, such as ATMs (or videotex), which are expected to expand significantly (see Section 2.2.8.).

2.2.4. Direct debits

Introduced in 1967, the direct debit still accounts for a relatively small proportion (no more than 8.7%) of all cashless payment instruments (by number of transactions). This instrument is used notably by bodies whose claims are of a recurring nature, such as bills for electricity, gas, telephone, water, etc., and for monthly income tax payments.

Despite the advantages that it presents for the banks (in terms of relatively low processing costs, being fully automated), for originating companies (simplifying their accounting administration and allowing them to collect money on their initiative), as well as for individuals (by simplifying the physical act of payment), this procedure is now tending to stabilise after fairly rapid initial growth.

A series of modifications were introduced in October 1985 in order to stimulate the use of this instrument. Changes included the creation of "accelerated" direct debits with shorter settlement times than ordinary debits, and the adoption by the banking industry of a regularisation procedure to allow payers, on certain conditions, to contest a payment and obtain cancellation of the entry.

Initiators of direct debits must be approved by a bank, which in turn requests a "Numéro National d'Émetteur" (NNE – national sender number) for direct debits from the Banque de France, on its own responsibility¹².

Before transmitting the direct debit order to his bank for collection, the sender must notify the payer of the amount and date of the debit (by sending an invoice, for example), to enable the latter to make sure there are sufficient funds in his account or contest the order if he so wishes.

Direct debits are settled two or four days after their exchange through the computer clearing centre or the SIT (see Section 3.1.2.), depending on whether they are "accelerated" or ordinary debits. Except in the case of direct debits initiated in payment of tax demands, collection of the direct debit gives rise to payment of a commission by the paying bank to the collecting bank. As a general rule, a commission on collection is charged to the creditor entity by the collecting bank.

2.2.5. The interbank payment order (TIP)

The "Titre Interbancaire de Paiement" (TIP – interbank payment order) was introduced in February 1988 to replace the "Titre Universel de Paiement" (universal payment order). It differs from the direct debit in that the payer is required to signal his agreement to each payment, as with a cheque. He does so by signing the TIP form, which is sent by the creditor at the same time as the corresponding invoice. The form is then processed automatically in one of eleven centres authorised for the processing of this payment instrument.

The record of the data appearing on the TIP is then presented to a computer clearing centre or the SIT. The payers' banks receive the records through the same channel, allowing them to debit their customers' accounts without having to verify the payment orders, which are kept by the authorised centres.

This new instrument is practical from the payer's point of view, leaving him full control over the operation; it is simple and efficient for the creditor, allowing him to rationalise and optimise the collection of receivables; and it is productive from the banks' point of view as it lends itself to fully automated processing. As a modern payment instrument, the TIP combines the advantages of the direct debit with those of the cheque, without any of their drawbacks; it is expected gradually to replace certain remote payments made by cheque and could evolve towards a totally paperless procedure with the development of telepayment techniques.

¹² An NNE can be granted to a non-resident body provided it holds an account with a credit institution established in France.

2.2.6. Card transactions

(a) Main categories of cards in use

There are three main categories of cards in use in France:

– *bank cards*, which are issued by credit institutions acting either singly or through the Bank Card Consortium; the cards are issued to bearers holding an account with these issuing institutions. There were 19.5 million interbank cards, known as “Cartes Bancaires” (CB – bank cards) in circulation at the end of 1990. Approximately 11.6 million of them¹³: also allow payment to be made in shops abroad (affiliated to either VISA or Eurocard/Master Card);

– *travel and entertainment cards*, issued by bodies which do not, in principle, hold funds on deposit, but which have credit institution status in France within the meaning of the aforementioned Banking Law of 1984, which authorises them ipso facto to issue payment instruments to their customers;

– *retailer cards* (an estimated 20 million) issued by retailers or suppliers of services in order to secure customer loyalty and, in some cases, grant credit facilities. The credit is repaid by debiting the customer’s bank account, to which the card issuer does not have direct access.

However, once such cards are used to obtain credit, or where they can be used at outlets other than the issuer’s own shops, the card must be issued by a credit institution, even if the retailer’s name generally features prominently on the card.

The following paragraphs focus exclusively on bank cards, which are used for the majority of payment transactions and for a large majority of cash withdrawals from automatic cash dispensers.

(b) National System for Payments by Card

In July 1984, the banks belonging to the “Groupement Carte Bleue” together with the “Crédit Agricole” and the “Crédit Mutuel” signed a draft agreement with a view to developing a National System for Payments by Cards, and decided to form the Bank Card Consortium in order to implement it.

The nature of the cards

Bank cards are debit cards¹⁴ which generally allow the bearer the benefits of deferred payment, retail transactions being debited from the holder’s account in the month following the date of the operation. Cash withdrawals from automatic cash dispensers are debited upon receipt of the corresponding transaction by the account holder’s bank.

Since 1988 bank cards have gradually adopted the magnetic stripes and microprocessor technology. This latter technology consists of inserting a micro-processor into the card (known as a chip card), allowing this payment instrument to perform five functions in total security: card authentication, identification of the card holder by means of a confidential code, certification of the transaction, quantification of data and control over the flow of transactions. At the end of 1990, 5.8% of all cards contained a micro-processor, and all bank cards will be so equipped by November 1992. The main advantage of these cards is to better protect the bearers from fraud risks.

Retail payments

1.2 billion bank card payments were made in 1990, representing 13.1% of all cashless transactions in that year. 19.5 million cards allow their holders to pay for purchases at almost 500,000 French retail outlets affiliated to the system. The retailers are equipped with electronic terminals (210,000 electronic point-of-sale terminals at the end of 1990), or manual printers (290,000 at the end of 1990) to record the transactions. 80% of payments in 1990 were made via an electronic terminal.

¹³ 276,000 of the 11.6 million international cards are “prestige” cards.

¹⁴ Although French bank cards are debit cards, banks may grant credit facilities to their customers on the accounts to which the bank cards are attached.

Shopkeepers affiliated to the system enjoy guaranteed payments under certain conditions (in particular they must request prior authorisation from a payment centre in the case of transactions above a certain amount). As from the end of 1992, any transaction carried out in the absence of verification of the confidential code at the point of sale will be deemed "subject to execution" even if authorised: in other words, payments will no longer be guaranteed.

The nationwide adoption of the confidential code verification procedure – through increasingly widespread use of chip cards – will necessitate the modernisation of retailers' equipment: they will have to install mixed electronic payment terminals capable of using the chip's functions and reading the contents of magnetic stripes (particularly for foreign cards).

Card payments are currently collected in accordance with a complex procedure administered by the interbank processing centres. From the end of 1992, they will be exchanged through the SIT (see Section 3.1.2. (d)).

With regard to pricing, card holders pay an annual fee to the issuing institution which varies according to the services attached to the card (cash withdrawals only, national or international payments, immediate or deferred debit). Retailers are charged a commission proportional to the amount of the transaction, this commission being freely negotiated between each bank and its customers.

For each payment made by the bank card, the retailer's bank pays to the card holder's bank a service commission known as a "Commission Interbancaire de Paiement" (interbank payment commission). This commission is designed to cover the expenses borne by the card holder's bank in processing the operation and contributing to security measures, and to cover the risk incurred in guaranteeing payment. Since 1987, the three inseparable components of this commission have been itemised in the form of a fixed amount for processing expenses (FRF 0.70 per transaction), a proportional amount for collective security measures (0.21% of the transaction), and a percentage of the transaction which varies according to the recorded rate of fraud for the retailer in respect of the risk attaching to the guarantee.

Outlook

Motivated primarily by a desire to reduce the level of card-related fraud, the Banking Card Consortium is currently focusing on the nationwide introduction of the chip card and on the direct assumption by the banks of certain functions hitherto performed jointly by the banking community, and in particular the authorisation function within the banking Card Consortium.

2.2.7. Interbank networks accessible to customers

These are primarily the following:

- services provided by Automated Teller Machines (ATMs): requests for new cheque books, teletransfers between two accounts of the same account holder at the same institution, and consultation of account movements and balances, etc., are generally available only to the particular institution's customers (or to customers of the network or group);
- cash withdrawals by means of card, other than interbank withdrawals:
 - telematics services (see Section 2.2.8.);
 - the use of EDIFACT messages in bank/company relationships.

For this purpose, EdiFrance was set up in January 1990 by the "Association Française de Normalisation" (AFNOR – the French standards association), to coordinate national efforts in the field of Electronic Data Interchange (EDI) and to represent the French positions in international bodies. "EdiFrance Groupes Opérationnels Sectoriels" (Sector Operational Groups) include a banks-companies working party called Edifinance. In addition to standardising bank company relationships on the basis of financial messages conforming to EDIFACT standards, the banks are now considering the adaptation of interbank relationships (exchange circuits, recording designs). With this in view, five French banks are to take part in the pilot project using the S.W.I.F.T. network, due to be launched shortly in association with approximately fifty institutions around the world.

2.2.8. Recent developments

These are principally the following:

(a) Access to public telephone boxes. 45% of public telephone boxes now in place work exclusively with chip cards¹⁵, issued by France Telecom (either prepaid cards or subscriber cards with deferred payment, with phone calls charged to the subscriber's account) or bank cards.

(b) Prepaid cards. Alongside the above-mentioned telephone cards (which are single-supplier and single-service cards) together with a number of similar projects (concerning the Paris Metro, airlines, etc.), a wide range of municipal card projects are currently in progress, involving approximately 18% of towns of more than 10,000 inhabitants. These cards will provide access to various municipal services such as parking, school canteens, leisure activities, transport, day-care centres, sports amenities, etc. The banking industry also has plans for multi-provider cards: these cards would be issued by a single entity, but they would allow the holder to pay for a variety of purchases and services provided by legally separate providers. Banque de France recently stated publicly that, according to the 1984 Banking Law, the issue of multi-provider prepaid cards is equivalent to a banking operation, and that the issuer must therefore be approved as a credit institution by the Committee of Credit Institutions (see Section 1.1.3.).

(c) Telematics services available to individuals and companies. The 5.6 million videotex terminals (known as "Minitels") currently in place (at end-1990) give their users access to the home-banking services now provided by most major banks. 2.5 million individuals and professional users were subscribers to "banking and financial" services at the end of 1989. The "general public" services essentially allow subscribers to consult account balances and track recent account movements, to consolidate different accounts, and to consult financial and stock market information. Business services are more extensive and also include treasury management assistance products (including remote loading of account movements onto the treasurer's computer facilities, and initiation of transfers between predetermined accounts of the same company).

Regardless of whether they are intended for individuals or businesses, these services are billed according to the duration of connection time and are also subject to a monthly subscription fee.

However, the combined use of a videotex terminal with a magnetic stripe bank card as a means of initiating a debit (by typing in the card number manually), although accepted by certain bodies (some mail order firms for example), is not satisfactory from the point of view of security. Consequently, the banking industry and leading billers have undertaken numerous studies since 1989 in order to ascertain more precisely the demands of the various parties, and to work out technical solutions leading to satisfactorily secure telepayment procedures.

These studies have resulted in:

- the definition of two types of payment: payment of bills, or post-payment (electricity, etc.), and ordering of goods or services, or prepayment (mail order, travel tickets, etc.);
- the recommendation of a hierarchy of levels of security appropriate to each payment context (security is less of a problem where there exists a separate contract between user and supplier), emphasising the use of chip cards and a special reading device to verify the authenticity of the card and the confidential code where a high level of security is required;
- proposals to use existing payment instruments (bank cards, credit transfers, debits) to make these payments.

The various telepayment scenarios are currently under review by the CFONB (see Section 1.4.), and a handful of creditors have launched limited experiments. The latter also plan to use "voice-frequency telematics" for their payments (using telephone push-buttons in order to by-pass the Minitel terminal).

¹⁵ From a technological point of view, these cards are to a large extent specific to public telephone box installations. Ultimately, the aim is to enable bank cards equipped with micro-processors to be used in public telephone boxes, as is already the case with certain call boxes in France.

SECTION 3: INTERBANK EXCHANGE AND SETTLEMENT CIRCUITS

3.1. General overview

3.1.1. Internal circuits in institutions or groups of institutions

There are two main categories of exchanges within the general funds transfer system: those that pass through the official circuits governed by interbank agreements or conventions, and those that are channelled through so-called "unofficial" circuits governed by bilateral inter-institutional agreements.

Most banking organisations have their own remote data links. In the case of groups or networks, these generally consist of two levels, one local, the other nationwide. These arrangements generally handle truncated cheques drawn on the institution's, group's or network's branches under a procedure which abolishes the internal circulation of cheque forms and which has been adopted by most major banks. Together with the automated instruments, internal to the institution, the group or the network, accounting information is also provided.

It is estimated that 23% of cashless payments are not routed via the official circuits described below: viz 40% of the total number of credit transfers exchanged, 12% of bills of exchange, 28% of direct debits and 23% of cheques. A fair proportion of these involve two accounts (payer and payee) on the books of a single institution: expressed in terms of the number of instruments sent, the share of such items is an estimated 17% of cheques, 21% of direct debits and 35% of credit transfers. Electronic exchanges between institutions belonging to the same group or network (intra-group exchanges) involve a smaller proportion of payments (approximately 1.7% of all electronic credit transfers initiated and fewer than 3% of direct debits).

3.1.2. Interbank circuits and networks

These are currently the clearing houses, the computer clearing centres – to be replaced by the Interbank Teleclearing System (SIT) as from 1992, the CREICs (regional cheque record exchange centres), the Bank Card Consortium processing centres and the SAGITTAIRE system. These account for the bulk of the instruments that banks exchange among themselves.

These fall into three types: traditional paper-based exchanges conducted through the clearing houses; conventional electronic exchanges on magnetic media, (the computer clearing centres and the CREICs); and exchanges via data links through the SAGITTAIRE system and the SIT. These circuits or systems are described below.

(a) **The clearing houses**

Following a series of reforms designed to simplify administrative procedures, official exchanges of paper-based instruments (mainly cheques, credit transfers and bills of exchange) are conducted through one of the 104 clearing houses:

- the Paris Clearing House ("chambre de compensation des Banquiers de Paris") for Paris and its surrounding area, placed under the authority of an interbank consortium. In addition to the exchange of payment items presented by customers, this clearing house is used for the settlement of cash operations of sometimes very high value (see Section 3.2.1.);
- 102 provincial clearing houses under the authority of the Banque de France and operating on its premises; these are located in the capitals of the "départements" and in ten other major localities;
- the Principality of Monaco, under the authority of the "Banque Centrale Monégasque de Crédit".

Overall, 3.6 billion items were presented in 1990, representing a total value of FRF 47,344 billion (including 3.5 billion cheques for a total of FRF 11,360 billion).

All institutions, on which cheques are drawn or at which bills of exchange are payable, are bound by regulations to participate in the clearing houses, through an agent in certain cases. In practice, this means all banks, the Treasury, the Post Office and the Banque de France.

Clearing house sessions are held every working day, with one daily session between 11 a.m. and noon for the provincial houses, and two sessions (at 10 a.m. and 4 p.m.) for the Paris Clearing House.

Certain exchanges (credit transfers) are subject to same-day settlement, while others (cheques and bills of exchange) are settled only after an agreed period of time. For each clearing house, members' net balances, calculated at the end of the session, are entered daily into the accounts administered locally by the Banque de France.

Amounts arising from credit balances become final only at the end of the Banque de France accounting day, when all debtor members have assembled the funds needed to clear their debit position. Failing this, the clearing operations may be cancelled by application of a revocability clause governing the exchanges. The clearing is then repeated, this time without the defaulting member.

Under regulatory or contractual provisions, payment instruments must be presented to a specified clearing house, depending on their place of payment. For cheques, however, which represent 98.9% of all instruments exchanged, a specific procedure called the 'outside-area cheque exchange agreement' has been in place since 1984: the presenting bank may exchange the outside-area cheques at the clearing house of its choice, irrespective of the place of payment. This procedure allows cheques to be presented for collection as close as possible to their place of encashment. It leaves the drawee institution the choice of the optimum method of routing cheques to the paying branch, notably by eliminating the circulation of cheque forms inside its institution. The settlement time has been set at three working days from the date of presentation (compared with one day for inside-area cheques) in order to offset this transfer of administrative work to the drawee bank.

Banks that have signed the outside-area cheque exchange agreement but are not represented at any of the 104 clearing houses may ask the Banque de France to receive the cheques on their behalf and to forward them. This function is performed by the 'Joint Collection Service', which simply acts as an intermediary between the presenting bank and the drawee bank; it does not guarantee finality of the payment. The leading credit institutions are members of the outside-area cheque exchange agreement. In 1990, 754 million cheques, or 21% of all cheques cleared, were handled under this procedure.

(b) "Ordinateur de Compensation" (computer clearing centres)

The network of computer clearing centres, which is designed to cover the entire country, began operations in Paris in 1969. It was decentralised (between 1976 and 1985) to eight other centres: Lyon, Strasbourg, Rennes, Nantes, Lille, Marseille, Bordeaux and Toulouse. The computer clearing centres are administered by the Banque de France.

With the exception of truncated cheques, all categories of instruments subject to automated interbank exchange (credit transfers, direct debits, interbank payment orders, electronic bills of exchange, withdrawals from cash dispensers, and bank card transactions) are accepted. Credit transfers and direct debits account for 76% of all items exchanged.

In 1990, the centres handled more than 1.7 billion items (credit transfers, direct debits, cash dispenser withdrawals, electronic bills of exchange, interbank payment orders and card payments) totalling FRF 6,398 billion, or 25% in number and 12% in value, respectively, of all official interbank exchanges.

Decentralisation of the network of computer clearing centres and the interconnection of exchange centres has improved the working of the system and significantly reduced the time taken to debit and credit accounts, without any marked increase in costs. In spite of these improvements, the automated clearing house (ACH) system nevertheless has certain drawbacks: it precludes direct links between credit institutions, users are obliged to pass through certain points, and it does not lend itself to continuous operation.

To offset these drawbacks and allow for the inevitable switch to electronic media of transactions still exchanged between banks on paper-based media, the industry decided to set up the SIT. This will permit continuous exchanges via direct data links between banks and further reduce transmission times for operations.

It is planned that the computer clearing centres will continue to operate for a transitional period until the SIT becomes fully operational in 1992. The banking industry considers that there is only room in France for a single nationwide interbank exchange system.

The 1,381 participants in March 1991 were divided into two categories:

- direct participants (fifty institutions in Paris and the provinces), which present or receive their operations directly;

- non-settling participants (1,331 institutions), which present or receive their operations via a member.

Moreover, the Banque de France acts on behalf of a certain number of institutions which are not affiliated owing to the small scale of their business (459).

In the provinces, a single session is held at 7.30 a.m. Two daily clearings are held in Paris:

- an initial session, called the ‘anticipated’ session, which takes place in the evening between 8.30 p.m. and 10 p.m. on the day prior to settlement day;
- the settlement day session, called the ‘supplementary’ session, which takes place between 11 a.m. and 1.30 p.m. on that day.

The ‘anticipated’ session allows non-urgent bulk operations to be cleared, while the ‘supplementary’ session is intended to handle smaller urgent transactions (notably credit transfers).

The cleared balances are settled on accounts opened for members on the books of the Banque de France, either on the same day for so-called ‘sight’ operations, or at the date provided for in the regulations for so-called ‘term’ operations (which are presented a few days prior to their settlement date). Items presented or received by non-settling participants are not separately identified in the accounts; they are included in the settlements recorded in the name of the members representing them, and it is up to the latter to pass on the amounts to their non-settling participants.

**(c) The “Centres Régionaux d’Echanges d’Images-Chèques”
(CREIC – regional cheque record exchange centres)**

These centres are located in nine major cities¹⁶, of which eight have a computer clearing centre. The CREICs are administered by the Banque de France and allow their members to exchange cheque data on magnetic media without physically transferring the forms, which are kept by the presenting institution.

Apart from the Banque de France and the Post Office, only institutions with a regional or local organisation currently belong to these centres. Between them, they transmitted more than 200 million forms in 1990, representing 5.4% of all cheques exchanged.

(d) “Système Interbancaire de Télécompensation” (SIT – interbank teleclearing system)

At the proposal of the Banque de France, it was agreed in 1983, within the framework of the Working Party on Payment Media, to establish a new national system for the exchange of high volume payment instruments based exclusively on telecommunication links.

The goals were:

- to reduce transmission and processing times for interbank payments in order to guarantee performance dates;
- to permit dematerialisation of ‘continuous’ exchanges;
- to reduce the cost of interbank exchanges.

The work of implementing the system is being carried out by an interbank group called GSIT (Economic Interest Grouping for the Interbank Teleclearing System), formed in June 1983. The Banque de France is a member of the GSIT and an ex officio member of its decision-making and research bodies.

The SIT represents a major step forward in the French payment system. It involves the entire banking community and is designed to permit the exchange of all high volume payment instruments. The SIT is a network of decentralised and bilateral exchanges directly linking the different credit institutions’ data-processing centres. It transfers data via the TRANSPAC public packet-switching network. The exchange of payment media between originating and receiving credit institutions automatically triggers the forwarding of accounting messages, which are transmitted to the accounting centre administered by the Banque de France.

The SIT began operations on 29th May, 1990 with a pilot network, on which institutions exchanged relatively small volumes of transactions. Deployment of the SIT began in February 1991 and is expected to be completed by 1992. The computer clearing centres will then cease to function. From that time on, the SIT will take over all of the payment exchanges of the computer clearing centres,

¹⁶ Rennes, Strasbourg, Metz, Nantes, Lille, Bordeaux, Toulouse, Marseille and Lyon.

together with all card payments. Excluding truncated cheques, the SIT is expected to handle 11 million operations daily once it is fully operational. The SIT is also designed to permit the exchange of truncated cheques. At that point, the SIT will become the sole national network for the exchange of high volume automated payment media.

Participation in the SIT

Banking institutions fall into two categories with regard to the SIT:

- participants: these are either:
 - direct participants: their number has been set at twenty-five in view of the system's technical and organisational capabilities. To qualify as a direct participant, an institution or group of institutions must have a volume of payments representing at least 0.20% of volumes exchanged annually via the SIT, and must be able to show a level of solvency recognised as commensurate with the degree of risk that its failure would entail for the other direct participants. The responsibilities of direct participants are both financial and technical and extend to the institutions they represent;
 - indirect participants: these present and receive payments via a direct participant;
 - non-participants: some of these, designated as ENASIT (non-SIT member institutions) may receive a very small volume of payments through the Banque de France, but they are not authorised to present payments unless these represent rejected receipts.

Operating rules

Each participant has one or more processing centres whose terminals serve as access points to the network and are exclusively dedicated to the SIT. These terminals are connected to all of the joint centres (administration, accounting and back-up). Each terminal comprises two logical units, the SI (Sending Installation) and RI (Receiving Installation), which communicate with those of the SIT and the other participants.

The SIT joint centres perform precise functions. The administration Centre monitors the network, controls the flow of operations, and maintains the overall coherence and security of the software. The accounting Centre manages accounts relating to exchanges. It is administered by the Banque de France. The back-up Centre is the final standby for receiving institutions. The network is designed to support approximately 250 terminals.

The organisation of an accounting day

The SIT operates twenty-two hours a day from Monday to Saturday. SIT working days start at 8 a.m. and end at 6 a.m. the following day. During the working day, all network members are obliged to receive the interbank operations addressed to them. Closing time for same-day settlement is 15.30.

SIT accounts are closed at the end of each accounting day, and net balances for debiting and crediting to the accounts of system participants are transmitted to the Banque de France at that time.

Protecting the SIT against systemic risk

As part of the risk-reduction programme embarked upon by the Banque de France (see Section 5.3.), discussions are now in progress regarding possible arrangements to protect the SIT from interbank exchange-related risks.

Settlement will not be effected on a multilateral net basis, but on a bilateral net basis through TBF transfers (as soon as TBF becomes operational), consequently within the framework of an interbank settlement system protected against systemic risks (see Section 3.3.).

Moreover, during the course of the day, one or more intermediate accounting balances are drawn up in order to settle payments already exchanged. This practice makes possible a measure of certainty of settlement early in the day, and permits potential difficulties encountered by a direct participant in settling its SIT entries to be foreseen (and consequently prevented).

To complement this mechanism, as conventional protective mechanisms such as prior guarantees (posting of cash or securities as collateral) and loss-sharing agreements have been rejected, the following possible solutions are currently being considered:

- limitation of risk exclusively to direct participants: direct participants undertake to settle, at a due date, the payments sent or received by them on behalf of their indirect participants;

- each direct participant undertakes to settle bilateral accounts within clearly defined limits:
 - vis-à-vis each of the other direct participants, each sets ceilings below which settlement occurs automatically;
 - each retains the right to suspend these credit lines, but only for a limited period, at the end of which either the two institutions concerned renegotiate automatic settlement ceilings, or the SIT governing body decides to withdraw one of the two institutions from the system.

3.2. Structure, operation and administration of major large-value systems

There are two systems for wholesale payment transfers in France: the Paris Clearing House and SAGITTAIRE. Large-value operations handled by both these systems will be taken over by the new Banque de France Transfer (TBF) System once it becomes operational (see Section 3.3.).

3.2.1. The Paris Clearing House

The Paris Clearing House handles the exchange, on the one hand, of payment items presented on behalf of customers (concurrently with the other 103 clearing houses) and, on the other, of large-value payments stemming either from interbank market operations or from transactions in connection with international transfers. These payments are presented in the form either of "avals de trésorerie" (cash transfer authorisations)¹⁷ or of "virements de trésorerie" (cash transfers), the latter medium alone being used for international payments.

At the end of each session, members' net balances are recorded in the institutions' accounts administered at the Banque de France. However, unlike the other clearing houses (see Section 3.1.2. (a)), credits are not final until 10 a.m. on the next working day, when all the debtor members have covered their debit positions. Failing this, the netting is repeated without the defaulting member, whose debit entries are then deleted by the Banque de France. There has never been any occasion to invoke this revocability clause to date.

3.2.2. SAGITTAIRE

"Système Automatique de Gestion Intégrée par Télétransmission de Transactions avec Imputation de Règlement Etranger" (automated system for the integrated handling and settlement of foreign transactions by means of telecommunication).

SAGITTAIRE has handled the settlement of payments relating to international transfers in French Francs since 1984 and is currently the only automated system in France for the transfer of wholesale payments. It is designed to extend the logic of S.W.I.F.T. for international payments to the national level in order to permit the processing and automation of all phases in the execution of international transfers.

SAGITTAIRE is administered by the Banque de France, which also participates directly in the exchanges in its capacity as a receiving member. Relations between SAGITTAIRE and each member are governed by bilateral conventions with the administrator.

2,448,060 messages representing a total amount of FRF 35,393 billion were processed in 1990. SAGITTAIRE is open to credit institutions operating in France that are members of the S.W.I.F.T. network. Foreign banks may only join through their subsidiaries or branches in France. Currently, sixty-seven banks are members of SAGITTAIRE, and five of them account for 65% of payments sent and 50% of payments received.

S.W.I.F.T. is the message transmission network. The SAGITTAIRE system receives transfer orders from members in S.W.I.F.T. format. The orders are recorded in national-accounts on receipt, and credit notifications are addressed to the recipients, also in S.W.I.F.T. format. Messages are final, which means that the sender may not cancel a transfer once initiated. The only way to correct a transfer initiated by mistake is for the recipient to send a payment in the reverse direction.

¹⁷ Cash transfer authorisations (avals de trésorerie) may be regarded in the first place as an acknowledgement of debt presented on the borrower's initiative to the clearing system, sufficient to debit the lender's account and, at loan maturity, as the lender's netting receipt sufficient to debit the borrower's account. They are due to be transformed into electronic credit transfers by 1993 in order to permit routing via the Banque de France Transfer system.

SAGITTAIRE's exchange day, i.e. the period during which orders are recorded, begins at 8 a.m. and ends at 5.30 p.m. Orders sent after 5.30 p.m. are stored by S.W.I.F.T. and processed at the start of the next exchange day. SAGITTAIRE's accounting day starts at 1 p.m. on D-1 and ends at 1 p.m. on D, which means that transfers sent after 1 p.m. on D, regardless of whether they are processed during the same exchange day or at the start of the following exchange day, are only entered in the accounts on D+1. The net positions of members are drawn up after the close of the accounting day, then debited or credited on the books of the Banque de France. However, transactions do not become final until 10 a.m. the following day.

Exchanges conducted through SAGITTAIRE can be revoked by the Banque de France: if at the end of the day a bank is not sufficiently in funds to clear its debts, the central bank may cancel certain transfers. In the event of transfers being cancelled, this is done automatically in reverse chronological order, and the initiating and receiving members are notified immediately. However, there has never been any occasion to revoke a transfer since SAGITTAIRE has been in operation.

SAGITTAIRE is backed up by a data-processing centre external to the Banque de France. In the event of an incident in the main centre, it takes a maximum of four hours for the standby system to cut in, so that it may be necessary temporarily to exchange "virements de trésorerie" through the Paris Clearing House.

The fees charged to users of the system are calculated to include depreciation of the investment and operating costs, together with message transmission charges borne by the Banque de France.

3.3. Main projects and policies being implemented

3.3.1. Legislative, regulatory and political measures

Under its risk-prevention programme (see Section 5.3.), the Banque de France is currently implementing a gross settlement system called TBF ("Transferts Banque de France" – Banque de France Transfers), which is being prepared for introduction at the beginning of 1993. This system will specialise in large-value payments, with the benefit of "on-line" administration of current accounts on the central bank's books; subject to intra-day debit ceilings backed by guarantees, it will settle immediately the amounts debited/credited between banks' accounts.

3.3.2. Participants

All credit institutions holding a current account in the books of the Banque de France will be entitled to participate directly in the TBF system. The TBF service will comprise two functions: its main function will be to record transactions in accounts opened with the Banque de France and to monitor account positions on the books of the Banque de France; the other, subsidiary, function will be to permit direct access to the Banque de France Customers' Server, which allows credit institutions (notably small and medium-sized ones) to monitor their cash positions with the Banque de France in real time. Any credit institution will, however, be free to operate in combination with another or to request a third party to initiate and/or receive its payments through the TBF system.

3.3.3. Types of transactions

The TBF system will handle all types of credit transfers, regardless of their nature (cash and customer operations) and their amount. It will not accept any other type of transaction. Its primary purpose will be to permit the exchange of wholesale payments (approximately 30,000 movements a day representing about FRF 800 billion).

3.3.4. Operation of the system

The TBF system is a real-time gross settlement system which will be fully automated and will utilise telecommunication links. The service will be open for extended working hours. Each transaction

will give rise to a check on the funds available in the issuer's current account (credit balance or, failing that, debit balance up to the authorised intra-day debit ceiling) and will be placed in a sending queue if these limits are exceeded. The computer will conduct a continuous sweep throughout the accounting day in order to process the maximum number of payments. Orders may not be executed in their order of arrival. Furthermore, and in order to facilitate the flow of exchanges and avoid any excessive build-up of intra-day overdraft requirements, the Banque de France will perform optimisation routines at agreed set times in order to maximise the number of payments entered in the accounts at any given time (for example, at the start of the day for payments notified the previous day). These optimisation routines will be performed on all payments in an institution's queue, regardless of whether its accounts are administered by the Banque de France in Paris and/or in the provinces.

3.3.5. The technical environment

No specific network will be required in order to send messages through the TBF, and it has been decided to use S.W.I.F.T. as the message carrier. But, because of the need for dual information circuit whenever a payment order is to be issued, the S.W.I.F.T. network will handle a special circuit, known as "T circuit". It will operate as follows:

- the payment message will be transmitted to the beneficiary bank;
- a copy of the payment message will be routed to the Banque de France;
- the message and the copy will be equally secured by "authenticators" calculated on the basis of bilateral keys.

In view of the international context, with increasing interdependence between payment systems, messages will be conducted in conformity with international interbank standard (ISO).

3.3.6. Settlement procedures

Any current account opened in the name of a credit institution at the Banque de France in Paris or the provinces will be eligible to record TBF orders and other types of entry (debits or credits prepared by the Banque de France, cash withdrawals, etc.). The Banque de France will assess continuously, and on a consolidated basis, the position of accounts opened in its books in an institution's name before proceeding to debit or credit an operation.

To allow for the concern expressed by credit institutions as regards operational constraints, several types of message will be available, depending on whether operations are to be executed on arrival within the available ceiling (guaranteed or non-guaranteed, see Section 3.3.8.) or from a time set by prior agreement between the banks. A money market agreement is planned, which will lay down rules of conduct between institutions in order to regulate financial flows on a satisfactory basis.

The accounting day will close as follows:

- up until the first accounting closure, called "CUT-OFF 1", messages will be executed on the basis of currently available balances (credits, or debit ceilings), except where notified to the contrary by the sender and the recipient (in which case the message will be deleted);
- prior to CUT-OFF 1, an optimisation routine will be carried out, after which debit ceilings (both guaranteed and non-guaranteed) will be deleted; no further increase in debit balances will be permitted;
- during the adjustment period, i.e. between CUT-OFF 1 and CUT-OFF 2, (which will signal the end of the accounting day), only those messages intended to clear debit balances or execute payments in the queue at CUT-OFF 1 will be accepted.

Finally, at CUT-OFF 2, messages that have not been recorded in the accounts will be deleted by the Banque de France. These cancellations will give rise to penalties, without prejudice to damages between participants, for which the institution initially responsible for the default will be held liable. In the exceptional event of the Banque de France maintaining a debit balance at the second CUT-OFF, overnight overdrafts will be subject to punitive interest and may result in a downward revision of the non-guaranteed debit ceiling of the defaulting institution on the following accounting day.

3.3.7. Pricing

The principles on which services offered by the Banque de France through the TBF system are to be priced are still under review.

3.3.8. Management of credit and liquidity risks

Prior to executing any transaction, the Banque de France will systematically verify the availability of funds. This entails ensuring that the payment comes within the limits of the guaranteed or non-guaranteed debit ceilings.

However, because the immediate introduction of the new limitation represented by the ceiling mechanism may result in certain payments being left pending, the Banque de France has opted to introduce the system gradually.

As soon as the accounts have been debited and credited, (from which time the funds transfer will be final) the funds will be made available to the receiving institution.

The intra-day ceiling mechanism

On the basis of objective criteria laid down by the Banque de France, each credit institution will itself determine the maximum level permissible for its non-guaranteed intra-day debit ceiling. This amount will be communicated to the Banque de France, together with the credit institution's desired debit ceiling, which may be the same as the permissible maximum, or a lower amount.

Each credit institution's proposal will be assessed by the Banque de France, which will, depending on its own perception of the risk, determine the level of the non-guaranteed intra-day debit ceiling which it is prepared to allow the institution concerned. This may be same as the level requested by the credit institution, a lower amount, or a zero amount.

This debit ceiling may be increased by the provision of guarantees such as securities pledged as collateral, standby letters of credit, or a risk mutualisation arrangement. With the exception of securities pledged as collateral, these types of guarantees will be included in the calculation of prudential ratios, according to procedures and principles of allocation currently being worked on.

There will be no maximum limit on additional facilities backed by securities pledged as collateral, but, the Banque de France reserves the right to limit the level of overdrafts backed by the other forms of guarantee, or to cancel them, at its discretion and in the light of the institution's situation.

A fee for using the non-guaranteed portion of the intra-day debit ceiling is currently being considered according to procedures which have yet to be defined in consultation with the banking industry.

Moreover, the guaranteed portion of the debit ceiling (on which it is not intended to charge an intra-day fee at any time in the future) will always take precedence over the non-guaranteed portion.

3.3.9. Implementation

Implementation of the TBF system began in February 1992 and will proceed in three stages:

- Stage 1 (7th February 1992): implementation of the new method of administering current accounts at the Banque de France, notably the provision of final information on current-account balances at 6.30 p.m., but with no change in the interbank rules on the revocability of certain operations or certain nettings.
- Stage 2 (in the course of 1993): this will be an intermediate phase in which all payments are to be credited and debited in real time, subject to a progressive lowering of intra-day debit ceilings to the level deemed desirable by the Banque de France in the target system. It will allow the Banque de France to observe the operation of the queuing system and to assess the effectiveness of the optimisation routines. Irrevocability will occur at CUT-OFF 2 at the latest. At this stage, there will be no charge for intra-day overdrafts.

Target system (in the course of 1993): completion of implementation of the risk-reduction programme, creating an environment of irrevocability for all payments to be settled on the central bank's books.

SECTION 4: SPECIAL USE OF INTERBANK TRANSFER SYSTEMS FOR INTERNATIONAL AND DOMESTIC FINANCIAL TRANSACTIONS

4.1. Exchange and settlement systems for international transactions

The French payment system is characterised by a high degree of international activity, the payment exchanges generated being concentrated on a small number of participants. The S.W.I.F.T. network now has a paramount role in this respect. It handles not only the bulk of international transactions, but also French franc payments connected with international operations (see Section 3.2.2.). Finally, as regards retail payments, there is a system for the exchange of French franc and foreign currency cheques issued abroad, and several collection circuits for bank card operations.

4.1.1. *An internationally open, yet concentrated system*

Almost half of the banks established in France are active internationally, since there are at present 200 users of S.W.I.F.T., almost half of them foreign-controlled institutions. As indicated by S.W.I.F.T. statistics, the French banks' international activity is in fact greater than that of foreign banks in France; this explains why France holds 9.25% of S.W.I.F.T.'s capital, whereas traffic originating from France represents only 7% of the network's total traffic.

Based on balance-of-payments figures, it is estimated that approximately ten banks generate 80% of correspondent banking revenues in France, the top four alone accounting for 68%. S.W.I.F.T. traffic statistics also illustrate this degree of concentration, since ten or so bank accounts for two-thirds of the traffic (sent and received), the top four alone accounting for 42%.

4.1.2. *Retail payments*

Internationally, low-value face-to-face payments nowadays are made chiefly in cash, by cheque or by bank card. The majority of remote payments are made by cheque. The developing technique of file transfer is expected to bring substantial improvements to the latter kind of payments.

(a) **Cash exchanges**

There has been a considerable increase in concentration of manual exchanges of foreign banknotes between banks in recent years, both through the merger of the largest operators and through sub-contracting to these same wholesalers some of the major banks' small-scale activity. Currently, more than three-quarters of such exchanges are handled by a single institution, the remaining one-quarter being shared among fewer than ten institutions.

(b) **Exchange of card-backed payments by foreign cardholders in France and by French cardholders abroad**

Each card-issuing network has its own circuit for the collection of payments representing transactions abroad.

For VISA and Eurocard/Master Card transactions abroad by holders of cards issued by French networks belonging to the Bank Card Consortium (see Section 2.2.6.), or in France by holders of cards issued abroad, the circuits are identical. A single organisation specific to each issuing network acts as the international interface. For VISA this operates through the "Centre National Carte Bleue", and for Eurocard/Master-Card through the "Centre Eurocard". These Centres perform a preliminary clearing within the framework of bilateral collection exchanges between the countries concerned, notably VISANET for the VISA network and ENESS for the Eurocard/Master-Card network (see Chapter 13).

The proceeds of uniform Eurocheques are collected similarly. Eurocheques written in France by foreigners, and those written abroad by national customers, are exchanged via national exchange centres. After processing, they are transmitted to the addressee banks via the usual national circuits.

(c) **Exchanges of cheques written abroad**

Following a decision of 1st June 1988, holders of French franc accounts are free to use their cheque books for payments abroad in either French francs or foreign currencies.

In view of the very small number of items, no specific circuit has been set up to exchange French franc cheques written abroad. The cheques are routed via the clearing houses, where the receiving foreign bank's correspondent bank presents them to the payer bank.

There are, however, specific procedures for the exchange of foreign currency cheques written abroad.

An organisation for the exchange of foreign currency denominated cheques drawn on French franc accounts has been in operation in Paris since June 1988. Membership consists of the thirteen largest institutions or networks. The exchange agreement relates to cheques denominated in currencies listed on the official Paris market and received by French banks in their capacity as correspondents of foreign receiving banks.

Physically, the cheques are presented to the payer institution via the Paris clearing house. Payment is made outside the cheque exchange circuit, between the payer bank and its foreign correspondent by the fourth day following the exchange at the latest. This correspondent in turn then pays the addressee's bank. In 1990, approximately 300,000 cheques totalling approximately FRF 12 billion were exchanged through the organisation. Most of the cheques exchanged were for trade payments between companies, which accounts for their high average amount (FRF 40,000).

With regard to foreign currency cheques drawn on foreign currency accounts, a recommendation issued by the C.F.O.N.B. (French Committee for the Banking Practice Organisation and Standardisation) of 17th May 1988 invites banks to present these cheques to the payer banks by mail, stipulating payment by S.W.I.F.T. message, or by telex nine working days at the latest after the date on which the cheque was sent.

(d) **File transfers**

In line with the above, French banks are playing an active part in new S.W.I.F.T. developments: five of them are involved in the pilot S.W.I.F.T.-EDI experiment, and others, motivated by a desire to reduce costs by processing their high volume international operations more efficiently, have played a particularly active role in the definition of two new S.W.I.F.T. services – "Interbank File Transfer" (IFT) and "Bulk Payments." These two, when combined, will permit the exchange of this type of payment in the form of standardised file transfers. Pending the introduction of these new facilities, certain French banks – in particular the "Caisse Centrale des Banques Populaires", as part of the "Confédération Internationale du Crédit Populaire" – have established procedures with their principal correspondents for the exchange of high volume payments on magnetic media (credit transfers, direct debits, etc.).

4.1.3. Wholesale payments

SAGITTAIRE (see Section 3.2.2.) is the only automated system that handles French franc payments in connection with international transfers.

Customer payments represent roughly one-quarter of the total number of payments (approximately 2,900 out of a daily total of around 11,500), but account for only 3.3% of their total value (approximately FRF 6 billion a day out of a total of around FRF 180 billion a day). The average unit value of a customer payment via SAGITTAIRE is therefore approximately FRF 2 million (compared with an average of 20 million francs for interbank payments handled by SAGITTAIRE). The proportion of low-value customer payments is tending to decline following a reform in 1989 of the rules governing the reporting of transactions for balance-of-payments purposes, whereby, certain low-value "international" payments in French francs (credit transfers, electronic bills of exchange, etc.) were allowed to be handled via computer clearing centres and SIT.

4.2. Exchange and settlement systems for securities transactions

4.2.1. Institutional framework

The French capital markets have expanded considerably since 1983 with the encouragement of the authorities. In particular, new instruments (negotiable debt instruments, futures, traded options) and new markets (MATIF¹⁸, MONEP¹⁹, etc.) have been created, while new exchange systems (RELIT and SATURNE) have been introduced.

¹⁸ Marché à terme international de France.

¹⁹ Marché des options négociables de Paris.

There is now a broad range of instruments in use:

- equities, fungible Treasury bonds (OAT)²⁰, and other bonds whose initial life is more than seven years are traded on organised (official) markets;
- negotiable debt securities, with maturities ranging between ten days and seven years, issued by the Treasury (treasury bills), credit institutions (certificates of deposit and certificates issued by specialised institutions and finance companies) and companies (commercial paper), are traded on over-the-counter markets that form the (non-exclusively) interbank element of the money market. The SATURNE system provides the financial community with modern conditions for processing transactions in negotiable debt instruments;
- futures and traded options, each on their specific market: MATIF for financial futures, and MONEP for traded options on securities;
- other instruments traded on the financial market, including interest rate swaps, FRAs, caps, floors, collars, etc.

4.2.2. Exchange and settlement systems

(a) RELIT (“Règlement-Livraison de Titres” – Securities settlement and delivery system)

The RELIT system has become operational at the end of 1991. It has replaced all of the different settlement circuits hitherto in place on the French market. The new system matches trades automatically and makes daily entries in securities and cash accounts, based on the principle of delivery versus payment.

The system guarantees simultaneous cash settlement and delivery of securities within a maximum of three working days after the date of the trade or redemption (“liquidation”) for securities transacted on an organised market. It is then up to SICOVAM (“Société Interprofessionnelle pour la Compensation des Valeurs Mobilières”), the only central depository body since the general dematerialisation of securities, to proceed with the chaining of transactions at the due settlement date. During this process, securities are delivered insofar as they are available on the vendor’s securities account, and insofar as the buyer has lodged a sufficient guarantee with the Banque de France, which is responsible for the cash leg of the transaction. The transactions thus processed are irrevocably recorded in the securities account (with SICOVAM) and the cash account (with the Banque de France). In the event of an insufficiency of securities or cash, the transactions are suspended and reprocessed in subsequent days’ chainings.

The guarantee provided to its members by the “Société de Bourse Françaises – SBF” (French Stock Exchange Association) which manages the Stock Exchange underlies this arrangement. The SBF guarantees its members settlement in cash or delivery of securities in case of counterparty default. Membership of this guarantee mechanism, currently reserved for brokerage firms, will shortly be extended to other market participants.

(b) SATURNE

In September 1988, the Banque de France put in place a settlement system for operations in Treasury bills called SATURNE (“Système Automatisé de Traitement Unifié des Règlements de créances Négociables” – system for the standardised processing of settlements of negotiable claims), designed to improve the security and speed of settling transactions in these bills. SATURNE was subsequently expanded to include operations in other categories of negotiable debt instruments, i.e. certificates issued by specialised financial institutions and financial companies, certificates of deposit and commercial paper (subject, for the last two categories, to a minimum underlying pool of FRF 100 million and an initial life of six and three months respectively). During the course of 1992, the SATURNE system will be unconditionally opened to all French franc negotiable short-term debt instruments and to foreign currency denominated securities.

There are approximately 350 participants in the system: credit institutions, brokerage firms, insurance companies and pension funds, foreign central banks and international financial institutions, together with CEDEL and Euroclear. Each negotiable debt instrument current account is divided into several subaccounts, in order to distinguish between the account holder’s own securities and those held for its different categories of customer (mutual funds, insurance companies, non-residents, etc.).

²⁰ Obligations Assimilables du Trésor.

Transactions processed

The system records operations conducted within the settlement procedure (e.g. securities against cash, including repurchase agreements, and securities transfers without cash payments).

It also serves to process a broad variety of loans of securities in response to the needs and wishes of contracting parties, e.g. unsecured loans; loans collateralised by cash or securities; securities-backed loans, akin to swaps of securities of different types and/or maturities; and loans against cash. SATURNE's operations are confined for the time being to institutions' over-the-counter operations (either directly among themselves or via specialised market-making bodies as intermediaries).

In the case of repurchase agreements with delivery of securities and securities loans, SATURNE processes and arranges them through to repayment at maturity. Where required, securities and cash movements are generated automatically by the system, as are cash movements corresponding to interest payments.

Finally, since 15th September 1990, SATURNE has been used to settle deliveries of repurchase agreements involving Treasury bills within the framework of repurchase tenders and negotiated repurchase agreements with the Banque de France (see Section 5.4.2.).

Operating principles

The system is based on the principle of dual notification. Regardless of the type of transaction, each contracting party must transmit a notification to SATURNE, after which SATURNE matches the two notifications before recording the transaction definitively. After each matching, the transaction is settled in one of the three daily chainings (and one "catch-up" chaining at the end of the afternoon), when the counterparties' accounts are verified for sufficient funds or securities. Cash movements arising from SATURNE are recorded at same-day value in the accounts held in the books of the Banque de France.

If the vendor is found to be in default of delivery after the final chaining of the day, a penalty is applied, which is automatically debited from the latter's cash account and credited in full to the buyer's account. The existence of several daily chainings, and the possibility provided by SATURNE of settling operations with same-day value, gives a temporarily defaulting participant a chance to obtain the missing securities on the market. Thus only a tiny proportion of all transactions actually give rise to penalties.

Irrevocability

Under the risk-reduction programme (see Section 5.3.) movements of securities in SATURNE will be irrevocable. In particular, cash settlements to be credited to and debited from members' current accounts will be given by priority over all other settlements. If a member is unable to settle his transactions, he will be prohibited from buying in subsequent chainings until his account has been settled.

(c) MONEP and MATIF

Transactions on the MATIF and MONEP are cleared multilaterally via a clearing house, MATIF SA and SCMC ("Société de Compensation des Marchés Conditionnels" – Options Markets Clearing Company) respectively, which are substituted as counterparty to each transaction, thus ensuring irrevocability at the close of the day's session. To avoid incurring risks, the two clearing houses make daily margin calls in respect of the transactions recorded by them.

SECTION 5: THE ROLE OF THE CENTRAL BANK IN INTERBANK SETTLEMENT SYSTEM

5.1. General responsibilities

The Banque de France plays a major role in the field of payment media and interbank settlement systems:

- by virtue of its statutes, pursuant to the Law of 3rd January 1973 and the Decree of 30th January 1973, it is vested with the general task of overseeing the currency, credit and the banking system.

It also makes payments and manages movements of funds between banking and financial institutions via accounts opened on its books;

- by virtue of specific tasks entrusted to it by the Government regarding the security and modernisation of the payment system;
- through the decisive influence that it wields through its market operations and through its central position in the payment system in its dual capacity as administrator (of joint services on behalf of the financial community) and as operator (through the scale of the operations it performs on behalf of the Treasury and institutional clients);
- by virtue of the special interest it takes in the intrinsic soundness of the payment system and in efforts to combat fraud;
- lastly, under the Banking Law of 24th January 1984, only credit institutions subject to regulation and supervision (in which the central bank plays a paramount role), are entitled to offer payment services to customers.

The Banque de France has consistently promoted measures to modernise the French payment system. Consequently, it has played an active role in reforms, carried out in consultation with the banking industry, designed to lower the cost of bank intermediation by automating payment media and rationalising payment circuits.

5.1.1. Rule-making

The entire body of regulations applicable to the banking system contributes to the security of settlement systems, for example by defining balance-sheet ratios designed to guarantee the solvency of institutions, and by overseeing interbank risks. The task of framing these regulations is performed by the “Comité de la Réglementation Bancaire” (see Section 1.1.3.).

There are few regulations regarding interbank payment and settlement systems. The existing rules are contractual in nature and are laid down by a number of interbank consultative and standardisation bodies such as the CFONB (see Section 1.4.), the “Groupement des Cartes Bancaires” (see Section 2.2.6.), the SAGITTAIRE Executive Committee (see Section 3.2.2.) and GSIT (see paragraph 3.1.2. (d)). The Banque de France is represented on these bodies (it chairs the CFONB), where its role as the central bank and banker of the Treasury gives particular weight to its views.

In addition, since the late 1970s, the Banque de France has played a very active role in the field of payment and settlement systems.

Firstly, in 1978, the Interministerial committee on information technology invited the Banque de France to undertake studies and implement programmes to promote the automation of financial transactions in the banking and financial sectors, in liaison with Government authorities.

Secondly, in January 1979, the Government asked the Banque de France to form and run a working party to study the rational and coherent development of payment instruments. Its terms of reference included laying down general rules to be observed by banks for exchanges of paperless money, and setting up an interbank data transmission system to promote automated exchanges and provide banks with equal access to electronic resources.

The membership of this Working Party on Payment Media consists of representatives of the main parties concerned and is chaired by the Governor of the Banque de France.

Thirdly, in April 1983, the Ministry of the Economy, Finance and the Budget gave a fresh stimulus to discussions on this subject and gave the Banque de France an operational mandate:

- to devise practical, technical and financial procedures for setting up a data transmission network;
- to make precise recommendations to permit rapid growth in the flow of automated payments and hence optimum utilisation of this network.

Since its formation, the Plenary Group on Payment Instruments has conducted a large number of studies resulting in an interbank consensus in a number of major decisions, including the setting-up of the SIT.

This working party continues to play a strategic role in policy-making with regard to payment and settlement systems, in the observation of trends and in setting medium and long-term goals, and coordinates the work with trade and industry bodies.

Finally, by virtue of the general terms of reference laid down by its statutes, the Banque de France, like most central banks in the developed countries, is seeking to strengthen the intrinsic soundness of financial systems through greater control over the risks to which they are exposed. After a detailed study on the prevention of risk arising in payment systems and in the processing of wholesale transfers, it announced in April 1990 its intention to implement a programme to guarantee successful execution of interbank settlements in order to lower the level of credit risk significantly (see Section 5.3.).

5.1.2. Audit and control

There is no specific procedure whereby the central bank oversees compliance with rules directly or indirectly concerning interbank exchange and settlement systems, over and above the general supervision undertaken by the Banking Commission (see Section 1.1.3.).

On the other hand, the Banque de France regularly performs audit procedures for the interbank exchange and settlement systems which it administers. It pays particularly close attention to maintaining continuity of service. In this respect, it plays a major role in the institution of standby procedures, which it also does in respect of those systems which it does not administer and over which it has no right of audit.

5.2. Provision of settlements facilities

5.2.1. Use of current accounts

Credit institutions do not have accounts especially earmarked for interbank settlements. The Banque de France administers an account in the name of each institution, whose close-of-day balance is taken into account when determining compulsory reserves. All direct transactions between the banks are recorded in these accounts, together with the settlement of balances arising from netting systems (and, in future, gross settlements relating to TBF (see Section 3.3.).

Section 2 of the 3rd January 1973 Law, stipulates that "the Banque de France shall effect settlements and movements of funds between banking and financial institutions through accounts opened in its books". This provision explicitly recognises the central bank's essential role in the transfer of funds between financial institutions.

Indeed, the Banque de France, which also is the only institution to hold accounts in its books in the names of all banking and financial institutions, is the point through which all payments between institutions or to/from the Treasury must pass, regardless of whether the operations are for their own account or are settlements on behalf of customers.

5.2.2. The role of the Banque de France in gross settlement systems

(a) Local credit transfers between accounts

To make transfers within a single locality, the main account holders can use special forms called "Banque de France credit transfers", used mainly for settlements initiated by banks and stockbrokers on their own account. In Paris, where the number of transfers is particularly large and involves substantial sums, these credit transfers are not handled by the Paris clearing house, but are transmitted directly by the recipient to the Banque de France, which makes the necessary transfers of funds between the initiator's and recipient's accounts.

In the provinces, where "Banque de France credit transfers" are fewer and the amounts involved smaller, these payments may also be transmitted and settled through the clearing system.

The "Banque de France credit transfers" are entered in the recipient institution's account on receipt, but they remain revocable and may be returned to the sender's account, if the sender has insufficient funds to enable it to settle at the close of accounting day. The funds are thus not made available to the recipient institution definitively until the close of the accounting day.

"Banque de France credit transfers" are the principal medium for interbank transfers and are scheduled to disappear with the introduction of the T.B.F. system (see Section 3).

(b) Urgent out-of-town credit transfers

The Banque de France provides an urgent out-of-town credit transfer service for its account holders, allowing the recipient institution's account to be credited on the books of any of its branches or sub-offices via the use of telecommunication links. This service is used primarily by credit institutions for large-value cash transfers, either within a given network, or between different institutions, and for urgent credit transfers requested by business customers. Funds must be available prior to the transfer, which is final upon execution. This service is also scheduled to disappear with the introduction of the T.B.F. system.

5.2.3. Relations with net settlement systems

The Banque de France acts as settlement agent for the net settlement exchange systems.

In order to exercise greater control over the risks incurred by it in this respect, the Banque de France has redefined its role in the interbank exchange and settlement process, giving priority attention to those segments of the process that are particularly sensitive in terms of central bank risk.

The data transmission function does not fall specifically within the ambit of the central bank. In the SIT, which is replacing the system of computer clearing centres, this function is performed by an interbank consortium.

The "clearing agent" function needs to be carried out within a minimum regulatory framework. It may therefore be performed either by the central bank, giving it control over the process leading to the recording of settlements on its books, or by an outside supplier subject to rules laid down by the central bank, and over which the latter has a right of oversight.

The "settlement agent" function falls within the exclusive preserve of the central bank, the body charged with the general task of overseeing the payment system and the banking system.

5.2.4. Its role in the settlement of securities transactions

SATURNE

Within the framework of its responsibility for the administration of Treasury bills held on current accounts, vested in it by an Ordinance of 1945, the Banque de France introduced a system of delivery against payment for these securities in 1988; in 1989 and 1990 the system was extended to other negotiable claims (bills issued by specialised financial institutions and finance companies, certificates of deposit and commercial paper). The central bank administers the system and acts as settlement agent (see Section 4.2.2. (b)).

RELIT

The RELIT system commenced operations on 16th November 1990 and is intended to replace all of the delivery and settlement channels currently in operation on the French stock exchange market. Because delivery of securities by the RELIT system is final, the Banque de France, acting as settlement agent, will make cash settlement irrevocable by virtue of pledge of collateral into an escrow account. Moreover, it will provide specific assistance to the French Stock Exchange Association, the inter-brokerage firms' clearing house (see Section 4.2.2. (a)).

5.2.5. Credit facilities

At present, because current accounts are not monitored during the day, credit institutions are able to enjoy implicit intra-day overdrafts, arising from payments made. Moreover, on an exceptional basis, and for the accounts of credit institutions only, the central bank allows non-guaranteed overdrafts at the close of the accounting day, but these carry heavy penalties in the form of an obligation to reconstitute the holdings maintained as mandatory reserves, together with interest (currently at 12%); this obligation must be discharged at the start of the following accounting day.

In the future system of administering current accounts (scheduled for end-1992), to avoid impairing the flow of payments, intra-day overdrafts will continue to be accepted by the Banque de France, initially at least, but they will be limited by predefined binding ceilings. These overdrafts may be backed by guarantees in whole or parts, depending on the central bank's assessment of the risk, and the non-guaranteed portion may be interest-bearing. Overdrafts at the end of the accounting day, also

restricted to credit institutions, will remain the exception as at present, and in any event will have to stay within the ceilings set by the Banque de France and will be subject to penalties.

5.2.6. Pricing policy

As an administrator of payment and settlement systems, the Banque de France sees itself as operating a public service. With the exception of the administration of provincial clearing houses, which it performs free of charge, the Banque de France has a policy of billing at cost.

5.2.7. The risk-reduction programme

Until now, the only arrangement that allows the central bank to safeguard itself against risks arising in connection with its role as settlement agent is the principle of payment revocability, which exists in all the interbank systems. The development of continuous payment systems, the growing speed of execution and the increasing interconnection of payment systems all make application of this principle difficult, if not impossible. What is more, the existence of the principle of revocability may even add to systemic risk by creating an illusion of security and giving credence to the idea that Banque de France intervention is guaranteed in the event of default. This situation is aggravated by the fact that, in the absence of "on-line" accounting, institutions pay no attention to the level of their central bank money during the course of the day.

In line with its general terms of reference, the Banque de France intends to strengthen the intrinsic soundness of the financial systems by controlling more effectively the risks to which the systems are exposed. Consequently, it has embarked on a risk prevention programme designed to guarantee the execution of interbank settlements in order to bring about a significant lowering of the level of risk. This programme, which entails a specialisation of exchange systems, hinges on four points.

Monitoring and limiting debit positions during the day: the "on-line" administration of current accounts held in its books in the names of credit institutions will enable the Banque de France to monitor funds available continuously. The general principle of finality of operations which is due to replace the current concept of revocability will make such surveillance necessary. Initially at least, the Banque de France will continue to accept the existence of debit positions during the day, but these will have to remain within ceilings (see Section 3.3.8.);

The introduction of a large-value gross-settlement system: (TFB) which will operate in real-time and carry the payments currently made primarily via Banque de France credit transfers and "avals de trésorerie" (cash transfer authorisations). They are no longer well suited to modern conditions owing to the size of the payments, their degree of urgency and their security requirements;

Risk-reduction measures within net payment systems: All payment systems which involve netting need to have guarantee mechanisms of their own with the twofold purpose of:

- reducing systemic risk by actively managing liquidity and credit risks within each system;
- enabling the central bank to make final debit or credit entries in settlement of netted payments in the central accounts upon receipt of the data.

The creation of a payment systems "Observatory" ("Observatoire des systèmes d'échange"): which will centralise information on the current intra-day positions of participants in payment systems (netting systems, current-account balances, status of TBF items).

Surveillance by this unit will allow the Banque de France to detect critical situations and will give it a more comprehensive view of the payment systems. Banks' treasurers will moreover have access to detailed information on their Banque de France accounts via a customer server, which will also allow institutions, at their convenience and in parallel with their utilisation of an interbank transmission network, to transmit financial transfers to the TBF system.

This series of measures is currently the subject of discussions within the banking industry and will lead, in principle, to the introduction of an environment of irrevocability for all interbank settlements in the central bank's books from 1993 onwards.

The present system of revocable payments made at fixed times is due to be replaced by a system of continuous, final payments, and this is expected to modify the banks' behaviour. The control and administration of payment flows are expected to become a priority concern, as the central bank will cease to be an implicit supplier of free intra-day credit, as in the past.

5.3. Monetary policy and payment systems

5.3.1. Reserve requirements

French-based credit institutions must meet minimum reserve requirements. As these are calculated as an average of end-of-day balances during a monthly period, the total amount of credit institutions' balances on Banque de France accounts at the end of any given day may be used during the following day to make payments.

5.3.2. Provision of liquidity

(a) Mechanisms

The Banque de France intervenes on the interbank market in three ways:

- by entering into repurchase agreements on its initiative on a tender basis, usually at a rate representing the lower end of the fluctuation margin for the day-to-day market rate;
- by entering into five to ten day repurchase agreements on the banks' initiative, usually at a rate representing the upper end of the fluctuation margin for the day-to-day market rate;
- by entering into operating at customary market rates and conditions (reverse repurchase agreements of variable maturity, buying and selling negotiable debt instruments).

The categories of paper utilised for repurchase agreements are Treasury bills, private commercial bills and commercial paper: the Banque de France reserves the right also to enter into repurchase agreements against other categories of paper. In the case of repurchase agreements against Treasury bills, the instrument is delivered via the SATURNE delivery and settlement system.

(b) Preventing technical risks

A temporary breakdown in a settlement system may deprive institutions of part of their expected funds and impair their ability to forecast their cash position. This situation may give rise to an artificially created liquidity shortfall. Such situations have occurred in France on the occasion of lengthy breakdowns in the SAGITTAIRE system, particularly when these have coincided with the end of a period designated for averaging compulsory reserves.

Improvements in standby procedures designed to shorten interruptions to these systems should help to avoid this type of situation. In particular, the future TBF system will incorporate all necessary measures to prevent risk of interruption to the operation of the settlement system.

Credit institutions, meanwhile, need to strengthen their preventive measures, because a breakdown in the technical equipment of one of them could disrupt the market considerably. Consequently, the Banking Commission has asked credit institutions to ensure that their security measures are adequate, and to strengthen them where necessary.

(c) Preventing liquidity and credit risks

Revocability of payments in the event of default by one of the clearers means possible liquidity risks for its counterparties. These could in turn generate credit risks and could disrupt the interbank market.

The terms of the risk-reduction programme (see Section 5.3.) are designed to reduce liquidity and credit risks arising from interbank exchanges considerably.

(d) Structural factors

At present, credit institutions are entirely free to manage their cash during the day because, as a general rule, their only obligation is to ensure that their current accounts on the Banque de France's books are not in debit at the end of the accounting day. Moreover, because Paris has no system for recording money market operations in real time, these operations are processed ex-post (these being

for the most part payments made as “avals de trésorerie” through the Paris clearing house). The banks, having no need to concern themselves with their central bank balance during the day, do not at present have the means of tracking movements in their accounts in real time.

The implementation of real-time monitoring of credit institutions’ accounts at the Banque de France together with the constraints of intra-day debit ceilings under the risk-reduction programme (see Section 5.3.) would alter the structure of their cash management.

To avoid the build-up of excessive intra-day cash shortfalls and to prevent a “deadlock” situation on payments, a Paris money market agreement is currently under discussion. This is expected to minimise cash shortfalls by satisfactorily staggering certain operations such as repayments of maturing loans immediately followed by borrowings of the same amount. Treasurers will also have access to very full information in real time on movements in their current account at the central bank, and on the status of payments in the pending queues.

It is too early to make a definitive statement on the possibility that an intra-day market may result from implementation of these new measures by the central bank. It is likely, however, that the new structure will give rise to borrowing requirements in order to cover temporary intra-day cash shortfalls.

Basic Statistical Data

(1990)

Population: 56,614,000
 Gross Domestic Product: FRF 6,305.7 billion (1) (ECU 912.02 billion)
 GDP per capita: FRF 111,381 (ECU 16,109)
 Exchange rate: 1 ECU = FRF 6.914

(1) Source: Eurostat

Table A.: Monetary aggregates

(average of end of month)

	billions FRF		Per capita (FRF)
	1989	1990	1990
Notes and coins	246.4	255.5	4,513
Transferable deposits in local currency	1,180.1	1,263.5	22,318
Others	229.4	184	3,250
Total money supply (M1)	1,655.9	1,703	30,081

Notes:

Table B.: Credit Institutions offering payment services (end of 1990)

Categories of Institutions	Number of Institutions	Number of branches	Number of accounts (thousands)	Share of market (%)	Value of accounts (FRF billions)	Share of market (%)	Value of accounts (FRF billions)	Share of market (%)	Average Value of accounts (FRF)
Central bank	1	214	81	0.1	4.2	0.3	4.2	0.3	51,852
Commercial banks	419	10,212	19,695	33.0	662.7	52.5	662.7	52.5	33,648
Savings banks	186	4,307	6,892	11.6	39.4	3.1	39.4	3.1	5,717
Co-operative & mutual banks (1)	194	11,125	23,283	39.1	380.1	30.1	380.1	30.1	16,325
Post Office	1	16,967	8,870	14.9	163.1	12.9	163.1	12.9	18,388
Treasury	1	4,109	764	1.3	14.0	1.1	14.0	1.1	18,325
TOTAL	802	46,943	59,585	100%	1,263.5	100%	1,263.5	100%	21,205

(1) Includes figures for the 21 "Caisses de Crédit Municipal" (76 branches).

Table C.: Cash dispensers, ATMs and EFT/POS terminals

	Cash dispensers and ATMs						EFT/POS			
	Number of			Value of transactions (FRF billions)			Number of			
	Networks	Machines	Transactions (millions)	Networks	Machines	Transactions (FRF billions)	Networks	Machines	Transactions (millions)	Value of transactions (FRF billions)
end 1989	1	13,031	495.3	1	160,000	228.4	1	160,000	n/a	n/a
end 1990	1	14,428	547.7	1	180,000	242.8	1	180,000	n/a	n/a
increase 89/90		11%	11%		13%	6%		13%	n/a	n/a

Table D.: Number of payment cards (end of 1990)

	Number of cards (thousands)	Number of cards per 1,000 inhabitants
Cards with a cash function	19,955	352
Cards with a debit/credit function	22,125	391
Cards with a cheque guarantee function	86	2
Retailers Cards	20,000	353

Note: A card which has several functions appears in several lines and therefore the figures in this table cannot be added.

Table E.: Payments exchanged through the official payment systems

Name	Number of transfers (millions)		Value (billions FRF)	
	1989	1990	1989	1990
Chambre de Compensation (1)	3,544.1	3,589.6	116,558.4	128,205.4
– Cheques	3,494.3	3,547.9	10,436.5	11,357.2
– Credit Transfers	8.7	7.2	1,044.7	1,150.6
– Bills of exchange	32.2	25.8	812.1	663.0
– Avals de trésorerie (2)	0.9	0.8	72,068.5	80,861.0
– Large-value credit transfers	8.0	7.9	32,196.6	34,173.6
Ordinateur de Compensation (3)	1,591.2	1,722.7	5,604.4	6,398.5
– Credit Transfers	697.6	742.5	2,294.2	2,639.4
– Paperless bill of exchange	113.3	124.1	2,446.1	2,774.6
– Direct Debit	508.8	560.2	740.6	850.1
– Titres Interbancaires de Paiement (TIP)	7.6	9.0	17.8	21.1
– ATM withdrawals	236.2	256.2	100.6	106.9
– Card payments	27.7	30.7	5.1	6.4
Centre Régional d’Echange d’Images-Chèques (CREIC) (4)	178.8	201.6	97.1	111.1
“Cartes Bancaires” System	1,193.7	1,326.3	411.7	468.5
– ATM withdrawals	190.8	189.7	92.6	95.5
– Card payments	1,002.9	1,136.6	319.1	373.0
Banque de France	49.4	47.8	33,401.1	37,054.1
– Public Treasury transfers	46.5	45.2	655.9	746.7
– Interbank credit transfers (5)	0.8	0.5	141.1	160.0
– Banque de France large-value credit transfers (6)	1.4	1.3	25,804.1	28,589.7
– Telegraphic credit transfers	0.7	0.8	6,800.4	7,557.7
Sagittaire – large-value credit transfers (7)	1.8	2.5	22,794.0	35,393.0

(1) Chambre de Compensation des Banquiers de Paris and 103 clearing houses

(2) Exchanged only at the Chambre de Compensation des Banquiers de Paris

(3) 70% of operations are exchanged in Paris, 30% outside of Paris in 8 cities

(4) 9 CREIC only in the provinces

(5) Large-value interbank credit transfers not exchanged in the clearing houses

(6) Large-value credit transfers directly given to the Banque de France

(7) Transactions originated abroad only

Table F.: Relative importance of cashless payment instruments in the payment system

Instruments	Number of transactions (millions)		Value of transactions (billions)	Percentage of total volume		Number of transactions per capita	Average value per transaction
	1989	1990		1989	1990		
Cheques issued	4,324.5	4,514.3	17,060	18,233	56.2	79.7	4,039
Payments by debit and credit cards	1,030.6	1,167.3	324	379	14.5	20.6	325
Paper-based credit transfers:	110.6	96.5	132,780	146,598	1.2	1.7	1,519,000
customers initiated	99.5	86.0	2,570	2,814	1.1	1.5	32,700
interbank*	11.1	10.6	130,210	143,784	0.1	0.2	13,694,000
Paperless credit transfers:	1,160.2	1,244.5	34,630	48,695	15.5	22.0	41,971
customers initiated	1,157.7	1,241.2	5,036	5,744	15.4	21.9	4,628
interbank*	2.5	3.3	29,594	42,951	0.1	0.1	13,015,000
Direct debits (1)	767.3	844.9	1,467	1,382	10.5	14.9	1,636
Others	192.1	170	3,800	3,826	2.1	3.0	22,506
TOTAL	7,585.3	8,035.7	190,061	219,113	100%	142.0	27,261

* or large-value

(1) Including TIPs

7. Ireland

IRELAND

Introduction

Payments systems in Ireland are highly centralised. The cheque is the main payment instrument in the Irish small-value payments system, with credit transfers playing a relatively small part. Clearings of small-value items are effected mainly through the Dublin Bankers' Clearing with the balance processed by a Central Bank sponsored clearing entitled the Central Exchange. The Central Bank's part in the small-value system is mainly of a monitoring nature. In the case of large-value payments and settlements, the Central Bank operates the only settlement system, entitled the Daily Interbank Settlement.

SECTION 1: INSTITUTIONAL ASPECTS

1.1. General legal aspects

The banking system is at the centre of the money transmission system. Although entry to the banking system is supervised by the Central Bank (the Bank) under the Central Bank Acts, 1942 to 1989 (see Section 1.3.), there is no specific legislation regarding the entry requirements to the payments system itself. These are determined by the rules of the three main elements of the payments system; the Dublin Bankers' Clearing, the Central Exchange and the Daily Interbank Settlement (see Section 3).

The cheque is the major small-value payments instrument in Ireland and its issue and acceptance as a means of payment is determined by the Bills of Exchange Acts, 1882 to 1989 and by case law.

1.2. Financial intermediaries that provide payment services

Deposit-taking institutions in Ireland can be classified as follows: licensed banks, building societies, savings banks, state-sponsored credit institutions and the Post Office Savings Bank.

The wide range of deposit-taking institutions (excluding the Post Office Savings Bank) provides a variety of payment services through an extended network of some 1,128 branches, or one branch per three thousand of the population. More than half of this branch network is owned by the four main clearing banks. These banks also account for almost 90% of the sight accounts in value terms. Trustee Savings Banks¹ (savings banks) and building societies, which account for a very small proportion of both activity and volume in the payments system, are primarily domestically orientated. Two of the four main clearing banks are domestically owned and these account for about 80% of domestic banking business. These banks also have substantial foreign interests, in the US and UK particularly. About one quarter of the rest of the credit institutions are subsidiaries of the main clearing banks, while two thirds are wholly-owned subsidiaries or branches of foreign banks. Of the foreign-owned institutions about two thirds have EC parents.

The Post Office Savings Bank is under the direct control of the Minister for Finance. It is not a credit institution as defined under EC directives and only provides a very limited payments service, a deposit-taking service and sells savings instruments on behalf of the Minister. This institution is largely a savings institution but it does provide a facility to purchase payment orders in return for cash through its extensive network of 1,395 branches.

ACCESS (Mastercard/Eurocard) and VISA are the main credit cards issued in Ireland.

Large-value interbank payments within Ireland are notified and agreed through the telephone system and may be confirmed by telex or S.W.I.F.T. For large-value foreign currency payments, there is widespread reliance on the correspondent banking network, with the extensive use of S.W.I.F.T. (see Section 4.1.). Tested telex messages are used to an increasingly diminishing extent.

¹ On 1st June 1992, the two trustee savings banks will merge into one such bank.

1.3. The role of the central bank

The Bank has, by law, the general function and duty of taking such steps as are deemed appropriate and advisable towards "safeguarding the integrity of the currency and ensuring that, in what pertains to the control of credit, the constant and predominant aim shall be the welfare of the people as a whole". It also has responsibility in relation to the proper and orderly supervision of banking as well as the orderly functioning of the financial markets.

The Central Bank Acts, 1942 to 1989, provide the Bank with general powers in relation to the granting of banking licences and the supervision of banks. The Bank also has supervisory powers in respect of building societies (under the Building Societies Act, 1989) and the savings banks (under the Trustee Savings Banks Act, 1989). The Department of Finance has announced that it is intended to bring the two state-sponsored credit institutions (Agricultural Credit Corporation and Industrial Credit Corporation) under the supervision of the Bank by 1993.

The Bank has statutory responsibilities under the 1971 Central Bank Act for ensuring access to cheque, or debit item, clearing facilities and in respect of the charges applied by clearing banks to non-clearing entities/institutions. The purpose of the legislation is to ensure that all deposit-taking institutions are in a position to clear cheques at prices that reflect the competitive costs involved. Similar explicit legislative provisions do not exist in respect of the clearing of credit items which reflects the fact that they are not yet an important means of payment.

The Bank plays a monitoring role in respect of the main paper clearing – the Dublin Bankers' Clearing – ensuring that entry requirements are not restrictive. Moreover, the Bank sponsors a further paper clearing entitled the Central Exchange, which facilitates the clearing of cheques for institutions which are not members of the Dublin Bankers' Clearing.

Apart from having the power to ensure that deposit-taking institutions are not prevented from providing cheque account facilities, through restrictive practices of existing providers of such services, the Bank also has a statutory role, under the Central Bank Acts, in respect of the transaction charges applied by the banks to their non-bank customers. In exercising its powers in relation to these bank charges, the Bank must have regard to the promotion of fair competition between banks and other deposit-taking institutions.

The 1942 and 1971 Central Bank Acts provide the Bank with powers to operate accounts. In 1980, the Bank established the Daily Interbank Settlement (DIS) system and in this regard the Bank provides current account services to 24 licensed banks, one savings bank and one building society. It is through these accounts that the banks settle for clearings, large-value interbank transactions and transactions with the Bank. The Bank also acts as the government's banker for large-value Irish pound and foreign exchange transactions. Government small-value payments are made mainly through the Paymaster General which is a member of the Central Exchange (see Section 3.2.5.).

The Bank also holds accounts for foreign entities such as central banks, the European Commission and the Bank for International Settlements.

In 1989 the Bank established the Gilts Settlements Office for the settlement of government bonds transactions (see Section 4.2.2.).

Currency notes are issued by the Bank under the Central Bank Act, 1989, whereas it issues coinage on behalf of the Minister for Finance under the Coinage and Decimal Currency Acts. The Irish pound is the only form of legal tender and the currency consists of legal tender notes and coins. The notes are of the following denominations: IEP 5, 10, 20 and 50. These are printed and issued by the Bank. The Bank's balance sheet shows a liability for notes outstanding. A one pound coin was introduced in June 1990 and has virtually replaced the one pound note. The coins are issued in the following denominations: IEP 1, 50 pence, 20 pence, 10 pence, 5 pence, 2 pence and 1 penny (100 pence = IEP 1).

The Bank administers a deposit protection scheme, under the 1989 Central Bank Act, which covers deposits in the licensed banks and building societies. The Bank also has a supervisory role in relation to certain other financial institutions: the Irish Futures and Options Exchange (IFOX); Moneybrokers; Collective Investment schemes, including UCITS, and certain entities being established in the International Financial Services Centre (IFSC). Following a recent government announcement legislation is expected in the near future which will designate the Bank as supervisor of the Irish Stock Exchange. The Bank does not have a supervisory role in relation to the Post Office Savings Bank.

1.4. The role of other private and public sector bodies

The Dublin Bankers' Clearing Committee, which is a private association established in 1845, is the major cheque clearing organisation in Ireland, handling most of the items cleared. The Dublin Bankers' Clearing Committee formulates and applies the rules for entry to the Dublin Bankers' Clearing. Rules regarding participation were reformulated in 1989 and affirmed by the Bank.

The Irish Bankers' Federation represents the general interests of licensed banks. Building societies' interests are represented by the Irish Building Societies Association.

An Ombudsman scheme was established jointly by licensed banks, building societies, the savings banks, and the two state-sponsored credit institutions to investigate complaints from individuals. This scheme came into operation on 1st October 1990.

SECTION 2: SUMMARY INFORMATION ON PAYMENT MEDIA USED BY NON-BANKS

Cash (notes and coin) and cheques are the predominant small-value payment media used in Ireland. The use of credit instruments is limited. Since the early 1980s credit cards have grown in importance and technological developments are having an increasing influence with the more widespread use of, inter alia, automated teller machines (ATMs), transfers via magnetic tape media and processing on Magnetic Ink Character Recognition (M.I.C.R.) encoding and reading equipment. Magnetic tape is used for bulk clearing of cheques, direct debits, standing orders and credit transfers. M.I.C.R. encoding and reading equipment is used for cheque clearing.

2.1. Cash payments

Notes and coin continue to play an important role in making payments in Ireland. Currency (notes and coin) as a percentage of GNP corresponds to the EC average and has declined from 7% in 1980 to 5% in 1990. Retail payments are made, and wages continue to be paid, predominantly in notes and coin but to a diminishing extent (see Section 2.3.). The amount of coin acceptable as legal tender in any one transaction is limited by the Decimal Currency and Coinage Acts.

2.2. Non-cash payments

The use of payment instruments, other than notes and coins, recorded substantial growth in the 1980s, reflecting an expansion in the banking habit, especially among the self-employed, farming and employee sectors. Current (sight) accounts are the predominant accounts on which non-cash payment instruments are drawn for making domestic small-value payments. These accounts are usually non-interest bearing. However, while interest is not generally paid on these accounts, most banks operate a scheme whereby if the account is kept in credit for a pre-specified amount and period, no charges will be made for transactions across the accounts. Balances on interest bearing deposit accounts in the major clearing banks can be transferred with little difficulty, on demand, to current accounts.

While cheques are the predominant non-cash payment instrument, the banks are promoting other – paperless – payment media, such as standing orders, direct debits and ATMs. This is pursued through the enhancement of these payment services and through the related pricing policy for their usage. The use of ATMs, especially for cash withdrawal from banks, has shown substantial growth in the second half of the 1980s. Banks are also actively encouraging large organisations that generate or receive high volumes of recurring payments to use paperless electronic transfers, e.g. by direct crediting of salaries and by direct debiting of firms' accounts. Ireland, unlike some of its European partners, is not a large user of credit transfers or giro banking. Cheques are not yet truncated (see Section 2.3.).

There are two types of cards which are used by customers when purchasing goods and services – *credit cards* and *cheque guarantee cards*. The generic term credit card covers:

- credit cards of the VISA and ACCESS (MasterCard/Eurocard) type;
- the charge card with no extended credit facility (as issued by American Express and Diners Club) and;
- the in-house card issued by large retail stores for use exclusively with them.

There are over half a million credit cards issued in Ireland, i.e. one for every third adult. Most of the credit cards (ACCESS and VISA) are issued by the members of the Dublin Bankers' Clearing.

Credit available as a result of the issue of ACCESS and VISA amounts to IEP 531 million of which IEP 161 million was outstanding in December 1990. This latter figure amounts to nearly 10% of total personal credit (excluding mortgages) provided by the deposit-taking institutions.

Cheque guarantee cards, of which there are over half a million issued, are not payment instruments but they support payments, as their sole purpose is to guarantee the payment of a cheque. The current maximum value of the cheque card guarantee is IEP 100. Some banks issue dual function cards which may be used to operate ATMs and as cheque guarantee cards.

ATMs have been in operation in Ireland since the early 1980s. At this stage there are 534 ATMs in service throughout the country, i.e. about one ATM per six and a half thousand of the population. The four major members of the Dublin Bankers' Clearing have provided 482 ATMs in aggregate which are interlinked. So far, the savings banks have installed 49 ATMs which are also interlinked. However, there are no immediate plans to interlink this network with that of the clearing banks. The Irish Building Societies Association, in the first half of 1991, introduced an interlinked network of ATMs which, when completed, will reduce the ratio of persons per ATM to six thousand. The technical specifications of the building-societies' network are fully compatible with those of the clearing banks and this will facilitate interlinking between most ATMs.

The services available on ATMs include cash withdrawal, lodgement, account enquiry, statement and cheque book requests. Bill payment facilities are also available through the ATM network of one of the clearing banks, to settle electricity, telephone and credit card indebtedness. A number of ATMs also provide a foreign exchange service in appropriate locations. Customers of major UK clearing banks may also use their cash cards at the ATM networks in Ireland for cash withdrawals. Moreover, some VISA and ACCESS credit card holders can use the major ATM network for cash withdrawals. In the case of the major ATM network, a central database exists for security purposes.

In Ireland, a limited number of Point of Sale (POS) stations are in place in retail outlets. Some POS stations, which are linked to a central computer, provide immediate authorisation and give immediate effect to normal credit card transactions while others collect data and information for the purposes of subsequently debiting the customers' accounts with the credit card company. The data are sent, via a telecommunications network, for processing at the end of each business day. Facilities for full electronic funds transfer at point of sale (EFT/POS) do not yet exist in Ireland. Banks are evaluating the commercial viability of introducing such facilities in the future.

The Post Office Savings Bank (POSB) is operated by the state company – An Post – which operates the national postal service. The POSB provides retail money transmission services for government departments, the national communications company and other public bodies as well as for the personal sector. The main payment instruments currently provided by the POSB are Postal Orders and Money Orders which are essentially the same as bank drafts. The development of the payment services of the postal authority has not kept pace with those of the banks but a number of improvements in the money transmission area are under consideration to take advantage of their large network of branches and modern electronic funds transfer technology. This could lead to greater competition in the provision of domestic payments services. However, at present the POSB only operates savings accounts. Their only formal connection to the payments system is through the issue of Postal and Money Orders which if they are lodged to the banking system are settled bilaterally through an account held by the POSB in one of the clearing banks.

Payable Orders, which are another form of debit instrument, are issued by the Paymaster General for the payment of civil service salaries and for goods and services. These instruments are treated similarly to cheques insofar as they are collected through the cheque clearing system.

2.3. Recent developments

Cheque truncation is not practised in Ireland yet. However, it is planned to implement it and some steps in that direction have already been taken in that paid cheques are no longer returned to personal customers but are retained at the (paying) branch where the current account is held. This has not yet been effected for corporate customers.

The building societies were given powers, in 1989, to engage in money transmission business. They are currently examining the options open to them for clearing and settlement arrangements.

There is an increasing trend for wages and salaries to be credited directly and electronically to bank accounts. There has also been some exploratory discussion on the possibility of state benefits being similarly paid. Steps are under consideration to repeal legislation which compulsorily requires certain categories of employees to be paid in cash. The impetus for this legislation is partly the security aspects of the need for large amounts of cash to be held by, for example, commercial companies on pay day. If this legislation is enacted, there could be a further increase in bank usage, such as the increased use of direct crediting of wages to bank accounts.

Branches of the major banks in Ireland are linked by on-line telecommunication lines to their head office computer centres. This permits on-line data transmission for all transactions and up-dating of in-branch accounts.

The major banks have introduced on-line counter terminals which provide bank customers access to their account held either at that branch or at another branch of the same bank. These terminals are accessed via the normal ATM card. Cash lodgements and withdrawals using counter terminals have immediate effect upon a customer's balance.

The use of systems involving Electronic Data Interchange (EDI) are operational at the level of the exchange of tapes between the main banks and through the use of S.W.I.F.T. The representative body for licensed banks, i.e. the Irish Bankers' Federation is fully involved with the various international agencies concerned with the further development and standardisation of EDI.

SECTION 3: INTERBANK EXCHANGE AND SETTLEMENT CIRCUITS

3.1. General overview

There are two main paper clearings in Ireland, the Dublin Bankers' Clearing and the Central Exchange, described in Sections 3.1.1. and 3.1.2., respectively. Interbank payments and settlements, and settlement for these clearings and for other large-value payments and settlements are set out in Section 3.2. A schedule of the timings of the various payments and settlements is given in Appendix 1.

3.1.1. Dublin Bankers' Clearing

The Dublin Bankers' Clearing consists of six members, four licensed banks, the Trustee Savings Bank Association and the Central Bank, through which most of the non-cash small-value payments are cleared. Two of the licensed banks account for 85% of the transactions. The Bank is a member for the purposes of clearing items arising from transactions on the public sector accounts held at the Bank and on its own behalf. The main function of the Dublin Bankers' Clearing is to facilitate the exchange of paper debits (i.e. cheques), credit items and Electronic Funds Transfer (EFT) transactions, which are collected through the individual bank's clearing centres or departments.

Paper processing takes place in Dublin, in the clearing department of each bank, following the transfer of the paper each day from the regional centres in courier vans, the costs of which are shared between the banks. According to the rules, representatives of the members meet twice each day at 10.30 and 14.00, to agree the values to be exchanged between them. The afternoon exchange is for items of IEP 20,000 and greater.

3.1.2. The Central Exchange

In 1972, the Bank established the Central Exchange to facilitate those banks – mainly foreign banks established in Ireland – which were not members of the Dublin Bankers' Clearing. The Central Exchange, which is an administrative device and not a legal entity, is supervised by the Bank and is located in its offices where the cheques are physically presented daily at 11.00. Banks who are members of the Dublin Bankers' Clearing also participate in the Central Exchange, though such members may not present items drawn on each other for clearance at the Central Exchange. The Central Exchange handles

only cheques, i.e. debit items, and these represent a very small proportion of all cheques cleared in Ireland each day. The Paymaster General is a member of the Central Exchange for the purpose of facilitating the clearing of Payable Orders, i.e. government payment instruments.

3.1.3. Agency Arrangements

Banks which are not members of the Dublin Bankers' Clearing or the Central Exchange can use a member bank to act as its agent. In this case the items are drawn on the non-member's account in the member bank and the account is treated in the same manner as the account of a customer of that bank from a value and settlement point of view.

3.1.4. Timing of settlement and provision of value in the clearings

In the case of both the Dublin Bankers' Clearing and the Central Exchange, a paper debit presented by a customer to a bank on day one is transferred to the bank on which the debit was drawn on day two and appears as a debit on the payer's account on day three. Settlement is made and value given on day two to customers and banks in the case of the Central Exchange. In the case of the Dublin Bankers' Clearing, settlement is made between banks on day three while value is given to customers and to banks on day two.

3.1.5. Special Presentations

This is a same-day settlement facility for large-value Irish pound cheques within the rules of both the Dublin Bankers' Clearing and the Central Exchange. Cheques of IEP 100,000 and greater, drawn on nominated branches located in central Dublin, may be "specially presented" at these offices up to 15.00 daily for same-day value in Central Bank funds. Payment is effected by the bank upon which the cheque is drawn, drawing a debit on its account at the Bank. Furthermore, cheques of similar magnitude drawn on a branch that is not a nominated one, may be presented at that branch and the Bankers' Payment obtained in return may be presented at a nominated branch before 15.00, in return for a debit against that bank's account at the Bank. This facility is available on a reciprocal basis to all licensed banks on which cheques are drawn. Cheques for which value is given/received in this manner are settled gross in the Daily Interbank Settlement as opposed to other cheques cleared through the Dublin Bankers' Clearing or the Central Exchange which are settled on a net net basis (see Sections 3.2.1., 3.2.3. and 3.2.6.).

3.1.6. Other clearings

When credit card vouchers, which have been accumulated by accepting merchants are lodged by the merchant to their own bank accounts, they are entitled to same-day value. Those vouchers that pertain to credit cards that have been supplied by the merchant's own bank may be cleared through that bank's normal internal clearing procedures. This simplified process results in the credit card holders' accounts being debited within the shortest possible time following the lodgement of the vouchers with the bank.

Where the credit card vouchers are associated with banks, including those located abroad, other than the merchant's own bank, the information contained on the vouchers is transferred onto magnetic tape and dispatched to the respective credit card companies. These companies then prepare further tapes for transmitting to the individual banks who issued the credit cards. Such tapes contain information for these banks about their own customers' credit card purchases which is then transmitted through their internal clearing systems to be debited next day to the credit card users' accounts. On average this process is more drawn out than is the case for presentation and debiting of cheques described in Sections 3.1.1. to 3.1.4.

A feature of the reciprocal ATM arrangement between the four main clearing banks is that each bank's system automatically produces figures each day for the amounts owed to/due from other clearing banks as a result of customers' withdrawals and lodgements via interlinked ATMs. The debit items arising from the interbank borrowings, as a result of the use of ATMs over the day or weekend, are cleared next working day through the normal cheque clearing arrangements.

There is a National Eurocheque Clearing Centre in Ireland for the processing of Eurocheques which have been negotiated abroad by Irish residents. This centre processes those Eurocheque transactions on behalf of all banks in Ireland which are then transmitted through their clearing departments for debiting next day to the drawees' accounts. Eurocheques negotiated by non-residents in Ireland, up to the equivalent of IEP 800, are processed domestically through the international divisions of the four main clearing banks and sent to the relevant foreign Eurocheque clearing centres. Eurocheques of over the equivalent of IEP 800 are sent for collection by the bank to which they are lodged to the banks on which they are drawn.

3.2. Structure, operation and administration of major large-value systems

Large-value funds transfers between banks take place across the current accounts maintained by each bank with the Bank. All banks who are members of the Dublin Bankers' Clearing and the Central Exchange must maintain a current account at the Bank for settlement purposes. A minimum balance of IEP 25,000 must always be held in this account. In addition, banks involved on a day-to-day basis in money market activities also maintain current accounts. At present, a total of twenty-four licensed banks and one savings bank and one building society hold current accounts at the Bank. The classes of large-value payments are set out in Sections 3.2.1. to 3.2.3.

3.2.1. The Daily Interbank Settlement

This system was set up by the Bank in 1980 and involves co-ordination of payments in Bank funds between banks. It is a formal structure whereby banks with current accounts at the Bank meet there at 15.30 each day to exchange debits drawn on their Bank accounts for the total value of payments notified and agreed by telephone throughout the day. These payments relate to commercial payments on behalf of customers, interbank money market dealing and the Irish pound value of foreign exchange interbank transactions.

As well as the Bank market operations described in Section 3.2.2., the Bank also participates, on behalf of itself and its public sector and international customers, in this daily exchange of paper, making and receiving payments to/from banks.

At 15.30, the banks also lodge debits which they have received in exchange for cheques of IEP 100,000 and greater, which have been specially presented for same-day value as part of the Special Presentations arrangements (see Section 3.1.5.).

3.2.2. Central Bank Market Operations

These payments mainly concern the Bank's operation in the money market (e.g. lending to, or receiving deposits from, banks), interventions by the Bank in the Dublin foreign exchange market and withdrawals/lodgements of currency notes by the banks.

3.2.3. Settlement of clearings

Each day the Bank also receives payment/receipt instructions to effect settlement for Dublin Bankers' Clearing and the Central Exchange, and the Gilts Settlement Office (see Section 4.2.2.).

3.2.4. Major legislation, regulations and policies

Cheques of IEP 100,000 and greater are subject to the provisions of the Bills of Exchange Acts, 1882 to 1989 and also come under the rules of both the Dublin Bankers' Clearing and the Central Exchange. The operation of the Dublin Bankers' Clearing is subject to rules set by its members. The Central Exchange is subject to rules set by the Bank, as are the operations of the Daily Interbank Settlement and current accounts at the Bank. The Daily Interbank Settlement is restricted to items of IEP 50,000 and greater.

The Bank's rules for current, or operating, accounts require a bank to lodge only one debit drawn on another bank in respect of all interbank transactions agreed by telephone. In general, a lower

limit of IEP 25,000 exists on a bank's transactions on their current account at the Bank, though in practice the amounts involved are substantial.

3.2.5. Participants in the system (direct, indirect, non-resident, etc.)

The Bank will normally provide a current account for licensed banks having regard to a bank's needs for such a facility because of its market dealing or cheque clearing operations. However, not all licensed banks have such accounts. Out of a total of thirty-five licensed banks, twenty-four have current accounts at the Bank and the majority of current account holders participate in the Daily Interbank Settlement and settle in Bank funds. One savings bank and one building society also have current accounts at the Bank.

All licensed banks and the savings banks, which provide cheque book facilities for their customers, participate in normal clearing arrangements, either directly as a member of the Dublin Bankers' Clearing or the Central Exchange, or indirectly through an agency relationship with a member of these clearings.

In its role as government banker, the Bank also holds accounts for the government which include the Collector General's accounts and the Exchequer Account. The Bank also holds the Paymaster General accounts which are funded by the Exchequer Account. The Paymaster General effectively operates as a bank, clearing its own cheques, known as Payable Orders, through the Central Exchange. The final settlement is across the Paymaster General's account in the Bank.

As well as the Paymaster General, only banks and credit institutions licensed and supervised by the Bank are members of the Dublin Bankers' Clearing, the Central Exchange and the Special Presentations systems, or have current accounts at the Bank. Branches or subsidiaries of foreign banks and other financial institutions which do not have a physical presence in the country and are not licensed by the Bank must, if they wish to participate in these payments mechanisms, operate through an agency relationship with a member of the Dublin Bankers' Clearing or the Central Exchange.

3.2.6. Operation of the transfer system (gross/continuous versus net settlement systems, role of clearing houses, etc.)

Daily interbank payments are settled bilaterally and gross by means of paper debit instructions drawn on its account at the Bank by the paying bank and lodged by the payee bank to its account at the Bank. Each debit instruction is a single payment from the payer to the payee bank and represents the sum of payments made throughout the day by the payer bank to the payee bank. In arriving at the debit, or single payment, no netting occurs. Final settlement is effected in the Bank at the end of the day. Special Presentations, discussed in Section 3.1.5., are settled gross.

Payments or receipts in respect of Bank transactions with account holders are also transacted across accounts at the end of the day. These payments mainly relate to the Bank's interventions in the management of the Dublin foreign exchange and Irish pound interbank markets and also include the provision and withdrawal of currency notes to/from banks.

The settlement of the clearings and the Gilts Settlement Office (see Section 4.2.2.) are also transacted across the banks' current accounts at the end of the day. The settlement of clearings relates to cheques delivered to the paying bank, one day previously in the case of the Dublin Bankers' Clearing, and on the same day in the case of the Central Exchange. The gilts settlement relates to transactions of the previous day. These settlements are net net, and represent a member's overall debit or credit position for that clearing. The Dublin Bankers' Clearing, the Central Exchange and the Gilts Settlement Office are only involved in the large-value payments system to the extent that they provide settlement figures for the participants of these systems. The Bank then processes these payments on the participants' current accounts.

3.2.7. Transaction processing environment (network, back-up solutions)

The Daily Interbank Settlement and Special Presentations systems are wholly manually operated paper-based systems. All participants attend at the Bank and lodge the debits received to the

credit of their own account. The Bank then enters the transactions on the participants' accounts with the resulting balances being made available late evening.

Similarly, the Bank's interbank market operations and the settlement of clearings are manual systems, the Bank entering the individual transactions on its accounting system. As the systems are entirely manual up to entry on the Bank's accounting system, no back-up procedure is required.

3.2.8. Settlement procedures (accounts, agents, etc.)

All large-value transactions are processed through the current accounts held at the Bank. While the payment instructions are made throughout the day, by telephone, special presentation of a cheque, S.W.I.F.T. or telex advice to the Bank, the transactions are processed after 16.00. All transactions are considered to be settled simultaneously at close of business. Banks making or receiving payments for their customers throughout the day will give same-day value. Large-value cheques are presented at the drawee bank and if paid, i.e. by means of a debit on the drawee bank's account at the Bank, cannot subsequently be returned unpaid.

3.2.9. Pricing

All direct participants in large-value payments have current accounts at the Bank, on which a minimum interest-free credit balance of IEP 25,000 must be maintained. No overdrawn balances are permitted and net debit positions with the system are funded with secured accommodation from the Bank (see Section 5.3.). No transaction fees are charged. Banks do not charge other banks for same-day payments among themselves. Banks making same-day value payments on behalf of customers generally charge a fee in the region of IEP 20 per transaction while the charge for same-day collection of cheques for customers is on a scale of fees depending on the amounts involved and volume of business.

3.2.10. Credit and liquidity risk management (finality of payments, net or net debit caps, collateral requirements, loss sharing)

(a) Credit risk vis-à-vis non-bank customers

As it operates at present, the Daily Interbank Settlement could pose some risks for banks in monitoring and controlling customer credit exposures. Banks advise each other of payments via the telephone, telex or S.W.I.F.T. throughout the day. The receiving bank is presented with the debit on the paying bank at the Daily Interbank Settlement at 15.30. Settlement takes place at the end of day over their current accounts at the Bank. A bank allowing a customer to draw that day on this payment is incurring an intra-day exposure.

In the case of a large-value cheque, if the collecting bank allows its customer to draw irrevocably against the cheque in advance of presenting it to the paying bank, then it would also be incurring an intra-day exposure. The paying bank would make its decision to pay, based on its knowledge of its customer's account and, if paid, the cheque could not subsequently be returned unpaid. If paid, a debit drawn on the paying bank's account with the Bank for same-day value would be provided to the receiving bank that day through the Daily Interbank Settlement. The risk would then become a credit risk between banks in the event that the paying bank were unable to settle in Bank funds for its debits at the end of the day, having exhausted its borrowing facility from the Bank.

(b) Credit risk vis-à-vis banks

Credit risk between banks with current accounts at the Bank could be attributed to the delay between the time when banks instruct payments by telephone, telex or S.W.I.F.T. and when final payments are received by a bank in the form of debits drawn on current accounts at the Bank at the Daily Interbank Settlement at 15.30. If a paying bank could not obtain interbank funds due to credit limit problems, or from the Bank due to an inability to provide government bonds as security (see Section 5.3. for the Bank's means of providing credit); there might be the risk that that bank might not be able to settle for its own debits unless the Bank decided to intervene. This would involve unwinding or lending between banks to avoid systemic risk problems – see below. In such circumstances the payee bank

might have to borrow and have an overnight, or longer, exposure to the paying bank. Banks monitor and control this risk by having overnight bilateral limits vis-à-vis each other, particularly in the Dublin interbank foreign exchange and Irish pound interbank deposit markets. However, the magnitudes of the banks' bilateral and multilateral intra-day positions are not as closely controlled.

(c) Liquidity risk

Liquidity risk arises in the various large-value payments if a bank is temporarily unable to fund its current account at the Bank. The risk is that the Bank would be unwilling to make the overnight advance required to fund this position. This situation could lead to a perceived need to unwind the settlement of one or more of the clearings or other debits written by that bank. This would pose additional risks to other participants directly and indirectly in the payments system. If a bank with a net debit position for all settlements has insufficient funds on its current account at the Bank and was unable to borrow overnight from other banks, the overall settlement of all exchanges could only be completed by the Bank providing funds to the bank concerned. The Bank would have to make a judgement on whether to lend to a bank or force an unwind. Due to the manual nature of the payments system, and with processing on current accounts taking place mainly at end of day, it could be managed directly and sensitively, if required. No credit has ever been provided by the Bank without security and the system has never been faced with an unwind.

As well as lending through Repos (see Section 5.3.), the Bank provides support to the members of the Daily Interbank Settlement system when required at the close of business. It does this through a facility described as the Short-Term Facility (STF) to which the Bank's minimum overnight lending rate, known as the STF rate, is applied. In other words, the STF is an overnight secured loan facility on which the banks rely for residual shortages of settlement funds. Drawings by a bank on this facility must be secured with government bonds equal to 110% of the amount drawn. The funds available under the STF are limited to account holders who are required to have government bonds continuously on deposit in the Bank. In addition, each account holder is also subject to a quota on the amount which can be borrowed under the STF. The maximum amount which may be borrowed depends on the capitalisation, size and standing of the institution involved.

3.3. Main projects or policies being implemented

As described in Section 3.2.10., the Bank does not operate an intra-day settlements system for the banks. Settlement takes place at the end of the day but there is no contingency plan or binding agreement between the banks on how to handle a situation in the event of a delay or default of a large-value payment immediately prior to settlement. It would be appropriate for banks to commence monitoring interbank indebtedness positions during the day and assessing the implications of their changing magnitudes in the context of the automation of the Daily Interbank Settlement system, which is discussed in Section 5.

SECTION 4: THE USE OF INTERBANK TRANSFERS FOR INTERNATIONAL AND DOMESTIC FINANCIAL TRANSACTIONS

4.1. Exchange and settlement systems for international transactions

External receipts and payments, both in respect of current and capital transactions, are relatively large, and growing, in Ireland. This is because the sum of exports and imports is in excess of GNP and also because of the degree to which investment portfolios of domestic financial institutions are diversified internationally.

About 74% of Irish manufactured exports are by foreign firms operating in Ireland. Some 62% of the output of the manufacturing sector in Ireland is produced by foreign-owned firms. Thus, a significant proportion of Ireland's foreign trade is conducted between international companies and their branches or subsidiaries located in Ireland. Consequently, a significant proportion of this trade is settled through offsetting arrangements within these international corporations, the net outcome being transferred via the correspondent banking network, mainly using S.W.I.F.T.

Small-value foreign payments and receipts, which are mainly of a personal nature and for travel, are effected with foreign currency notes; foreign currency drafts; travellers' cheques; Eurocheques and, increasingly, credit/charge cards. Small-value payments of a private nature, and commercial small-value payments/receipts, which are sent by post are mainly effected by foreign currency cheques and drafts. However, Irish pound cheques continue to be used for payments/receipts vis-à-vis the United Kingdom. However, there was a weakening of the financial links that existed between the Irish and the United Kingdom clearing banks following the break in 1979 in the long-established one-for-one no margins relationship between the Irish pound and Sterling.

Ireland relies heavily on the correspondent banking system as the main transmission mechanism for effecting foreign payments. Cheques and drafts are the predominant instruments used in the correspondent banking network for small-value payments received from and paid abroad. These cheques and drafts can be denominated in Irish pounds or in foreign currency and can be for outward payments or incoming receipts. The correspondent banking network is used to clear and settle these payments which, because of their size, do not give rise to systemic risk.

The bulk of the large-value foreign payments and receipts on banks' own behalf, and on behalf of large companies and the non-bank financial institutions, is effected through the international correspondent banking network aided by the use of S.W.I.F.T. These large-value payments give rise to considerably greater settlement risks than those associated with small-value payments.

The ongoing improvements internationally in the efficiency of domestic payment and clearing systems should lead to an improvement in correspondent banking services and to payments being effected more rapidly and at lower cost.

The cost per item is a consideration when deciding to use S.W.I.F.T., which is only cost effective for large-value items where time delays of more than a few days are relatively expensive. As well as the use of the correspondent banking network, credit/charge cards and Eurocheques are increasingly being used for retail payments abroad.

4.2. Exchange and settlement systems for securities transactions

4.2.1. Institutional framework

In Ireland, securities can be divided into three classes – government paper (government bonds and exchequer bills), certificates of deposit (CDs) issued by deposit-taking institutions and commercial paper. Commercial paper can be divided between equities and non-equity commercial paper. The market in government bonds and equities is managed through the Irish Stock Exchange. The purchase and sale of Irish pound CDs is managed in the money market. There is a growing market in non-equity commercial paper in Ireland which is carried out mainly in the interbank market.

The Bank has a growing interest in the operations in the Irish Stock Exchange and is directly involved in the settlement of transfers of government bonds and the associated payments for them through the Gilts Settlement Office. Payment for equities is settled (made) through the ordinary domestic payments system using cheques, drafts, or a same-day interbank payment.

4.2.2. Structure, operation and administration of systems

The Irish Stock Exchange is involved mainly in the trading of equities and government bonds. However, in the context of settlement systems there are two distinct types of securities transaction to be considered – government bonds and other securities. While all transactions in government bonds between members of the Gilts Settlement Office *may* be settled through the Gilts Settlement Office, transactions of IEP 100,000 or greater in nominal value, *must* be settled by members through the Gilts Settlement Office at the Bank. All other securities transactions (including equities, debentures, preference shares and foreign securities) are, in the main, settled through the TALISMAN system (see Chapter 12). TALISMAN is operated by the International Stock Exchange in London with which the Irish Stock Exchange is associated.

The Gilts Settlement Office (GSO) was established by the Bank on 1st February 1989. The GSO, which is administered by the Bank and established through a set of mutual contracts, provides net net settlement of payment for government bond transactions between GSO members. The current

membership (35) comprises the authorities (i.e. the National Treasury Management Agency and the Central Bank), stockbrokers, institutional investors and nominee companies. Investors in government bonds may become direct members of the GSO or may participate indirectly as clients of a nominee company. GSO settlements account for more than 80% of the turnover in the Irish government bond market. The system eliminates counterparty settlement risk by providing for the simultaneous transfer next day, or on an agreed future date, of the security and the corresponding guaranteed payment. All deals between non-members of the GSO are settled next day or on an agreed future date, through the ordinary domestic payments system. Settlement for the payment or receipt in respect of government bonds bought or sold through the GSO is effected by entries through the banks' accounts at the Bank.

As the register of government bonds is held by the Bank, the GSO is better able to operate as a depository as it is also in the Bank. No stock certificates are issued to GSO participants and the government bonds settled through the GSO are in dematerialised form. At least 75% of all government bonds are held by nominee companies which act as a lower tier of depository, mostly on behalf of institutional investors (both resident and non-resident).

Each member of the GSO maintains a stock account at the Bank and also holds a specific account at one of six designated banks (called settlement banks). Each settlement bank, in turn, settles across its current account at the Bank. Through the mechanism of the GSO, stock transfers between participants occur simultaneously with an equivalent guaranteed cash payment giving a guaranteed delivery against payment. All transfers of stock and movements of cash occur at a set time (end of day). Most settlements take place on the day following the dealing date – D (i.e. D + 1). Stock transfers, in general, are on a gross basis while the cash movements between settlement banks are on a net basis with the resulting debits/credits being processed at the end of the day over the current accounts at the Bank. The GSO processes approximately 20,000 transfers per annum with a gross nominal value of about IEP 35 billion.

The GSO is operated by the Bank and the cost of the service is recouped from the participants. All participants in the GSO are approved by the Bank and are required to sign legally binding agreements. These agreements also encompass a structured code of rules which governs the detailed day-to-day operation of the GSO service. Changes to these rules are agreed with the participants through a consultative committee which also advises the Bank about the development of the system.

Total equity turnover on the Irish Stock Exchange amounted to approximately IEP 6 billion for 1990. The TALISMAN system is governed by the rules and regulations of the International Stock Exchange. These rules and regulations require specific approval of the Minister for Finance. Under a recently announced Government decision, the Central Bank is to be the competent authority for the supervision of the Irish Stock Exchange and its members; proposed legislation is at an advanced stage of preparation. Legislation has also been enacted to facilitate the development of the GSO service, particularly in the elimination of paper-based processes in the securities settlement system.

Futures contracts are traded on the Irish Futures and Options Exchange (IFOX). A market in options has not been developed. The operation of IFOX is subject to the prudential supervision of the Bank. As most futures contracts are closed out or reversed before the settlement day this leads to a large reduction in the risk associated with the settlement arrangements. Members are required to maintain a minimum level of net worth of IEP 1.5 million and an associated position limit is assigned to each member. A guarantee fund of IEP 6.4 million is also in place to provide a limited guarantee against default by exchange members.

For the purposes of settling futures contracts, all members of IFOX are required to hold a specially designated current account at a nominated branch of one of the clearing banks. All cash payments on foot of futures contracts are passed through these accounts. IFOX also maintains an account at the same bank branch for making and receiving payments to and from the members' current accounts. Contracts are marked-to-market daily so that buyers and sellers of contracts pay losses to the exchange (or receive gains from the exchange) on their positions every day through their designated current accounts.

Margin calls to inform members of the amount due to (or from) the exchange on any day, are transmitted via leased telephone lines to individual member's computer terminals. Members must ensure that funds are available by 10.30 in the designated current account, to meet all amounts due as a

result of trading the previous day, as notified to the member by the exchange. For this purpose the exchange also continuously monitors the balance on individual members' current accounts. On the contract settlement day, final margin calls are paid (or received) by the members using the same procedure as just described. (In the case of the government bond future, members can settle through the Gilts Settlement Office (GSO) – see above.)

4.2.3. Main projects and policies being implemented

The Gilts Settlement Office (GSO) is operated manually. A review conducted in 1990 of the operation of the GSO found satisfaction with the system. A consultative committee chaired by the Bank has been established to advise the Bank about the development of the system. The Bank is also examining the feasibility of establishing a book-entry transfer facility for Irish pound money market instruments.

Consideration will be given to reducing the lag between the date of purchase of equities and the date of final settlement for them. Some settlements may not take place for up to three weeks after the date of purchase. These lags arise not only in relation to domestic transactions but also for those between Ireland and abroad. A shortening of the lags would require consultation and close cooperation between the stock exchanges in Dublin, London and elsewhere. Apart from these lags, consideration will also be given to introducing other improvements and minimising risks, e.g. dematerialisation of equities and establishment of central custodial services and/or a central securities depository in relation, not only to the settlement arrangements for equities within Ireland, but also in respect of those between Ireland and abroad.

SECTION 5: THE ROLE OF THE CENTRAL BANK IN INTERBANK FUNDS TRANSFER SYSTEMS

5.1. General responsibilities

As discussed in Section 1.3. the Bank supervises the Central Exchange, the Daily Interbank Settlement system and the Gilts Settlement Office. Furthermore, in view of the changing environment in relation to financial services generally, the Bank keeps the nature and magnitude of the risks in the clearing and settlement systems for debit items, credit items, equities and government bonds, under review. Responsibility for the supervision of the Dublin Bankers' Clearing rests with its member banks. In turn, the banks are licensed and supervised by the Bank. The principles for participation in the Dublin Bankers' Clearing were reformulated in 1989 and were affirmed by the Bank. However, the application of prudential, supervisory and reporting requirements and conditions by the Bank do not constitute a warranty as to the solvency of the Dublin Bankers' Clearing or its members. In other words, the Bank would not be liable in respect of any losses incurred through the insolvency or default of any of the members of the Dublin Bankers' Clearing.

The Daily Interbank Settlement across the current accounts of participants at the Bank is subject to rules made by the Bank, which are amended from time to time. Before being allowed to hold a current account a prospective participant is examined by the Bank and kept under review. Moreover, the operation of the current account system is kept under review. The Central Exchange, Dublin Bankers' Clearing and the large-value interbank settlements are not subject to legal and technical audits as suggested in the Report of the Committee on Interbank Netting Schemes (Lamfalussy Report).

5.2. Provision of settlement facilities

The current account system in the Bank is fully described in Section 3 and all interbank settlements are made through it. Large-value daily interbank payments are settled gross as are Special Presentations. The settlement of the Dublin Bankers' Clearing and the Central Exchange are settled across current accounts on a net net basis.

The final settlement of government bond transactions is also facilitated through the Gilts Settlement Office operated at the Central Bank and thence across the current accounts of the settlement banks at the Bank on a net net basis.

Payments for other securities are made through the normal clearing system and are settled on a net net basis as part of the settlement of the clearings. If a large payment is involved it is settled gross with a Special Presentation.

There is no direct charge for the provision of current account services but a minimum balance of IEP 25,000 must always be held on the account.

5.3. Monetary Policy and payment systems

The Bank has three main means of providing Irish pound liquidity: Sale and Repurchase Agreements (Repos), foreign exchange swaps (Swaps) and the Short-Term Facility (STF). Repos are, in effect, loans secured by gilts and these loans can be for any maturity from overnight to one month. Repos can be effected on an auction basis or on a bilateral basis. In the case of bilateral Repos the Bank has discretion as to the bank to which it can lend funds. Any residual shortage on the market is met overnight through the STF, which is also a secured loan. However, each bank is limited as to how much it can borrow under the STF by a predetermined quota system based, inter alia, on the magnitude of their Irish pound current and deposit accounts.

All Irish pound shortages in the money market are funded using the credit mechanisms mentioned in the previous paragraph. By this means, current accounts of participating banks at the Bank are put in credit and thus the banking system is funded to facilitate the equality of the demand for, and the supply of, Irish pounds. The rate paid on the STF is the key monetary policy interest rate. Market interest rates can also be influenced by the Bank being less accommodating in its funding through Repos or Swaps.

5.4. Main projects and policies being implemented

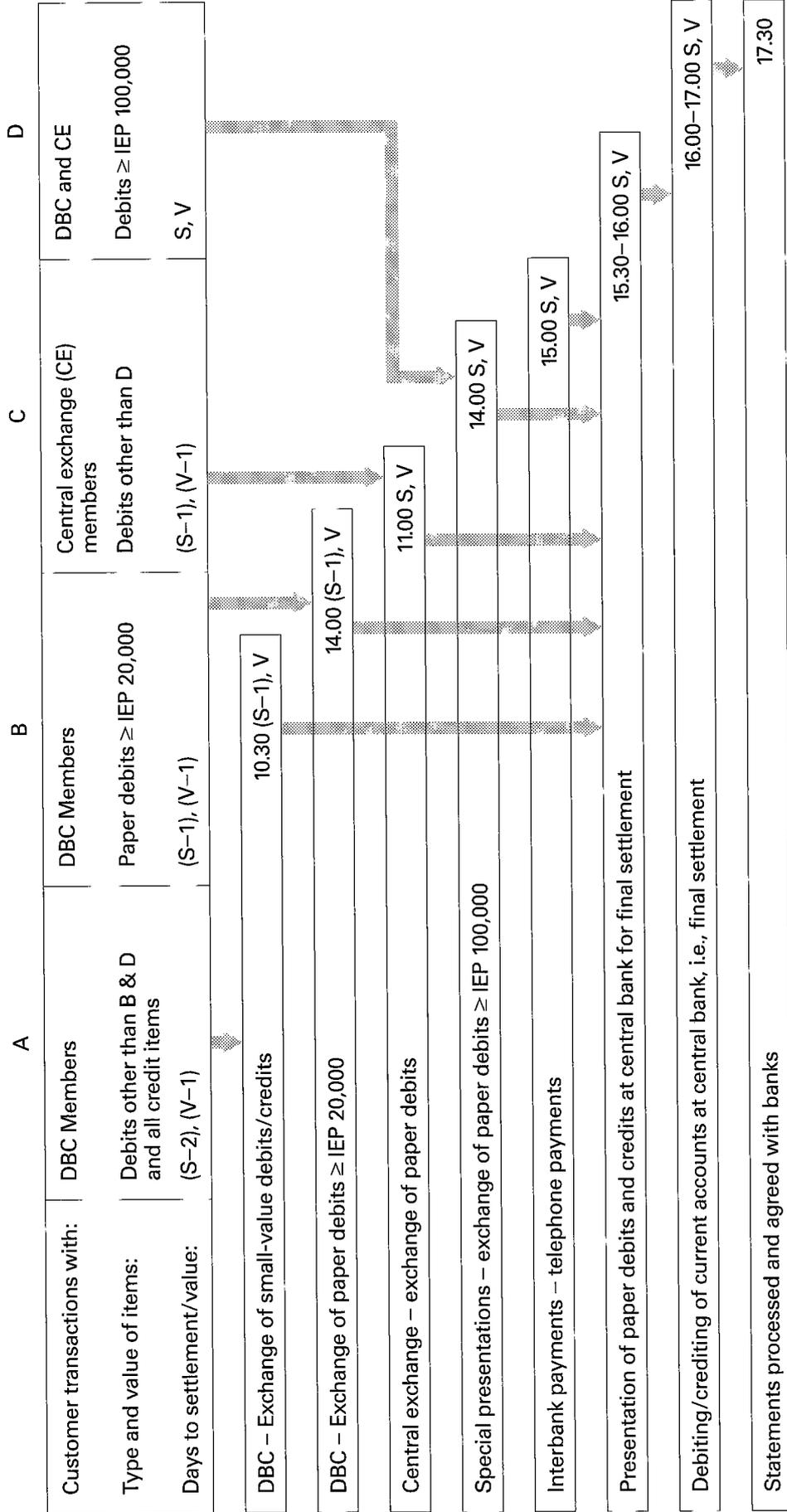
The Bank manages and supervises the Daily Interbank Settlement (DIS) system between the banks, and also between the banks and the Bank. A review of its operation was carried out in 1989/1990. The main impetus for the review was to establish if some form of automation of the system should replace the current paper and telephone-based manual system with a view to minimising systemic risk and increasing efficiency. One of the conclusions of the review is that automation is warranted from the prudential viewpoint. However, the computerisation of the DIS system would only provide a starting point for monitoring the movements during the day on the magnitude of the indebtedness between each of the banks themselves, and also between each bank and the Bank. It would also seem appropriate that the automation of the DIS should be accompanied by agreement between the member banks on how to deal with the costs associated with a delay, or default, prior to settlement, of large-value payments, without causing serious disruption of the interbank settlement arrangements or having to resort to the Bank.

A project group was established in 1991 comprising representatives from the banks and the Bank, which will be responsible for designing and installing such an automated payments and settlements system. This system will cover payments between banks and also between banks and the Bank. It is envisaged that it will also provide a comprehensive monitoring system for banks and for the Bank. The issues of intra-day settlement, covered and collateralised payments, intra-day credit, and settlement in the event of a default, will also be addressed. The large-value interbank settlement system is an end-of-day system at the moment and credit limits are bilateral. It is planned to move eventually to an intra-day settlement system with multilateral as well as bilateral limits.

In automating the Daily Interbank Settlement, the Bank would not regard it as appropriate that the role of the banks, which are ultimately responsible for the organisation, efficiency and security of the debit and credit clearing facilities in Ireland, would be diminished. Moreover, the Bank would wish to see the possible systemic risks arising from large-value payments being more clearly identified by the banks themselves in cooperation with the Bank. Furthermore, the Bank would envisage these risks being brought fully within the risk assessment and control arrangements of the individual banks and other credit institutions. More specifically, the Bank would regard it as appropriate, in the context of the automation of the Daily Interbank Settlement system, for the members of the clearing and settlement systems to establish mutually agreed arrangements to deal with the impact and ongoing effects of a delay or a breakdown in the clearing and settlement of large-value payments.

VALUE AND SETTLEMENT TIMES FOR CLEARINGS AND FOR SMALL-VALUE AND INTERBANK PAYMENTS

Appendix 1



S-1 = one day before settlement date, etc.
 V-1 = one day before value date, etc.

S = settlement day
 V = value day
 DBC = Dublin Bankers' Clearing
 CE = Central Exchange

Basic Statistical Data
(1990)

Population: 3,503,000
 Gross Domestic Product: IEP 25,693 million (1) (ECU 33.46 billion)
 GDP per capita: IEP 7,335 (ECU 9,553)
 Exchange rate: 1 ECU = IEP 0.7678

(1) Source: Central Bank of Ireland

Table A.: Monetary aggregates
(average of end of month)

	millions IEP		Per capita (IEP)
	1989	1990	1990
Notes and coins	1,184.7	1,228.6	351
Transferable deposits in local currency	1,449.7	1,603.5	458
Others	0	0	0
Total money supply (M1)	2,832.1	2,832.1	809

Notes:

Table B.: Credit Institutions offering payment services (end of 1990)

Categories of Institutions	Number of Institutions	Number of branches	Number of accounts (thousands)	Share of market (%)	Value of accounts (IEP billions)	Share of market (%)	Value of accounts (IEP billions)	Share of market (%)	Average Value of accounts (IEP)
Central bank	1	0	-	0	0.0172	0	0.0172	0.9	-
Commercial banks	34	739	1,594.6	71.8	1.9368	71.8	1.9368	97.0	1,215
Savings banks (1)	4	110	627.7	28.2	0.0416	28.2	0.0416	2.1	66
Building Societies	9	279	0	0	0	0	0	0	0
Post Office (2)	1	1,395	0	0	0	0	0	0	0
TOTAL	49	2,523	2,222.3	100%	1.9960	100%	1.9960	100%	899

(1) Trustee Savings Banks and state-sponsored credit institutions.

(2) The Post Office might, in the future, offer payment services.

Table C.: Cash dispensers, ATMs and EFT/POS terminals

	Cash dispensers and ATMs						EFT/POS			
	Number of			Value of transactions (IEP billions)			Number of			
	Networks	Machines	Transactions (millions)	Networks	Machines	Transactions (IEP billions)	Networks	Machines	Transactions (millions)	Value of transactions (IEP billions)
end 1989	2	404	27.76	0	0	1.152	0	0	0	0
end 1990	2	534	33.48	0	0	1.477	0	0	0	0
increase 89/90		32%	21%			28%				

Table D.: Number of payment cards (end of 1990)

	Number of cards (thousands)	Number of cards per 1,000 inhabitants
Cards with a cash function	2,460	702
Cards with a debit/credit function	617	176
Cards with a cheque guarantee function	891	254
Retailers Cards	n/a	n/a

Note: A card which has several functions appears in several lines and therefore the figures in this table cannot be added.

Table E.: Payments exchanged through the official payment systems

Name	Number of transfers (millions)		Value (billions IEP)	
	1989	1990	1989	1990
Dublin Bankers' Clearing Total of which	134.1	139.5	212.0	202.4
– Cheques	107.8	109.7	169.0	156.3
– Direct Debits	5.2	6.5	4.1	4.3
– Credit Transfers – Paper	13.2	13.9	38.2	40.3
– Credit Transfers – Electronic	8.0	9.3	0.7	1.4
The Central Exchange				
– Cheques (1)	3.6	4.1	5.1	10.7
Special Presentations				
– Cheques (\geq IEP 100,000)	0.02	0.02	13.5	17.2
Daily Interbank Settlement				
– Interbank Payments (2) (Debits)	0.1	0.2	446.6	577.0
Total	137.9	143.8	677.2	807.3

Source: Survey of the institutions

Note: (1) including Paymaster General Payable Orders.

(2) The data here relate to interbank payments by telephone, which are settled gross. Settlement of clearings, including Gilts Settlements Office, which are settled net net, are excluded.

Table F.: Relative importance of cashless payment instruments in the payment system

Instruments	Number of transactions (millions)		Value of transactions (billions)		Percentage of total volume	Number of transactions per capita	Average value per transaction
	1989	1990	1989	1990			
Cheques issued	156.8	162.5	270.0	267.0	70.3	46.4	1,643
Payments by debit and credit cards	15.5	18	0.7	0.8	7.8	5.1	44
Paper-based credit transfers:	22.2	23.4	64.6	68.1	10.1	6.7	2,910
customers initiated	22.2	23.4	64.6	68.1	10.1	6.7	2,910
interbank*							
Paperless credit transfers:	13.2	15.4	1.2	2.4	6.7	4.4	156
customers initiated	13.2	15.4	1.2	2.4	6.7	4.4	156
interbank*							
Direct debits	9.1	11.7	8.0	9.3	5.1	3.3	795
Others (1)	0.1	0.2	446.6	577.0	0.1	neg	3,623,000
TOTAL	216.9	231.2	791.1	924.6	100%	66.1	4,000

* or large-value

(1) Paper-based interbank debits

8. Italy

ITALY

Introduction

The payment system in Italy has changed in significant ways in recent years in response to both demand and supply-side stimuli. One result has been a gradual shift in the relative importance of the various payment services and instruments.

The growing use of bank and postal instruments has been accompanied by a rise in the number of current accounts held by customers; the number of transactions effected by means of credit transfers, direct debits and payment cards has increased.

The drive for greater efficiency and security has intensified the involvement of the public authorities in ensuring the smooth functioning of the payment system; the conviction has been that these objectives cannot be achieved by market forces alone. In accordance with the analysis set forth in the Bank of Italy's 1987 'White Paper on the Payment System in Italy', the central bank has promoted a modernisation of the payment system based on greater competition among providers of payment services and fuller integration among the different agents that participate in the system.

Banks have been given considerable freedom of initiative in the field of innovative services in order to exploit the opportunities offered by new technology; furthermore, a comprehensive plan of modernisation of shared infrastructure and processes has been implemented. The combined action of the Bank of Italy, the Interbank Convention on Automation (CIPA) and the Italian Bankers' Association (ABI) has focused on the procedures for exchanging documents and accounting data, integration between the banking and postal payment circuits, and the clearing and settlement of interbank payments and securities transactions.

The process of reform has been accompanied and made possible by important changes in technical infrastructures.

The reform of the clearing and settlement systems for interbank payments and securities transactions has had beneficial effects on banks' cash management and, more generally, on the overall functioning of the payment system and securities transactions. A significant step in the field of bank instruments and services concerned cheques; the exchange of cheques is now channelled into the clearing system through two new interbank procedures.

Today, the stability and efficiency of financial structures depend more and more on the functional efficiency of clearing and settlement systems. In its institutional capacity as guarantor of the stability of the financial system and in the light of the current developments' implications for monetary policy, the Bank of Italy is now promoting the adoption of measures to control the risks that arise in clearing and settlement systems.

SECTION 1: THE INSTITUTIONAL ASPECTS

1.1. General legal aspects

The regulation of the payment system in Italy is based on provisions of the Italian Civil Code, the Banking Law and other specific laws:

- the provisions of the Civil Code and other specific regulations concern individual paper-based payment instruments (e.g. cheques), and the discharging of financial obligations (e.g. novation and bilateral clearing);¹
- the Law on note issuance gives the Bank of Italy exclusive responsibility for issuing notes and managing the clearing houses;²

¹ Decree Law No 1345 of 21st September 1933 and Law No 1736 of 21st December 1933.

² Decree Law of 6th May 1926.

- the Banking Law defines deposit-taking institutions and empowers the Bank of Italy to supervise the banking system;³
- the anti-trust Law is designed to safeguard competition: it provides for a Competition Authority to monitor compliance; it forbids the abuse of dominant positions or agreements that restrict competition. Responsibility for avoiding restrictive practices in the banking and payment systems is entrusted to the Bank of Italy, which is accordingly required to safeguard both stability and competition;⁴
- the activities of the Postal Administration in the payment system are governed by laws that specifically regulate postal current accounts and funds transfer operations.⁵

In 1990, further efforts were made to identify the technical and legislative measures needed to bring domestic trading and settlement methods into line with the most advanced systems abroad. Law No. 1 of 2nd January 1991 covers securities investment business and the organisation of the stock market. It provides for the creation of multi-functional Securities Investment Firms (SIMs), which in the long term will be the only operators authorised to engage in securities business. In the financial market, the Companies and Stock Exchange Commission (Consob) is charged with controlling the transparency of information and the correctness of contracts, while the Bank of Italy is responsible for ensuring compliance with requirements designed to protect stability.

Law 197/1991 governs some of the activities of bank and non-bank operators; in particular, it limits the use of cash, with the aim of preventing money laundering, and regulates the activities of all operators carrying out transfers of funds, including transfers via payment cards. The new law also enables the Bank of Italy to supervise the activities of non-banks operating in the payment system.

1.2. Financial intermediaries that provide payment services

The main providers of payment services are the banking system, the Postal Administration and the Bank of Italy.

At the end of 1990 the banking system comprised 1,064 credit institutions with 17,721 branches; foreign banks numbered thirty-seven, with fifty branches.

Pursuant to Article 1 of the Banking Law, "credit institution" means an undertaking whose business is to receive deposits and to grant credits for its own account. All categories of credit institutions (commercial, savings, co-operative, rural and artisans' banks) operate in the area of payment services. The main payment instruments offered to customers are cheques, bank drafts, credit transfers and payment cards. Additional services provided include direct debit arrangements, used mainly for the payment of utility bills, taxes and rents, and the collection of bills of exchange.

In 1990 the nine largest banks accounted for 30.5% of current-account deposits; during the year the process of concentration continued: seventeen authorisations were granted involving fourteen mergers and three acquisitions of controlling interests. Between March 1990, when branching regulations were liberalised, and the end of that year, the number of authorised branches increased by 13.7%.

The services provided by the postal system through its 14,441 offices include postal current accounts and cash transfer facilities. The uniqueness of the postal circuit makes postal current-account services particularly suitable for handling collections and payments on behalf of public bodies and firms. The payment system activity of the Postal Administration is particularly important in the field of retail payments.

Payment services provided by non-bank operators account for only a small share of the total and are limited to innovative instruments such as payment cards and POS systems.

1.3. The role of the central bank

The powers vested in the central bank enable it to exercise a controlling and guiding influence over banking activities in the field of payment services. Accordingly, the Bank of Italy participates in the system in a number of ways:

³ Decree Law of 12th March 1936; Decree Law of 14th September 1944.

⁴ Law No 287 of 10th October 1990.

⁵ Presidential Decrees No 156 of 29th March 1973 and No 256 of 1st June 1989.

- by directly offering instruments and services and acting as agent of the Treasury for inpayments and outpayments;
- by supervising the activities of the banking system;
- by co-ordinating and promoting interbank initiatives.

1.3.1. Instruments and services

The Bank of Italy has the exclusive right to issue banknotes, the smallest denomination being ITL 1,000, while the Treasury directly issues currency in units of less than ITL 1,000 in the form of coin. Through its ninety-eight branches the Bank of Italy circulates banknotes and coins and ensures that the needs of the public are met. Another payment instrument issued by the Bank of Italy is the cashier's cheque ("vaglia cambiario"), a guaranteed instrument used mainly for making payments such as tax refunds on behalf of the Treasury.

The Bank of Italy provides banks with accounts held on its books to allow the settlement of direct interbank transactions and of balances arising from clearing operations. At present, credit institutions alone hold accounts with the Bank of Italy for settlement purposes; the accounts are known as centralised accounts ("Conti di gestione") and include reserve accounts for banks' compulsory reserves, deposit accounts for banks not subject to reserve requirements, and ordinary advance accounts (see Section 5.2.). The Bank of Italy provides banks with an electronic system for the real-time execution of funds transfers on centralised accounts to handle those payments calling for the greatest promptness and reliability (see Section 3.2.).

The Bank of Italy operates the clearing and settlement systems for banking items and securities transactions.

The overall clearing system of banking items provides for sub-systems to handle, respectively: operations which require the exchange of supporting paper documents, paperless retail transactions and paperless wholesale transactions. Payments entering the sub-systems flow through a national clearing procedure ("Compensazione nazionale dei recapiti") that generates a single balance at national level for each participant, which is then settled by credits and debits on accounts at the Bank of Italy. Access to the clearing systems is confined to deposit-taking institutions.

The clearing of securities transactions is managed by the clearing houses in the cities where the main stock exchanges are located. Clearing houses provide three kinds of securities settlement ("Liquidazioni dei titoli") at national level: daily settlement, monthly settlement and extraordinary settlement. Credit institutions, SIMs, stockbrokers and commission dealers may take part in the clearing and settlement sessions (see Section 4.2.).

Since 1980 the Bank of Italy has provided a system for the centralised management of government securities that can be used by all economic agents.

1.3.2. Supervisory authority

The Bank of Italy is responsible for regulating and supervising the banking system pursuant to directives issued by the Credit Committee⁶. The Banking Law of 1936 gave the Bank of Italy broad authority to establish supervisory requirements, to monitor banks by way of prudential returns and on-site inspections and to impose sanctions where necessary. In addition to commercial banks, the Bank of Italy supervises special credit institutions and has recently also been entrusted with the supervision of financial companies, such as investment fund management companies and multi-functional Securities Investment Firms (SIMs).

As the banking supervisory authority, the Bank of Italy exercises a regulatory influence over banking activity in some sectors of the payment system. In particular, the central bank supervises the installation and lays down the technical requirements for ATMs and POS terminals.

⁶ The Interministerial Committee for Credit and Savings (CICR), created in 1947 and headed by the Minister for the Treasury, is responsible for policy on monetary, financial and foreign exchange issues, for promulgating regulations and providing instructions to the Bank of Italy where appropriate.

1.3.3. Promotion of interbank initiatives

The Bank of Italy promotes interbank initiatives within the Interbank Convention on Automation (CIPA), an association of about one hundred banks whose main concern is to develop joint projects primarily in the field of payment services. Its Management Committee and General Meeting are chaired by a representative of the Bank of Italy, which also provides its Secretariat. In January 1991 the Bank of Italy issued a directive establishing guidelines for CIPA member banks to improve customer payment services, the application of pricing policies and banking infrastructures.

1.4. The role of other bodies

Recent years have seen the growth of co-operative ventures in the banking system.

The Italian Bankers' Association (ABI) has traditionally played an important role in promoting banking co-operation. The function of the ABI derives from its position as the representative body for the whole banking system. In particular, the ABI is responsible for co-ordinating interbank agreements and fixing uniform operational and accounting methods in interbank relations, promoting the widest possible participation of banks in interbank initiatives, in concert with the Bank of Italy, and disseminating information.

In addition, new bodies have been created to develop joint projects and manage services of common interest:

- the Interbank Society for Automation (SIA), which provides services and infrastructures of common interest to the banking system and, if necessary, operational support for the payment activities of the central bank. The Bank of Italy holds 40% of its capital and another 40% is held by the Italian Bankers' Association. As part of a recently initiated overhaul of the interbank network (SITRAD) undertaken in 1986, the SIA will be the only body responsible for handling the national network for the transmission and management of data relating to some of the payment services offered directly by the Bank of Italy;

- Monte Titoli is a company providing custody and administration of transferable securities. In particular, Monte Titoli offers centralised management services for all securities except government securities, which are centralised at the Bank of Italy. Its shareholders include the Bank of Italy, all banks and stockbrokers and securities investment firms. The Bank of Italy is entitled to appoint one member to the Board of Directors. The law allows shareholders to transfer shares only to the Bank of Italy, which is the only shareholder allowed to hold more than 7% of the company's capital.

SECTION 2: SUMMARY INFORMATION ON PAYMENT MEDIA USED BY NON-BANKS

2.1. Cash payments

The legal tender in circulation consists of banknotes in six denominations issued by the Bank of Italy (the denominations are ITL 1,000, 2,000, 5,000, 10,000, 50,000 and 100,000) and coins in eight denominations issued by the Treasury.

In 1990, the ratio of the stock of currency in circulation to GDP was 4.8%; notes and coins in circulation accounted for 15% of the money supply (M1) in 1990. Certain structural and institutional factors favour the continuing widespread use of cash in Italy. The former include the fragmented nature of the country's distributive trades and the configuration of its labour market, while the latter include the still widespread practice of paying wages and salaries in cash.

Payment system developments are affecting the use of cash in contradictory ways. On the one hand, the growth of bank current accounts, fuelled in part by increasing recourse to direct payroll credit transfers, has led to a greater use of bank payment services; on the other hand, the spread of automated teller machines has been accompanied by an increase in the average number and value of cash withdrawals from current accounts.

With a view to preventing money laundering, Law 197/1991 regulates the use of cash in payments over ITL 20 million. The new law requires large-value payments to be made through authorised intermediaries or with instruments that permit the counterparties to be identified.

2.1.1. Other liabilities issued by the Bank of Italy

The Bank of Italy issues cashier's cheques for amounts of between ITL 50,000 and 500 million against cash payments of the corresponding amount. They are cashable at any bank branch, including branches of the central bank, and may be used for making payments to the central government and at post offices. The use of these instruments is limited, in practice, to certain non-recurring payments carried out by the central bank on behalf of public entities (tax refunds and the disbursement of severance pay to central government employees). In 1990 the Bank of Italy issued over 5 million cashier's cheques for a total of ITL 27,713 billion.

2.2. Non-cash payments

In Italy current accounts with banks bear interest and are thus not only transactions accounts but also a traditional form of financial investment. The interest rate paid on current accounts differs from one bank to another and is freely negotiated between customers and banks; it is always lower than the interest paid on savings accounts. Over the last few years, however, sight deposits have increasingly been held for transactions purposes.

In 1990, 951 million payments totalling ITL 6,442 trillion were made with bank instruments.⁷ The growth was significant (6.2%) and was accompanied by an increase of 9% in the number of customers' current accounts; at the end of 1990 current accounts totalled 22.7 million.

The share of credit transfers and direct debits in the total number of transactions rose to 31.2%, continuing the recent trend. By contrast, cheques and bankers' drafts accounted for a declining share, although they are still the most commonly used instruments (68.8%).

2.2.1. Cheques

In 1990, 654 million cheques (including bankers' drafts) totalling ITL 1,800 trillion were drawn on bank customers' current accounts. The continuous growth in the use of cheques has stemmed mainly from households' greater access to bank services. The use of cheques in low-value payments has diminished as a result of the increasing use of cash withdrawals at ATMs and credit cards in retail transactions.

In the light of the importance of cheques in the payment system, the Bank of Italy promoted the implementation of the *out-of-town cheques* procedure in 1988 and *cheque truncation* in 1990.

With the *out-of-town cheques* procedure, banks are required to exchange cheques through the clearing system and to provide for settlement in central bank money. The stipulation of a maximum period for returning cheques (six to seven days) reduces the time taken to make funds available to customers (nine to ten days). In 1990 a total of 238 million cheques were exchanged through this procedure. Previously, out-of-town cheques were exchanged by mail on a bilateral basis and settled on reciprocal correspondent accounts, resulting in a long delay between the drawing of a cheque and the funds being made available to the final customer.

Cheque truncation, which came into operation with a limited number of banks, substitutes electronic interbank messages for the physical delivery of cheques of up to ITL 2 million (ITL 10 million for bankers' drafts). Cheque truncation data are sent through the Interbank Data Transmission System (SITRAD) at night, which makes for more efficient use of the system. Correct application of the procedure should enable the banking system to make significant improvements in the field of cheque management. Massive computerisation will substantially reduce the costs and risks connected with the manual processing of cheques and shorten the time needed to ascertain their status, thereby providing a solid basis for improving the quality of service to customers. At the end of 1990, eighty-four banks were using the procedure; since March 1992, the entire banking system has participated in it.

Law No. 386 of 15th December 1990 introduced a new set of sanctions regarding cheques. In particular, it lays down that, in the case of a protest or equivalent declaration regarding cheques drawn against insufficient funds, the drawee bank must revoke the drawer's authorisation to issue cheques for

⁷ Data on bank instruments are taken from a sample group of seventy-five banks accounting for approximately 80% of the demand deposits of the banking system.

a defined period. The out-of-town cheques and cheque truncation procedures fit organically into the new legislative framework and are all the more important for having buttressed the role of cheques as a payment instrument.

2.2.2. Credit transfers and direct debits

The number of credit transfers and direct debits in 1990 is estimated at about 300 million. These instruments are less widely used than cheques but involve larger values; they account for 72% of the total value of payments executed through the banking system. Bank credit transfers are becoming a commonly used instrument throughout the economy, even for retail transactions, and are destined to play an increasing role in international funds transfers. Enterprises make about 50% of all credit transfers, while households are the main beneficiaries, receiving about 70% of these payments.

The growth of credit transfers and direct debits reflects the increasing use of automated procedures for executing domestic and international transactions. During the 1980s the banking system developed automated techniques to reduce the volume of paper-based media generated by the conventional processing of credit transfers. These techniques are used for bulk payments (salaries, pensions, etc.) and for the collection of public utility bills. The former are executed by direct crediting of the beneficiaries' bank accounts, the latter by the authorised debiting of accounts.

Large-value credit transfers (i.e. exceeding ITL 500 million) are settled on banks' accounts with the Bank of Italy mainly via the clearing system; the low-value transfers not yet included in the retail clearing sub-system are settled by debiting and crediting banks' correspondent accounts (see Section 3.1).

The Bank of Italy has promoted a series of initiatives to rationalise the exchange and settlement of credit transfers. The objectives are:

- to establish predetermined procedures and timetables governing interbank transactions, with the balances generated by all credit transfer transactions being settled on banks' accounts with the central bank;
- to ensure greater transparency for customers as regards the time taken to execute transactions and the costs.

Against this background, in 1990 the Bank of Italy and the CIPA developed a new project aimed at reducing the time needed to make funds available to final customers. The "fast lane" came into operation at the beginning of 1992, it uses the interbank data transmission network and complies with predefined deadlines for the execution of transactions.

2.2.3. Payment cards

Growing competition among suppliers of payment services and a steady change in consumers' habits have increased both the number and the use of payment cards. Nonetheless, cards now account for only about 3% of the volume of all payments.

In Italy payment cards are issued by banks, specialised non-bank companies (travel and entertainment cards) and commercial firms (fidelity cards). Over the last few years bank cards have increased their market share at a rapid pace; unlike T&E cards, they are offered also to low-income customers. The Italian banks' strategy of developing co-operation has led to the creation of "Servizi Interbancari", in which more than one hundred of the largest Italian banks are shareholders. "Servizi Interbancari" distributes its own card (CartaSi) and centralises some functions.

Cash and debit cards for use at POS terminals and ATMs are the most widespread types of card.⁸

At the end of 1990 the total number of cash and debit cards in circulation was estimated at 7.7 million, of which more than 80% could be used at POS terminals. Cash and debit cards are used in a limited way in payment transactions but are widely used for cash withdrawals. At the end of 1990 about 32,000 automated installations had been authorised by the Bank of Italy: 9,770 ATMs⁹, of which more than 75% were on bank premises, and 22,185 POS units. In 1990, the number of transactions carried out

⁸ Data on debit cards, ATM and POS terminals are taken from a sample group of seventy-five banks accounting for approximately 80% of the demand deposits of the banking system.

⁹ The number of ATMs refers to the whole system.

at ATMs totalled 100 million and amounted to ITL 28,770 billion, as against 5.4 million POS (an increase of 127% from 1989) transactions for a total value of ITL 898 billion.

The banking system is the main issuer of cash and debit cards and processes card operations. The nationwide automated network (Bancomat) based on magnetic stripe cards allows Bancomat card holders to withdraw cash from any ATM in the network. All banks established in Italy that can comply with the Bancomat system's rules are eligible for membership.

A number of fidelity cards have been promoted by retail chains, either directly or through financial firms that handle consumer credit operations, although this type of card is still not very widespread. The distributive trades association ("Confcommercio") recently took an important step by launching "Carta Moneta", a card that can be used at numerous retail chains and outlets. In addition, prepaid memory cards have been issued by the public telephone and motorways management companies.

2.2.4. Postal instruments

Postal current accounts are an efficient channel for making and receiving low-value payments. Payment operations on these accounts are increasingly processed via computer networks in real time.

The Postal Administration provides three payment services in connection with postal current-accounts: current-account cheques, inpayments to current-accounts and postal giro transfers; in addition, it offers a cash transfer service (money orders).

At the end of 1990 the number of accounts stood at about 460,000, with no significant change from the preceding years. These accounts are held principally by agencies providing services or paying pensions and annuities, for transactions purposes. The use of postal current accounts by households for holding liquid balances or making transactions is, by contrast, negligible.

Inpayments to these accounts in 1990 numbered more than 578 million and amounted to ITL 268,708 billion. These payments are issued on printed forms prepared for optical scanning and are generally recurrent and fairly small (e.g. utility bills). The amounts may be paid in cash, cashier's cheques or bankers' drafts; bank cheques are not accepted. On the whole, the transmission time for funds and accounting data is short: funds deposited in another city become available after three days. Inpayment forms may also be used to have funds transferred between postal current accounts. In 1990 16 million postal giro operations were effected totalling ITL 130,525 billion¹⁰. Ordinary postal cheques numbered 12 million and amounted to ITL 244,095 billion. In addition, 43.9 million special cheques worth ITL 40,047 billion were issued for the payment of state pensions.

In 1990 19.9 million money orders were issued for a total value of ITL 5,409 billion. Money orders are generally used to remit funds to individuals who are not holders of a postal current account.¹¹ They are issued against payment of the amount of cash and sent to the post office nearest the beneficiary's home.

2.3. Recent developments

The analyses published by the Bank of Italy in 1987 in its "White Paper on the Payment System in Italy" have served as a springboard for promoting the modernisation of the Italian payment system via intensified competition among suppliers of payment services and closer integration among the various types of operators.

Reorganisation of the processing of traditional payment instruments is progressing, with the development of compulsory standard interbank procedures and greater use of information technology. The most far-reaching changes have focused on the handling of bank cheques (see Section 2.2.).

Several steps were taken in 1990 to increase integration and co-operation between the postal and banking circuits. The Postal Administration's membership of the clearing houses operated by the Bank

¹⁰ Both kinds of inpayments can be considered as credit transfers and have been included in the total number of credit transfers given in Table F.

¹¹ Money orders can be considered as cheques and have been included, along with the other categories of cheques, in the total number of cheques given in Table F

of Italy was finalised and provision made for the exchange and settlement of payments between the two circuits on the basis of common procedures. A second step was the creation of an ad hoc co-ordinating committee of representatives of the Postal Administration, the Italian Bankers' Association and the Bank of Italy to study ways of achieving full mutual acceptability of payment instruments and inter-circuit standardisation of instruments and services. This initiative seeks to correct the lack of an institutional forum in which strategies and policies for the development of the payment system can be framed.

Demand is growing, especially from businesses, for automated payment procedures that ensure short lead times and absolute certainty of execution (see Section 2.2.2.). In addition, there is a growing need for telematic links with the banking system in order to exchange information on bank statements and issue payment instructions (corporate banking and cash management). All this is connected with the more general drive to rationalise information flows by adopting international common standards. The EDIFACT project (Electronic Data Interchange for Administration, Commerce and Transport)¹² is consistent with this goal; the adoption of EDI standards in banking procedures will enable the banking system to maintain preferential relationships with its business customers.

SECTION 3: INTERBANK EXCHANGE AND SETTLEMENT CIRCUITS

3.1. General overview

In Italy there are two main settlement systems, one gross and the other net; in both systems settlement is effected on the accounts that banks hold with the Bank of Italy. Transactions can also be settled through bilateral interbank correspondent accounts, the so-called 'unofficial' circuit, governed by bilateral agreements; balances of correspondent accounts are settled on the official circuit.

In recent years, the Bank of Italy has promoted a general reform of the clearing system and revised the system of centralised accounts in order to boost the efficiency of interbank circuits and foster daily settlement of interbank payments in central bank money.

The main changes in the payment field have been the following:

1. the installation of a procedure for the real-time execution of interbank transactions by the direct movement of funds on banks' centralised accounts held at the Bank of Italy. In 1989, real-time direct transfers on the centralised accounts (Bank of Italy continuous Settlement System – BISS) were initiated, allowing banks to transfer funds between these accounts via the Interbank Data Transmission System (SITRAD);
2. the implementation of three new specialised clearing sub-systems: two for large-value funds transfers, SIPS (the Interbank Payment System operated by the Interbank Society for Automation) and the Electronic Memoranda (ME), and the third for the settlement of low-value payments (retail sub-system);
3. the automation of all the phases of the clearing cycle, so that participants can carry out transactions throughout the business day and obtain real-time information on preliminary balances, and the extensive use of SITRAD for exchanging accounting data and information between operators;
4. the creation of a screen-based market for interbank deposits (MID)¹³; transactions in the MID are settled via the ME sub-system.

The aims were to increase the proportion of transactions settled immediately via accounts with the Bank of Italy by bringing into the gross and net settlement systems transactions previously settled bilaterally. In 1990 the value of interbank payments settled through "official circuits" amounted to about ITL 18,000 trillion. During 1990 the volume of payments settled increased by 80% and the ratio of such

¹² The EDIFACT project makes it possible to transfer, via telematic networks, standardised messages relating to the whole commercial cycle (buy and sell orders, billing, credit transfers, debit and credit notes).

¹³ The screen-based interbank deposit market (MID) enables the exchange of information on the demand for the supply of interbank deposits, as well as the conclusion of the related contracts, to be completed electronically; it also ensures fairness and transparency in the formation of prices, which as a result better reflect real-market conditions.

flows to GDP rose to 13.7, more than twice the figure recorded in 1988. The rapid growth of these transactions is essentially due to the clearing system, which accounted for 91% of payments settled at the central bank in 1990.

The multilateral net settlement system is managed by the Bank of Italy through the clearing houses. These were established by law in 1881 to provide facilities for the transfer of banknotes, the settlement of the resulting balances and the offsetting of other credit instruments. Under a law of 1926 the operation of clearing houses was entrusted exclusively to the Bank of Italy. They operate on a multilateral net settlement basis.

The new automated clearing system came into operation in 1989 and consists of four sub-systems:

- the wholesale sub-system (SIPS) for large-value paperless transactions;
- the ME sub-system;
- the retail sub-systems for low-value paperless payments (“sottosistema Dettaglio”);
- the local clearing sub-system (“Recapiti locale”) for paper-based operations (which have existed since 1881).

Large-value paperless transactions can be processed electronically, exchanged and settled via the SIPS sub-system and/or the ME sub-system. The former handles giro transfers of external lire¹⁴ and the lira equivalent of foreign exchange transactions, which account for a very large portion of the total value of interbank payments in Italy, while the latter has been designed to allow banks to adjust their liquidity positions and to settle the screen-based market transactions for interbank deposits.

Low-value paperless payments are processed electronically through the specialised retail sub-system. This system came into operation in November 1989 and currently deals exclusively with net bilateral balances from Bancomat payments and the cheque truncation procedure. In the near future other low-value payments will be channelled into the system.

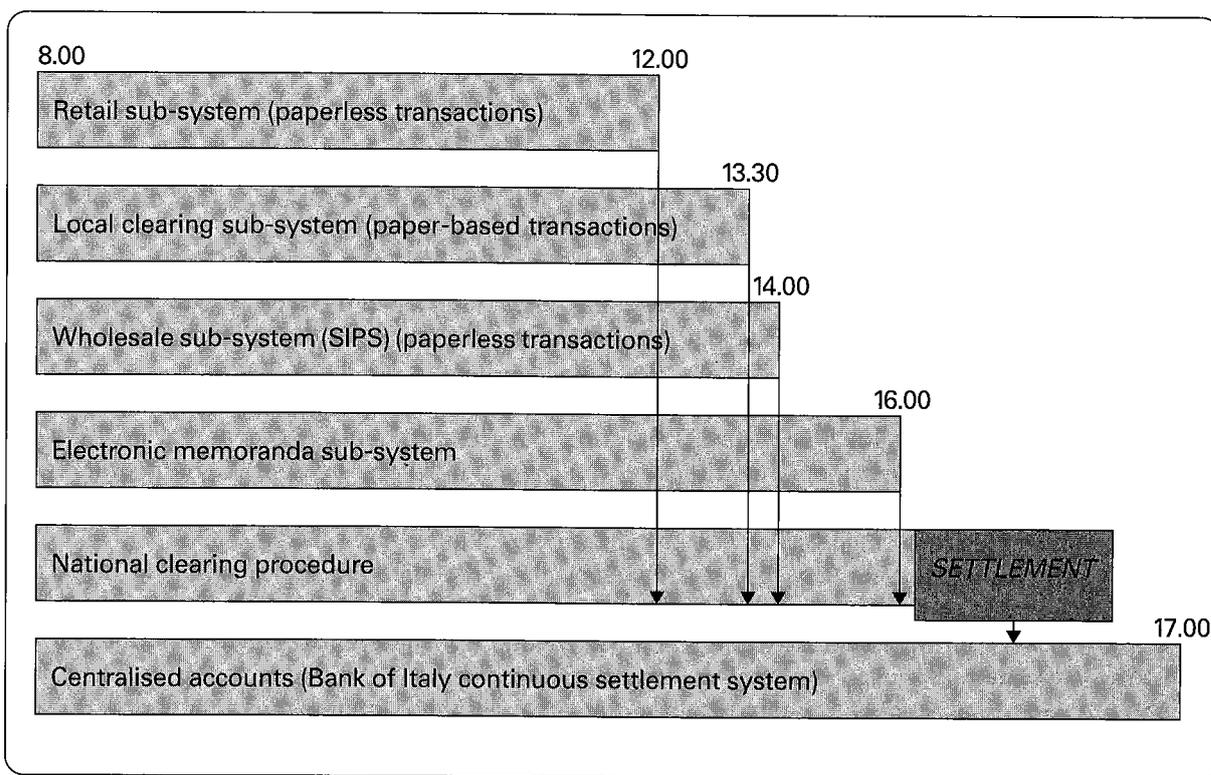
Paper-based transactions that necessitate the physical exchange of items (e.g. cheques) are dealt with through the local clearing system (“Recapiti locale”). All operators’ paper-based transactions with the Bank of Italy, the State Treasury and the Postal Administration have to be exchanged and settled via this channel. Paper-based items can be exchanged through the clearing houses and departments located in each Italian provincial capital. In December 1990, an automated procedure for data transmission was introduced.

The sub-systems have different but co-ordinated timetables and deadlines (see Chart 1): all clearing operations start at 8 a.m.; the first to close is the retail system (at 12.00 noon), followed by the local clearing system at 1.30 p.m. and SIPS at 2 p.m. Treasurers can subsequently cover their positions by using the ME sub-system, which is the last to close (at 4 p.m.). At 4 p.m. the automated national clearing procedure (“Compensazione nazionale dei recapiti”) calculates a single multilateral net position at national level for each participant. The settlement of the multilateral net balances resulting from all the clearing sub-systems is effected through the banks’ centralised accounts with the Bank of Italy.

Access to the clearing system is strictly confined to deposit-taking institutions; at the end of 1990, 288 institutions with a high turnover of items were entitled to participate in the national clearing procedure. The Bank of Italy, on its own account and on the Treasury’s behalf, and the Postal Administration also participate in the clearing system. Participation in the four sub-systems that flow into the national clearing procedure varies; in general, the larger banks participate in all the clearing sub-systems, while smaller banks participate only in some, according to their operational needs. At the end of 1990, 78 banks participated in the SIPS sub-system, 280 in the ME sub-system, 113 in the retail sub-system and 277 in the local clearing sub-system. On 7th May 1991 the Minister for the Treasury issued a Decree aimed at regulating participation in the clearing system and enhancing risk control by the central bank. The Decree provides for the possibility of establishing two different levels of participation (direct and indirect) in each clearing sub-system on the basis of objective requirements, such as solvency ratios and organisational standards. Participation in the clearing systems is still restricted to deposit-taking institutions.

¹⁴ An external lira payment is any transfer of monetary resources between economic agents resident in different countries. The concept of residence is defined in the foreign exchange legislation.

Chart 1
The Interbank clearing and settlement system in Italy*



(*) Figures indicate opening and closing times of the various systems.

Both the clearing procedures and the Bank of Italy continuous Settlement System use the SITRAD network for data transmission. SITRAD consists of a series of sectoral networks interconnected by a general network managed by the SIA. The networks carry credit and debit transfers, interbank giro transfers and free format messages, i.e. those related to non-accounting information.

3.2. Structure, operation and administration of major large-value systems

3.2.1. The Bank of Italy's continuous Settlement System (BISS)

The Bank of Italy operates the gross settlement system, which allows banks to transfer funds directly to centralised accounts (see Section 5.2. for the structure of these accounts).

Operations can be grouped in four categories: debiting of cheques, cash withdrawals and inpayments, interbank giro account transfers in respect of various transactions, and receipts and payments of the Bank of Italy and the Treasury.

The Bank of Italy continuous Settlement System (BISS) was introduced in April 1989 and allows banks to transfer funds to centralised accounts via the interbank network (SITRAD).

(a) Regulations and participants

The Bank of Italy drafts regulations and policies for the BISS, monitors compliance and enforces the rules. The Consolidation Act of 1910 governs the advance accounts in general, while the Statutes and some internal regulations of the Bank of Italy govern the use of advance accounts.

Centralised accounts at the central bank may be opened by a wide range of institutions; however, the opening of an account requires the approval of the Bank of Italy and is presently confined to credit institutions and to specific public bodies; as of March 1991, 892 banks held centralised accounts at the Bank of Italy and 300 participated directly in the BISS.

(b) Operation of the system

The BISS is used for interbank transactions requiring immediate settlement (executed either by means of electronic giros or by paper media at the branches of the Bank of Italy); electronic giros may be effected between 8.00 and 17.00 via SITRAD.

Within the electronic direct transfer system, each transaction is entered by the paying bank; an automated procedure notifies the counterparties of the operation and the resulting balances on their accounts in real time. At the end of the working day the Bank of Italy forwards an updated statement to each participant. The communications system consists of the electronic interbank network and the internal network of the Bank of Italy. Message security within the interbank network is ensured through authentication codes and encryption.

(c) Settlement procedures, pricing policies and risk management

The BISS provides instantaneous settlement of transactions. As each transfer is debited or credited immediately to the account of each counterparty, settlement is immediate and final. Once transactions have been posted to the centralised accounts they are irrevocable. A posted transaction cannot be cancelled; however, upon agreement between the parties concerned, a reverse transaction for the same amount and value date can be entered to offset an earlier transfer. The BISS does not allow intra-day exposures to exceed the limits on ordinary advances.

To encourage the use of computerised procedures for the movement of funds on centralised accounts the charges for paper-based operations are currently from three to six times higher than those for transactions carried out via the interbank network.

The BISS cannot generate liquidity or credit risks, as each payment is irrevocable only if the paying bank has sufficient funds on its account with the Bank of Italy. Currently, participants in the BISS are not subject to any special supervisory control beyond general bank supervision.

3.2.2. "Electronic Memoranda" sub-system (ME)**(a) Regulations and participants**

The ME sub-system is a specialised procedure of the new automated clearing system. It was launched in July 1989 and substituted electronic messages for paper documents in large-value interbank payments.

The rules governing the ME sub-system are included in the national clearing regulations, which also fix the hours of operation and deadlines. The electronic clearing system operates from 8.30 a.m. to 4 p.m. five days a week. At 4 p.m. final multilateral net balances are settled through the banks' centralised accounts at the Bank of Italy.

As of December 1990, 280 banks were authorised to use the electronic interbank communications network out of a total of 288 participating in the national clearing system. The direct participation of the Bank of Italy is being studied.

(b) Operation of the system

The ME sub-system is used for large-value electronic transactions. It is used mainly by banks to effect the liquidity adjustments necessary to complete settlement of their final clearing balances. In October 1990 an automated procedure linked the ME and the interbank deposit market; the result was a large increase in the funds handled by the sub-system, amounting to ITL 5,148 trillion in 1990.

Banks may transmit data either via the interbank network or by delivering floppy disks or paper documents to branches of the Bank of Italy. Each transaction is entered by the debtor; however, the system notifies both counterparties of the operation and the resulting balances. Participants can also interrogate the system about their balance at any time. Multilateral net balances are settled through the centralised accounts at the close of clearing operations.

The system processes paper-based and electronic transactions. In future it will handle only electronic transactions (data transmission and floppy disks); paper-based messages will be accepted only in exceptional circumstances.

(c) **Settlement procedures, pricing policies and risk management**

The expenses of the clearing houses are met by participants on the basis of the value of transactions and the number of counterparties. The Bank of Italy is in the process of restructuring the pricing policy for the payment services it supplies (see Section 5.2.).

Fixed charges are levied for each transaction; with a view to encouraging the use of computerised procedures, paper-based operations are charged at from three to six times the rate of those carried out via the interbank network.

A procedure has been introduced in the ME system for the real-time monitoring of intra-day exposures. In addition, membership criteria will be redefined.

3.2.3. The Interbank Payment System (SIPS)

(a) **Regulations and participants**

The Interbank Payment System (SIPS) operated by the Interbank Society for Automation (SIA) on behalf of the Bank of Italy came into operation on 17th July 1989. The system is owned by the Bank of Italy and handles interbank transfers of external lire and the lira settlement of foreign exchange transactions. Novated net balances deriving from the transactions handled by the SIPS are channelled through the national clearing procedure.

The Bank of Italy establishes and enforces the rules for the operation of the SIPS and supervises the system. The basic framework for the operation of the SIPS is laid down in the Agreements between the Bank of Italy and the SIA and between the SIA and the participants in the system. Membership rules are established directly by the Bank of Italy, which may suspend or expel a participant from the system. SIPS transactions can be sent to the SIA EDP centre during the five days preceding the value date and up to 14.00 on the value date itself.

Any bank participating in the national clearing system and linked to the interbank network can apply for membership in the SIPS. Currently seventy-four banks participate in the system.

(b) **Operation of the system**

The SIPS adopts the "store and release" technique which allows each participant to make irrevocable ('release') a payment (previously entered or 'stored') only after the funds necessary for its settlement have been made available by the operator originating the transaction.

The transmission of data in the SIPS is effected exclusively via the interbank network. There are four types of message: revocable advance payment notices, final credit transfers, confirmation of payment notices and cancellation of payment notices. At 14.00 on each working day the SIA notifies each participant of its position vis-à-vis each counterparty and simultaneously communicates the net balances to the Bank of Italy for inclusion in the national clearing system.

The SIPS processes only electronic transactions. Information is stored in a data bank. By means of an inquiry sent to the SIPS data bank, each bank can receive in real time updated information concerning its advance payment notices as well as its balance.

In 1990 the volume of transactions handled by the SIPS amounted to ITL 5,647 trillion. The average value of SIPS transactions was ITL 3.08 billion.

(c) **Settlement procedures, pricing policies and risk management**

The SIPS is a system in which novated bilateral net balances are settled through the national clearing system. Thus there is no actual transfer of funds until settlement time (i.e. the close of the clearing cycle at the end of each working day). The application of novation affects only bilateral net balances at the end of the day.

The costs of implementing the SIPS were covered by the Bank of Italy and the SIA. The basic principle of SIPS pricing is that revenues must cover operating costs. The fee structure is also used to influence the participants' behaviour; for instance revocable notices, which provide advance information on banks' cash flow, have been kept free of charge.

The exposure of each bank is governed by gross items during the operating cycle and by bilateral net balances at the end of it. The first line of defence against credit and liquidity risks is membership control. In the SIPS, as in the ME, membership criteria are fixed by the Bank of Italy. Each

participant can monitor his intra-day exposures in real time. Other risk control measures, such as caps, are currently under study.

Although the SIPS is operated by the SIA, the Bank of Italy regulates, supervises and oversees the system. However, neither SIPS participants nor the system as a whole are subject to any particular control beyond general supervision.

3.3. Main projects and policies being implemented

The efforts of the central bank and of the co-ordinating bodies in the payment field continue to focus on improving the functioning of the system and the competitiveness of domestic operators.

Initiatives are currently under way to complete the plan providing for all interbank payments to be settled in central bank money. Large-value interbank payments will be settled through either the clearing system or the BISS, according to the urgency and risk associated with each item. For low-value payments, additional types of transaction will be identified for systematic entry into the retail clearing sub-system. The use of correspondent current accounts for the settlement of interbank transactions will thus be further reduced.

Initiatives planned for the coming years will concern in particular the introduction of procedures for the exchange and settlement of credit transfers; a 'fast lane' will be created for the exchange and settlement of urgent payments, and all transactions of this type will be settled through the appropriate clearing sub-systems.

The banking system's need for increasingly advanced technological infrastructure recently induced the CIPA to prepare a project for the development of SITRAD; this scheme aims to provide the facilities necessary to meet the requirements of an increasingly competitive payment system. The new structure of SITRAD has already been approved by the CIPA and will be put in place over the next three years. SITRAD should evolve from a number of different networks into a single national network able to ensure the transmission of all types of interbank transactions. The SIA will be entrusted with the implementation and management of the network, thus confirming – and indeed strengthening – its 'public utility' role.

SECTION 4: SPECIAL USE OF INTERBANK TRANSFER SYSTEMS FOR INTERNATIONAL AND DOMESTIC TRANSACTIONS

4.1. Exchange and settlement systems for international transactions

The Italian banking system has increased its presence in the international markets over the last two years; this has been achieved mainly by expanding the activities of foreign branches, which grew from eighty-three at the end of 1988 to ninety-five at the end of 1990. Most of the growth occurred in Europe, where more than 40% of all Italian banks' foreign branches are presently concentrated. During the same period the number of foreign banks' branches in Italy decreased from sixty-two to fifty; at the same time foreign banks acquired majority or minority holdings in some Italian banks.

The late start of Italian intermediaries in the process of internationalisation has led to a heavy dependence on interbank relations in their international business (Italian banks' foreign branches generate only 23% of their total liabilities from non-bank customers). The marked influence of interbank relations is the result of a wholesale-oriented strategy.

The principal channel for transmitting information on international payments is the S.W.I.F.T. network. The telex system is now used mainly for contacts with countries that are not yet linked up to S.W.I.F.T. and as a back-up for the latter in the event of technical failure.

For international funds transfers banks rely on their correspondent network. The debtor bank instructs a foreign correspondent to debit its foreign account and to pay the amount to a correspondent of the creditor bank for credit to the latter's account. To carry out the instructions they receive, foreign banks use their local clearing and settlement systems.

Foreign exchange transactions can be split into two payment operations in different currencies. The settlement of the foreign currency leg of foreign exchange transactions between domestic banks does not differ from the general scheme described above, since Italy has no interbank systems or

sector-wide agreements for clearing foreign currencies. However, to prevent small sums from being handled individually, some major banks have decided to post credit and debit items that do not exceed an agreed limit to specially-created reciprocal accounts on the understanding that the balances will be settled periodically or when they reach an agreed level by means of customary transfers in "nostro" accounts.

(a) Retail transactions

The limitations that were imposed for many years in the past by the Italian authorities on payments in foreign currencies or in lire executed abroad have slowed down the spread of payment instruments specifically designed to carry out international retail transactions. More recently, exchange control liberalisation has brought significant changes, bringing Italy closer to other European countries with regard to the range of payment instruments available to customers and their use.

Travellers' cheques are a traditional instrument for making retail payments abroad. They are issued in different currencies and are offered to customers by Italian banks on the basis of special correspondent agreements with other banks.

Eurocheque cards have been issued in Italy since June 1989. The Eurocheque card guarantees both cheques drawn on Italian banks and circulated within Italy and uniform Eurocheques drawn on Italian banks and issued abroad. A magnetic stripe on the back of the card enables it to be used at ATMs and POS terminals both in Italy and abroad. Up to December 1990 a total of about 1,350,000 cards had been issued by the Italian banking system.

Although their use as payment instruments is still not widespread in Italy, credit cards are also used to make retail payments abroad. In 1990 around 20% of the total transactions settled through payment cards issued in Italy were made abroad.

(b) Large-value transfers

Large-value transfers in lire for the settlement of international transactions are channelled through the wholesale clearing sub-system. The wholesale sub-system consists of two procedures: the ME and the SIPS (see Sections 3.2.2. and 3.2.3. for more details). While the ME sub-system is a general procedure for large-value transfers, the SIPS was set up specifically to handle interbank transfers of external lire and settlement of the lira leg of foreign exchange transactions. Banks that do not participate in SIPS use the ME sub-system for transfers connected with international transactions.

Large-value transfers in other currencies are executed through correspondents, with the exception of ECU transfers, which can be carried out directly by Italian banks participating in the ECU Clearing System.

4.2. Exchange and settlement systems for securities transactions

The 1980s were a decade of growth for all segments of the Italian securities market; government securities recorded a particularly marked expansion, on account of the long-standing budget deficit.

The settlement of securities transactions is carried out mainly in the clearing houses through procedures known as "Liquidazioni titoli". The transactions settled include listed and unlisted securities and represent the final phase of contracts concluded on the stock exchange and over the counter. Equities, corporate bonds, government securities and options are all traded on the stock exchange market; government securities are traded mainly on the screen-based market.

4.2.1. Screen-based market for government securities

The regulations governing the screen-based market for government securities are contained in the Ministerial Decree of February 1988 which instituted it and in a convention between participants. The market is open to the Bank of Italy, banks and special credit institutions, stock exchange commission dealers (limited companies that are allowed to operate for their own account or on behalf of customers), financial companies, insurance companies and investment fund management companies. The signatories to the convention operate as dealers, twenty-two of them (twenty banks and two financial companies) as primary dealers; these are required to provide continuous 'bid and offer' prices for contracts worth a minimum of ITL 5 billion.

The working of the screen-based market is supervised by a management committee composed of all the participants. Representatives of the Bank of Italy and of the Companies and Stock Exchange Commission (Consob) may take part in the committee's meetings. The Bank of Italy, acting as a dealer, publishes a daily list of prices and volumes of trading based on primary dealers' notifications of contracts concluded. Trading is carried out electronically between dealers and primary dealers. Once a transaction is finalised, confirmation automatically appears on the purchaser's and seller's printers, thus avoiding most of the problems connected with the matching of operations. The screen-based market operates between 9.30 and 13.30 and from 14.30 to 16.30 on stock exchange business days.

Settlement for government securities and corporate bonds is made on the third stock exchange working day following the conclusion of the contract. Treasury bills transactions are normally settled on the second working day after conclusion of the contract.

4.2.2. The stock market

In Italy there are ten stock exchanges: Milan (which handles 95% of total transactions), Bologna, Florence, Genoa, Naples, Palermo, Rome, Turin, Trieste and Venice. Prices in the stock exchange are fixed using the call-over auction method. The prices thus established are known as "closing" prices. Dealing in the most traded shares and in options may also be carried out in different trading rings. Only stockbrokers may trade on the floor of the stock exchange and they may not engage in any kind of transaction for their own account. Banks and commission dealers are admitted to the trading floor but must transmit orders to the stockbrokers.

The Italian stock market is generally a forward market; the settlement of transactions is deferred to settlement day which, as a rule, coincides with the last working day of the month; the stock exchange month runs from the middle of one month to the middle of the next.

The share market is currently undergoing profound transformation. A continuous screen-based system for trading listed shares is currently being implemented and will be managed by a company formed for this purpose, "Generale Telematica per le Borse Valori" (GTB). The screen-based stock exchange began operating on a trial basis in November 1991 and will permit the establishment of a single nationwide exchange by linking all Italian stock exchanges.

The screen-based system will be assigned many auxiliary functions in addition to continuous trading, including automated daily trade matching, the processing of analytical data for the supervisory authorities and public dissemination of information concerning the market.

Automated daily trade matching will give a decisive boost to the streamlining of settlement operations and will make it possible to extend the rolling settlement scheme to shares. A new procedure will shorten the settlement cycle for shares to three days after the conclusion of a contract and introduce specific safeguards to ensure the continuity of the system. Barring unforeseen obstacles, the system should come into operation at the beginning of 1993. In line with international recommendations, consideration has also been given to a system of securities lending that would enable operators to obtain the securities they need in order to cover their settlement obligations.

4.2.3. Organisations involved in the securities settlement system

The institutions involved in the settlement of securities transactions may be divided into two broad categories: those that set the rules and those engaged in managing and operating the system. An exception to this is represented by the Bank of Italy, whose institutional role embraces both the regulatory and operational aspects (see Section 5.2.).

The Consob is responsible for ensuring the transparency of the information given out in the financial market. In agreement with the Stockbrokers' Executive Committee, it fixes the timetables for settlement and may postpone a settlement date should a stock exchange participant be insolvent.

The clearing and settlement of securities transactions are carried out through seven clearing houses managed by the Bank of Italy. The clearing houses are interconnected by a procedure that enables operators to settle transactions with counterparties on different markets ("Interstanza").

Stockbrokers, credit institutions and commission dealers as the only intermediaries authorised to deal on the stock exchange, may take part in clearing and settlement sessions through the clearing houses; in December 1990 there were 118 credit institutions, 203 stockbrokers and ninety-eight

commission dealers for a total of 419 operators. Membership of the clearing houses allows operators to carry out all types of operation, from notifications to settlement; settlement in cash, however, must be carried out through a credit institution.

As mentioned in Section 1.1, the new institutional framework for the stock market is outlined in the Law instituting Securities Investment Firms (SIMs) passed in January 1991. These multi-functional operators must be legal persons and will take the place of stockbrokers and commission dealers. SIMs are authorised to trade in listed securities on their own account and on behalf of third parties.

The clearing houses provide three types of settlement: daily settlement is used mainly for government securities and corporate bonds transactions, monthly settlement for shares and extraordinary settlement for contracts relating to rights issues. These settlement procedures, which follow the same logical sequence and differ only in their duration, apply equally to on-market and over-the-counter transactions and to listed and unlisted securities.

Data concerning bilateral positions are processed by two different networks: SITRAD and CED. SITRAD is the interbank network (see Section 3.1.); CED is the link between clearing houses and all operators (stockbrokers, commission dealers and some banks) who have no access to SITRAD and would otherwise have to make independent arrangements to transmit data to the clearing houses.

The balances in securities resulting from multilateral clearing are settled by way of book entries in the accounts opened at the two central institutes for the custody of transferable securities: Monte Titoli and the Bank of Italy (see Chart 2).

4.2.4. Central Depositories

Monte Titoli runs the central depository for the shares and bonds of listed companies (see Section 1.4.). The face value of certificates deposited with Monte Titoli (they are not dematerialised) is equal to 40% of all listed shares; the proportion rises to 85% if one considers only shares actually available for trading. In 1990 91% of clearing house debit balances relating to shares were settled via Monte Titoli accounts, thereby continuing the progress of centralisation. In the light of positions that have been adopted at European Community level, Monte Titoli has been developing contacts with its counterparties abroad with a view to facilitating the processing of international securities transactions.

The Bank of Italy has been administering the system for the centralised management of Government securities since 1980. The system is linked to the clearing house settlement procedures; deposited securities are transferred between members of the system by means of book entries. In September 1990 a centralised securities accounts procedure was introduced; this enables government securities to be transferred in real time through the direct debiting and crediting of participants' central accounts at the Bank of Italy. The following institutions are eligible to participate in the system: banks and the Italian branches of foreign credit institutions, financial institutions, stockbrokers and commission dealers, international clearing institutions (CEDEL and Euroclear).

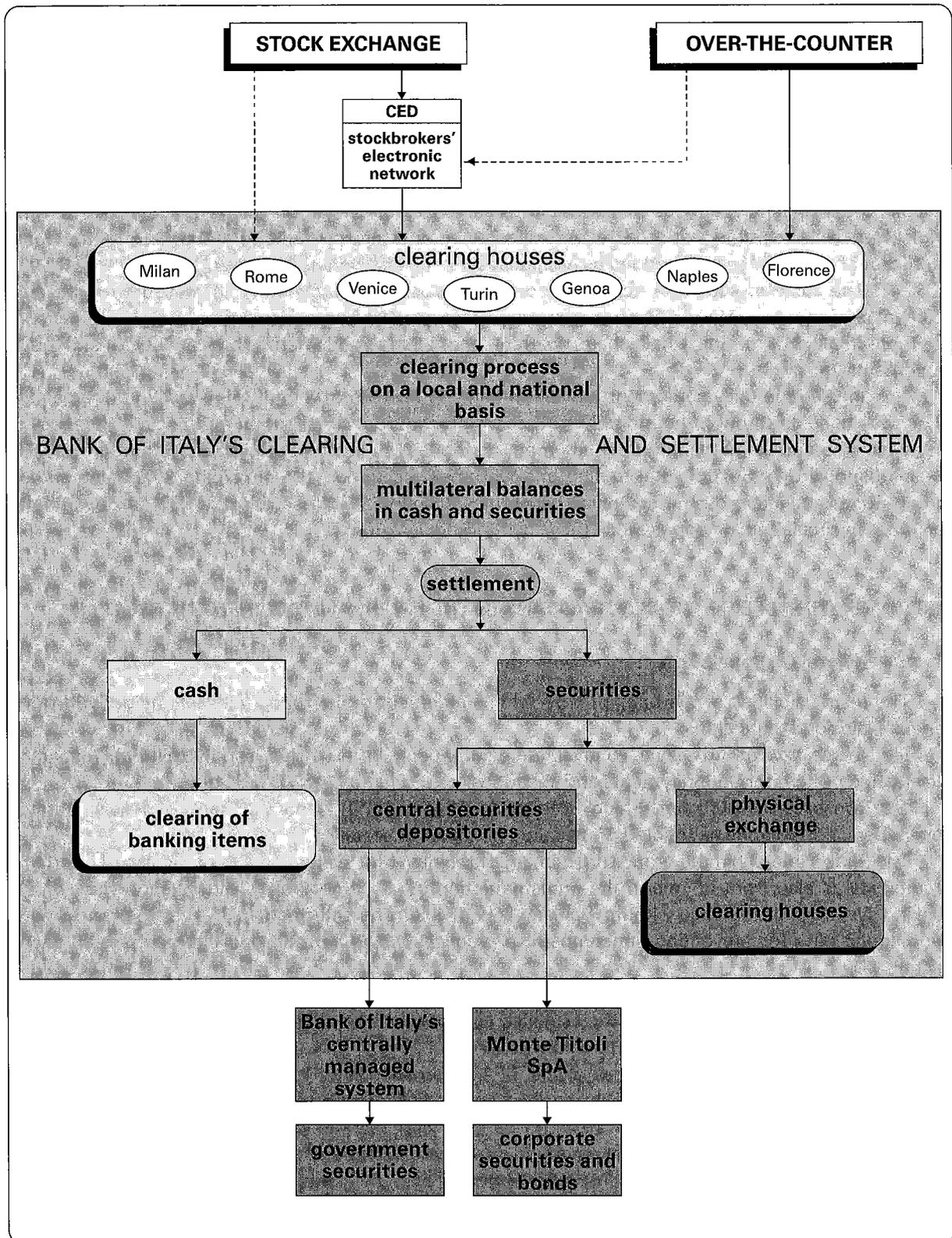
Applications are handled by the central bank. It is compulsory for participants in the clearing houses to maintain securities accounts with the Bank of Italy.

4.2.5. Structure, operation and administration of the clearing and settlement systems

The duties of the clearing houses begin with the notification by each participant of its bilateral net positions in cash and securities. Bilateral balances are determined outside the clearing house through procedures that vary according to the nature of the counterparties. Notification may be forwarded through SITRAD, CED, or directly on magnetic tapes or paper-based documents. On receipt of these notifications the clearing houses compute provisional balances, which are then checked by the operators and corrected by the clearing houses themselves through an automated procedure. Having eliminated any discrepancies, the clearing houses proceed to determine the participants' multilateral positions in securities and cash through netting. The determination of multilateral balances does not involve the novation of underlying obligations.

The settlement procedure eliminates the 'capital risk' through the automatic and strict application of the principle of delivery versus payment: clearing houses cannot settle credit balances in cash and securities until they have finalised the collection of all debit balances. On settlement day the debit balances in securities are conveyed electronically to the central depository institutions and

Chart 2



debited to the participants' accounts. Otherwise, the certificates must be delivered physically to the clearing house of which the participant is a member. The cash settlement of securities transactions is carried out through the local clearing system ("Recapiti locale"). Non-bank operators settle their balances through credit institutions. The final stage is the delivery of securities to members holding credit positions, either by directly crediting their accounts with the central depository institutions, or through the physical delivery of securities.

Should a stock market operator default, a declaration of insolvency is issued. Cases of insolvency are handled through a special compulsory settlement procedure managed by the Stockbrokers' Executive Committee. The Committee executes on the market the transactions required to close the insolvent operator's positions. To offset losses deriving from the difference between the original prices of contracts and those obtained for compulsory settlement, creditors may ask for a certificate of credit that can be lodged as a claim against the insolvent party's assets.

The value of securities handled through the settlement procedures increased by more than 140% in 1990 to reach ITL 1,485 trillion, with that of government securities rising by 242% to account for more than 84% of the total; share, warrant and option settlements totalled 13.7%, and bond settlements 2%.

In 1990 the daily settlement procedure handled 86.5% of the total value, while the remaining 13.5% was handled through the monthly settlement procedure. This distribution reflects differences in the types of securities settled and in settlement methods. The settlement procedure through clearing houses handles over 80% of total trading in government securities, the remaining 20% being settled through direct transfers on the centralised securities accounts. At present, some 96% of government securities in circulation are deposited in these centralised accounts.

SECTION 5: THE ROLE OF THE CENTRAL BANK IN THE INTERBANK SETTLEMENT SYSTEM

5.1. General responsibilities

The responsibilities of the Bank of Italy in the settlement of interbank transactions derive from a series of laws and regulations:

- the Decree-Law of 6th May 1926 gives the central bank the exclusive responsibility for managing the clearing system for both payments and securities (see Section 3.1);
- the Consolidation Act concerning note-issuing banks (1910)¹⁵ and the Bank of Italy's Statutes govern bank transactions negotiated or executed by the Bank of Italy.

The Bank's interest in the proper functioning of the payment system and, in particular, of interbank circuits, stems also from its role in the implementation of monetary policy and as supervisor of the banking system in accordance with the Banking Law of 1936. The anti-trust Law¹⁶ gives the central bank the responsibility for preventing anticompetitive practices in the banking and payment systems (see Section 1.1).

Together with these specific responsibilities, the central bank promotes the smooth functioning of the interbank circuit and encourages the establishment of common rules through its participation in the leading co-operative initiatives in the payment field.

The Bank of Italy acts as chairman of the CIPA (Interbank Convention on Automation); in order to lay down guidelines, the Bank can ask the CIPA to issue directives to member banks on matters of common interest. The Bank of Italy also co-operates with the ABI (Italian Bankers' Association) in initiatives designed to benefit both the payment system and its end-users.

As the sole supplier of clearing and settlement facilities, the central bank is charged with ensuring the smooth functioning of the system and the control of credit and liquidity risks.

The regulations that apply to the banking system are aimed at strengthening the stability of interbank exchanges and settlement systems. The specific control of payment system risk, which is

¹⁵ Codified Law No 204/1910

¹⁶ Law No 287/1990.

currently carried out by monitoring banks' intra-day exposures during the clearing process, will be reinforced through implementation of the measures envisaged in the Decree of 7th May 1991 of the Minister for the Treasury. This Decree enables the monetary authorities to regulate the participation of credit institutions in the clearing system on the basis of technical, organisational and capital standards.

Participants in the BISS and clearing houses must meet the standards required for access but are not subject to any special supervisory control beyond general bank supervision. The procedures for monitoring intra-day positions in the clearing system already enable the central bank to oversee the system as a whole; in the near future risk analysis in the payment field may become more closely linked to traditional supervisory activities.

Both the clearing system and the BISS use SITRAD, the network managed by the SIA, as a channel for the transmission of electronic data. Since it holds a significant share in the SIA, the Bank of Italy is in a position to prevent technical risks and to ensure that payments processed electronically are executed efficiently.

5.2. Provision of settlement facilities

The Bank of Italy has been providing deposit accounts for the banking system since its foundation in 1893. They have traditionally been used both to facilitate interbank settlement (centralised accounts) and to manage compulsory reserves.

On 15th October 1990, changes in the system of compulsory reserves¹⁷ led to changes in the configuration of banks' accounts with the Bank of Italy. The centralised accounts now comprise both the reserve accounts for banks' compulsory reserves and for deposits held by banks not subject to reserve requirements, and ordinary advance accounts. The opening of an account is subject to the discretion of the Bank of Italy and is strictly confined to credit institutions and certain public bodies.

Under the new regulations the reserve account and that for ordinary advances are managed as a single account. Deposits are automatically used first to reduce the amount of any outstanding ordinary advances and the balance, if any, is credited to the reserve account; the order is reversed for withdrawals. However, if banks wish, they may distribute their balances between the two accounts at their discretion, in accordance with their planned cash management operations. In addition, the banks receive more daily information regarding their reserves.

In accordance with changes under way in the payment system, it has been possible since April 1989 for direct transfers on the centralised accounts to be executed via the interbank network (SITRAD) as an alternative to paper-based instruments (see Section 3.2.1. for more details concerning the BISS). The possibilities opened up by the new system and the scope given to bank treasurers to allocate liquidity between their various accounts have encouraged banks to move funds via SITRAD: the number of network participants rose to 300 in March 1991, equal to about 30% of all banks with reserve accounts but over 65% of those subject to reserve requirements.

As the only institution that can provide settlement facilities for interbank transactions, the Bank of Italy governs, manages and supervises the gross settlement system (see Section 3.2.).

The central bank also manages clearing operations, supervises the system and draws up the operational rules; furthermore it provides netting services and acts as settlement agent (see Section 3.2.).

The clearing houses are also responsible for the clearing and settlement of securities transactions. The legal responsibilities of the central bank embrace both the institutional aspects, such as regulating membership of the clearing system, and the operational aspects of the entire settlement procedure.

The Bank of Italy has traditionally encouraged and organised the central administration of securities; it manages the centralised depository for government securities and participates, together with banks and stockbrokers, in the capital of Monte Titoli, the depository for shares and bonds. In September 1990 a gross settlement system was established (centralised securities account); it enables government securities to be traded in real time by debiting and crediting the individual participants' central accounts at the Bank of Italy. The new arrangement allows participants to settle transactions directly on these accounts (see Section 4.2.).

¹⁷ Provided that the average level for the period from the 15th of each month to the 14th of the next does not fall below the reserve requirement, banks may mobilise up to 5% of their compulsory reserves, which means that a bank's compulsory reserve may at no time be less than 95% of its reserve requirement.

5.2.1. Provision of credit facilities

The Bank of Italy may offer only those credit facilities that are expressly envisaged in the relevant legislation and regulations. The facilities are governed by both the Consolidation Act of 1910 and the central bank's Statutes.

There are two principal facilities designed to guarantee completion of the clearing and the smooth functioning of the payment systems: ordinary advances and fixed-term advances; both are fully collateralised. The Bank of Italy makes ordinary or fixed-term advances to banks against collateral consisting of government or government guaranteed securities of a face value equal to the amount of the facility plus 15% in the case of government securities and plus 20% for government-backed papers.

While banks may resort freely to ordinary advances up to a specified amount, fixed-term advances are provided at the Bank of Italy's discretion in response to an individual bank's request; interest is normally charged at the discount rate, which is fixed by the Bank of Italy.

Fixed-term advances are intended to meet even large funding requirements, but for limited periods, and are thus of considerable importance for the regular functioning of the payment system. In May 1991 the Minister for the Treasury authorised the central bank to set premiums on the rate on fixed-term advances up to a maximum of 1.75 percentage points above the discount rate. These premiums are fixed in accordance with the banking system's liquidity situation and are weighted in line with short-term monetary policy targets.

The central bank also offers a third credit facility, the discounting of bills of exchange, which, however, is not suitable for supporting the payment system. The discounting of bills of exchange used formerly to be the main channel for refinancing, but has now lost much of its importance.

5.2.2. Pricing policies

Traditionally, the Bank of Italy did not recover either fixed costs or all of its personnel and data-processing costs. A comprehensive re-examination of charges for the payment services supplied by the central bank led to a reformulation of policy objectives in this field; the aim of recovering part of the costs of supplying settlement services was combined with that of stimulating operators to use the new innovative instruments and, more recently, to penalise delays in the regular completion of clearing operations.

The new pricing policy has been applied to the procedures for the movement of funds on centralised accounts; to encourage the use of computerised procedures the charges for paper-based operations are currently from three to six times higher than those for transactions carried out via the interbank network.

In addition to the fixed charges levied on all operations, the new schedule includes ad valorem charges for cash transactions and for operations in favour of banks which would otherwise be unable to meet their settlement obligations during the last phase of the national interbank clearing procedure.

5.3. Monetary policy and the payment system

In recent years the Bank of Italy has played a leading role in the drive to modernise and rationalise the payment system; the stability, smooth functioning and efficiency of the system are among the principal objectives pursued by the central bank.

The initiatives outlined in the foregoing sections have laid the foundation for improved customer services and enhanced systemic stability. They have also strengthened the link between the payment system and the management of monetary policy. Monetary policy regulates the supply of central bank money, which is used to make payments irrevocable and final. If banks settle a large portion of their payments on reciprocal correspondent accounts, the pivotal role of central bank money is weakened. The result is a loss of security – since the finality of payments is ensured only through settlement in monetary base – and a narrowing of the base on which monetary policy can act.

The Bank of Italy's actions have been directed mainly at channelling the largest possible number of operations through the clearing and settlement systems, at binding operators to standard rules of conduct and at encouraging settlement in central bank money. Since the second half of 1989 the introduction of new procedures for clearing and settling interbank payments has had a profound impact

on the working of banks. An idea of how much has been achieved in recent years can be gained from the ratio between the payment flows settled via the central bank and GDP: this has grown from 5.7 in 1988 to 13.7 in 1990. The measures taken to encourage settlement through the central bank have reduced the significance of 'unofficial circuits': the average volume of deposits on banks' reciprocal accounts fell by 15% between 1988 and 1990.

These efforts to rationalise the payment system have been accompanied by interventions to enhance the efficiency of the financial markets and the management of banks' reserves. At the beginning of 1990 the interbank market was given added breadth and transparency by the introduction of the screen-based interbank deposit market (MID). From October 1990 banks were allowed to mobilise up to 3% of their compulsory reserves and in October 1991 the ceiling was raised to 5%. Mobilisation has strengthened the daily bank reserve market, considerably reducing the volatility of short-term interest rates, which are thus more reliable indicators of monetary policy.

The reforms have had a considerable impact on the procedures for conducting monetary policy and have enhanced the response of the financial markets to central bank policy action.

Specifically, the timing of market operations and of the various procedures for settling transactions has acquired greater significance in intermediaries' financial operations and in the conduct of monetary policy. The Bank of Italy intervenes in the money market, at its discretion and on a daily basis, through open market operations and refinancing (fixed-term advances). These operations are designed to control the behaviour of bank reserves by influencing short-term interest rates. Transactions are settled on the same day on the centralised accounts held by the banks with the central bank, either directly or through the clearing system.

The central bank's interventions in the open market, which determine the overall liquidity of the system, are concentrated in the early hours of the morning; the morning is then devoted to market transactions and clearing operations. The retail sub-system is the first to close, at 12.00 noon, followed by that for local items at 13.30 and by the SIPS sub-system at 14.00. Since all banks can monitor their clearing positions up to that time, they may continue trading on the interbank market to adjust their liquidity positions until 16.00, when the ME sub-system and national clearing close. Refinancing operations via fixed-term advances are usually carried out towards the end of the working day, while banks can continue to transfer funds directly to their reserve and advance accounts, which are closed one hour after the deadline for clearing (see Chart 1).

The increased breadth and enhanced efficiency of the money market have given added significance to short-term interest rates, which are quicker to respond to open market and refinancing operations. The ensuing increase in the operational efficiency of the financial system has tightened the links between the payment system, the money and financial markets and monetary policy. Every action by the central bank that gives rise to an accounting operation with the banking system is at the same time the completion of a payment and an act of monetary policy.

5.4. Main projects and policies being implemented

The Bank of Italy is working on a number of projects in both the domestic and international fields (see Sections 2.3. and 3.3. for more details).

With regard to the domestic payment system, the most important issue being studied is the formulation of an organic policy for the control of credit and liquidity risks. The Bank of Italy is in the process of implementing a comprehensive policy for the control of these risks in accordance with the recommendations of the Report of the Committee on Interbank Netting Schemes (Lamfalussy Report): the definition of stricter standards for access to the clearing and settlement systems, closer monitoring of banks' intra-day exposures (to be introduced in the near future), and the setting of caps in the specialised sub-systems.

With a view to improving the stability of the financial system, Law 197/1991 entrusts the Bank of Italy with the supervision of operators providing payment services. The Bank of Italy is examining operational methods for extending its supervision to cover also non-bank operators providing payment services in connection with funds transfers and payment cards.

The integration of the banking and postal circuits has progressed in 1991, with the creation of an ad hoc Co-ordinating Committee comprising representatives of the Postal Administration, the Italian

Bankers' Association and the Bank of Italy, and charged with preparing the inter-circuit standardisation of instruments and services.

In the securities field, new procedures were introduced in the centralised deposit systems to increase their use in the settlement of domestic and cross-border transactions, and further efforts were made to identify the technical and legislative measures needed to improve domestic trading and settlement methods. In addition, the creation of a futures clearing and settlement system similar to those already operating in other countries is now being studied, with the aim of removing impediments to the growth of the futures market in Italy (see Section 4.2.).

On the international side the Bank of Italy is actively involved in both the G10 and European Community Committees on payment systems.

Basic Statistical Data
(1990)

Population: 57,576,000
 Gross Domestic Product: ITL 1,278,893 billion (1) (ECU 840.33 billion)
 GDP per capita: ITL 22,212,259 (ECU 14,595)
 Exchange rate: 1 ECU = ITL 1521.9

(1) Source: Eurostat

Table A.: Monetary aggregates
(average of end of month)

	billions ITL		Per capita (ITL)
	1989	1990	1990
Notes and coins	55,432	61,299	1,064,662
Transferable deposits in local currency (1)	324,131	348,532	6,053,425
Others	0	0	0
Total money supply (M1) (2)	379,563	409,831	7,118,087

Notes: (1) Includes small amounts of deposits in foreign currencies.

(2) The definition of the monetary aggregates was changed in 1991 – the data relating to M1 for 1989 and 1990 does not include banker's drafts, cashier's cheques and sight deposits with the treasury.

Table B.: Credit Institutions offering payment services (end of 1990)

Categories of Institutions	Number of Institutions	Number of branches	Number of accounts (thousands)	Share of market (%)	Value of accounts (ITL billions)	Share of market (%)	Average Value of accounts (ITL)
Central bank	1	98				0.0	0
Commercial banks	153	7,940	11,800	52.0	224,872	56.4	19,057,000
Savings banks	86	4,697	6,700	29.5	105,897	26.6	15,805,000
Co-operative & rural banks	825	5,084	3,700	16.3	59,413	14.9	16,057,000
Post Office	1	14,441	500	2.2	8,257	2.1	16,515,000
TOTAL	1,066	32,260	22,700	100%	398,439	100%	17,552,379

Table C.: Cash dispensers, ATMs and EFT/POS terminals

	Cash dispensers and ATMs						EFT/POS			
	Number of			Value of transactions (1)			Number of			
	Networks	Machines	Transactions (millions) (1)	Networks	Machines (1)	Transactions (millions) (1)	Networks	Machines (1)	Transactions (millions) (1)	
end 1989	1	7,791	80.07	n/a	10,240	2.38	n/a	10,240	2.38	355
end 1990	1	9,770	100.63	n/a	22,185	5.40	n/a	22,185	5.40	898
increase 89/90	0	25%	26%	n/a	117%	127%	n/a	117%	127%	153%

(1) Data provided by 75 banks accounting for approximately 80% of the current account deposits of the entire banking system.

Table D.: Number of payment cards (end of 1990)

	Number of cards (thousands)	Number of cards per 1,000 inhabitants
Cards with a cash function*	9,117	158
Cards with a debit/credit function*	11,212	195
Cards with a cheque guarantee function	1,356	24
Retailers Cards	n/a	n/a

Note: A card which has several functions appears in several lines and therefore the figures in this table cannot be added.

Table E.: Payments exchanged through the official payment systems

Name	Number of transfers (thousands)		Value (billions ITL)	
	1989	1990	1989	1990
Local Clearing	422,619	512,803	5,210,747	5,430,307
– Cheques*	417,119	506,803	1,165,092	1,506,627
– of which: out-of-town cheques	191,870	238,135	489,345	646,889
– other items* (1)	5,500	6,000	4,045,655	3,923,680
Memoranda (2)	470	1,255	1,434,400	5,148,000
– Interbank Deposits	77	411	630,560	3,480,000
– Foreign Operations	360	721	524,603	1,014,000
– Credit Transfers	9	34	28,005	128,000
– Other Items	24	89	131,558	526,000
– Paper memoranda	n/a	–	119,674	–
SIPS (3)	640	1,833	1,718,800	5,647,324
Retail (4)	n/a	46,642	617	15,926
– Check Truncation	–	13,007	–	6,815
– Bancomat	n/a	33,635	n/a	9,111
Gross Settlement (BISS)	1,002	1,005	1,474,525	1,634,400
– Paper Items	1,000	1,000	1,456,000	1,608,900
– Electronic	2	5	18,525	25,500

* Estimated figures

(1) Credit transfers; clearing of securities transactions; payments between the banking system and the Treasury, the Bank of Italy or the Postal Administration.

(2) The "electronic memoranda" procedure was initiated on 11th July 1989.

(3) Initiated on 18th July 1989.

(4) Initiated on 29th November 1989.

Table F. Relative importance of cashless payment instruments in the payment system (1)

Instruments	Number of transactions (millions)		Value of transactions (billions)	Percentage of total volume		Number of transactions per capita (2)	Average value per transaction (3)
	1989	1990		1989	1990		
Cheques issued	659.8	735.7	1,849,580	43.9	12.8	2.86	
Payments by debit and credit cards	30.4	47.6	5,730	2.8	0.8	0.18	
Paper-based credit transfers:							
customers initiated	569.8	604.3	6,213,384	36.0	10.5	10.33	
interbank*	568.8	603.3	602,637	35.9	10.5	1.21	
	1.0	1.0	5,610,747	0.1	0.0	5,512.7	
Paperless credit transfers:							
customers initiated (4)	222.1	240.9	6,416,646	14.4	4.2	62.68	
interbank*	221.1	237.8	3,364,595	14.2	4.1	17.99	
	1.1	3.1	3,052,051	0.2	0.1	3,490.6	
Direct debits	38.7	49.5	34,417	2.9	0.8	0.93	
TOTAL	1,520.8	1,678.0	14,519,757	100%	29.1	14.0	

* or large-value

(1) The figures in table F are not estimated, they do not refer to the whole system. They result from the addition of exact figures (Banca d'Italia cashier's cheques, postal instruments, credit card transactions, interbank large-value transfers) and figures of payment instruments that have been provided by a sample of 75 banks accounting for approximately 80% of the current accounts of the banking system.

(2) The number has been calculated using data of this table, an estimate of per-capita transactions referred to the whole system can be found in the comparative tables.

(3) millions ITL

(4) including in-payments to postal accounts that originate from cash and are processed automatically.

9. Luxembourg

LUXEMBOURG

Introduction

In the area of payment systems, as in many other fields, the size of the country makes Luxembourg exceptional – both smaller and more individual. The domestic market of Luxembourg, a country which has a population of 377,400 (1990), does not generate payment flows of similar volume to those of large industrialised countries, and the distinction between large-value payments and retail payments almost loses its relevance. However, notwithstanding being a small economy, Luxembourg is a dynamic international financial centre. In December 1990, there were 177 banks established in Luxembourg. Of these, approximately twenty banks were engaged in domestic banking business (which accounted for about 11.5% of total banking business). Among these, half a dozen belong to the ten largest banks in the market, although, with one or two exceptions, these large banks also operate in the Euro-markets. The remaining 157 banks are active only in the international markets.

There are also institutional features which distinguish the Luxembourg payment system. Luxembourg is the only country of the EC, where two currencies circulate; because of the monetary association between Luxembourg and Belgium which is a part of the Belgian and Luxembourg Economic Union (BLEU), the Luxembourg franc, as well as the Belgian franc, are legal tender in the Grand Duchy¹, and the two currencies have a one-to-one parity. Insofar as Belgium provides Luxembourg with part of the notes and coins it needs, it is, de facto, largely up to Belgium to determine the monetary policy for both currencies.

SECTION 1: THE INSTITUTIONAL ASPECTS

1.1. General legal aspects

There is no specific legislation dealing with all aspects of payment systems. Most aspects are covered by private contracts between financial institutions, customers and retailers and some aspects of payment processes and instruments are covered by the "Code Civil" which contains some very general provisions on payments (Article 1234 ff). The various valid forms of payment are listed in these Articles, including payment by compensation and payment by novation. Other laws deal with cheques (Loi sur les cheques, texte coordonné du 26.02.1987), bills of exchange (Loi sur les lettres de change et les billets à ordre, texte coordonné du 15.12.1962), the legal tender of the Luxembourg franc (Loi du 15.3.1979), the monetary authority (Loi du 20.05.1983 establishing the "Institut Monétaire Luxembourgeois" (IML), texte coordonné du 21.09.90) or the supervision of the financial sector (Loi du 27 novembre 1984 regarding access to the financial sector and its supervision, texte coordonné du 01.01.1991). Unlike in some other countries, there is no anti-trust legislation in Luxembourg.

1.2. Financial intermediaries that provide payment services

Two institutions are in charge of the circulation of notes and coins: the Luxembourg branch of the BNB (Banque Nationale de Belgique) for Belgian francs and the Luxembourg Monetary Institute ("IML"), together with its agent the "Caisse Générale de l'Etat", an offshoot of the Treasury, for Luxembourg notes and coins.

As regards cashless payments, the major players are, of course, the banks, together with the Post Office. This last institution has the right to maintain accounts on behalf of the public, but cannot, unlike Post Offices in some other countries, provide all the banking services that credit institutions normally provide.

There is only one category of bank in Luxembourg; all (except the Post Office) are under the prudential control of the IML. Among the 177 banks operating in December 1990, the three biggest institutions in Luxembourg held 33.6% of all deposits. Two credit institutions belong entirely to the

¹ The Luxembourg franc does not, however, enjoy the same privilege in Belgium.

public sector and one institution is the head of a network of 47 local rural banks. All of the banks established in Luxembourg, except the three mentioned above, were part of international groups. Among these, 105 had their headquarters in the EC, 143 were subsidiaries, one was a co-operative company and the remaining thirty were branches.

Since the banking law of 27th November 1984 defines banking activity as taking deposits from the public in order to invest them on the bank's own account, the execution of cashless payments is not limited solely to the banks. The number of non-bank institutions operating in this field is, however, very small. Examples of the instruments involved include luncheon vouchers or customer cards of oil companies.

1.3. The role of the central bank

The IML has, in a broad sense, two different functions in the field of payment systems. Firstly, it is the issuing authority². Belgian notes and coins issued by the BNB and the Belgian Treasury are circulated in Luxembourg through the BNB branch in Luxembourg. Secondly, it is also in charge of the prudential supervision of the credit institutions and other financial intermediaries (UCITS³, brokers etc.). The IML, however, is not directly involved in the field of payment systems. It does not provide any current account services for the banks and is not in charge of a clearing system, nor does it exercise any specific supervision in this area. Furthermore, the IML has no local branches and does not act as a banker for the government, except as a depository for part of the Government's excess liquidity. A large part of this business is done by the "Banque et Caisse d'Epargne de l'Etat" (BCEE).

1.4. The role of other private and public sector bodies

Several private companies are engaged in the Luxembourg payment system:

- CETREL ("Centre de Transferts Electroniques"), is a company which was set up by nine banks and the Post Office and which provides services in the field of electronic payment systems, where it manages the ATMs, and the EFT POS terminals of the BANCORMAT network. It is working on several other projects as well.
- A private company, EUROCARD-Luxembourg organises the collection, encoding and dispatching of payment instructions from the EUROCARD-network.
- A similar company has been set up recently by the VISA-network. It will function with the technical support of CETREL. The VISA-network until now has been run by two banks separately.

SECTION 2: SUMMARY INFORMATION ON PAYMENT MEDIA USED BY NON-BANKS

The various payment instruments in use in the Luxembourg domestic market are cash, credit and debit transfers, cheques, credit and other payment cards and bills of exchange.

2.1. Cash Payments

The IML issues notes in denominations of 1,000 and 100 francs and coins of 50, 20, 5 and 1 francs. There are also Luxembourg coins of 0.25 franc issued by the State. Belgian currency, which circulates in both countries, consists of notes in denominations of 5,000, 1,000, 500 and 100 francs and coins of 50, 20, 5, 1 and 0.5 francs.

The monetary association between Luxembourg and Belgium provides for a ceiling on the Luxembourg national money supply. As already mentioned, the Belgian franc is also legal tender in Luxembourg. The starting point for calculating the above mentioned ceiling is the volume of notes and coins (M0) of the whole BLEU. The part of the BLEU M0 which can be attributed to Luxembourg is not

² There is also a private credit institution, the "Banque Internationale à Luxembourg" which has the right, by way of historical precedent, to issue one-hundred-franc notes to a maximum of 50 million francs.

³ UCITS: Undertaking for collective investment in transferable securities.

measurable and can only be estimated. The share of the Luxembourg population in the BLEU population is taken as an estimation parameter. Luxembourg M0, so calculated, contains both Luxembourg and Belgian notes and coins. The issuing limit for Luxembourg francs is a third of this volume. In December 1990, Luxembourg M0 was calculated at 15.8 billion francs; thus the issuing limit was 5.26 billion francs. However, only 3.74 billion Luxembourg francs were in fact issued.

The only restriction to legal tender applies to the compulsory acceptance limit for coins. Whereas notes must be accepted to any amount, the compulsory acceptance limit for coins is one hundred times its unit value.

There is no precise figure available for the share of cash payments in the Luxembourg payment system as a whole. It is, therefore, only possible to give some qualitative or indirect indications about the importance of cash payments. For instance, in the distribution sector, and more precisely in the supermarket sector, in which electronic payment systems are already well represented, it seems that more than 65% of payments are still made in cash. The average share of cash payments in the overall payment system could, therefore, be much higher.

2.2. Non-cash payments

The money available for cashless payments is the deposit money which represents 78% of the monetary stock (M1). 16% of deposits are kept in Post Office accounts, the remainder in credit institutions. As in other countries, there are various types of accounts: fixed term deposits, savings accounts and current accounts. The last-mentioned, which allow withdrawals at any time, are normally the only type of account which can be used for cashless payments. The rate of interest on the different accounts differs widely. Whilst banks normally offer 0.5% a year for amounts exceeding an average of 40,000 LUF in the case of current accounts. There is no commonality in the interest rates applied to fixed term deposits. In the case of savings accounts, banks normally offer a base rate (average 5% in 1989), a loyalty premium (average 1%) and an increase premium (average 1.5%) calculated on the net increase of the savings. In most cases, no fees are charged for the management of current or savings accounts, except for some special services (transfers abroad, cheques abroad etc). The various instruments for making cashless payments are described below.

2.2.1. Credit transfers: "virements"

Credit transfers represent the largest part of all payment orders in Luxembourg with approximately 43% in volume and 82% in value. Different types of credit transfer are offered to the customer, such as standing orders.

2.2.2. Debit transfers: cheques

Some banks still offer their own cheques, particularly to their corporate customers, but most credit institutions offer Eurocheques. These allow the customer to issue a guaranteed cheque, provided that he writes his cheque card number on the back of the cheque and that the amount does not exceed 7,000 LUF. If he does not do so, the cheque may be valid, but not guaranteed. The Eurocheque system includes an automatic overdraft facility for the customer of 50,000 Luxembourg francs.

2.2.3. Direct Debits

In order to simplify the execution of payments, banks are promoting multiple transfer orders like standing orders ("ordre permanent") or direct debits ("domiciliation de créances"). In the latter case the payment is based on the prior written agreement of the debtor. Before each debit of his account, the debtor will receive an invoice and he has the opportunity to prevent the payment.

2.2.4. Cards

The total number of cards circulating in 1990 was 298,200. Two payment card systems compete in the Luxembourg market: a local debit card called "BANCOMAT" which is mostly linked with a EUROCHEQUE card (cheque guarantee card) and the traditional credit cards e.g. VISA, EUROCARD, AMERICAN EXPRESS. BANCOMAT and VISA have the biggest market shares.

(a) **BANCOMAT**

BANCOMAT is the market leader with 172,000 cards, of which 152,000 are BANCOMAT and joint EUROCHEQUE-BANCOMAT cards and 20,000 are POSTOMAT cards (see below). Both cards – EUROCHEQUE-BANCOMAT and EUROCHEQUE-POSTOMAT – are standard debit cards which allow customers to withdraw cash at BANCOMAT and POSTOMAT ATMs or to pay at electronic points of sale in Luxembourg and, insofar as it is a EUROCHEQUE-card, to withdraw cash in almost every other European country.

BANCOMAT is run by a group of local credit institutions which have adopted common guidelines and norms for their electronic payment system. The technical operation of the system is undertaken by CETREL, (described below). In 1990, the BANCOMAT network had: about 220 on-line EFT POS terminals, based on leased lines: 43 automated petrol distributors comprising “outdoor payment terminals” (PTO), “indoor payment terminals” (PTI) and 180 automatic on-line points of sale in supermarkets, the so-called EFT. Another 1,000 EFT POS terminals are linked to the central computer by the public telephone network (TELEDATA-system); this system allows payment to be made over the telephone using a modem (“dial up” system). Both types of terminals check the following items: validity, expiry date, the weekly withdrawal limit (25,000 LUF for ATMs and 50,000 LUF for EFT POS) and finally the PIN-code. In 1990, there were 4,500,000 transactions (2,400,000 on ATMs and 2,100,000 on EFT POS terminals). The average amount of each transaction was 3,900 LUF.

The costs of the system are shared by the banks, which bear 85% of the costs, by the retailers and by the banks’ customers who pay 250 LUF a year. The banks’ costs are shared between the customer’s bank which bears one third and the retailer’s bank which bears two thirds. CETREL charges the banks per transaction: 50 francs for PTO’s, 28 francs for on-line EFT POS terminals, and 47 francs for TELEDATA transactions. The retailer either purchases the equipment and pays in addition a fixed amount on each transaction (about 3 LUF, but this amount may vary depending on the economic sector to which the retailer belongs) or he rents the equipment and pays a fixed amount plus a percentage on each transaction.

(b) **VISA**

Standard VISA credit cards (with the option of extended credit) are issued in Luxembourg. There are two banks in Luxembourg which, at the moment, share the VISA market as far as the technical infrastructure is concerned. Some other institutions as well as the Post Office offer VISA cards to their clientele. 80,000 cards were in use by Luxembourg bank and Post Office customers at the end of 1990. The recent creation of a private company VISALUX will certainly increase the number of banks offering VISA cards.

In December 1990, the VISA network numbered 18 ATMs and 1,500 EFT POS terminals of two different types: automatic on-line terminals, and “semi-on-line” terminals (which require from the customer’s bank a special authorisation if the transaction exceeds a certain withdrawal limit). There are another 4,000 purely mechanical points of sale.

The VISA electronic terminals (ATMs and EFT POS terminals) check the expiry date, validity, and withdrawal limit. This limit is individually fixed for each customer depending on his financial situation. Cash withdrawals on VISA-ATMs also require a PIN-code, but, in the case of payments via EFT POS, customers are only asked for their usual signature. Transactions between the two above-mentioned institutions are cleared bilaterally. Transactions with the Post Office are treated in the same way as foreign transactions, that is to say via the regional centre in London. Verification can be obtained worldwide in no more than 45 seconds.

The final settlement of a VISA transaction is made by one or more transfers from a customer’s current account to the VISA account. In 1989, 2.5 million VISA transactions with a value of about 6.5 billion LUF were made domestically. During the same period, Luxembourg VISA customers made 500,000 transactions abroad with a value of 2 billion LUF. The electronic VISA system accepts payments by AMERICAN EXPRESS and DINERS cards too.

The costs of the system are shared between, on the one hand, the customer, who pays a subscription, a percentage on his cash withdrawals and interest on his extended credit and, on the other, the retailer, whose contribution is a proportion of his turnover made with VISA-cards. The proportion depends on the economic sector to which the retailer belongs.

(c) EUROCARD

EUROCARD is the third biggest card network in Luxembourg. Its market share, as regards the number of cards issued, is about 16.6%. Payment orders are collected, encoded and dispatched by a private company, EUROCARD LUXEMBOURG. EUROCARD cards are accepted in part of the BANCOMAT-network. The EUROCARD-network had at the end of 1990 300 EFT POS terminals and 3,000 manually operated machines.

As in the VISA-network, electronic EFT POS terminals check the validity, the expiry date, and the withdrawal limit (which depends on the financial situation of the customer). Technical support is provided by CETREL, but there is no clearing as in BANCOMAT. Retailers are paid on a daily basis, whereas customers are debited once a month. The pricing structure is similar to that of the VISA-network. Some banks, however, do not offer extended credit for payments with EUROCARD.

(d) POSTOMAT

The POSTOMAT card enables the holder of a post office account to withdraw cash in all BANCOMAT and POSTOMAT ATMs which exist in Luxembourg. He can also withdraw cash abroad with his POSTOMAT card and a cheque (at present in 29 countries). The POSTOMAT has no EFT POS terminals of its own, but POSTOMAT cards are accepted in the BANCOMAT terminals.

2.3. Recent developments

The VISA-network is set to expand, as other banks active in the domestic market want to issue VISA-cards to their customers. They have recently set up a company (VISALUX) with the purpose of enhancing marketing and the execution of some of the back-office operations of this new network. Technical support will also be provided by CETREL (see Section 3.1).

“Multiline” is a new common telecommunication system for corporate customers which was recently set up (February 1992) by the three largest banks in the domestic market. It offers the customer a large range of banking services such as the monitoring of accounts, the initiating of transfer orders, the communication of financial information, etc. Payment orders, which are generated through this fully computerised system, can be channelled towards the computerised netting system which is to be implemented in a near future (see Section 3.3.).

SECTION 3: INTERBANK EXCHANGE AND SETTLEMENT CIRCUITS**3.1. General overview**

The Luxembourg clearing system is composed of two different types of clearing: a traditional interbank clearing house (see Section 3.2.), which is entirely manual and paper-based, and an electronic clearing system for retail payments provided by CETREL (the Luxembourg company for electronic transmission, which is responsible, inter alia, for the clearing of payments made by means of BANCOMAT debit-cards).

The technical operations of the BANCOMAT – POSTOMAT card network are managed by *CETREL*, a cooperative company (“Société Coopérative”). Before its creation, each bank had developed its own system. The banks, however, quickly realised the need for harmonisation, which has therefore been the principal aim of the BANCOMAT group. In the mid-eighties, a central computer system was seen as the most efficient way to handle electronic payments. This was the origin of CETREL, which was founded in December 1985 by nine banks and the Post Office. Other banks have joined the BANCOMAT system since then. CETREL is headed by a board of six directors appointed by the founding members. This board elects a president and two vice-presidents. The board of directors decides the pricing policy, the security rules, the admission of new members, and so on.

CETREL runs the most integrated payment system in Luxembourg. For each transaction, carried out with a BANCOMAT debit-card, it verifies the usual parameters of the customer’s card: expiry date, validity, withdrawal limit, and PIN-code. Once the payment is accepted, CETREL records it and dispatches it on computer tapes to the banks of both parties. At the same time CETREL establishes a general net-net

balance for the transfers to be made between the banks. The BCEE, a public credit institution which is one of the founders of the system, is also the settlement agent in this system.

Possible disputes are dealt with by the banks themselves, after investigations made by CETREL. CETREL assumes responsibility for the results of purely technical incidents only. The specific credit and systemic risks are monitored and managed only by the participating banks.

Although CETREL offers payment services, it is not considered by the IML to be a financial intermediary within the meaning of the act on financial intermediaries of 21st September 1990, since the support, it provides is only technical and administrative. It is not, therefore, under the IML's control.

3.2. Structure, operation and administration of major large-value systems

The Clearing House: ("la Chambre de Compensation") is an entirely manual, paper-based funds transfer system. It was first set up in 1925. After the Second World War, a new clearing house was created under the patronage of the Luxembourg Bankers Association (ABBL); statutes and regulations were adopted in 1954. Fourteen institutions (banks and the Post Office) are participants in the clearing house. The two-tier system allows other banks and members of the stock exchange to take part in the clearing through the medium of a direct participant. There are thirteen banks which are thus indirect participants ("sous-participants"). In addition, forty-seven financial institutions participate in the same manner in the clearing of securities.

The Clearing House is managed by a president who is elected by the plenary committee ("assemblée générale"). He is responsible for the smooth functioning of the netting process and can penalise members who disrupt it. The plenary committee is responsible for the regulations, the admission of new members, suspensions or exclusions etc. The costs of the clearing are divided among members.

The clearing takes place every working day in the morning, normally at 10.30 a.m. After verification, a balance is sent to the BCEE, a public credit institution, although not guaranteed by the State⁴, which is a participant member as well as being the settlement agent. Each participant in the netting system has to maintain an account with BCEE. The settlements are executed on a date-value basis at 3 p.m. The instruments handled in the Clearing House are mainly cheques and payment orders, but securities and coupons are also delivered during the same session. The net-net positions are settled at 3 p.m. The BCEE grants overnight credit lines to the participants of the clearing house.

The clearing process is technically assisted and supervised by members of the stock exchange staff. Hitherto, there has been no special prudential supervision of credit, liquidity or systemic risks by public authorities, nor is there a system of bilateral or multilateral limits. The present clearing system is, in the terminology of the Report of the Committee on Interbank Netting Schemes (Lamfalussy Report), a position or advisory netting scheme. Since the multilateral net-net positions resulting from the netting are not legally binding, an "unwind-procedure" is always possible. Furthermore, there is no centralised risk management. Credit risks and liquidity risks are supported by each member as if it was a bilateral netting scheme. The statutes provide for a system of "double" accounts; ordinary accounts and loan accounts ("comptes avances") which each participant has to maintain at the BCEE and which should allow the settlement agent to finalise the settlement by taking funds from the loan account. There is, however, no strict regulation concerning cases where the total of funds in both accounts is insufficient to cover a net-net debit position. In practice, only the current accounts are used for the clearing.

During 1990, the value of all payment orders presented in the Clearing House was about 516.4 billion francs. This total shrank by 69.1% in the process of netting, only 30.9% of the total being settled at the BCEE. In 1990, the largest value of settlement during one session was 4 billion francs and the biggest debit balance for a single bank was 1.3 billion francs. The number of orders recorded as exchanged was about 5.9 million, but the real number is higher, because a single tape, which may include a great number of payment orders, is recorded as only one exchange.

3.3. Main projects

Some banks have started a project to computerise parts of the clearing process. The new system, EDS ("Echange de Données Structurées", exchange of structured data) will allow the encoding, collecting

⁴ The existing State guarantee only covers savings accounts in LUF.

and netting of payment orders, to begin with in local currency only. The paper-based exchange will be replaced by an exchange of computer files via telecommunication links. The monitoring of a bank's net position will be possible several times a day. This project aims at being the first element of a wholly integrated clearing system. It is being set up by the three largest credit institutions in the Luxembourg domestic market, but it will remain open for other participants. Other payment instruments, such as cheques, will be added later on and the system will also be able to accept new telecommunication norms.

SECTION 4: SPECIAL USE OF INTERBANK TRANSFER SYSTEMS FOR INTERNATIONAL AND DOMESTIC FINANCIAL TRANSACTIONS

4.1. Exchange and settlement systems for international transactions

Most of Luxembourg's important banks have very close links with Belgian credit institutions. They also use the services the BNB branch offers to pass and receive payment orders to and from Belgium. Cross-border payments exceeding a certain amount have to be declared for statistical purposes to the "Institut Belgo-Luxembourgeois du Change" (IBLC).

The payment instruments which the banks normally use for cross-border transfers are transfers through the medium of their correspondent network or internal transfers within their groups. The costs of this traditional method seem to be increasing significantly, so the banks are looking for ways to rationalise it.

The cross-border clearing system for EUROCHEQUE-cheques is organised by local banks, which arrange, each for one or more countries, the collection of the foreign Eurocheques presented in Luxembourg, and accept the cheques of Luxembourg customers presented by foreign banks. In 1989, 502,000 foreign Eurocheques were presented in Luxembourg and 640,000 Eurocheques were used by Luxembourg customers abroad. The average amounts were 3,244 LUF in the first case and 4,858 LUF in the second. The volume and the value of these transfers slightly decreased in 1990, especially as regards cheques used abroad by Luxembourg customers. The debit card function of the Eurocheque guarantee card is a new service, which enables residents in Luxembourg to use their Eurocheque card in ATMs in some countries abroad and residents of these countries to use their cards in Luxembourg ATMs. With this new service Eurocheque seems to be compensating for the decrease in the use of its cheques.

The importance of cross-border payments made by Luxembourg credit institutions can be illustrated by their use of the S.W.I.F.T. system. For more details on this system see Chapter 13. Its use by Luxembourg banks is quite extensive. During 1989, Luxembourg banks sent 5.2 million messages using S.W.I.F.T., of which 26% were customer transfers and cheques, 15.6% were related to foreign exchange transactions, FRAs, loans and deposits, and 12.9% to securities. The proportion of the last category is greater in Luxembourg than elsewhere, because of the presence of CEDEL in the country (see Chapter 13).

4.2. Exchange and settlement systems for securities transactions

As mentioned above, the Clearing House also clears securities on the basis of physical exchange. The proportion of this clearing (about 5% of the whole transaction volume of the "Chambre de Compensation") is, however, very modest, since most banks clear their securities through CEDEL ("Centrale de Livraison de Valeurs Mobilières"), which is a Luxembourg-based securities clearing centre. With 110 shareholders, all of which are financial institutions, 2,571 customers and 62 depository banks, CEDEL manages a worldwide network of equity transactions. In 1989, it handled 23,244 issues, 5.9 million transactions, and had a turnover of USD 1,731.9 billion (+40% in 1990) (see Chapter 13). The share of transactions dealt with by CEDEL in which Luxembourg credit institutions were involved was about 11.5% in 1990. As regards the nature of the securities handled, Luxembourg banks are particularly active in dealing in floating rate notes, CDs and fixed-rate Euro-bonds⁵.

⁵ During the ten first months in 1991, the percentage of transactions in which Luxembourg banks were involved was 12.5% for fixed-rate Eurobonds, 7.5% for domestic bonds, 9.9% for Euro-commercial paper, 11.5% for CDs and 22% for FRNs.

SECTION 5: THE ROLE OF THE CENTRAL BANK IN THE INTERBANK SETTLEMENT SYSTEM

5.1. General responsibilities

The monetary association between Luxembourg and Belgium entails legal tender for both currencies in Luxembourg. One consequence of this treaty is that there has to be compatible monetary policies and that there is a single management of foreign exchange reserves. Important decisions in the field of monetary and exchange rate policy are taken on the basis of a consensus between the authorities of both countries. This situation of monetary dependence has prevented implementation of a lender of last resort facility in Luxembourg, although the legal basis for such a role exists in the IML Act.

Furthermore, there are historical reasons for the IML's lack of involvement in the field of payment systems, in that the IML grew out of the CCB ("Commissariat au Contrôle des Banques"), the former prudential supervisory authority.

Luxembourg banks are, however, entitled to apply to the BNB, as lender of last resort, under certain conditions, i.e. they have to make a formal request and they must provide the BNB with detailed data on their activities⁶. As for Belgian banks, the amount of certain balance sheet items determines the limit of the credit line they can draw on.

5.2. Provisions of settlement facilities

No settlement facilities are offered by the Luxembourg monetary authority, the IML, since it has never been involved in the field of payment systems. Some Luxembourg credit institutions can use the three overdraft facilities related to their accounts at the BNB. These overdrafts have to be backed by collateral.

5.3. Monetary policy and payment systems

See Chapter 1 on Belgium.

5.4. Main projects and policies being implemented

It has never been envisaged hitherto that the IML should become involved in payment systems. This will change, however, since the IML will belong to the ESCB and as such it will have to ensure the smooth functioning of the payment system in Luxembourg. As regards other projects in this field, see Section 3.3.

⁶ The 4 Luxembourg credit institutions which are primary dealers on the new Belgium money market have a de facto access to the BNB credit line system.

Basic Statistical Data
(1990)

Population: 377,000
 Gross Domestic Product: LUF 262.014 billion (1) (ECU 6.18 billion)
 GDP per capita: LUF 695,000 (ECU 16,380)
 Exchange rate: 1 ECU = LUF 42.43

(1) Source: Eurostat

Table A.: Monetary aggregates
(average of end of month)

	billions LUF		Per capita (LUF)
	1989	1990	1990
Notes and coins	15.8	15.8	41,910
Transferable deposits in local currency	50.8	57	151,194
Others	0	0	0
Total money supply (M1)	66.6	72.8	193,103

Notes:

Table B.: Credit Institutions offering payment services (end of 1990)

Categories of Institutions	Number of Institutions	Number of branches	Number of accounts (thousands)	Share of market (%)	Value of accounts (LUF billions)	Share of market (%)	Value of accounts (LUF billions)	Share of market (%)	Average Value of accounts (LUF)
Central bank	1	0	0	0	0	0	0	0	0
Commercial banks	177	299	1,119 (1)	92.6	64.0	78.8	64.0	78.8	n/a
Post Office	1	106	89	7.4	17.2	21.2	17.2	21.2	193,000
TOTAL	179	405	1,208	100%	81.2	100%	81.2	100%	67,000

(1) Includes term deposits and savings books.

Table C.: Cash dispensers, ATMs and EFT/POS terminals

	Cash dispensers and ATMs						EFT/POS		
	Number of			Value of transactions (LUF billions)			Number of		
	Networks	Machines	Transactions (millions)	Networks	Machines	Transactions (millions)	Networks	Machines	Transactions (millions)
end 1989	2	55	n/a	3	n/a	n/a	3	n/a	n/a
end 1990	2	81	2.47	3	11.7	8.66	3	2,857	24.56
increase 89/90		47%	n/a		n/a	n/a		n/a	n/a

Table D.: Number of payment cards (end of 1990)

	Number of cards (thousands)	Number of cards per 1,000 inhabitants
Cards with a cash function	232.1	616
Cards with a debit/credit function	298.2	791
Cards with a cheque guarantee function	151.9	403
Retailers Cards	n/a	n/a

Note: A card which has several functions appears in several lines and therefore the figures in this table cannot be added.

Table E.: Payments exchanged through the official payment systems

Name	Number of transfers (millions)		Value (billions LUF)	
	1989	1990	1989	1990
Chambre de Compensation	5,894 (1)	5,932 (1)	467.8	516.5
Payments by cards: – Bancomat – Eurocheque	3,370	4,380	13.2	16.9

(1) These figures include only physical exchanges. In the case of an exchange of magnetic tapes, there may be no important difference.

Table F.: Relative importance of cashless payment instruments in the payment system

Instruments	Number of transactions (billions)		Value of transactions (LUF billions)	Percentage of total volume		Number of transactions per capita	Average value per transaction
	1989/90	1991		1989/90	1991		
Cheques issued	n/a	3.96	n/a	245.77	10.9%	11	62,034
Payments by debit and credit cards	n/a	8.36	n/a	30.57	23.1%	22	3,657
Credit transfers	n/a	15.69	n/a	2,856.15	43.3%	42	182,036
Direct debits	n/a	8.24	n/a	41.98	22.7%	22	5,095
TOTAL	n/a	36.25	n/a	3,174.46	100%	96	87,571

10. The Netherlands

THE NETHERLANDS

Introduction

The Netherlands is a densely populated country, with a large number of banks, including the Postbank (the former Postal Cheque and Giro Services) which offers, as far as payment and savings facilities are concerned, the same services as the other banks.

The Netherlands is very much a country of the credit transfer (giro). Of total cashless payments, 85% are made by means of some form of giro transfer and 15% by (guaranteed) cheque. Payment services are provided by the Nederlandsche Bank and the deposit-taking institutions, including the Postbank. The circuit of the Nederlandsche Bank is a specific circuit mainly for interbank transfers. The other two, private sector, circuits (that of the Postbank and that of the remaining banks) offer a wide variety of services to the customer. There is close co-operation in the field of transfer services, and this has led to a highly efficient payment system. In the case of the banks' circuit, interbank co-operation is embodied in the BankGiroCentrale (BGC), an interbank automated clearing house, in which practically all the banks (with the exception of the Postbank) participate.

Because of this highly efficient payment system and the availability of guaranteed cheques, there was for a long period of time little interest in electronic payment services, compared with other developed countries. In recent years, however, the banks have been installing more and more ATMs. EFT POS systems have also come into operation. Credit card payments do not play a significant role in the Dutch payment system. The vast majority of Dutch households holds one or more payment accounts. At the end of 1990 there were 16 million accounts, or slightly more than one per head of the population.

SECTION 1: THE INSTITUTIONAL ASPECTS

1.1. General legal aspects

There is no general legislation governing payments in the Netherlands; the normal civil and commercial laws apply. Both coins (up to a certain amount) and bank-notes are legal tender. In the new Civil Code of 1992 a provision is included to the effect that a transfer payment is equivalent in law to payment in coins or bank-notes.

The Bank Act of 1948 contains a section which in general terms provides that the Nederlandsche Bank must facilitate domestic money transfers. On the basis of that Act the Bank closely monitors developments with respect to payments. Moreover, the Act on the Supervision of the Credit System of 1978 entitles the Bank to supervise the banking sector, and in that context, to authorise an institution to operate as a bank. As the distinguishing feature of a bank is the collection of funds from the public, which are withdrawable on demand or at less than two years' notice, it is necessary to be a registered bank to provide payment services which imply directly withdrawable funds.

1.2. Financial intermediaries that provide payment services

The banking sector in the Netherlands is made up of commercial banks, banks organised on a co-operative basis, savings banks, the Postbank, mortgage banks and securities credit institutions. The last two types of institution, which have access to the payment system only through an account at a deposit-taking institution, do not offer payment services and will not be dealt with here. All banks are supervised by the central bank. The various deposit-taking institutions offer the same range of services. As a result, and given the rise in costs, competition has grown.

Until the 1960s, the banks did not play a significant role in payments involving small amounts, but dealt primarily with corporate and institutional payments, while the former Postal Cheque and Giro Services handled virtually all the payments of private individuals. This segregation of the market changed when the banks, prompted by their need for additional deposits which would enable them to

expand their lending operations and improve their liquidity, began promoting at large the use of personal accounts by the public. Automation had advanced sufficiently to permit processing of the large numbers of payment orders stemming from such accounts.

(a) Commercial banks

There are ninety-seven commercial (universal) banks. This figure includes establishments of foreign banks dealing mainly with payments on behalf of business customers. The banks may offer a wide range of services to their customers; these include payment facilities, loans and mortgages, foreign exchange, stockbroking services and often also travel services. They operate in both the retail and the wholesale market. The largest are represented throughout the country and have a network of foreign offices.

(b) Banks organised on a co-operative basis

The 878 banks in this category operate de facto as a single institution, with Rabobank Nederland as their central organisation. The Rabobanks are strongly represented in country areas. Originally, the Rabobanks were agricultural credit institutions, but they have developed a full range of banking activities and are now also represented in the cities. Though the individual banks are independent in many ways, the products offered are completely standardised. Rabobanks are primarily retail banks, but they have now entered the wholesale market, and Rabobank Nederland also has foreign branches.

(c) Savings banks

The fifty-four savings banks are non-profit institutions, one of their objectives being to promote savings. The need to remain competitive has encouraged concentration. Though they are still geared to collecting savings and deposits, they have gradually introduced a full range of banking facilities and stockbroking services. Some of them have expressed the wish to become commercial banks in a few years' time. One of the larger savings banks has been operating as a commercial bank for some years.

(d) Postbank

The Postbank is the successor of the former Postal Cheque and Giro Services (PCGD), which provided payment facilities for almost seventy years. The Postbank, which became a (state-owned) bank in 1986, merged with a commercial bank in 1989. Despite this merger the Postbank has kept its own, closed, circuit for payments. Since 1990, the Postbank has formally been a universal bank, operating primarily through the post offices. As far as payments are concerned, it offers the same services as the commercial banks. For many years the Postal Cheque and Giro Services was virtually the only institution offering payment services to private individuals. At the end of the 1960s, however, when the banks entered retail banking on a much larger scale, it faced growing competition.

The Dutch situation is characterised by a high degree of concentration. About 75% of private customers' accounts are held with either the Postbank or the co-operative banks. On the other hand, most business customers have an account at the largest commercial bank, which also has a very strong position in international payment transactions. Slightly less than a quarter of the registered banks are branches of foreign banks (9 EC and 11 non-EC); their market share is not very large. In the field of payments, their position is very modest.

As well as the deposit-taking institutions which offer a wide range of payment services, there are a few credit card companies, which are owned by banks.

There are no non-financial institutions offering payment services; there are, however, retail chains offering credit-related customer services. Payment of these transactions takes place through the payment circuits of the deposit-taking institutions.

Recently there have been mergers between banks as well as forms of close co-operation between banks and insurance companies.

1.3. The role of the central bank

The Nederlandsche Bank is the central bank of the Netherlands. It is a limited liability company, with the state holding all shares. The Bank Act of 1948 secures a large degree of independence vis-à-vis the Government. The central bank has the sole right to issue bank-notes, which in fact are printed by a private company.

The Bank Act of 1948 gives the Nederlandsche Bank responsibility for currency circulation in the Netherlands. Coins in denominations of less than one guilder are brought into circulation by the Post Office and bank-notes and coins of denominations of one guilder or more are distributed by the central bank, through its head office and its twelve branches throughout the country, to banks and post offices. The often substantial amounts taken up by these institutions are debited to their current accounts with the central bank. The public subsequently obtains from the branch offices of the banks and post offices the notes and coins necessary to meet normal household expenditure, withdrawals being debited to their accounts. Cash in excess of the public's need is returned to the central bank, which is responsible for checking and replacing used notes and detecting counterfeits. A change in the distribution system for coins is envisaged for 1993. In the new system the Postal Organisation will no longer play a role.

Moreover, the Bank Act of 1948 contains a section which, in general terms, provides that the Nederlandsche Bank must facilitate domestic money transfers. In that respect the Nederlandsche Bank acts as settlement institution for the banks and also as cashier for the central government. The Nederlandsche Bank is not involved in retail activities. (The settlement system is explained in more detail in Section 3.2.). As far as the provision of payment services to the Government is concerned, the account of the Government is held at the Nederlandsche Bank in its capacity of cashier and transfers relating to the Government are debited and credited to this account; however, the actual processing of the payment orders from and to the Government takes place at the Postbank and the BGC (see Section 3.1.) with totals debited and credited to the account at the central bank. For payments involving relatively small amounts, government departments hold accounts with banks.

Payments to and from local authorities are primarily dealt with by a specific bank (Bank voor Nederlandsche Gemeenten).

1.4. The role of other private and public sector bodies

The Policy Committee on Payment Systems of the Dutch Banking Association is the main national consultative body for payment systems in the private sector.

The Committee deals on a policy level with general questions relating to the infrastructure and to both retail and wholesale products.

The Steering Committee on the National Payment Circuit is responsible for the integration of the payments circuits. It is composed of representatives of the banks with the Nederlandsche Bank acting as chairman. The Ministry of Finance participates as an observer. Its aim is the technical integration of the three domestic transfer systems (see Section 3.1.) so as to obtain an improved service at lower operational cost. The reason for developing the National Payment Circuit is that the Postbank, the legal successor of the Postal Cheque and Giro Services, in principle only allows transfers between Postbank accounts. For that reason banks make use of Postbank accounts for transfers between the banks' circuit and the Postbank circuit, which makes them relatively slow, compared to the execution and clearing of payments within each circuit, which are normally effected the day after receipt. In 1975, the Minister of Finance, pursuant to Article 9 of the Bank Act 1948, invited the President of the central bank to chair a Steering Committee to study the integration of the three domestic transfer circuits.

The National Payment Circuit project is divided into seven phases, each phase relating to a specific payment instrument. At the moment, the first phase is complete; the second, third and fourth phases are scheduled for 1992 and the goal is to implement the other three phases as soon as possible thereafter.

SECTION 2: SUMMARY INFORMATION ON PAYMENT MEDIA USED BY NON-BANKS

2.1. Cash payments

Bank-notes and coins are the media used for cash payments. They are both legal tender, although the acceptance of coins by the public is compulsory only up to certain maximum amounts. All coins are produced by the Mint, an institution supervised by the Ministry of Finance, under the terms of the Coinage Act 1948. The Bank Act 1948 stipulates that the Nederlandsche Bank has the sole right to issue bank-notes.

At the end of 1990, the currency in circulation consisted of seven denominations of bank-note (NLG 1,000, 250, 100, 50, 25, 10 and 5) and eight denominations of coins (NLG 50, 10, 5, 2, 1 and 25, 10 and 5 cents). The currency in circulation at end-1990 amounted to NLG 36.4 billion, of which NLG 34 billion was accounted for by bank-notes. These figures exclude the notes and coins held at banks, which totalled NLG 3 billion.

As far as the number of transactions is concerned, the average household in the Netherlands makes most of its payments in cash. However, the larger the amount involved, the greater the tendency to use transfers or guaranteed cheques.

Although no precise figures are available, the use of cash to pay wages, salaries, pensions and social security benefits has become rare, virtually all such payments are now being effected by transfers. Apart from everyday expenses, cash is still used in cattle trading and in used-car markets, as well as when tax evasion plays a role.

No exact figure is available for the number of cash payments. Roughly estimated, in volume 90% of all transactions is effected in cash. Their total value in 1990 has been estimated at about NLG 582 billion.

2.2. Non-cash payments

2.2.1. Accounts

The accounts which are used for non-cash payments are sight accounts, which can be characterised as deposit accounts on which explicit payment services are offered.

It was customary, particularly for the private customer, for little or no interest to be paid on sight accounts; on the other hand the services were free of charge. In the last few years, a higher interest rate has been paid, but charges have been introduced for some payment instruments.

The closest substitute for sight deposit money is money on savings accounts, which is directly withdrawable.

2.2.2. Sight deposit money

More than two-thirds of the money available to the economy for payment transactions (M1) at the end of 1990 was held in the form of sight deposits with banks and the Postbank, while the remaining one-third was held in the form of bank-notes and coins. There were 16 million sight accounts (5.6 million held with the Postbank and 10.4 million with the other banks) for a population of 15 million. Some 1.7 billion cashless payments using deposit money, for a total value of NLG 3,191 billion, were made by bank and Postbank customers in 1990; transfers in the Nederlandsche Bank's books, mainly by banks, totalled approximately 0.8 million for a value of NLG 10,137 billion.

The commercial, co-operative and savings banks together have 5,446 branch offices, all offering sight account facilities and the related payment services via the BGC. The Postbank, which has its own circuit for payments, offers its payment services through 2,715 post offices.

Of the 1.7 billion cashless payments in 1990 the banks handled about 60% of the transfers, while the Postbank effected about 40%.

2.2.3. Payment instruments

In principle, the use of payment instruments is related to a sight account.

The banks and the Postbank offer in principle the same payment services. The following payment instruments may be distinguished:

- giro transfers (ordinary credit transfers, pre-prepared transfers and direct debits);
- cheques;
- cards.

Three instruments are mainly used: credit transfers, direct debits and guaranteed cheques; others, such as the credit card, play an insignificant role.

Transfers are the most frequent medium used for payment of rent, insurance premiums, gas, water and electricity bills, subscriptions, etc. Wages and salaries are paid mainly by transfers to the earner's accounts. Transfers are also used on a large scale by public administrations. Of every hundred cashless payments in 1990, eighty-five were transfers (99% of the total value) and fifteen were cheques

(1% of the total value); the proportion accounted for by payments made by holders of credit cards and other minor instruments is insignificant. In 1990 some 265 million guaranteed cheques were used for payments.

(a) Giro transfers

When making an ordinary credit transfer, the account holder instructs his bank to debit his account with the amount indicated on his transfer order, and to credit that amount to another account, likewise indicated by him, at a bank. Practically all non-recurrent payments in trade and industry, as well as some household payments, are effected by means of ordinary credit transfers. This payment instrument is also used on a large scale by the central government and local authorities.

When used by households, the ordinary credit transfer is in paper form; corporate customers and government institutions mostly use a non-paper-based, machine-readable form.

Pre-prepared transfers fall into two categories, the regular transfer and the "acceptgiro" transfer. In the case of the regular transfer, the account holder gives his bank a standing order to transfer, on fixed dates, fixed amounts to an account indicated by him. This (non-paper-based) form of payment is frequently used for rent, subscriptions, etc. On the fixed date the bank effects the transfer, and no further action on the part of the account holder or the creditor is required. The second form of pre-prepared transfer, the "acceptgiro" transfer, is initiated by the creditor. Together with his bill, he sends the debtor a fully prepared transfer form, in most cases stating the debtor's account number, which he knows from previous payments. All the debtor has to do is to sign the form and send it to his bank. This payment medium is used for both regular and non-recurrent payments of either fixed or varying amounts, e.g. for insurance premiums and subscriptions, as well as for bills for deliveries to regular customers. Unlike the regular transfer, this pre-prepared transfer is a paper-based instrument. In some cases, the creditor needs to get back the original paper form in order to be able to adjust his debtor administration.

For "acceptgiro" transfers, the banks and the Postbank have developed a joint procedure.

Direct debits constitute a separate category, though they have much in common with "acceptgiro" transfers. The transfer is again initiated by the creditor, who has been authorised beforehand by the debtor to charge his account for goods delivered or services rendered, and no further action on the debtor's part is required. This procedure is frequently used, for example, by public utilities.

The form in which transfer instructions are given is gradually changing. The share of ordinary credit transfers submitted to the banks on transfer order forms which have to be converted manually into machine-readable transfer instructions decreased from 21% of the total of bank transfer items in 1977 to 12% in 1990. This is partly due to the fact that business customers are increasingly using transfer orders that are machine-readable.

(b) Cheques

As a satisfactory transfer system was available to the public from an early date, the cheque never played a major role as a domestic payment instrument in the Netherlands. In the second half of the 1960s, however, the guaranteed cheque was introduced. The first (1967) was the guaranteed bank cheque issued by the banks for domestic use, and the second (1969) was the guaranteed giro cheque of the Postal Cheque and Giro Services; the Eurocheque was introduced in 1973. The guaranteed bank cheque has to a large extent been replaced by the Eurocheque. The Eurocheque and the guaranteed giro cheque are guaranteed by the issuing institutions for amounts up to NLG 300; they are made available to account holders on request.

These payment instruments can be used only in conjunction with a cheque guarantee card carrying the card holder's account number and signature. The cheques can be used in the Netherlands for practically all purchases. In addition, the guaranteed giro cheque and the eurocheque can be used in a number of other countries for cash withdrawals (both) or purchases (Eurocheques only).

(c) Cards

The use of EFT POS terminals seems to be on the increase in the Netherlands. Following the launch of a joint pilot project by the banks and the Postbank in 1985, which was permanently adopted in 1987, the Postbank began to install EFT POS terminals at petrol stations. Mainly as a result of pressure from both consumer and retail organisations, the banks and the Postbank are now co-operating in

BEANET, a common company responsible for installing EFT POS terminals and processing EFT POS transactions. The customer uses the same card as for guaranteed cheques.

The use of ATMs is growing. The banks began installing ATMs, with only a cash dispensing facility, in 1985. The customer uses the same card as for guaranteed cheques.

The use of credit cards is not significant, although it has increased slightly. The credit card most used for payments within the Netherlands is the Eurocard (Access, MasterCard), in which both the banks and the Postbank participate.

Retail chains actively promote their own customer cards. The volume and value of transactions are not known. Compared with the use of the payment instruments offered by the banks (and cash), however, their role appears to be relatively unimportant.

2.2.4. Interbank networks accessible to customers

The ATMs installed by a bank participating in the BGC can be used by all the customers of the other participating banks. It is expected that a form of co-operation will be established between this network and the Postbank.

EFT POS terminals are accessible to personal customers of both the banks and the Postbank, with the exception of a small number of older EFT POS terminals, installed by the Postbank. It is planned, however, to integrate these terminals in the common system at the end of 1992.

There are no other intra-bank or interbank networks that are accessible to customers.

2.2.5. Others

A number of banks, notably including the Netherlands branches of large foreign banks, offer corporate cash management systems, including the possibility of issuing transfer instructions. Several banks also offer systems that are suited to smaller businesses. The Postbank offers a home-banking system, aimed also at private customers.

2.3. Recent developments

Prepaid cards have been introduced on a limited scale for use in telephone boxes, mainly at railway stations.

Several banks are involved in EDI pilot projects, both national and international. The banks have also formed a special organisation for developing payment messages based on EDI standards.

SECTION 3: INTERBANK EXCHANGE AND SETTLEMENT CIRCUITS

3.1. General overview

Cashless payments are processed in three (interconnected) transfer circuits:

- the banks' circuit, in which the commercial, co-operative and savings banks participate;
- the circuit of the Postbank;
- the circuit of the Nederlandsche Bank.

(a) The banks' circuit

The banks' circuit is basically a decentralised system. It is characterised by great variety between banks in levels of automation. In 1967, the banks formed the BGC to facilitate the collection and processing of transfer orders and guaranteed cheques among themselves and between their own and the other transfer circuits. The system of the BGC is fully automated and is operated in two centres. It consists of three subsystems: BGC-S.W.I.F.T. for interbank guilder payments related to cross-border transactions, "BGC Spoedcircuit" for urgent transactions and the BankGiro System for bulk payments. Customers' transfer orders received by the banks' branch offices, insofar as they are paper-based, are converted into machine-readable form, nowadays practically always magnetic tape. The tapes are sent to the BGC, where the information is processed to produce for each individual bank data in machine-readable form covering all the credits to accounts of that particular bank's customers.

It should be noted that the BGC is merely an intermediary between the participating banks. It receives debit items and converts them into credit items for individual banks and account numbers, by means of an automated system. The BGC has no relationship with the bank customers; it does not know the balances on accounts, makes no entries in accounts and, consequently, does not itself produce statements of account. It is the individual banks themselves which, using automated processes, make the actual debit and credit entries in the accounts and produce the statements of account, which they send to their customers.

Although each bank has its own internal processing system for in-house payments, the BGC is not only used for exchanging payments with other banks, the Postbank circuit and the Nederlandsche Bank, but also for processing in-house customer payments for banks which choose to do so. Most savings banks are connected to the BGC through a common computer centre. Many savings banks have only a regional base, but by operating their own data communication network they are able to offer country-wide services through each other's offices.

It is clear that the purely technical operations of the BGC must be followed by financial settlement. For this purpose, the participating banks have authorised the BGC to effect the daily settlement payments at the Nederlandsche Bank; the account of each bank is debited or credited with the difference between its total debit and credit items.

With the exception of the Postbank, all Dutch deposit-taking institutions participate in the BGC. The way in which the BGC functions leads the public to view the banks' transfer system as a single whole.

(b) The circuit of the Postbank

Although the Postbank merged with a commercial bank in 1989, the payment system of the Postbank remains separate from the BGC circuit, in which the other party to the merger participates. There is, however, a process of integration within the context of the National Payment Circuit project.

Processing at the Postbank is characterised by a high degree of centralisation, all payment items being processed in four central offices, and by a high level of automation. The debiting and crediting of accounts form two distinct stages in the booking process at these centres.

Prior to this process, paper-based payment orders are converted into machine-readable form. More and more users, however, now present their orders for credit transfers or direct debits in the form of magnetic tapes.

Most of the booking procedure in the four centres is automated, but verification of the debtor's signature, and checking that the name and number on the voucher belong to the correct account, are carried out manually. In the case of ordinary credit transfers the original voucher is attached manually to the statement of account and sent to the creditor.

(c) The circuit of the Nederlandsche Bank

The circuit of the Nederlandsche Bank embraces only a limited group of account holders, mainly banks, securities dealers and public authorities. It operates through a centralised on-line system, which completes all transfer orders on the day of receipt. Statements of account are in the possession of the participants on the following day. The Nederlandsche Bank's circuit serves as the final settlement system for the other two systems. In addition to its role as a settlement institution, the central bank acts as cashier to the Government; transfers effected in that capacity in 1990 amounted to approximately NLG 261 billion. The system is described in more detail in Section 3.2.1.

(d) Exchange circuits, clearing and settlement of transfers

As already noted, items exchanged by the banks through the BGC are netted, so that an institution will either owe or receive a single amount.

Clearing figures are presented to the central bank via its on-line system and settled at about 1 p.m. To effect settlement, the BGC has been authorised by the banks to make entries in their accounts with the central bank.

In common with this clearing, the BGC-system for urgent payments ("BGC Spoedcircuit") and the central bank clearing system for CPs, CDs and MTNs (see Section 4.2.) also settle at the central bank (clearing urgent payments at 2.30 p.m., CPs and CDs at 1 p.m. and MTNs at 8 a.m.).

Other items which are not exchanged by the banks through the BGC, for instance payments stemming from money market transactions, are presented via the on-line system of the central bank by the banks themselves. At 3.30 p.m. the Nederlandsche Bank makes up the banks' positions for that day (see Section 3.2.1.). Items from the banks' circuit for the Postbank circuit are also passed through the BGC. Settlement of these items is effected through an account held by the BGC with the Postbank. This account is regularly replenished through a payment in the books of the Nederlandsche Bank.

Payments from a Postbank account holder to an account holder with the other banks are made through accounts held by banks with the Postbank. Ultimately, the amounts are withdrawn from the Postbank circuit to bank accounts held at the Nederlandsche Bank.

3.2. Structure, operation and administration of major large-value systems

At present, there are two large-value funds transfer systems in the Netherlands. One is the central bank's current-account system (Central Bank System), which is commonly used for normal large-value guilder payments; the other is the BGC-S.W.I.F.T. system.

3.2.1. The Nederlandsche Bank's current-account system

(a) General overview

The purpose of the Nederlandsche Bank's current-account system is to offer central bank current account facilities to banks and to the Government, thus permitting the settlement of payment transactions.

There are no restrictions on the value of transactions: the system handles both large and small-value transactions. It is a gross system through which revocable and irrevocable payments can be made.

Transaction volume has remained relatively stable over the last years. In 1990, 0.8 million transactions were processed with a value of NLG 10,137 billion. The average value per transaction was thus NLG 12.5 million.

(b) Major legislation, regulations and policies

The current account system operates under the Bank Act 1948, which requires that the Nederlandsche Bank facilitates the payments mechanism in the Netherlands. The Bank also determines who can use the transfer system. All institutions entered by the Bank in its register of credit institutions are eligible to participate, including Dutch-based subsidiaries of foreign banks. Generally, banks outside the Netherlands cannot participate, except for foreign central banks and international institutions. The rules are the same for all participants.

The system operates from 8 a.m. to 3.30 p.m. for transactions for same-day settlement. Transactions to be effected on a later day, as far ahead as one month, may be entered until 5 p.m.

The basic rule is that a sending participant must have adequate cover for debits on his current account (i.e. a credit balance or an unused – collateralised – overdraft facility) before a transfer is effected. Unsecured credit is precluded. The Bank draws up and enforces the rules and regulations of the transfer system and is responsible for any changes in the structure of the system.

(c) Participants

The Nederlandsche Bank owns, operates and controls the current-account system. It also participates in the system, along with most credit institutions registered at the Bank, some bill-brokers, the Treasury, foreign central banks and international institutions. In addition, some current accounts are held by large companies and pension funds; the latter, however, do not have access to the credit facilities, and their use of the transfer system is limited.

Most savings banks do not have an individual central bank account but take part in the transfer system through the account of a universal bank established by them.

(d) Types of transactions handled

The current-account system is designed to execute transfer orders in guilders. The system provides for both revocable and irrevocable transfer orders. At the end of each business day all

revocable orders become irrevocable, provided there is sufficient cover on the payer's current account. If not, the Bank cancels payment orders to the extent necessary.

The current-account transfer system is used mainly for transfers resulting from interbank money market transactions, for funds transfers by the Government and for settling customer transactions processed at the BGC and the Postbank.

(e) Operation of the transfer system

As mentioned above, transactions can be either revocable or irrevocable. Irrevocable transfers are on-line, real-time transfers, and the payee receives the funds immediately, i.e. in the course of the day. In the case of revocable transfers the transfer is carried out, but the payee has to wait until the cut-off time at the end of the day (3.30 p.m.) before he can be sure that he will actually receive the funds. During the day, however, participants can inquire on-line about the funds transferred to their account by means of revocable orders.

All transfers submitted by the BGC resulting from the clearings are entered as irrevocable orders. Several other types of transactions also are paid irrevocably, such as payments for cash deliveries and inpayments on public loans. Besides, the Bank itself and the Government in principle always pay irrevocably. In addition, transfers for amounts of up to 11 million guilders are always irrevocable. This level may later be raised in accordance with the central bank's aim for finality in the payment system.

(f) Transaction-processing environment

In 1990, electronic transfers accounted for approximately three-quarters of the transaction volume in the current-account system. The system now averages about 3,200 transactions per day, although peak capacity is about 18,000 transactions per day. With the support of back-up facilities, the Bank seeks to achieve 100% availability.

Transfer orders can be submitted on paper, magnetic tape or electronically. The on-line participants in the system enter transactions at remote terminals via dedicated leased-line connections to the central computer. Off-line participants send their orders on magnetic tape or paper; the latter are partly on coded telex messages and are entered into the system by the Nederlandsche Bank.

(g) Pricing policies

In principle the Bank's aim is cost-recovery. However, given the relatively small transaction volume, total revenue collected does not fully cover the costs. Though fees are lower than the actual costs, they vary depending on the media used. For example, for on-line transactions lower fees are charged than for off-line transactions. Participants' fees cover only a small portion of the Bank's operating expenses, which include personnel, facilities and data-processing costs; the Bank bears the remaining operating expenses. It must be borne in mind, however, that the Bank itself is also a user of the system. In addition to transaction fees, the participants incur operating and equipment costs and have to pay for their electronic connections.

The Bank charges each account holder a fixed annual fee of NLG 1,500. In addition, transaction fees are charged. The Bank also charges for other miscellaneous services provided to the participants.

(h) Settlement procedures

In principle, every credit institution registered as such has an account at the Nederlandsche Bank. Provided there is sufficient cover for debiting the current account, settlement is effected by adjusting the participants' accounts in the books of the Nederlandsche Bank.

Since all transfer orders are effected only if sufficient cover is available, irrevocable transfers are never unwound. Revocable transfer orders are eventually removed from the system at the end of the day if insufficient cover is available. In such a case the Nederlandsche Bank contacts the payer, requesting that the required funds be raised on the money market. If the participant cannot obtain sufficient funds, the Bank selectively deletes revocable payment orders until the cover is sufficient. So far this procedure has not led to any problems in the system.

(i) **Credit and liquidity risks and their management**

No specific rules for finality have been laid down. Irrevocable orders become final upon entry and validation whereas revocable orders become final only at the cut-off time at the end of the working day. While there is no liquidity risk within the central bank's current-account system, the possibility of orders being cancelled at the end of the day may cause problems of a systemic nature within the banking system. To reduce liquidity risk further, plans are being made to abolish revocable payment orders.

All financial institutions holding an account at the Bank may send transfers. Neither the financial institutions nor the central bank bear risk in the system since transfers are effected only if sufficient debit cover is available in the participant's current account. Of course, financial institutions are exposed to credit risk if (in the case of revocable orders only) they decide to provide funds to their customers before final settlement has taken place.

3.2.2. The BGC-S.W.I.F.T. system

(a) **General overview**

The function of the BGC-S.W.I.F.T. system is to send, via the BGC, guilder payments that have come via S.W.I.F.T. from abroad or from a Dutch correspondent of the paying foreign bank to the Dutch bank where the beneficiary (bank or non-bank) has an account, or to send guilder payments in the opposite direction, i.e. to the account of a foreign bank. The system also clears these non-resident-related transactions and reports them to the central bank.

When the system came into effect in 1982, 350,000 transactions were processed; by 1990 this number had grown to about 1.4 million. In 1990, the total transaction value was NLG 5,253 billion and the average transaction value was NLG 3.7 million.

(b) **Major legislation, regulations and policies**

Netherlands banking legislation does not lay down specific rules governing electronic funds transfer systems. The owners of the BGC, i.e. the participating banks, determine who can access the system and have stipulated that the participating banks must be registered as banks at the Nederlandsche Bank. The rules are the same if a Dutch-based subsidiary of a foreign bank wishes to participate in the system.

In principle, all orders entered before the cut-off time are processed the same day. There are no explicit rules regarding liability in the event of the system not being available.

(c) **Participants**

In principle, all authorised banks in the Netherlands participate in this system, even though a number of them do not take part in the BGC's other services. The Nederlandsche Bank is also a participant in the system.

(d) **Types of transactions handled**

The system is a credit transfer system. It processes guilder payments from or to an account held by a foreign bank at a Dutch bank.

(e) **Operation of the system**

The BGC calculates the net net positions and provides balance-of-payments information to the central bank.

(f) **Transaction-processing environment**

The BGC-S.W.I.F.T. system uses the central processing unit of the BGC. Though transfer orders may be submitted on magnetic tape, they are entered primarily by data communication; they are processed batchwise. To facilitate efficient handling of international payments, the S.W.I.F.T. message format is used. The BGC offers technical support, so as to make it possible for banks to enter their transfer orders through a personal computer. The cut-off times for the submission of orders on magnetic tape and by data communication are 11 a.m. and 11.30 a.m., respectively.

(g) Pricing policies

The basic pricing policy is that the system should be self-financing. In practice, this means that a certain amount is paid per transaction and per batch.

All costs directly related to processing are recovered in their entirety by the BGC. Participants also bear communication costs and, of course, costs incurred through in-house processing.

(h) Settlement procedures

The outcome of the day's clearing is calculated by the BGC and integrated with the outcome of the clearing of customers' domestic transactions as processed by the BGC. The total is communicated to the central bank for settlement at 1.30 p.m. As in the case for the current-account system of the Nederlandsche Bank, settlement is subject to sufficient cover for net debit positions. The actual settlement is effected by adjusting the participants' accounts in the books of the Nederlandsche Bank. If available cover is insufficient to book the outcome of the clearing, the bank involved has to find additional means, for instance in the money market. If it should not succeed, in theory, the clearing should be unwound. This has not happened so far.

(i) Credit and liquidity risks and their management

The moment on which transferred funds are available depends upon whether the beneficiary has an account at the central bank. If the beneficiary is the receiving bank, the funds transferred are available after the settlement payment has taken place within the central bank's current-account system. If the beneficiary is a customer of the receiving bank, the moment when the funds are made available is determined by the bank.

The BGC-S.W.I.F.T. system does not allow for the return of payments. There is, however, a procedure whereby the recipient of a wrongly processed order can be requested and obliged, up to a certain point in time, to submit an offsetting order.

Though there are no specific rules for finality, payments are considered final the moment they are settled at the central bank.

In principle, credit plays no role in the BGC-S.W.I.F.T. system. Credit can, however, be supplied by a bank if the funds are made available to a customer before they have actually been paid for in the settlement. Therefore, the system itself does not give rise to credit risk, but it may lead to credit risk. Such risk occurs only when financial institutions allow their customers to make use of funds before all transfers are finally settled.

3.3. Main projects and policies being implemented

The central bank is working on a new current-account system, planned to become operational in 1995.

The aim is to create fully automated real-time processing of transfers with a queuing facility in order to arrive at a situation of only irrevocable final payments.

The central bank and the banks have agreed that the transactions, processed at the moment in the BGC-S.W.I.F.T.-system (see Section 3.2.2.), will in the future be processed by the central bank, because of the high-value character of these payments. The project is scheduled for 1992.

SECTION 4: SPECIAL USE OF INTERBANK TRANSFER SYSTEMS FOR INTERNATIONAL AND DOMESTIC FINANCIAL TRANSACTIONS**4.1. Exchange and settlement systems for international transactions**

As far as payment of international transactions is concerned, the Dutch banks use where possible their foreign offices as well as correspondent banks.

The payment instructions are mainly sent through S.W.I.F.T., therefore a large number of banks are members of S.W.I.F.T. The other banks, which jointly hold a very marginal share in international payments, take part through a S.W.I.F.T. member bank.

Concerning the international payments, a distinction can be made between payments that are connected with face-to-face transactions abroad and remote payments. The first category of payments includes, apart from cash, credit card payments, cheques and cash dispenser transactions.

Credit card payments are settled through the credit card company or the bank involved.

Cheques written in the Netherlands by customers of foreign banks, are, in the case of Eurocheques, collected at the BGC and sent through Eurocheque International to the clearing institution in the country of issue, whereupon the BGC is credited. Eurocheques written out abroad by customers of Dutch banks are settled in a similar way.

Postcheques, which are issued by the Postbank, can be cashed abroad only at post offices. Postcheques written abroad are collected by the giro institution in the country concerned and are subsequently sent to the Postbank, which credits the giro institution concerned. Postcheques, written in the Netherlands by customers of a foreign postal organisation follow the same procedure.

The procedure for cheques is also applied to the settlement of cash dispenser transactions by customers of foreign or Dutch banks. Travel-related payments account for the major share of international payments, at least as far as the number of transactions is concerned. Regarding turnover, non-travel-related payments are much more important. This category includes, besides trade cheques, international credit transfers. These are mainly sent through S.W.I.F.T. to the correspondent bank.

Settlement of guilder payments from abroad, if the beneficiary does not hold an account at the Dutch correspondent bank, is effected through the BGC-S.W.I.F.T. system (discussed in Section 3.2.2.).

4.2. Exchange and settlement systems for securities transactions

The system for exchanging securities is mainly a giro system. It is based on a specific law. The securities themselves are kept in safe custody by banks or by Necigef, the central securities depository owned by the Stock Exchange Association, the banks and the central bank (each with a one-third holding). The depository records the right to a specific amount of securities.

There are two circuits for the trading of securities. The first is the circuit of the Amsterdam Stock Exchange. At the end of the working day transactions are cleared on a multilateral basis, whereby the Securities Clearing Corporation becomes the new counterparty. In this way the Securities Clearing Corporation can guarantee both the delivery and payment. Seven days after the transaction date settlement takes place by delivering the securities to the Securities Clearing Corporation, which passes them on to the buyer. The financial settlement is effected by the Securities Clearing Corporation at the Kas-Associate, a specialised banking institution which is a 60% subsidiary of the Stock Exchange Association.

The irrevocable recording of the change of ownership at Necigef takes place after authorisation from the Kas-Associate. In this procedure settlement takes place on the basis of delivery versus payment with same-day funds.

Besides this circuit there is direct trading between institutional investors and banks, whereby the (custodian banks of the) contracting parties themselves instruct Necigef. These transactions generally involve large amounts. In this circuit, netting does not take place. Each transaction is paid for separately. The payments are in most cases effected via the central bank, on the initiative of the parties.

A special place is occupied by money market instruments: CP (commercial paper), CD (certificates of deposit) and MTN (medium term notes). At the request of the banks, the central bank acts as clearing institution and as depository. The administrative system of securities ownership is fully giro-based. The clearing and settlement takes place on a same-day basis and the trade date is the same as the settlement date. This point is of particular importance because of the money market aspect of the instruments concerned.

SECTION 5: THE ROLE OF THE CENTRAL BANK IN INTERBANK SETTLEMENT SYSTEMS

5.1. General responsibilities

As stated above, on the basis of the Bank Act the central bank plays an active role both on the operational side, in settling payments, and in the development of the Dutch payment system in general.

As far as the latter is concerned, its role in promoting the integration of the Dutch payment circuits has already been mentioned.

In the autumn of 1987, the central bank, pursuant to the Bank Act, issued a memorandum describing four aspects which in its view form the basic principles for the development of the payment system. They are:

- uniformity of the infrastructure: this prevents waste and makes the giro system more comprehensible to all its users;
- cost coverage: payment services as a product should be self-financing for every bank. Moreover, the pricing of services should foster the use of the more efficient among them;
- product conditions: everyone should be able to have access to the payment system, and the services should be transparent for the customer;
- fraud and security: special attention should be devoted to fraud and the security of the payment system.

A main policy element is the concern for risks in the payment system and the aim for finality.

As regards the risks stemming from automated processes, the Bank has issued a memorandum, with guidelines for the organisation of the banks' automation processes.

As explained, the Nederlandsche Bank supervises the banks. In this respect, the banks' activities relating to payment services come into perspective. This does not, however, imply that the Nederlandsche Bank explicitly supervises or audits the interbank funds transfer systems, although it discusses general policy questions with the BGC.

As far as its own current-account system is concerned, the Bank obviously controls and audits the system.

5.2. Provision of settlement facilities

The central role of the Nederlandsche Bank in the settlement of interbank payments was mentioned in Section 3.2. Moreover its role in the settlement of securities transactions was explained in Section 4.2.

Given its concern for the payment risks, the Bank strives in the first place for finality in its own payment system, as is explained in Section 3.2. Moreover, the Banks' planned takeover of the BGC-S.W.I.F.T. system, the large-value system for foreign guilder payments, can be seen in the light of this aim.

A third system that is important in this connection is the BGC system for urgent payments ("BGC Spoedcircuit"). This payment system, in which the transaction amounts are relatively high compared with normal customer payments, is a guaranteed payment system. The system works on the basis of a collateralised credit facility which is split off from the credit facility which the participating banks have at the central bank.

As explained, the participants' balances arising from the clearing of normal payments for customers are also settled in the system of the central bank. Although it is a position netting system and the central bank is concerned about the legal status, Dutch law makes it difficult to transform it into an obligation netting system.

As regards the payments taking place in the current account system of the central bank, the general policy is that each financial institution must ensure that its credit balance or credit facility is sufficiently large to allow its transfer orders to be executed. If necessary, bankers may borrow from and lend to one another in order to acquire funds to initiate irrevocable transfers during the day.

All banks supervised by the Nederlandsche Bank and listed as such in its register of credit institutions are, in principle, eligible for credit facilities granted by the Bank. Such credit is secured by collateral. During the day, banks can take up as much credit as their collateral allows. The limits of their overnight positions are determined by monetary policy considerations. Financial institutions hold practically no balances on their current accounts, which do not bear interest.

The pricing of the central bank's settlement facilities has been explained in Section 3.2.

5.3. Monetary policy and payment systems

In addition to its involvement in general policy on payment systems and its supervisory function, the Bank is also concerned with monetary policy issues relating to payment systems. Basically, the aim

of monetary policy is to manipulate the money market interest rate in such a way that a stable relationship is maintained between the Dutch guilder and the Deutsche Mark. This is done by limiting the amount of credit each bank can take up at the official rate for advances and by fine-tuning by means of the interest rate for short-term special advances.

As far as the practical relationship between monetary policy and the payment system is concerned, the credit system offers much flexibility. The basic point of the system is that, on the one hand, the banks can take up intra-day credit according to the value of the collateral deposited, while on the other, the overnight credit amount is limited on the basis of an average amount for a three-month period. Since this allows the banks to decide themselves about their daily use of credit, it creates the possibility for absorbing daily fluctuations stemming from a concurrence of circumstances in the payment systems.

Though as a rule the Bank sets the financial institutions combined credit limits sufficiently large to provide them with the necessary liquidity, the volume of credit granted by the Bank is subject to monetary policy considerations, and, as a result, the functioning of the current-account system can in principle be influenced by monetary policy measures.

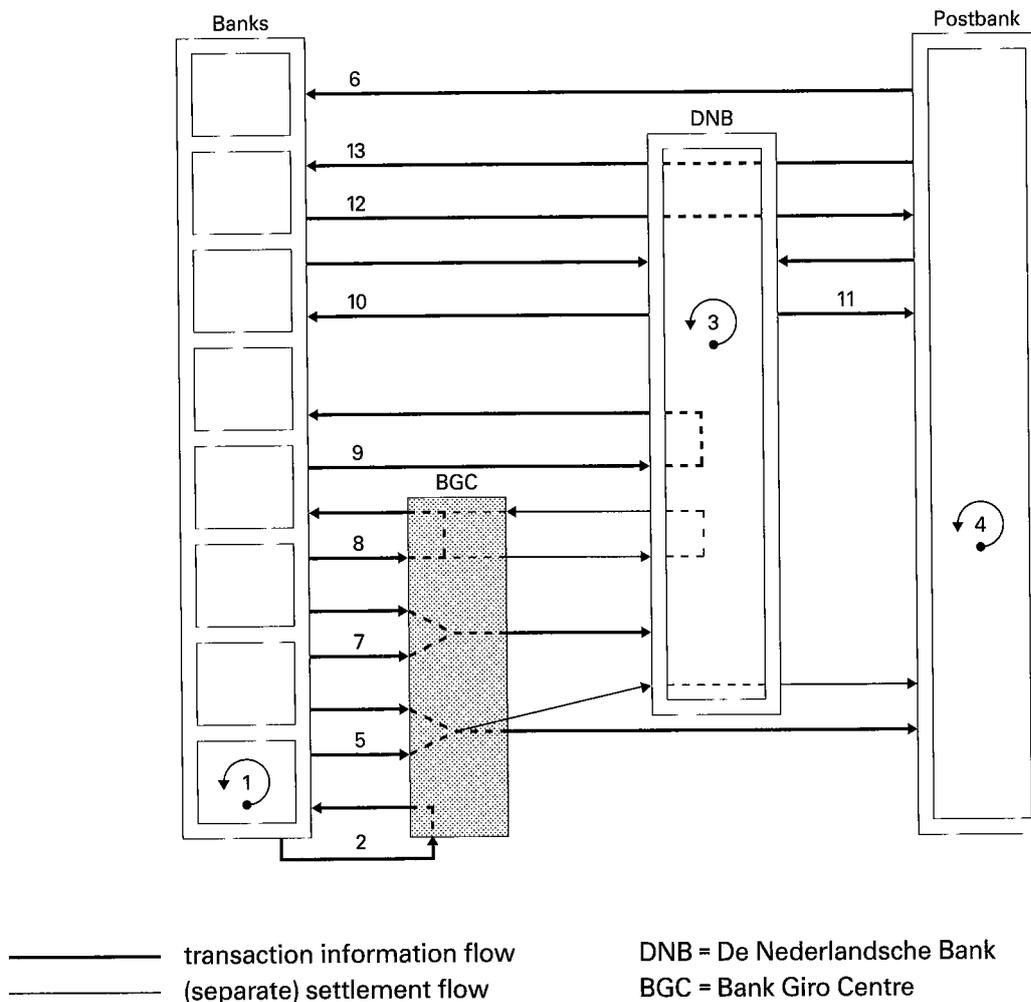
Furthermore, the central bank is aware of the possible influence of changes in payment systems on monetary policy. For that reason the monetary policy implications of the aim of finality are thoroughly analysed, not only in terms of the consequences for the availability of liquidity in the central bank system, but particularly also in relation to the effects on money market prices.

On a more theoretical level, the Bank studies the impact of technological changes on the provision of payment services, particularly in relation to their possible effect on the velocity of circulation.

5.4. Main projects and policies being implemented

The aim for finality has already been mentioned above. The relevant projects are mentioned in Section 3.3.

Overview of (domestic) giro transfer flows in the Netherlands



– Payments by order of bank customers

- (1) payments between customers of the same bank
- (2) payments between customers of the same bank, processed through the Bank Giro Centre
- (3) payments between customers of the Nederlandsche Bank
- (4) payments between customers of the Postbank
- (5) payments from customers of banks to customers of the Postbank
- (6) payments from customers of the Postbank to customers of banks
- (7) payments from customers of banks to account holders of the Nederlandsche Bank and vice versa
- (8) payments between customers of different banks

– Payments between banks

- (9) payments between banks
- (10) payments between banks and the Nederlandsche Bank and vice versa
- (11) payments between Postbank and the Nederlandsche Bank and vice versa (and between customers of the Postbank and account holders of the Nederlandsche Bank)
- (12) payments between banks and Postbank
- (13) payments between Postbank and banks

Basic Statistical Data
(1990)

Population: 15,100,000
 Gross Domestic Product: NLG 488.5 billion (1) (ECU 211.3 billion)
 GDP per capita: NLG 32,350 (ECU 14,000)
 Exchange rate: 1 ECU = NLG 2.312

(1) Source: Eurostat

Table A.: Monetary aggregates
(average of end of month)

	billions NLG		Per capita (NLG)
	1989	1990	1990
Notes and coins	36	36.4	2,411
Transferable deposits in local currency	83	89.2	5,907
Others	0	0	0
Total money supply (M1)	119	125.6	8,318

Notes:

Table B.: Credit Institutions offering payment services (end of 1990)

Categories of Institutions	Number of Institutions	Number of branches	Number of accounts (thousands)	Share of market (%)	Value of accounts (NLG billions)	Share of market (%)	Average Value of accounts (NLG)
Central bank	1	12					
Commercial banks	97	2,275	4,176	26.1	42.67	47.8	10,218
Savings banks	54	1,027	1,638	10.2	3.22	3.6	1,968
Co-operative & rural banks	1	2,144	4,545	28.4	22.79	25.5	5,013
Post Office*	1	2,715	5,651	35.3	20.53	23.0	3,633
TOTAL	154	8,173	16,010	100%	89.21	100%	5,572

* Postbank

All figures on numbers and values of accounts are estimates.

Table C.: Cash dispensers, ATMs and EFT/POS terminals

	Cash dispensers and ATMs						EFT/POS		
	Number of			Value of transactions (NLG billions)			Number of		
	Networks	Machines	Transactions (millions)	Networks	Machines	Transactions (millions)	Networks	Machines	Transactions (millions)
end 1989	2	1,839	n/a	3	2,047	17.0			0.70
end 1990	2	2,700	168.0	2	2,223	27.0			1.30
increase 89/90		47%	n/a		-8%	59%			86%

Table D.: Number of payment cards (end of 1990)

	Number of cards (thousands)	Number of cards per 1,000 inhabitants
Cards with a cash function	10,936	724
Cards with a debit/credit function	14,652	970
Cards with a cheque guarantee function	10,369	687
Retailers Cards	n/a	n/a

Note: A card which has several functions appears in several lines and therefore the figures in this table cannot be added.

Table E.: Payments exchanged through the official payment systems

Name	Number of transfers (millions)		Value (billions NLG)	
	1989	1990	1989	1990
– Central bank current account system	0.8	0.8	10,354	10,137
– BGC – S.W.I.F.T	0.9	1.4	2,947	5,253
– Consumer payments*	1,677	1,705	3,003	3,191

* Figures on consumer payments are estimates

Table F: Relative importance of cashless payment instruments in the payment system

Instruments	Number of transactions (millions)		Value of transactions (billions)	Percentage of total volume		Number of transactions per capita	Average value per transaction
	1989	1990		1989	1990		
Cheques issued	267	260	36.0	35.0	15.2	17.2	135
Payments by debit and credit cards	17	27	0.7	1.3	1.6	1.8	48
Paper-based credit transfers:							
customers initiated	101	102	41.0	48.0	6.0	6.8	469
interbank*	101	102	41.0	48.0	6.0	6.8	469
	0	0	0	0	0	0	0
Paperless credit transfers:							
customers initiated	965	956	15,904.0	18,142.0	56.0	63.9	18,983
interbank*	963	954	2,603.0	2,752.0	55.9	63.8	2,886
	2	2	13,301.0	15,390.0	0.1	0.1	7,695,000
Direct debits	329	360	320	360.0	21.1	23.8	1,000
TOTAL	1,679	1,705	16,301.7	18,586.3	100%	112.9	10,900

* or large-value

11. Portugal

PORTUGAL

Introduction

During the course of the 1980s, Portugal experienced a noteworthy increase in the use of cashless payment instruments. Of the traditional cashless instruments, this affected primarily cheques, but, as a result of the development of ATM and POS terminals, the use of cards also grew rapidly.

Extensive interbank co-operation has made possible the rapid development of modern systems for the automated processing of payment instructions. A cheque teleclearing centre was implemented in 1989 and it is expected that a new transfer system based on EDI principles, with connections between the banks and their major customers, will begin to operate in 1992.

The Banco de Portugal, a state-owned company, which is by law responsible for the creation and operation of clearing houses has given full support to modernisation of the payment industry.

SECTION 1: THE INSTITUTIONAL ASPECTS

1.1. General legal aspects

1.1.1. General legal and regulatory provisions concerning payment systems and their supervision

A strong impetus towards diversification, modernisation and competition in the financial system resulted in the opening up of the banking sector to private investors in 1983, and the partial privatisation of the state-owned banks, initiated in 1989. The prospect of a European Single Market and the establishment of an increasing number of foreign banks encouraged strategies aimed at new or undeveloped market sectors.

The current banking regulations came into force between 1950 and 1970. In 1986 legislation was introduced aimed at the harmonisation of national law with that prevailing in the EC. It focused, inter alia, on the following aspects: the definition of a credit institution ("undertaking whose activity consists in taking from the public deposits or other repayable funds and in granting credit for its own account"); rules for the granting and revocation of licenses to establish credit institutions (government decision preceded by a recommendation from the Banco de Portugal); operating and supervisory rules of credit institutions, solvency and liquidity ratios, and protection of competition. Further changes in banking legislation are expected to be based on the recently published "Blue Book" on the Portuguese Financial System. (See Section 5).

On April 10th 1991, a new Stock Exchange Code was published. Besides liberalising and privatising the Stock Exchange, it was decided to establish a more up-to-date method of settlement of stock exchange operations, based on more frequent clearing and settlement through a single national system. The Banco de Portugal is its settlement agent.

1.1.2. Institutions allowed to offer payment services

Deposit-taking institutions are explicitly authorised to offer payment services, because of the nature of their activities. The basis for this is regulations established by the Government and the central bank, in its role as the monetary authority. These institutions are the main providers of payment services.

There is no general legal definition of a deposit-taking institution. In Portugal, authorisation to take deposits from the public depends exclusively on the specific regulations applied to such institutions. However, the concept of a deposit-taking institution is comparable to that of a credit institution as defined by the Community.

There are no specific regulations or conditions imposed on the activities of non-bank entities in the field of payment services.

1.2. Financial intermediaries that provide payment services

1.2.1. Banks

The Portuguese banking system includes, besides the central bank, the following categories of deposit-taking institutions:

- Commercial banks (25 at the end of 1990);
- Savings banks (3 at the end of 1990);
- Investment banks (4 at the end of 1990);
- Co-operative savings banks (11 at the end of 1990);
- Co-operative rural banks (218 at the end of 1990).

Increased competition has led to a gradual fading of previous differences between the activities of the commercial, the savings and investment banks.

As at 31st December 1990, the five biggest Portuguese banks held 60% of total deposits. "Caixa Geral de Depósitos" – the biggest Portuguese savings bank, which is also the State Credit Institute – held 25% of all deposits. Deposits with "Caixa Geral de Depósitos" are backed by the State and all state-owned entities compulsorily hold a deposit account with this institution. The 12 foreign banks, 8 of which are from the EC – held an estimated 2% of all deposits at that date.

The co-operative savings banks are the financial arms of the mutual associations; their role in the collection of small savings is not negligible.

The co-operative rural banks are all members of a professional association, The National Federation of Co-operative Rural Banks (FENACAM), with a central institution ("Caixa Central CCCAM") which supports them. The rural credit system is supported by the Banco de Portugal, by the central rural bank and by all the co-operative rural banks, through periodic contributions to a common guarantee fund.

1.2.2. The postal system

Through its 1,044 offices throughout the country, the postal system participates in the Portuguese payment system in two ways: firstly, as an agent of the Savings Postal Office, a department of the "Caixa Geral de Depósitos", it offers account and payment services and secondly, it also offers a specific system, not related to the banking systems, to make national and international payments through postal money orders.

1.2.3. Credit card companies

The Government Edict 360/73 provides that a permit from the Secretary of State to the Treasury is required in order to issue credit cards. It also requires that only credit and other banking institutions can issue them. It determines not only the terms for payment of balances, but also the maximum number of instalments, interest rates and fees.

In 1974, the UNICRE – International Credit Card – was set up as a corporation owned by 18 banks to centralise the issuing of credit cards. This interbank organisation has the exclusive right to represent all foreign cards in Portugal and was the only one allowed to issue domestic credit cards until 1988, when other banking entities were allowed to issue credit cards under the centralised management of UNICRE. In May 1991, a resolution of the Secretary of State to the Treasury, announced the total liberalisation of the issuing and management of credit cards within the framework of the law 360/73. UNICRE is the issuer of UNIBANCO card, which is linked with VISA at the international level.

1.3. The role of the Central Bank

1.3.1. Banknotes and coins

The Banco de Portugal issues notes on its own behalf and coins on behalf of the Treasury.

1.3.2. Current-account services for banks

The Banco de Portugal is not involved in retail activities, except for some transfers from abroad to beneficiaries resident in Portugal (mainly embassies). Therefore, it does not hold accounts for non-financial institutions.

All the participants in the interbank clearing system and on the interbank money market have a current-account with the central bank for settlement purposes. The Banco de Portugal is also the settlement agent for transactions involving transferable securities.

1.3.3. Payment services for the Government

The central bank makes large-value payments on behalf of the Treasury on a national basis through current accounts at all its 21 branches, including the autonomous regions of the Azores and Madeira. However, retail Treasury payments are usually effected by the banking system, the postal administration and the Treasury agencies.

1.3.4. Banking supervision

According to its Statutory Law, the Banco de Portugal has the authority to lay down general regulations and to supervise the money, financial and foreign exchange markets. In this context, the Bank is entrusted with the supervision of credit institutions and other financial institutions (excluding Insurance Companies) which, by virtue of specific legislation, are subject to its supervision. As supervisor, the central bank has the power to establish the rules of conduct to be followed by these entities. In performing this function, the Bank may take any necessary measures to prevent or to halt actions which contravene existing regulations, including those related to the payment system.

The existing rules relating to payment systems cover interbank transfers derived from:

- manual and automated clearing of cheques and other credit instruments;
- settlement of transactions in securities;
- money and foreign exchange market operations.

1.4. The role of other private and public sector bodies

1.4.1. Banking associations

The main banking institutions are members of the APB (Portuguese Banking Association), whose goal is “to promote and implement all necessary measures to contribute to the technical, economic and social progress of the membership’s business”.

On a national level, the APB participates in all initiatives concerning new interbank payment schemes, from conception to implementation.

1.4.2. Treasury

The Treasury, which performs an important role in the state payment sector, is modernising the structure of its traditional payment system. The seven forms of payment it uses presently will be reduced to three in future, the most important of which will be the Treasury cheque, an instrument totally compatible with the automated interbank data processing systems.

1.4.3. Specialised payment company

The SIBS (Interbank Services Company) founded in 1983 by 26 banks, representing 98% of the retail banking market, is the central operational body of the automated interbank system.

The first project – the ATM network MULTIBANCO- was implemented in 1985 and includes the main deposit-taking institutions.

In 1989, cheque “tele-clearing” (“TELECOMPENSAÇÃO”) started functioning. It is operated and managed by SIBS.

1.4.4. Other non-banking entities

Apart from the entities already mentioned, there are some other bodies involved in the payment industry but, at present, their role is not very significant. (See Section 2.2.6.).

SECTION 2: SUMMARY INFORMATION ON PAYMENT MEDIA USED BY NON-BANKS

2.1. Cash payments

The legal tender in circulation consists of five denominations of banknote (PTE 10,000, 5,000, 2,000, 1,000 and 500) issued by the Banco de Portugal, and nine denominations of coins issued by the Treasury (PTE 200, 100, 50, 20, 10, 5, 2.5, 1 and 0.5). In the last few years the smaller denomination of notes have been gradually replaced by coins of PTE 20, 50 and 100.

At the end of 1990, notes accounted for 97.3% of the stock of currency in circulation, which amounted to PTE 607.3 billion, the balance representing coins. The large denominations (PTE 10,000 and 5,000) represented 80% of the total number of notes in circulation.

The number and value of payments made in cash is not known. Nevertheless, some experts estimate them to constitute around 90% of the total number.

The share of cash in MI has fallen progressively in the last ten years, from 34.6% in 1980 to 29.9% in 1986 and to 26.5% in 1990, as a result of the increasing use of cashless means of payment. In recent years, this trend would have been more apparent but for the introduction of ATMs in 1985; those have facilitated cash withdrawals, thereby, stabilising the relative importance of cash in total payments. Nevertheless, the development of ATMs for direct credit transfers (water, electricity, telephone, insurances, etc.) and the spread of EFT POS, suggest the likelihood of a resumption of the former downward trend in the use of cash.

2.2. Non-cash payments

Non-cash payments originate mainly from sight accounts. Besides the cheque, the other payment instruments associated with sight accounts are:

- the credit transfer and its variants, such as the standing order and the variable standing order;
- the direct debit;
- the debit card.

The number of sight accounts on December 31st, 1989, is estimated at 16 millions, which represents an average of 1.6 per head.

The payment of interest on sight accounts has been, until now, subject to a legal maximum of 4.66%, but there are noticeable differences between the rates paid by different institutions below this level. Direct debits are normally free of charge, provided they are effected through an automatic system. The issuing of cheques is subject to charges and the price varies from institution to institution. Some banks collect an annual fee for cheque guarantee cards and debit cards. Dormant sight accounts are usually penalised with a maintenance fee, which varies from PTE 500 to PTE 2,000.

The practice as regards value dates is as follows:

- value the same working day, when an account is debited;
- value the following working day, when an account is credited.

The legal framework concerning non-cash payments is provided in part by the Portuguese Commercial Code, presently under revision, supplemented by the uniform laws on bills, certificates of indebtedness and cheques.

A new law on cheques has recently been passed, determining, among other measures, that the drawee bank is obliged to honour cheques up to PTE 5,000, regardless of whether funds are available.

2.2.1. Cheques

Despite the increasing importance of paperless means of payment, the cheque is, by far, the most utilised instrument and its usage continues to grow. In 1990 194 million cheques totalling PTE 29,000 billion were issued.

The cheque still represents 67% of total non-cash payments. Cheques for less than PTE 200,000 (around 90% of the cleared cheques) are truncated.

2.2.2. Credit transfers

The two main forms of credit transfer – standing order and variable standing order – are the most common means of payment used by corporate customers to pay their suppliers and employees.

Nearly 13% of credit transfers are paperless transfers, a figure which is likely to increase, due to the implementation of an electronic transfer project in the near future.

2.2.3. Direct debits

The direct debit is also a commonly used instrument, mainly in the big cities, simplifying the payment of public utility bills (water, electricity, telephone, insurance, etc). In 1989, the number of direct debits reached 11 million and a total value of PTE 148 billions.

As in the case of the cheque, the direct debit is in direct competition with the ATM, since the number of suppliers accepting use of the latter has increased.

2.2.4. Payment cards

(a) Credit cards

The first credit cards circulating in Portugal date from the 1950s. In 1974, UNICRE (see Section 1.2.3.) began to operate.

Apart from UNIBANCO, UNICRE represents also VISA and MASTERCARD for 15 banks under the labels: PREMIER, CLASSIC, GOLD and PRESTIGE. Some of the cards issued have both credit and debit functions, and offer additionally, a large range of services, such as, travelling and personal accident insurance, car rental and discounts on various hotel chains.

At the end of 1990, the total volume of credit card business was around PTE 139 billion (55% more than in 1989), out of which the cards issued in Portugal by UNICRE and by the Portuguese banks accounted for 58% and foreign cards (mainly VISA and MASTERCARD) accounted for 42%.

(b) Debit cards

The massive increase in the use of debit cards in Portugal is linked to the creation of the Interbank Services Company – SIBS – in 1983, in which 26 credit institutions representing nearly all the retail banks participate. SIBS specialises in payment system automation services. In 1985 the national ATM network (MULTIBANCO) was implemented. More recently, this network was extended to include EFT POS terminals. Access to the system is safeguarded by means of magnetic stripe cards and PINs.

The ATM system offers several services: deposit and withdrawal of funds, balance notifications and statements, the taking of orders for cheques, alteration of the PIN and certain payment services. At the end of 1990, the number of ATMs installed was 821 (58% more than in 1989) – covering the whole country – and the number of valid cards was 2.4 million (45% more than in 1989). Withdrawals represented 78% of total transactions, followed by payment of bills and balance requests. In 1990, 49.4 million transactions (cash and debit) were effected (49% more than in 1989), amounting to about PTE 386 billions. The daily usage rate per machine stood at over 200.

Originally, location of ATMs was restricted to bank branches. Nevertheless, in recent years this has been extended to hypermarkets, big enterprises and public services.

Electronic transfers at the point of sale – EFT POS – are expanding rapidly. At the end of 1990, 2,672 terminals were already installed (against 809 in the previous year), and registered an annual value of PTE 46 billion (118% more than in 1989), corresponding to 7.8 million operations. New EFT POS terminals are mainly being installed in retail outlets – specially small ones – and filling stations.

The MULTIBANCO network also caters for international transactions, as a result of mutual agreements with other international chains (EUROCHEQUE and VISA). Thus, the holder of a MULTIBANCO card can have access to Spanish, English and Finnish terminals and, in the near future, will have access to Italian and Belgian ones. During 1990, 350,000 operations were effected with foreign cards, representing an increase of 60% over 1989.

(c) Cheque guarantee cards

Banks began to issue cheque guarantee cards in Portugal in the middle 1980s. An estimated 770,000 cards were in circulation in 1989. The issuing of these cards is subject to a fee, which varies from bank to bank.

Eurocheque cards are issued by some Portuguese banks, which must deal directly with the Eurocheque organisation. Financial settlement of transactions resulting from the use of Eurocheques by foreigners is effected directly with Eurocheque organisation by the Portuguese banks or by SIBS.

2.2.5. Post office instruments

Outside the banking system, the postal transfer is an important means of payment, mainly used by the Social Security to pay low value pensions, and, on a minor scale, by corporates and by individuals. This system benefits from a larger and denser network than the banking network. In 1990, the issuance of national and international postal transfers reached about 30.2 millions in volume, and a value of PTE 460 billion, which represents an average of PTE 15,254 per transfer.

2.2.6. Other non-bank instruments

Apart from postal transfers and "T & E" cards, the following non-bank payment instruments exist:

- In-house cards, normally issued by large retail outlets, car rental companies and oil companies. At the end of 1990, the national oil company (GALP) had issued a total of 9,000 cards, with an annual volume of 1.3 million transactions, and total value of PTE 2.2 billion;
- Petrol vouchers, issued by the above-mentioned company, reached a total of PTE 9.4 billion in that same year;
- Luncheon vouchers are a widely used non-bank instrument. The biggest issuer (TICKET RESTAURANT), which holds 80% of the market, issued 37 million units in 1990 with a value of PTE 13.4 billion;
- Traveller's cheques continue to be extensively used for cross-border retail payments. In 1989 total cheques issued amounted to PTE 48 billions;
- Prepaid cards such as CREDIFONE, issued by telecommunication companies (TLP and TELECOM) and used in telephone booths, reached a volume of 2.9 millions (value PTE 2 billion), in 1990.

2.3. Recent developments

In the middle of the 1980s, Portugal witnessed rapid developments in the telecommunication field, making it possible to implement teleprocessing networks, either within the big banks, or through interbank links. Interbank links and interbank co-operation, promoted by the Portuguese Banking Association together with the central bank resulted in the creation of the two above-mentioned interbank companies SIBS (automated networks) and UNICRE (credit cards).

Recently, banks have made great efforts to modernise customer access to payment services. Home banking is now available in Portugal, as well as on line connections with corporate clients.

SIBS which already operates the ATM network, the EFT POS network and the cheques teleclearing (see Section 3.2.2.) will also operate TEI (see Section 3.3.).

For the ATM/EFT POS networks, further developments are underway. It is already possible to pay road tolls with either the MULTIBANCO card or VIA VERDE. VIA VERDE is used as follows: the driver is electronically identified through a magnetic tag placed on the car windscreen as he drives past. The debit will be effected, by "teleprocessing", in the driver's bank account. Soon, the payment of theatre tickets, parking fees and train tickets will also be possible with the MULTIBANCO card.

Prepaid cards have already begun to be used in the telephone network, but it is expected that their use for payment for other services such as parking fees, and in canteens, supplier machines, etc. will increase in the near future.

SECTION 3: INTERBANK EXCHANGE AND SETTLEMENT CIRCUITS

3.1. General overview

There is as yet no interbank network specifically for large-value transfers.

Most big banks already have teleprocessing networks for their interbranch transactions, which enable the immediate transmission of data among branches and thus make it possible for a client to access his bank account at any branch of the network.

Direct interbank relations on the other hand use traditional processes for the exchange of information (telex, secure telefax, S.W.I.F.T. network, etc.) although an interbank electronic transfer system is being implemented, which will facilitate the exchange of payment instructions among banks (see Section 3.3.). In addition to the direct payment flows between banks through nostro/vostro accounts, clearing of the debits/credits between institutions is effected chiefly through the traditional and electronic clearing circuits which culminate in the final settlement on accounts held with the central bank.

The electronic clearing system “TELECOMPENSAÇÃO” (TELECLEARING) is an automated interbank exchange and settlement circuit, allowing the (indirect) channelling of information between banks, through a central interface (SIBS), which selects and directs the processed information to the various entities: receivers, drawees, and the central bank which effects final settlement daily. This system is based on an on-line teleprocessing system, which operates 24 hours a day.

Transactions between institutions on the domestic markets – Interbank Money Market (MMI), Interbank Securities Market (MIT), and Interbank Foreign Exchange Market (MIC) – are settled by the Banco de Portugal, which debits and credits the participating institutions’ settlement accounts (see Section 5.2.).

3.2. Structure, operation and administration of major large-value systems

By virtue of its Statutory Law, the Banco de Portugal is the authority responsible for the creation, regulation, and operation of clearing houses for cheques and other payment instruments and it is also responsible for controlling the money, financial, and foreign exchange markets.

Specific instructions from the Banco de Portugal regulate the operation of the clearing houses – traditional and electronic – as well as access to interbank markets.

Clearing systems – traditional and electronic – are only open to resident financial institutions both for direct and for indirect participation. Twenty-one domestic banks and eleven foreign banks are direct participants in the two interbank clearing systems mentioned below. The other banks participate through tiering arrangements. The 218 co-operative rural banks are represented by the Central Co-operative Rural Bank.

The traditional clearing and the electronic clearing (“TELECOMPENSAÇÃO”) systems are located in Lisbon and Oporto and items for clearing must be sent to one of these centres. There are also traditional regional clearing houses operating in the Autonomous Regions of the Azores and Madeira. The traditional clearing and “TELECOMPENSAÇÃO” are both multilateral net settlement systems; they are processed separately.

Settlement of the clearing systems is effected in the accounts at the central bank, which is entitled as a measure of last resort to unwind transactions to the amount of any end-of-day debit balance.

There are no caps or loss-sharing agreements in the clearing systems.

3.2.1. The traditional clearing system

The traditional clearing system operates on the premises of the central bank. Paper instruments (cheques, payment transfers, bills of exchange etc.) are physically exchanged. Two sessions are held: at 10.00, in Lisbon and Oporto, for the physical exchange of untruncated cheques, returned cheques and bills of exchange, and at 13.30, only in Lisbon, for the clearing of payment transfers from abroad in domestic currency.

The central bank receives lists of the debits/credits and the relevant documents (cheques, payment transfers, bills of exchange, and receipts)¹ exchanged between the participating institutions and effects the final processing, which enables the settlement to take place in the institutions’ accounts with the central bank.

The Banco de Portugal does not charge costs to the participating entities.

¹ A receipt is a document issued by the seller acknowledging receipt from the buyer. Whenever the buyer discharges a debt, the seller is compelled to issue a receipt.

3.2.2. The "TELECOMPENSAÇÃO" system

Banco de Portugal has delegated the operation and management of the "TELECOMPENSAÇÃO" system to SIBS (Interbank Services Company), which centralises the electronic clearing of ATMs, EFT POS, and cheques. The teleclearing system is based on a single central processing unit located in Lisbon and on cheque truncation up to a certain amount – currently PTE 200,000. These cheques are held at the receiving bank which microfilms them. After several months, they are destroyed.

SIBS has a teleprocessing connection with each of the banks, whereby they collect, on-line, detailed information on documents processed, and transmit, inter alia, data on cheques drawn. Settlement is carried out by the central bank, which receives, also through teleprocessing, the data necessary for debiting/crediting the account of each institution participating in the system. In the case of failure or malfunction of the teleprocessing network, which supports the system, a back-up is available, based on magnetic tapes delivered by the institutions to SIBS and by the latter to the participating institutions.

"TELECOMPENSAÇÃO" processed 65% of the volume of transactions (35% more than in 1989) and 38% of the value (17% more than in 1989). The system, which until now is confined to cheques and bills of exchange, will soon be extended to other instruments, namely credit transfers and receipts, to cover virtually all payment methods.

"TELECOMPENSAÇÃO" services provided by SIBS are charged on the basis of PTE 0.78 per document processed. 20% of the costs are charged to the Banco de Portugal and the remaining 80% to banks in proportion to the documents presented.

3.2.3. Timing and volumes of the clearing systems

The timing of the clearing systems may be summarised in the following table:

	Opening time of the system	Closing time of the system	Processing time of the system
"TELECOMPENSAÇÃO" (tele-clearing) – SIBS	on-line (a)	14.00	14.00–16.00
Traditional clearing – central bank	10.00 13.30	11.30 14.00	11.45–12.00 15.00–15.30

(a) The system is open for input 24 hours a day.

In both clearing systems, cheques are the major instruments, reaching a combined volume of 180.2 millions (97 per cent of the total) and the value of PTE 42,555 billions (52 per cent of the total) in 1990.

The volume of credit transfers, in their various forms, is much lower than that of cheques, reaching only 380,000 (0.2 per cent of the total), although with a very similar value PTE 39,109 billions (48 per cent of the total).

The remaining instruments (bills of exchange and receipts) constitute less than 1% of the total value, although receipts constitute 3% of the total volume of transactions.

Transactions which used to be processed by the traditional clearing are now increasingly processed automatically through "TELECOMPENSAÇÃO" (see statistical annex).

3.3. Main projects and policies being implemented

Co-operation between the Banco de Portugal, the APB (Portuguese Banking Association), and SIBS has made considerable improvements possible in the payments system, particularly as regards the introduction of electronic means of payment, and the electronic clearing of assets.

At the moment, the major project of the banking market is *TEI (Electronic Funds Transfer)*, which started to be tested in January 1992; full implementation is envisaged for the second half of 1992. The TEI system, based on EDI philosophy, make possible the electronic transfer of funds, settlement of which is effected by the electronic clearing house. The great innovation of this system is that it permits extension of the network to corporations, which thus have at their disposal a data transmission circuit directly connected to their banks. The electronic clearing house and network project offers many advantages to the beneficiary as well as to the debtor and intermediary banks, contributing to a gradual replacement of traditional cheques and credit transfers. Transfers to and from banks and corporations will, irrespective of their geographical localisation, be centralised in the Lisbon processing unit. The authentication of the connection will be made using an electronic signature to check the validity of access. This technique is based on a magnetic stripe card linked to a security module (Pinpad) and a secret code. Transfers are executed at least two business days in advance of settlement day. There are exposure limits established by the banks for the corporations' transfers; above these limits SIBS makes a pre-notification to the payee bank, which has to be confirmed before settlement day. The closing time of the system, for clearing purposes, is 18.00 and the price is PTE 1.80 per individual transfer. TEI is a net settlement system – which settles on the accounts of the banks with Banco de Portugal.

Since the TEI project chiefly involves banking institutions and corporations, it will be the first large-value system operating in the Portuguese banking market.

SECTION 4: SPECIAL USE OF INTERBANK TRANSFER SYSTEMS FOR INTERNATIONAL AND DOMESTIC FINANCIAL TRANSACTIONS

4.1. Exchange and settlement systems for international transactions

Foreign exchange controls still exist in Portugal, but their scope has considerably diminished over recent years. Banco de Portugal no longer has to give prior authorisation to funds transfers abroad. The regulations are now administered through the banking system and controls are applied a posteriori on a random basis. Regulations might possibly apply directly to the economic agents in the future.

At present, the only existing restrictions are those on short-term capital movements not connected with business transactions, such as the purchase by residents of some short and long term foreign securities; the purchase by non-residents of domestic securities not listed on the stock exchange; the granting of loans between residents and non-residents and the exchange of guarantees not connected with current business.

When the present restrictions are discontinued, capital movements between residents in the Member States as well as the corresponding transfers, will be effected without restriction.

Since 1989, a monetary co-operation arrangement has been in force between Portugal and Guinea-Bissau, which allows for Portuguese support in foreign exchange matters, regarding the level of the exchange rate between the Guinean peso and the Portuguese escudo, and ensuring the limited convertibility of the peso against the escudo. Other arrangements relating to foreign exchange are envisaged and are being prepared between Portugal and Portuguese-speaking African countries.

The exchange and settlement of international transactions relies chiefly on the network of correspondents banks established abroad by resident banks. On foreign markets, where financial and business relations are more developed, domestic banks have branches which operate as settlement "platforms" for the transactions effected with the head office.

The most commonly used means of communication is the S.W.I.F.T. network, which covers virtually the whole banking community in Portugal. By end 1990, 32 banks operating in the Portuguese market were connected to the S.W.I.F.T. network and processed 2.1 million messages during that year.

Settlement of transactions resulting from the use by foreigners of debit/credit cards in Portugal, is effected on the basis of agreements established mainly with UNICRE and SIBS and effected ultimately by resident banks with their foreign counterparts by means of bilateral agreements. In 1990, approximately PTE 64.9 billion (32% more than on 1989) were settled internationally through the use of foreign debit/credit cards in Portugal – at ATMs and EFT POS and retail terminals.

4.2. Exchange and settlement systems for securities transactions

The new Stock Exchange Code published in April 1991 and in force as of July, defines extensively the rules governing the structure and operation of the primary market and of the different secondary markets, and lays down business rules for the conduct of intermediaries. The principles underlying the reform are liberalisation and independence of stock markets and freedom from the influence of the State; the reform thus tends in the direction of the model generally adopted in the EC.

Both authorised brokers and financial institutions can deal in the transferable securities market, but only brokers can deal directly on the stock exchange.

The restructuring of the stock market led to the creation of the Stock Exchange Commission, which became responsible for the supervision and control of both the primary market and the secondary markets.

A chief aim of the reform is the integration of trading in each type of transferable security into a single nationwide market.

The stock market, although divided between the two existing stock exchanges (Lisbon and Oporto), is interconnected by automated systems and will gradually become a nationwide market.

An over-the-counter market has also been officially established to deal in unlisted securities. With the reform of the stock market, this over-the-counter market, which relies on financial intermediaries authorised to deal in securities, will gradually develop into a single nationwide market, with most of its operators interconnected through an appropriate automated trading system.

The reform of the stock market also affected the physical settlement of transactions, encouraging the gradual dematerialisation of transferable securities in favour of a book entry transfer system through the Transferable Securities Centre. This Centre, to which financial intermediaries are connected, also controls the deposit of securities in financial institutions. In order to facilitate the settlement of securities, the fungibility of all book assets and securities has been established, provided they are deposited with financial institutions.

The Transferable Securities Centre and its Nationwide Settlement and Clearing System is already in operation (although at a stage of gradual implementation). It provides a system for registration and control of book assets and securities and the clearing and settlement of transactions on several markets. When all the markets – stock exchange, over-the-counter, and special markets – are integrated, it will be possible to achieve the main objective of the stock market reform, embodied in the Stock Exchange Code, namely the establishment of a more dynamic national market in transferable securities.

The settlement of payments connected with stock exchange transactions is effected through the accounts of the intermediaries (brokers, financial institutions, stock exchanges and the Treasury) with the Banco de Portugal and takes place on the fourth working day after trading. A report containing the credit or debit balance resulting for each financial intermediary from clearing these payments is forwarded to the Banco de Portugal by the Transferable Securities Centre.

The over-the-counter market has gradually become more important over recent years, accounting for 55% and 67% of the total stock market in 1989 and 1990, respectively. Since this market became official under the new Stock Exchange Code, it will gradually be integrated in the market controlled by the Transferable Securities Centre and by its Nationwide Clearing and Settlement System, but only increased activity on the Stock Exchange will bring about a reversal of the trend recorded in the past years.

Clearing and settlement by the Transferable Securities Centre is universal; as yet the creation of specialised segments per type of instrument is not envisaged.

At the Transferable Securities Centre, any overdrafts on the transferable securities accounts of financial intermediaries is as a last resort to be covered by a Guarantee Fund created and administered by the stock exchange associations, the non-profit making private bodies, with legal status, which manage the stock exchanges.

As regards settlement of related payments by the Banco de Portugal, any shortages on the accounts of financial intermediaries, are settled with the Transferable Securities Centre which will report to the Stock Exchange Commission. In case of nonpayment on due time, the Transferable Securities Centre must reverse the operations indicated by the Banco de Portugal. Without prejudice to the powers vested in the Banco de Portugal, the Transferable Securities Centre is responsible for monitoring events and taking the required action.

SECTION 5: THE ROLE OF THE CENTRAL BANK IN INTERBANK SETTLEMENT SYSTEMS

5.1. General responsibilities

The development of the financial system, with the emergence of several types of intermediaries and instruments in an increasingly competitive environment, has raised new challenges for the role and procedures of the Banco de Portugal. The new Statutory Law of the Banco de Portugal, approved in October 1990, confers greater flexibility on the markets but promotes at the same time the stability of the payments system and the solvency of institutions, in order to ensure the confidence of users of financial services. It also endows the central bank with greater independence in the conduct of monetary policy and defines a new framework for prudential supervision, implementing the provisions of EC banking legislation. The monitoring of compliance with these directives by the central bank includes on the spot inspections.

The Banco de Portugal prepares regulations and issues instructions regarding the operation of clearing systems and of interbank markets. For example, it establishes rules for access to the interbank systems. All the participants hold deposit accounts with the Banco de Portugal.

Any institution which incurs an overdraft on its settlement account at the end of the day is compelled to cover the position on the same day, usually by recourse to the interbank money market or – only in extreme circumstances due to the formalities involved – to central bank credit, which must always be collateralised.

If this situation arises more than once, the participant is liable to incur sanctions or penalties imposed by the Banco de Portugal such as suspension of participation in clearing systems or money markets, or compulsory deposits.

The settlement operations of the Banco de Portugal are regularly audited by its Audit Department.

5.2. Provision of settlement facilities

Demand deposit accounts opened with the Banco de Portugal are used as settlement accounts, not only for the settlement of traditional and electronic clearing systems (as mentioned in Section 3.2.), but also for the settlement of interbank market operations and of the (cleared) payments related to stock exchange operations.

These deposit accounts are also used regularly by banks for funds transfers to other institutions or from and to their branches through their accounts with the Banco de Portugal regional branches.

In making transfers to the credit of other institutions, banks use coded telexes and/or Banco de Portugal cheques which they draw on their accounts. The former, with approximately 150 transactions per day is the most commonly used instrument, while the Banco de Portugal cheque averages 40 transactions per day. There are approximately 50 transfers a day to and from the regional branches of the banks. Orders are usually received by the Banco de Portugal by telex.

Banco de Portugal is also the settlement agent for the clearing system for payments related to stock exchange transactions. For this purpose brokers and financial institutions dealing in the stock market have demand deposit accounts with the Banco de Portugal and must maintain sufficient credit balances to allow for settlement. Settlement takes place on the fourth working day after the relevant trading session.

The Statutory Law of the Banco de Portugal provides for credit facilities which banks may utilise, such as rediscount, secured credit, and securities repurchase agreements.

The Banco de Portugal grants unlimited credit against government securities to the institutions subject to reserve requirements on the last day of the reserve requirement period. It also grants refinancing facilities on the other days on a discretionary basis, always against collateral.

The greater part of payments among institutions subject to reserve requirements relate to operations in interbank markets – money, foreign exchange, and securities.

According to its Statutory Law the Banco de Portugal is responsible for the organisation and oversight of interbank markets.

Since exchange rate policy and monetary policy are conducted in different departments within the Banco de Portugal, the Interbank Foreign Exchange Market (MIC – “Mercado Interbancário de Câmbios”) operations and those of the Interbank Money Market (MMI – “Mercado Monetário

Interbancário”) and of the Interbank Securities Market (MIT “Mercado Interbancário de Títulos”) are transmitted through different communication systems.

The escudo equivalents of foreign currencies traded among credit institutions in the Interbank Foreign Exchange Market (MIC) are transmitted via S.W.I.F.T. This system, usually utilised for cross-border banking operations, was adopted for this domestic type of transactions for operational reasons connected with the management of the S.W.I.F.T. centre at the Banco de Portugal. These transactions are transmitted until 14.00 on their value day. They are estimated at approximately 250 transactions a day with an average amount of PTE 31 billion processed and settled by this means at the central bank.

Interbank Money Market (MMI) transactions and those of the Interbank Securities Market (MIT) are supported by a telephone communications system – “SISTEM” – between the Banco de Portugal and each of the 106 participants (by end-1990) in the interbank markets. Each participant communicates to the Banco de Portugal by telephone the interbank money market operations it wishes to carry out with the Banco de Portugal, or that it has already effected with any other participant, for portfolio management, clearing and monetary statistical purposes. The Banco de Portugal, receives the telephone communications from the participants and simultaneously inputs the data in the host computer of the Bank. The computer matches selling and buying orders and after the closing of the markets, produces a magnetic output for current account and settlement purposes.

All communications are made by authorised operators, recognised by an individual code, provided by the Bank.

At the end of the day, each participant sends to the Bank a form detailing all the transactions it has carried out, and in return receives the statement for each transaction, issued by “SISTEM”.

Money market transactions are effected with same-day value. To become effective they have to be transmitted to “SISTEM” by both parties. After the communication of both selling and buying orders to SISTEM, the operation cannot be cancelled.

Since money market operations are not collateralised, their credit and liquidity risks are assessed and borne by each participant. The other interbank market operations involve only occasional liquidity risk since they are based on collateral.

The “SISTEM” operates every working day from 9 a.m. until 3 p.m. (local time).

The daily averages of the transaction volumes and values stood at 90 transactions and PTE 102.9 billions, respectively, in 1990.

At present, the Banco de Portugal does not charge the participants in interbank markets, nor does it charge for direct payment transfers by banking institutions.

5.3. Monetary policy and payment systems

As referred to in Section 5.1., the new Statutory Law of the Banco de Portugal conferred more autonomy on the central bank for the conduct of monetary policy. This law confines Government financing by the central bank: to credit in a free-of-charge current account, up to a ceiling determined in relation to the budget revenue; and to the underwriting of Treasury Bills under market conditions. In 1990, monetary policy was also characterised by the transition to a new monetary control system, which included the discontinuation of ceilings on bank credit. The indirect monetary control system is based on the daily management of bank liquidity, with prices (interest rates) being freely established both at the money market level and at the level of the financial market in general. This objective is mainly supported by:

(a) The development of the money and securities markets – by changing them into a market where the Banco de Portugal’s role is to intervene to regulate bank liquidity, via two major instruments: Central monetary certificates (TRM) issued at very short term (1 to 7 days)² and short-term repurchase agreements – viz. 3 months – of securities in the Banco de Portugal portfolio which are transferable to the public (Treasury bills).

These operations are settled directly in the accounts of banks with Banco de Portugal;

² Other monetary policy instruments issued by the Banco de Portugal are: Central Bank’s Intervention Bills (TIM), securities at 4, 9, 13, 26, and 52 weeks, and deposits at 6 months and 1 year, with or without a renewal option.

(b) A generalised and uniform reserve requirements system currently set at 17% of deposits and other liabilities (both on and off balance sheet). A transitional system was adopted for institutions hitherto not subject to compulsory reserves. The constitution of compulsory reserves is effected differently for monetary or non-monetary financial institutions. In the case of the former, the calculation is in terms of weekly average amounts of the daily figures; for the remaining financial institutions reserves are calculated in terms of monthly averages of daily values. Only for co-operative savings banks, co-operative rural banks and regional development companies must the reserves be held as a blocked deposit registered in a special account at Banco de Portugal. This uniform reserve requirement has a single rate for the remuneration of reserves. A mechanism is in place for the gradual reduction of the reserve requirements; within 5 years this mechanism is expected to lower the level of non-remunerated reserves to a figure close to 5%.

5.4. Main projects and policies being implemented

The recently released "Blue Book on the Financial System" focuses on consolidation requirements after the development boom which the Portuguese financial system has been witnessing since the mid-1980s. The main targets of this document, prepared by the Financial System Committee ("Conselho para o Sistema Financeiro"), an independent consultative body to the Ministry of Finance, are credit institutions, whose rules and regulations require a thorough revision. This revision has three major purposes:

- to accomplish the harmonisation imposed by EC directives and recommendations;
- to take into account the changes which have occurred in the domestic financial system and in the financial systems of industrialised countries;
- to ensure that the costs of regulation and prudential restrictions would not place Portuguese credit institutions at a competitive disadvantage vis-à-vis their EC counterparts.

The "Outline Law" for the banking system, which will implement the recommendations in the "Blue Book on the Financial System", is expected to be approved soon. The new banking law will reformulate and simplify the existing legislation, and will cover a wide range of aspects such as the new institutional framework of the banking system, central bank powers, bank credit guarantees and their coverage, etc. The forthcoming banking law goes beyond what the Banco de Portugal can achieve with its present powers and is extremely important for the future framework and operation of the banking system, with direct and indirect effects on the payment system and the relevant instruments.

With the TEI project (see Section 3.3.), the implementation of an interbank electronic network is under study at the Banco de Portugal. This network will allow access to demand deposit accounts held by credit institutions with the Banco de Portugal and will facilitate the integration of credit transfers in all Banco de Portugal agencies, by allowing immediate entries in these accounts. This project will enable an on-line audit of banks' positions and will become an important instrument for the conduct of monetary policy, which increasingly requires timely data on the liquidity of the banking system.

Conclusion

The payment system in Portugal shows a clear trend towards an increased use of automated means to the detriment of traditional payment instruments. This is chiefly reflected by the fact that the public resorts increasingly to systems which enable the direct access to liquidity (ATM, debit and credit cards) and to the payment of services without recourse to intermediate payment instruments (EFT POS). Interbank circuits have also progressed, both with regards to the modernisation of communication networks among branches and to the electronic clearing of payments among institutions.

The competition/co-operation compromise in the banking system has permitted the swift development of automatic transfer and payments networks to which the objective of rationalisation of the operating costs of the system has also contributed.

The technological progress of telecommunications and dataprocessing systems also led to the development of payments instruments outside the banking system (prepaid cards, for instance), although to a lesser extent, in view of the dispersion of the agents involved.

Nevertheless, the use of traditional means of payment (cash and cheques) continues to predominate; this will lead to the widening of the network of bank branches, although with structures largely supported by data and teleprocessing means.

The security of the payments system is based on two major factors: the trustworthiness/ inviolability of communication and dataprocessing systems, and the implementation of new legislative and regulatory frameworks for the financial markets and the preservation of the solvency and soundness of institutions.

The internationalisation of payments system has taken longer to achieve, considering the monetary and foreign exchange constraints which affect its development. Nevertheless they have not raised obstacles to the establishment of agreements (some of them reciprocal) which permit the use of payment instruments, namely debit/credit cards, by foreigners in the country or by nationals abroad.

The challenges of the future lie chiefly in the increased competition among institutions in the enlarged area of the European Single Market, and in the intervention in the system of non-bank institutions – mostly large economic groups – which will predictably increase bank disintermediation.

Basic Statistical Data
(1990)

Population: 9,859,000
 Gross Domestic Product: PTE 7,564.524 billion (1) (ECU 41.77 billion)
 GDP per capita: 767,300 (ECU 4,237)
 Exchange rate: 1 ECU = PTE 181.11

(1) Source: Eurostat

Table A.: Monetary aggregates
(average of end of month)

	billions PTE		Per capita (PTE)
	1989	1990	1990
Notes and coins	510.8	571.7	57,990
Transferable deposits in local currency	1,446.5	1,598.5	162,143
Others	0	0	0
Total money supply (M1)	1,957.3	2,170.2	220,133

Notes:

Table B.: Credit Institutions offering payment services (end of 1990)

Categories of Institutions	Number of Institutions	Number of branches	Number of accounts (thousands) (1)	Share of market (%)	Value of accounts (PTE billions)	Share of market (%)	Average Value of accounts (PTE)
Central bank	1	21					
Commercial banks	29	1,465	8,697	52.6	1,289.4	73.2	148,300
Savings banks	3	526	6,728	40.7	385.2	21.9	57,300
Co-operative & rural banks	229	400	924	5.6	84.7	4.8	91,700
Post Office	1	1,044	171	1.0	1.4	0.1	8,200
TOTAL	263	3,456	16,520	100%	1,760.7	100%	106,700

(1) 1989: might also include some short-term time deposits

Table C.: Cash dispensers, ATMs and EFT/POS terminals

	Cash dispensers and ATMs				EFT/POS			
	Number of		Value of transactions (PTE billions)	Number of	Number of		Value of transactions (PTE billions)	
	Networks	Machines			Transactions (millions)	Machines		Transactions (millions)
end 1989	1	519	242.4	1	809	3.0	20.8	
end 1990	1	821	386.3	1	2,672	7.8	45.5	
increase 89/90		58%	59%		230%	160%	119%	

Table D.: Number of payment cards (end of 1990)

	Number of cards (thousands)	Number of cards per 1,000 inhabitants
Cards with a cash function	2,400	243
Cards with a debit/credit function	3,430	348
Cards with a cheque guarantee function	770 (1)	78
Retailers Cards	9	1

(1) in 1989

Note: A card which has several functions appears in several lines and therefore the figures in this table cannot be added.

Table E.: Payments exchanged through the official payment systems

Name	Number of transfers (millions)		Value (billions PTE)	
	1989	1990	1989	1990
Telecompensação* (teleclearing)				
– Cheques	50.9	119.5	11,897	30,631
Traditional Clearing	113.7	66.7	43,855	51,289
– Cheques	107.3	60.7	22,992	11,924
– Payment Transfers	0.3	0.4	2,463	39,109
– Bills of Exchange	0.9	0.3	314	155
– Receipts	5.2	5.3	86	101

* Since May 1989

Table F: Relative importance of cashless payment instruments in the payment system

Instruments	Number of transactions (millions)		Value of transactions (billions)		Percentage of total volume	Number of transactions per capita	Average value per transaction
	1989	1990	1989	1990			
Cheques issued	194.1	n/a	29,701.7	n/a	80.6	18.8	153,000
Payments by debit and credit cards	7.6	18	77.8	164.3	3.2	0.7	10,200
Paper-based credit transfers: customers initiated interbank*	15.4	n/a	12,471.1	n/a	6.4	1.5	809,800
Paperless credit transfers: customers initiated interbank*	12.2	n/a	1,740.0	n/a	5.1	1.2	142,600
Direct debits	11.4	n/a	148.4	n/a	4.7	1.1	13,000
TOTAL	240.7	18	44,139.0	164.3	100%	23.3	183,400

* or large-value

12. United Kingdom

THE UNITED KINGDOM

Introduction

In common with payment systems around the world, those in the United Kingdom have been undergoing considerable change in recent years. Competition amongst financial institutions in the United Kingdom in their provision of new and evolving payment services has been stimulated by both deregulation and advances in technology. At the same time, co-operation between these financial institutions, in the form of domestic and international initiatives, has further enhanced each institution's ability to improve its customer services and to begin to address the extent of credit and liquidity risks to which it is exposed through its participation in payment systems.

The UK clearing systems described below have evolved over time and are not the subject of specific legislation or of specific regulatory provisions. The most widely used clearings are owned and controlled by their members under the umbrella organisation of the Association for Payment Clearing Services (APACS), an unincorporated association which was set up in 1985. (The detailed sections of the report, in particular Section 1.4., describe the role of APACS, while the role of the Bank of England is covered in Section 5.)

SECTION 1: THE INSTITUTIONAL ASPECTS

1.1. General legal aspects

There is no statutory supervision or regulation of the payment systems operating in the United Kingdom, though the Bank of England maintains a close involvement in them. (For a fuller description of this, see Section 5.)

Statute law relating to payment system services in the United Kingdom is limited, generally of considerable age, and deals largely with the technical usage of paper-based cheques and bills of exchange. Two statutes comprise almost the whole of this body of law; the Bills of Exchange Act, 1882, being a comprehensive codification of the then existing law on bills of exchange; and the Cheques Acts, 1957 and 1992, modifying the general principles of the 1882 Act as applied to paper cheques. (For the statutory basis for bank and building society supervision, see Section 1.3.)

Competition law in the United Kingdom relevant to APACS is largely embodied in the Restrictive Trade Practices Acts, 1976 and 1977. The clearing systems under the APACS umbrella and the membership criteria of APACS fall within the scope of this legislation and require registration with and scrutiny by the Director General of Fair Trading. In addition to domestic competition law, there are a number of European Community laws and quasi-judicial constraints which may also be relevant to the provision of payment and settlement services in the United Kingdom. (See also Section 2.2. for the impact on credit card schemes of a report by the Monopolies and Mergers Commission in 1989.)

1.2. Financial intermediaries that provide payment services

(a) Banks

There are currently some 530 banks authorised under the Banking Act, 1987 in the United Kingdom, of which about 330 are branches or subsidiaries of foreign banks (of these about a hundred are branches or subsidiaries of banks established in other EC countries). The formation of APACS in 1985 (see Section 1.4.) led to the re-organisation of the clearings, and allowed membership of the clearings to be open to any appropriately regulated financial institution meeting explicit and objective criteria for entry. Sixteen commercial banks at present have membership of APACS ("the settlement members"). The Bank of England is also a member.

This open membership, together with increased competition from other financial institutions, has imposed a high level of competitive pressure upon banks' payment system activities. Many banks, however, both foreign and domestic, prefer not to incur the costs of membership, and participate in the clearings via agency arrangements with one of the members.

(b) Building societies

At the end of 1991 there were nearly one hundred building societies authorised by the Building Societies Commission. The enactment of the Building Societies Act, 1986, gave societies some scope to expand their provision of financial services. The larger societies now offer a wide range of payment system services, including money transmission, cheque guarantee cards, credit and debit cards. Four building societies are currently members of APACS. The remainder participate via agency arrangements. The 1986 Act also allows a society to change its mutual status by incorporation as a public limited company. Abbey National Plc, for example, incorporated in July 1989 and was granted authorisation as a bank.

Other financial institutions which are not authorised under either the Banking Act or the Building Societies Act may only participate in the clearings as customers of a member.

(c) Credit card companies

Credit cards continue to play a major role in payment systems. Banks and building societies issue credit cards which are affiliated to either the VISA or MasterCard schemes. In addition, a number of retailers offer proprietary card-based credit facilities to their customers. American Express and Diners Club also issue travel and entertainment cards in the United Kingdom.

(d) Other institutions

Certain other institutions are involved in payment systems. The state-owned National Savings Bank operates through post offices, whilst the Post Office itself also provides payment services through its responsibilities for issuing and redeeming postal orders and handling the cash payment of various state benefits to the public.

1.3. The role of the central bank

1.3.1. Banking

The Bank of England's banking business is closely related to the work it undertakes on behalf of government customers, and to the note issue. The Bank is not in the business of commercial risk lending (most advance facilities are for government departments and are backed by Treasury guarantee) and it has only five branches.

Government departments are not, on the whole, obliged to hold their accounts with the Bank. However, most of the major departments do so in order to facilitate the efficient operation of the central government accounts. The Bank acts as the clearing agent for the large number of government payable orders¹ issued through the Paymaster General's Office, the Inland Revenue and the Customs and Excise.

The Bank provides a wide range of other banking services, including clearing facilities, to a number of public sector bodies, UK and international financial institutions (such as building societies and other central banks) and also to its own staff. It also holds the settlement accounts of all of the members of APACS.

1.3.2. Payment Systems

The Bank of England does not have any statutory powers in respect of payment systems, but it maintains a close involvement in them and acts as settlement institution for each of the APACS clearings. (For a fuller description of its role see Section 5).

The only payment medium in respect of which the Bank has a statutory role is the bank-note. Under the Bank Charter Act, 1844, the Bank possesses the sole right of note issue in England and Wales. (See Section 2.1.). This Act also has the effect of separating the note-issuing function of the Bank from its other activities, by dividing the Bank into two Departments for accounting purposes. The accounts of the Issue Department relate solely to the production, issue and payment of bank-notes and to the portfolio of securities by which the note issue is backed. Under the terms of the 1844 Act, the Banking Department embraces all other banking activities undertaken by the Bank.

¹ i.e. an order informing the payee that the Paymaster General will pay the sum shown on presentation of the order through a bank or building society within a period of six months.

Responsibility for the supervision of banks is vested in the Bank of England by the Banking Act, 1987, which replaced the Banking Act, 1979. The 1987 Act has a broadly similar structure to the earlier legislation, but one major difference is that the former two-tier system of authorisation (recognised banks and licensed deposit-takers) has been replaced by a unified system with a single category of authorised institution. The Act requires an institution to have prior authorisation before a "deposit", as defined, may be accepted. Certain institutions have been exempted from the provisions of the Act: for example, institutions whose activities are regulated by other legislation, such as building societies supervised by the Building Societies Commission (under the Building Societies Act, 1986), are exempted.

1.4. The role of other private and public sector bodies

1.4.1. APACS

APACS (the Association for Payment Clearing Services) is the body responsible for the provision and development of payment clearing mechanisms in the United Kingdom and for overseeing developments in payment systems generally. This means running the clearings for cheques and paper credits as well as for electronic debits and credits together with the systems that handle high-value transfers in the United Kingdom.

APACS was established in 1985 following a review of the organisation, membership and control of the UK clearing systems by the Child Committee, set up in 1984 by the banks then participating in the Bankers' Clearing House. The results of the review were set out in the "Payment Clearing Systems" report published in December 1984 (the Child Report). The report's two main recommendations were a new structure for the organisation of payment clearing systems and new rules regarding membership of such systems.

Following this report, separate companies were set up beneath the APACS umbrella to run each of the clearings, with control and ownership of the organisation and these individual companies placed in the hands of the member institutions. By separating the clearings into three separate companies, it became possible for an institution to be a member of one without having to be a member of another. Membership of a clearing company carries with it membership of APACS and of its ruling body, the Council.

Membership of each company is open, upon payment of the appropriate entry fee, to all institutions that meet explicit and objective criteria. These criteria include being appropriately supervised, being able to meet the operational and technical requirements of membership, maintaining settlement account facilities at the Bank of England and accounting for a minimum volume of items passing through the given clearing.

The Cheque and Credit Clearing Company Ltd. is responsible for the bulk paper clearings of cheques and credits in England and Wales (the paper clearings in Scotland and Northern Ireland were not included in the new structure). It has twelve members, eleven banks and one building society.

CHAPS and Town Clearing Company Ltd. is responsible for the high-value same-day settlement clearings. It has fourteen members, all of which are banks.

BACS Ltd. (known as Bankers' Automated Clearing Services Ltd. until 1986) is an automated clearing house, which provides an electronic bulk clearing for direct debits, standing orders and other automated credit transfers. It has nineteen members, fifteen banks and four building societies. (For descriptions of these clearings see Section 3.)

Recent advances in technology have allowed banks and other financial institutions greater scope for provision of other payment system services within an increasingly competitive, if still essentially co-operative, environment. EFTPOS UK Ltd, which was also established by APACS, did not in the event implement a clearing for electronic point-of-sale transactions on a fully co-operative basis, being supplanted by a number of private initiatives established outside the APACS umbrella. Similarly, various ATM network and cross-network settlement systems have also been established outside APACS, some involving non-bank financial institutions. Nonetheless, APACS remains the main body responsible for the organisation and control of the payment clearing systems in the United Kingdom.

1.4.2. Bank and building society ombudsmen

Ombudsmen for both banks and building societies have recently been appointed in the United Kingdom. The Banking Ombudsman is able to deal with complaints arising since 1 January 1986, whilst the Building Society Ombudsman's remit extends back to July 1987. Membership of the Banking Ombudsman scheme is voluntary, whereas membership of the Building Society Ombudsman scheme is compulsory. The two ombudsmen deal with unresolved customer complaints concerning the provision of financial services, including money transmission services. Complaints are resolved either by agreement or by the ombudsmen making recommendations or awards.

Whilst the Banking Ombudsman is able to impose binding awards of up to GBP 100,000 upon those banks which are members of the Office of the Banking Ombudsman, the Building Society Ombudsman's awards are not binding, and building society members of the Office of the Building Society Ombudsman have the option of publishing reasons for not complying with their ombudsman's awards.

1.4.3. Code of Banking Practice

A Committee to Review Banking Services Law (the Jack Committee) was appointed in 1987 by the Treasury in association with the Bank of England. Its 1989 report on "Banking Services: Law and Practice" recommended that banks and building societies in the United Kingdom should draw up a Code of Banking Practice, which would set out standards of good banking practice to be observed in dealings with personal customers in the United Kingdom. Among the topics which the Review Committee suggested should be included in this Code were certain payment system services, in particular electronic funds transfers. The banks issued a first draft of the Code, for consultation, in December 1990. The final version was brought into force in March 1992.

SECTION 2: SUMMARY INFORMATION ON PAYMENT MEDIA USED BY NON-BANKS

2.1. Cash payments

The Bank of England has the sole right to issue bank notes in England and Wales, under the Bank Charter Act, 1844. The Bank currently prints and issues notes in four denominations – GBP 5, GBP 10, GBP 20 and GBP 50 – and these notes circulate freely throughout the United Kingdom. Three banks in Scotland and four banks in Northern Ireland retain the right to issue their own sterling notes, but, apart from a very small fiduciary issue, these must be fully covered by holdings of Bank of England notes, or of approved coin. Banks in England and Wales draw the notes they require from the Bank of England for distribution through their own cash centres. Surplus notes can be removed from circulation either by returning them to the Bank or by holding them to the order of the Bank at specified cash centres prior to reissue.

The amount of cash drawn from ATMs continues to grow. In 1990 around GBP 43 billion was withdrawn from ATMs in the United Kingdom (see Section 2.2.). This represents some 980 million withdrawals, as against some 600 million withdrawals of cash by other means.

The Royal Mint (a government agency) is responsible for the production and issue of coin throughout the United Kingdom. Coins are currently in general issue in seven denominations: 1 penny, 2, 5, 10, 20 and 50 pence and GBP 1. The old 5 pence coin (the size of the former one shilling piece) was replaced by a new, smaller coin, issued in June 1990 and similarly the old 10 pence coin (the size of the old two shilling piece) will be replaced by a smaller coin in 1992. The Royal Mint delivers coin to bank cash centres or direct to their branches, against payment by the banks.

At end-1990 the value of notes and coin in circulation with the public totalled GBP 15 billion. (See Section 2.2. for ATMs.)

2.2. Non-cash payments

2.2.1. Deposit money

Until 1989 the United Kingdom published two narrow measures of the non-bank private sector's holdings of money, M_1 and M_2 . More recently only M_2 has been published.

M_2 consists of holdings by the UK private sector (other than banks and building societies) of sterling notes and coin and of sterling retail deposits with UK banks and building societies. M_1 was a measure which differed from this in that it took no account of deposits with UK building societies and made no distinction between retail and wholesale deposits, distinguishing instead between sight and time deposits and including only the former.

This change in practice takes account of developments in the UK deposit market which have tended to increase the public's ease of access to funds on some forms of time deposit, both to withdraw cash and to make cashless payments.

2.2.2. Paper-based instruments

An estimated 50% by volume of all cashless payments in 1990 were made by cheque, amounting to an average of 9.3 million items per day, excluding cheques drawn for cash. Payment by cheque, however, is generally acceptable at the point of sale only if the drawer presents a cheque guarantee card issued by the bank on which the cheque is drawn. At end-1990 over 40 million cheque guarantee cards had been issued in the United Kingdom by about 50 banks co-operating in the Cheque Guarantee Card Scheme. The standard minimum guarantee limit on these cards was GBP 50 until 1989, when two higher limits of GBP 100 and GBP 250 were introduced; individual institutions are free to decide whether and how to offer these higher limits to their customers. To guarantee the encashment of cheques in continental Europe and some other countries, most banks also issue Eurocheques and guarantee cards to their customers under the Uniform Eurocheque Scheme.

Many building societies now offer cheque-book facilities to their customers, combining interest-bearing transaction accounts with automatic transfer facilities and additional features including direct debits, standing orders, ATM and EFTPOS access and automatic overdrafts.

The paper-based bank giro credit clearing accounted for 8% of cashless payments by volume in 1990. This system is used mainly for making consumer payments to large organisations, such as public utilities and mail-order companies, but it can also be used for payments to individuals.

Cashless payments can be made through the Post Office: low-value payments can be made using postal orders, which are especially convenient for those who do not have a bank account. Use of postal orders has been declining sharply in recent years, and in 1990 only 42 million were issued.

Volumes of paper-based transactions grew throughout the 1980s, but latterly, by contrast with electronic and card-based transactions, at a diminishing rate. The peak appears now to have been reached, and a decline in volumes (particularly of personal cheques) appears to have begun in 1991.

2.2.3. Electronic instruments

The vast majority of electronic direct debits, standing orders and other credits are processed by BACS Ltd, though standing orders between accounts at a single bank are generally processed internally.

Direct debits allow recipients of large numbers of payments, such as insurance companies and public utilities, to collect those payments automatically from bank or building society accounts after the account holder has signed a mandate authorising his bank to pay specified direct debits for either a regular fixed sum or a variable amount. In 1990, 13% by volume of cashless payments were made by direct debit.

Standing orders and electronic credits, which together accounted for 13% of all cashless payments by volume in 1990, are both initiated by the payer. Standing orders are used largely by individuals for the payment of regular fixed sums. Whereas in the past electronic credits tended to be used mainly for the disbursement of bulk payments such as salaries and wages, they are now increasingly being used for other transactions, such as corporations' purchase ledger payments.

Those banks and building societies which are members of BACS Ltd participate by submitting data themselves and/or by sponsoring their customers for direct input to BACS. There are currently some 50,000 customers sponsored in this way.

2.2.4. Cards

Card-based payments can be effected at many retail outlets in the United Kingdom by means of a credit or debit card. At the end of 1990 banks and building societies had issued 30 million credit cards and 19 million debit cards, whilst retailers had issued some 11 million "in-store" credit cards (see below). In addition there were 1.6 million travel and entertainment cards in issue to UK residents at end-1990, 1.3 million of these were issued by American Express and 0.3 million by Diners Club. In 1990 some 950 million payments were made using UK cards for a total value of around GBP 37 billion.

There has been major growth in EFTPOS in the United Kingdom in recent years. After the termination of the EFTPOS UK Ltd. pilot scheme in 1989, a number of competitive ventures expanded rapidly. There are now around 150,000 EFTPOS terminals in the United Kingdom, which accept, variously, credit cards, debit cards and travel and entertainment cards, and further growth is expected.

(a) Credit cards

Credit cards issued by banks and building societies have a credit facility with a pre-set limit ranging from GBP 200 upwards. A customer's credit card account is separate from his/her bank account, and card holders receive a statement of the outstanding balance on their credit card account on a monthly basis. Card holders may either pay off the full amount of the balance (50% of card holders in the United Kingdom operate their accounts in this way), or they may choose to pay a portion (minimum 5%) of the total amount outstanding. When the full balance is not settled each month, interest is charged on the outstanding balance. As from February 1990 a number of banks also started to charge their card holding customers a flat rate annual fee.

Until 1988 individual banks issued either VISA or MasterCard credit cards. In that year the four largest clearing banks (Barclays, Lloyds, Midland and National Westminster) took up direct membership of both VISA and MasterCard.

Following a report by the Monopolies and Mergers Commission on credit card schemes in 1989 retailers have been permitted, with effect from early 1991, to charge differential prices according to the customer's method of payment. Although the impact of this ruling has been small to date, were a significant number of retailers to take advantage of this change, the reaction of customers might be to refrain from using credit cards in favour of debit cards or indeed cash or cheques.

(b) Debit cards

A number of UK banks and building societies provide their customers with debit card facilities. UK debit cards enable card holders to make payments which are debited to their current accounts two or three days after transactions take place.

In the United Kingdom there are currently two competing debit card schemes. SWITCH, launched in October 1988, enables card holders to effect payments through EFTPOS terminals located principally in petrol stations, supermarkets and High Street chain stores. In October, 1991 there were around 40,000 outlets in the United Kingdom accepting SWITCH debit cards. SWITCH offers two types of membership. Full members issue cards and may also be acquirers of transactions from retailers. Card issuer associate members are only issuers of cards, and are typically smaller banks or building societies which process transactions and effect subsequent settlement through full members. VISA Delta, the other UK debit card, was launched in February 1991, though UK-issued VISA debit cards had existed under different brand names prior to this date. VISA Delta debit cards can be used at some EFTPOS terminals in the United Kingdom, as well as in conjunction with paper vouchers. In October 1991 there were around 400,000 retail outlets in the United Kingdom accepting VISA Delta debit cards.

At the end of 1990 VISA had issued 9 million debit cards in the United Kingdom, compared to SWITCH's 11.4 million. Total UK debit card volume in 1990 was 193 million transactions (122 million by VISA Delta debit cards, 71 million by SWITCH debit cards). These volumes are likely to increase dramatically during the 1990s.

Debit cards tend to be preferred to credit cards by some of the larger retailers because charges on transactions made by debit cards are levied at a fixed rate, whereas charges on credit card transactions are levied in proportion to the value of the sale.

(c) Retailer cards

Many retailers issue their own "in-store" cards. These usually only serve one store group and many operate on a "budget" basis, with a monthly subscription and a revolving credit facility of twenty or thirty times this amount. Other retailer cards operate in the same way as travel and entertainment cards or bank credit cards.

2.2.5. Automated teller machines

At end-1990 a total of nearly 17,000 ATMs were in service in the United Kingdom. Almost all of these belong to the three principal networks (LINK, MINT and one other). There are no bridges between these networks. Withdrawals from ATMs can be made using debit cards, credit cards or ATM cards.

In 1990 some GBP 38 billion was withdrawn by card holders from bank ATMs and some GBP 5 billion from building society ATMs. The average value of each bank machine withdrawal was GBP 42, while that of each building society machine was GBP 50. Each bank and building society machine was used an average of over 1,100 times per week, though with considerable variation between networks and individual machines.

In addition to cash withdrawals some ATMs enable their users to order new cheque books or statements and make balance enquiries and deposits. More advanced ATMs, now being installed by banks and building societies, allow customers to make bill payments, funds transfers and standing order inquiries and to order Eurocheques.

2.3. Recent developments

Home banking has existed in a variety of principally electronic forms for some time, based on the use of either screens or telephones connected to electronic keyboards. More recently, one of the major banks has begun to offer a telephone-based personal banking service, staffed by telephone operators and bankers rather than being operated by digital or voice recognition systems.

Between 1987 and 1988 the major banks introduced separate debit card products. Although the number of debit card transactions is still below that of credit card and cheque transactions, it is growing at a very fast rate. With the rapid expansion of debit card holding and the very positive attitude of many large retailers, it is expected that, over the next few years, the growth of debit card transactions will transform the pattern of personal sector payments in the United Kingdom. Indeed, some observers are predicting that the volume of debit card transactions may exceed that of credit card and cheque transactions by the middle of the decade.

A small number of retailers are beginning to offer "cash-back" facilities operated through the electronic point-of-sale systems in their stores. These are facilities enabling debit card holders to obtain cash as well as goods in certain retail stores. Further store-based facilities are currently under consideration.

The major UK banks are currently participating in the S.W.I.F.T. EDI interbank pilot project. In October 1991 banks began to exchange standard EDIFACT payment messages over the S.W.I.F.T. network by incorporating them within a S.W.I.F.T. 'envelope' message. At the same time, five of the same banks set up the Interbank Data Exchange (IDX) project which has allowed the banks, since January 1992, to exchange similar standard interbank messages within the United Kingdom. In both experiments banks act as intermediaries for their corporate clients, with whom they are connected via whatever network is mutually acceptable. Interbank settlements relating to IDX exchanges, which are currently confined to sterling, and to any sterling exchanges arising from the S.W.I.F.T. EDI interbank pilot project are made through CHAPS.

SECTION 3: INTERBANK EXCHANGE AND SETTLEMENT CIRCUITS**3.1. General overview**

This Section provides a detailed description of the two large-value clearing systems in the United Kingdom; the Town Clearing and CHAPS (Clearing House Automated Payment System).

The Town Clearing provides a mechanism for the same-day clearing and settlement of high-value sterling paper debit instruments within the limited geographical area of the City of London. The Town Clearing has been operating in its present form since 1946, but is directly derived from clearing arrangements which have been in existence in the City of London for over 200 years. It is essentially still a manual system, although some of the settlement banks carry out some electronic processing of items prior to sending them to the Clearing House. A programme of work intended to reduce credit and liquidity risks in the UK payment systems, has resulted in further decreases in the volumes of payments being made through the Town Clearing, where volumes had been declining for several years (see Section 3.3.), as business migrated to other payment systems.

CHAPS, which started operation in 1984, is a nationwide electronic interbank system for sending irrevocable guaranteed unconditional sterling credit transfers from one settlement bank, on behalf of itself or its customers, to another settlement bank for same-day value. CHAPS currently handles 90% or more by volume of high-value same-day payments. (For the structure, ownership and control of the Town Clearing and of CHAPS see Section 1.4.)

In addition to these two large-value payment systems there are also two large-value settlement systems of more limited application in the United Kingdom: the Central Gilts Office (CGO) and the Central Moneymarkets Office (CMO). The funds transfers with which these systems are concerned relate to transactions, respectively, in United Kingdom government stocks and in money market securities. (For descriptions of these systems see Section 4.2.)

As well as these large-value systems there are three other major interbank payment systems, dealing with high volumes of mainly low-value payments. The Cheque Clearing and the Credit Clearing handle paper debit items (e.g. cheques) and credit items (e.g. giro payments) respectively, and are run by the Cheque and Credit Clearing Company Ltd. BACS Ltd. is a batch clearing system for both debit and credit electronic funds transfers. (For a fuller description of the types of payments handled by BACS Ltd., see Section 2.2.). All three work on a three-day processing cycle, and are not suited for use by financial markets, which are mainly geared to a shorter processing and settlement cycle. As a result, the average value of a transaction in these clearings is much smaller.

For each of these systems the clearing process determines, in respect of payments exchanged between the members for their own and their customers' account, (1) how much each settlement member owes each other member (the "pay" amount) and how much it is due to receive from each of them (the "charge" amount), (2) the bilateral net pay or charge position (or net debit or credit position) of each member with respect to each other member, and (3) the sum of these bilateral positions (the "net net" amount), which represents a member's overall debit or credit position in that clearing.

To facilitate the practicality of making payments of all types within the banking system, a system of unique codes is employed to identify clearing members and, at each clearing member's discretion, their branches and major clearing customers. These sort codes are printed, together with a code identifying the customer's account, on such instruments as cheques and giro credits in machine-readable form.

3.2. Structure, operation and administration of major large-value systems

3.2.1. Major legislation, regulations and policies

There is no specific legislative framework governing the operations of any of the UK payment systems.

Most of the instruments handled through the Town Clearing are cheques or other bills of exchange, and as such are subject to the provisions of the Bills of Exchange Act, 1882 and of extensive case law, including on such matters as the respective responsibilities and obligations of the presenting bank and the paying bank. With regard to CHAPS, there is as yet no legislative framework for the handling of electronic payments in the United Kingdom, nor indeed much relevant case law.

The operations of all the clearings are subject to rules set by the members, through the clearing companies and APACS (see also Section 1.4.). The criteria for membership are laid down explicitly in the rules of APACS. Under these rules, membership of CHAPS and the Town Clearing is linked: the Articles of the clearing company do not permit a bank to be a member of only one of the two.

Any institution applying for membership must be appropriately supervised. This is currently taken to comprise banks (i.e. institutions authorised under the Banking Act, 1987) or building societies authorised under the Building Societies Act, 1986. The applicant must agree to pay an entry fee and a share of the operating costs. It must meet the technical and operational requirements of the clearing, and meet² a minimum volume criterion of 0.5% of the aggregate of items handled in the CHAPS and Town clearings. The applicant must also obtain the explicit agreement of the Bank of England to provide settlement account facilities for use in those two clearings. There are currently only fourteen ("settlement") members of CHAPS and the Town Clearing, one of which is a bank incorporated outside the United Kingdom, (which is a member via its London branch) though other financial institutions may participate in CHAPS through agency arrangements with one of the settlement members, or in the Town Clearing as a customer of one of the members.

Settlement of all the clearings takes place on a net net basis over accounts at the Bank of England after the close of business.

3.2.2. Town Clearing

The Town Clearing is restricted to cheques and other paper instruments of GBP 500,000 and over, drawn on and paid into Town Clearing offices or branches of member institutions.

(a) Participants in the system

Fourteen banks, including the Bank of England, are settlement members of the Town Clearing. If any bank, corporation, or service provider wishes to use the Town Clearing system, it must do so through an account relationship with the Town Clearing branch of a member bank. The Clearing House is purely an exchange venue. It does not act as principal in the clearing.

(b) Types of transactions handled

The Town Clearing is used for same-day clearing of sterling high-value paper debit instruments. Since it is currently the last clearing to settle at the end of the banking day, members also use it to adjust the impact on their books (and on their operational balances at the Bank of England) of that day's CHAPS settlement, and of the settling of other obligations (including those arising from the operations of the CGO/CMO and of the three-day cycle clearing systems). The system processes bankers' cheques and drafts, bankers' payments and Town cheques. These items may originate in any of the financial markets in London (money, securities, commodities, futures, foreign exchange, etc.), in a range of commercial and industrial transactions throughout the economy, and in a range of transactions between the public sector and the private sector.

(c) Operation of the transfer systems and the transaction-processing environment

Town Clearing instruments are paid in for credit to a customer's account at a member's branch in the City of London during the business day. At 15.00 the members close for normal business and the paper items are presented to the paying banks in the Clearing House before 15.50. After the banks are agreed on their net net settlement totals, the Bank of England completes the net settlement across its books after 17.00.

(d) Settlement procedures

The Town Clearing rules on settlement merely state that the day's net net debits and credits are posted to members' accounts at the Bank of England the same evening. There are no rules laid down as regards finality. The banker is not obliged to honour cheques drawn by his customer and presented through the Town Clearing; he can return those items unpaid, if to pay them would create an unacceptable risk exposure or for any other reason, irregularities in the instrument, for example.

This option creates some uncertainty for paying settlement banks in the Town Clearing, for they have to decide within a very short time-window whether to pay each customer's high-value cheques without knowing whether the cheques are fully funded. This time-window is simply the period

² Alternatively, an applicant may demonstrate that it will be able to achieve the required volume of business within 2.2 months of going live in CHAPS.

between the deadline of 15.50, by which the collecting banks must present cheques to the paying banks in the Clearing House, and 16.45, the deadline by which paying banks must return unpaid cheques to the Clearing House. As regards unpaid cheques, those for amounts of less than GBP 1 million returned to the Clearing House by the final delivery deadline will still feature in the relevant banks' net net positions for settlement that day (i.e. as if they had actually been paid), with offsets made in the settlement on the next business day. By contrast, unpaid items for GBP 1 million or more are deducted from the calculation of net net positions for that day. Although the Town Clearing could, theoretically, require the unwinding of a particular day's payments in the event of a settlement bank being unable to fund its end-of-day debit position, such a procedure has never actually needed to be put into practice.

The time at which payments processed through the Town Clearing are made available to the receiver of the payment depends upon the nature of the item and the creditworthiness of the recipient. Banks often allow major customers to draw within the day against items presented; indeed, the banks may be willing to make an irrevocable outward payment by CHAPS, against an incoming payment in the form of a Town cheque. Furthermore, a banker's draft, which is drawn by a member bank on itself, is regarded as providing good funds to the payee even before the draft has been presented through the Town Clearing.

A bank's ability to return or revoke items that have been presented varies with the type of payment. Bankers' cheques and banker's drafts are by convention regarded as guaranteed and irrevocable. Bankers' payments can be returned unpaid, though this happens rarely and usually only for technical reasons. Ordinary Town cheques, however, can be, and occasionally are, returned unpaid for reasons including lack of funds. Unpaid cheques must be returned by the bank on which they are drawn before 16.45. It should be noted, however, that if a bank were to exercise its "banker's option" of dishonouring a Town cheque drawn by its customer, the consequences for that customer could be very serious. The option may therefore sometimes be more apparent than real (the incidence of Town cheques returned unpaid owing to lack of funds may be as low as one or two a year).

(e) Back-up solutions

Alternative premises in the City of London have been identified for use at short notice by the Town Clearing in the event of the Clearing House not being available because of some disaster. In addition, the Town Clearing banks have contingency arrangements with one another in the event of an individual bank's own paper clearing centre being immobilised.

(f) Credit risk and its management

Customer credit risk (settlement banks vis-à-vis customers)

The Town Clearing presents considerable difficulties in terms of the monitoring and control of customer credit exposures. The bank of the recipient of a Town Clearing cheque (the collecting bank) faces the risk that the payer may countermand the cheque or that the payer's bank may refuse to honour it. Thus, if the collecting bank allows its customer to draw irrevocably against the cheque in advance of the settlement of that day's Town Clearing, then it is incurring an intra-day exposure to its customer. The paying bank in the Town Clearing can in principle control its exposure to a customer, but in practice it has a very short time to consider and decide on whether to agree to honour its customer's cheque; it may have had no prior notice of the cheque and it probably has a far from complete picture of that customer's overall financial position, taking into account that day's transactions in all the clearings.

Interbank credit risk (settlement banks vis-à-vis each other)

Credit risk between the settlement banks in the Town Clearing only arises when a settlement bank accepts for its own account a payment drawn by another settlement bank. The risk, however remote, is that the paying settlement bank will not be able to settle for this payment and that the Town Clearing may have to be unwound. In this case the payee settlement bank will have an overnight, or longer, exposure to the paying settlement bank. It is left to each settlement bank to monitor and control its credit risk in this regard.

3.2.3. CHAPS

CHAPS is an electronic clearing, handling credit transfers. The minimum value currently set for payments through CHAPS is GBP 1,000; there is no maximum limit. CHAPS payments are guaranteed and unconditional sterling credit transfers, through which the sending bank gives an irrevocable undertaking to pay once the CHAPS payment message has arrived at and been automatically acknowledged by the receiving bank's CHAPS gateway.

(a) Participants in the system

Fourteen banks, including the Bank of England, are settlement members of CHAPS.

The settlement members of CHAPS send and receive CHAPS payments between themselves, and settle for these payments on a net net basis at the end of each day across their accounts with the Bank of England. These members have 13,500 branches in the United Kingdom, all capable of initiating and receiving CHAPS payments. There are around 400 participants which, by virtue of agency agreements with settlement members, can have CHAPS payments addressed directly to themselves, through their agency account. They can also, subject to intra-day limits imposed by their settlement members, initiate outgoing CHAPS payments either by a direct terminal link to their settlement bank's payment system, or by a request to a branch of the bank to make the payment. Their settlement members, which are totally responsible for these activities, settle on their behalf at the end of each day. In addition, a large number of major corporate customers can, by virtue of account arrangements with one of the settlement members, or with a participant, be advised on-line of the receipt of CHAPS payments for their account, and can request outgoing CHAPS payments to be made.

(b) Types of transactions handled

Sterling credit transfers processed through CHAPS originate not only in the financial markets in London, but also in the foreign exchange and other financial markets around the world, as well as in any other field requiring high-value same-day sterling payments.

(c) Operation of the transfer systems and the transaction-processing environment

CHAPS transfers are all electronic. The system is designed to create, encrypt, authenticate and transmit a CHAPS payment message between two settlement banks. At the close of business at 15.10 each settlement bank has to report its gross figures for payments exchanged with every other settlement bank to the Bank of England. The Bank of England then matches and verifies these figures and initiates the settlement process on a net net basis on its books. The receiving bank has the responsibility of advising its beneficiary participant or other customer. How quickly and by what means this advice is given is a matter to be agreed between the bank and its customer, subject to a non-mandatory minimum service level code drawn up by the CHAPS and Town Clearing Company Ltd.

(d) Settlement procedures

The CHAPS rules state that a payment which has been sent and acknowledged is irrevocable, guaranteed and unconditional. This means that once a CHAPS settlement member sending a payment has put its name to it, it is committed to that payment, even if at the end of the day the originating customer has not got the funds to meet that payment. There are no other written rules on finality. All settlement members enforce sender finality on their customers, including participants, through contractual arrangements.

The receiving settlement bank is obliged to give the beneficiary participant or other customer value by the end of that day. However, the operational procedures of the system do not make it possible to ensure that a payment will reach the receiving settlement bank, or its customer, by a specified time within the working day. A settlement bank receiving a CHAPS payment within the day for credit to a customer will give that customer good value at that point, and will be prepared to make an outward CHAPS payment for that customer, backed by that intra-day receipt.

Since CHAPS payments are guaranteed, unconditional and irrevocable, there are no provisions for the return of payments or revocability. If it is discovered that a payment has been made in error, then the receiving bank may agree to initiate a further payment to reverse the transaction, but not

necessarily through CHAPS. Further, no rules or regulations exist to cover the possible unwinding of the CHAPS daily settlement, and there has never yet been an instance where such action has been necessary.

(e) Back-up solutions

CHAPS' rules provide for contingency arrangements if, for operational reasons, settlement cannot be completed in the normal way. If one member cannot reconcile its figures with one or more other members within five minutes of the end-of-day cut-off time (at 15.10), the affected member can send its settlement figures to the Bank of England through an override procedure. It is still the responsibility of this member to reconcile its figures with every other member. Similarly, if a settlement bank does not receive the expected acknowledgement of the settlement figures from the Bank of England within fifteen minutes of the close of business, it can override the mechanism to complete the end-of-day processes. The settlement member concerned continues to be responsible for ensuring that the Bank of England receives its final settlement figures. Each settlement member has individual contingency arrangements with other settlement members in the event of a systems failure, whereby data on its incoming payments can be captured on magnetic tape for processing when its internal system has been restored. The bank suffering the failure may need to resort to the Town Clearing to effect its outgoing payments. These arrangements are the responsibility of each bank.

(f) Credit and liquidity risks and their management

Customer credit risk (settlement banks vis-à-vis customers)

By contrast with the Town Clearing, each settlement bank in CHAPS can choose the nature and extent of the facilities it is prepared to grant to its participants and other customers in respect of the origination of CHAPS payments. This choice depends to some extent on whether the sending bank maintains its accounts in on-line real-time mode, and whether it is therefore in a position to monitor its gross, or net, intra-day exposure to its participants and customers. A member can give its customers an intra-day limit, net or gross, or it can apply individual authorisation to each payment. It is not obliged to pass on, and thereby attach its guarantee to, every payment that all its participants and other customers want to make through CHAPS. It is left to each settlement bank to monitor and control its intra-day exposure to its participants and other customers. In practice, given competitive pressure in the market, this monitoring and control is normally likely to be fairly relaxed.

The extent of the benefits which banks may derive from CHAPS in terms of controlling customer risk is reduced by virtue of the uncertainty about customer exposure levels in the Town Clearing. Thus banks may be asked to make CHAPS transfers for their customers on the basis of incoming payments through the Town Clearing. In such circumstances, the bank runs the risk that some or all of the Town items will be refused. The co-existence of Town and CHAPS has been one of the major difficulties for banks trying to control their exposure to their customers, particularly to customers in the financial markets. It should be noted, however, that the relative importance of the Town Clearing is diminishing (see Section 3.3.), to the extent that the average daily turnover in the Town Clearing is now less than 10% of the average daily CHAPS turnover. The exposure caused by the co-existence of the two clearings has therefore diminished substantially.

Interbank credit risk (settlement banks vis-à-vis each other)

The protection that CHAPS provides to payee customers, by way of receiver finality, is achieved through the settlement banks explicitly accepting daylight exposures to each other. The rules and system architecture of CHAPS require settlement banks to accept incoming payment messages without limit and to guarantee to make the funds available to the payee customers even if the sending banks should fail to settle for the payments at the end of the day. It is not possible, within the present CHAPS system, for intra-day credit limits to be applied to exposures, gross or net, between settlement banks. (See also Section 5.4.)

Liquidity risk

Liquidity risk in all the clearings stems from the possibility that a settling member may be unable to fund an overall debit position in all the clearings at the close of business: the risk is that the

Bank of England would be unwilling to allow any overnight overdraft required to fund this position. This situation could lead to a perceived need to unwind the settlement of one or more of the clearings, which could pose additional risks to other participants. This liquidity risk is in practice currently borne by the Bank of England: there is no practical way in which it can be managed or controlled. (See also Section 5.4.)

3.2.4. Pricing policies

For both CHAPS and the Town Clearing, the fee a settlement bank charges its participants or customers is a matter for commercial negotiation between the parties concerned; these charges may be on a per item basis, or as part of a package negotiated by the bank with its customer.

In these two large-value clearings, the settlement banks have to pay an entry fee on joining the system, plus a share of its operating costs in proportion to their share of the total volumes and use of facilities. Settlement banks do not themselves have to pay any per item fees for the use of the system.

3.3. Main projects and policies being implemented

A programme of work is under way to reduce credit and liquidity risk in the UK payment systems, particularly the large-value systems. This programme includes a package of short and longer-term measures.

A first stage in this has been to increase the minimum size of payments through the Town Clearing; the most recent increase being from GBP 100,000 to GBP 500,000, implemented in 1991. This measure, together with the opening of CMO in 1990, has greatly reduced the amount of business passing through the Town Clearing. (See also sections 4.2. and 5.4.)

Another programme involves work on the legislative changes and the practical preparation which would be necessary if truncation were to be introduced in the cheque clearing.

Further legislation has recently given statutory recognition to a widely used form of cheque crossing³ intended to prevent the fraudulent encashment of stolen cheques.

SECTION 4: SPECIAL USE OF INTERBANK TRANSFER SYSTEMS FOR INTERNATIONAL AND DOMESTIC FINANCIAL TRANSACTIONS

4.1. Exchange and settlement systems for international transactions

4.1.1. General overview

The population of banks in the United Kingdom is international. Of a total of some 530 banks currently authorised in the United Kingdom, some 330 are foreign-owned branches or UK-incorporated subsidiaries of foreign banks. UK-based banks also have an extensive presence abroad.

International funds transfers of large value are mainly effected through cross-border correspondent banking relationships (which may reflect ownership links but may equally be purely commercial arrangements).

The main means of message transmission by which payment instructions are conveyed internationally is S.W.I.F.T. Full membership of S.W.I.F.T. in the United Kingdom is confined to banks and building societies, although certain other categories of financial institution (notably brokers and dealers in securities) may also participate for some purposes. Customers of banks and building societies cannot make direct use of S.W.I.F.T. to send payment instructions; they must submit their instructions via their banks.

The major UK banks are currently participating in a S.W.I.F.T. EDI interbank pilot project. (See Section 2.3.)

³ A crossed cheque (i.e. a cheque with two parallel lines on the front) will only be paid by the drawee (paying bank) if presented for payment by a banker (collecting bank). Instructions written in the crossing may inhibit the negotiability or even the transferability of the instrument.

4.1.2. Retail transactions

There are a number of means by which retail cross-border transactions can be effected, some of which are designed to meet specific needs.

Travellers' cheques are among the most specific and may be denominated in any of a number of major currencies. They are negotiated for cash by travellers and presented for payment through the retail clearings to the issuing bank or, in the case of a non-bank issuer, to the issuer's bank.

Eurocheques, accompanied by Eurocheque guarantee cards, are offered by most UK banks and building societies and may be used as a payment medium up to a given limit per cheque in continental Europe and a number of non-European countries. One clearing bank in the United Kingdom operates the UK Eurocheque Clearing centre.

Credit and debit cards issued by UK institutions are increasingly usable abroad. Both VISA and Access/MasterCard/Eurocard are part of international networks. Several reciprocal arrangements also exist between UK institutions and institutions abroad for the sharing of ATM facilities. Two UK banks issue ATM-compatible Eurocheque cards, which provide access to ATMs in most of the Uniform Eurocheque Scheme member countries. The ATM facilities of these same two banks in the United Kingdom are accessible to holders of Eurocheque cards issued abroad. In 1987 a reciprocal agreement was concluded between LINK and PLUS (a network of 56,000 ATMs operating in North America, Japan, Australia, Mexico, Singapore, Hong Kong and the Caribbean). There are, in addition, a number of bilateral agreements between particular banks and building societies in the United Kingdom and the providers of ATM facilities in certain other European countries.

Currency Clearings

The domestic clearings described in Section 3 all relate to payments in sterling, but under the APACS umbrella there also exist in London foreign currency clearings for ten major currencies, through which it is possible to transfer value between foreign currency accounts with banks in the United Kingdom (the Currency Clearings do not handle items drawn on banks outside the United Kingdom – those items have to be sent for collection or negotiation to the countries concerned). There are seven members of the Currency Clearings who each handle all currencies and who act as settlement agents for some ninety participants.

The Currency Clearings handle cheques, drafts, banker's payments and mandated currency debits drawn on, or payable at, UK branches of members and participants. Bank-to-bank wholesale payments are excluded. The main currency handled is the US dollar, for which a same-day payment service is available. The other currencies handled are the French franc, Deutsche Mark, Canadian dollar, Italian lira, Dutch guilder, Australian dollar, Japanese yen, Swiss franc and Spanish peseta.

The volumes handled in these clearings are quite small, and in 1990 totalled around 713,000 items, of which some 443,000 were US dollar items. The sterling equivalent of these payments was around GBP 38.7 billion, of which around GBP 37.3 billion was for US dollar items.

For each of the Currency Clearings one member acts as the system's settlement agent, with net settlement between it and the other banks being effected across accounts held in the country of issue of the currency concerned.

Automated cross-border retail payments

Arrangements may be made between particular banks to facilitate retail payments. These may cater for regularly occurring or one-off cross-border payments. An increasing number of different schemes based on alliances of different groups of banks have been initiated relatively recently.

4.1.3. Large-value transfers

Large-value transfers in sterling, in settlement of international transactions, take place for the most part through CHAPS. One UK bank in particular handles a very substantial share of the clearing business generated by the UK indirect participants in CHAPS and of the correspondent bank business of non-UK banks and other institutions. (For more details on CHAPS, see Section 3.2.)

Large-value transfers in other currencies take place through systems abroad by way of correspondent bank members of the relevant clearings.

A number of banks in London are active members of the FXNET bilateral netting scheme; using common software and a standard legal agreement, these banks reduce their mutual spot and forward foreign exchange obligations to a legally binding net basis which is settled on the due date.

4.2. Exchange and settlement systems for securities transactions

This Section looks at the operations of the UK securities markets, with particular reference to the links between securities transfers and payment systems. The United Kingdom has major securities markets in both domestic and international equities, debt securities, money market instruments and UK government stock. There is also a thriving market in derivatives based on these instruments and foreign government stock. The main participants in these markets are the members of the London Stock Exchange (the Stock Exchange) and/or the London International Financial Futures Exchange (LIFFE), as well as banks and institutional investors such as pension funds and insurance companies.

Under the Companies Act 1985, all companies must maintain a register of members (i.e. shareholders). Most listed bonds are also registered. The task of recording ownership is generally undertaken by commercial registrars, the largest of which tend to be subsidiaries of the clearing banks. The Bank of England acts as registrar for UK government stock and some other stocks.

4.2.1. The institutional framework

(a) Types of securities transactions

UK equities and UK-listed debentures and loan stocks are listed securities which are traded mainly on the Stock Exchange. Off-exchange trading does take place but is believed to be very small in relation to the size of the organised market. Trading is carried out over the telephone using a screen-based quotation system called SEAQ, which displays firm two-way prices of competing market-makers.

UK government stock is also traded mainly on the Stock Exchange. Indicative quotations are displayed to investors by market-makers in government stock using a variety of wire services with trading conducted over the telephone. Trades are subsequently settled via the Central Gilts Office (CGO), run by the Bank of England.

There is a significant level of over-the-counter (OTC) *derivative activity* in London (warrants, options, swaps etc.). Additionally, derivatives (futures, options and options on futures) in the form of standardised contracts are traded on five exchanges. Commodity derivatives based on metals, energy and soft commodities are traded on the London Metal Exchange (LME), International Petroleum Exchange (IPE), and London FOX respectively. Financial and equity derivatives are traded on the London International Financial Futures and Options Exchange (LIFFE), formed by the merger of LIFFE and the London Traded Options Market in March 1992.

LIFFE's contracts comprise futures and options on futures on UK and international government bonds, short-term interest rates, equity indices and options on individual equities. The majority of trade is conducted by open outcry on the exchange floor, although some contracts are traded on the exchange's screen-based trading system, APT (Automated Pit Trading). OML, the London subsidiary of the Swedish options exchange, OM, trades Swedish equity contracts on an automated trading system linked to that of its parent.

Of the *international securities*, equities are traded via a screen-based quotation system run by the Stock Exchange. Named SEAQ International, it is very similar to the domestic SEAQ system and relies upon telephone inquiry and trading. Eurobonds and short-term Eurocurrency paper have no organised markets and rely entirely on telephone inquiry and trading. Most sterling Eurobonds are listed on the Stock Exchange and a large proportion (about 70%) of all Eurobond trading takes place in London.

Sterling money market instruments are traded by telephone. Trades are subsequently settled for the most part through the Central Money Markets Office (CMO), run by the Bank of England. (For the Bank of England's operations in these markets in the context of monetary policy see Section 5.3.)

(b) Organisations involved in securities exchange and settlement

There is no central depository for investors' holdings in the United Kingdom as recommended in the report published by the Group of Thirty.⁴ However, there are plans to create a single depository for each of the major groups of instruments within each settlement system.

⁴ Group of Thirty Report (1989), Clearance and Settlement Systems in the World's Securities Markets.

In the early 1980s the Bank of England and the Stock Exchange agreed jointly to develop and finance a project to provide participants in the market in UK government stocks (gilt-edged stocks) and in certain other stocks registered at the Bank of England with a computerised book-entry transfer and associated payment system for the settlement of their transactions. This became known as the Central Gilts Office (CGO), which has been operational since January 1986. It is operated by the Bank of England.

The desirability of a similar book-entry transfer and payment system for sterling money market instruments was equally apparent, and, after the failure of an attempt by the market to develop such a system in 1986–88, the Bank of England decided to develop the Central Moneymarkets Office (CMO). After a two-year consultation and implementation programme, the CMO began operations in October 1990, facilitating the settlement of trades and the movement of collateral to secure borrowings.

The Stock Exchange operates a system called TALISMAN, which settles UK equities and domestic corporate issues. Within TALISMAN, the Stock Exchange maintains a central nominee, known as SEPON, which acts as a form of depository for equities and bonds on the trading books of market principals. Information is kept in electronic form to facilitate book-entry transfer for securities in the course of settlement. The transfer of holdings within SEPON occurs before the final legal transfer of title and is not synchronised with final payment. Securities are rematerialised and transferred out of SEPON if they are to be held by non-market principals.

Through its London Clearing House (LCH) subsidiary, the International Commodities Clearing House (ICCH) provides central facilities for registering, clearing, guaranteeing and settling contracts for its members on LME, IPE, FOX, and LIFFE. Since the LIFFE/LTOM merger, LCH has taken over full responsibility for clearing and guaranteeing equity options from the London Options Clearing House. ICCH is jointly owned by six UK settlement banks and is independent of the exchanges and the clearing members for whom it acts. OML clears and guarantees transactions undertaken on its market, acting as an integrated exchange and clearing house.

(c) Structure, operation and administration of the exchange and settlement systems

CGO

The CGO system enables transfers of stock to be made and settled between CGO members by electronic book-entry transfer, and covers UK government stock and certain other stocks which are registered at the Bank of England. Associated with this is an Assured Payment System which works on four principles, namely: the purchaser's settlement bank, which must be a settlement member of the CHAPS and Town Clearing Company Ltd., gives an unconditional undertaking that at the moment that stock is transferred from the seller, that bank takes on an irrevocable commitment to effect payment the same day to the seller's bank; the settlement bank's exposure under this unlimited commitment is generally covered by a floating charge over all stock held in its customer's CGO account and by a fixed charge over monies receivable; the CGO automatically checks that the consideration for the transaction lies within a narrow margin of the market value of the stock; and the CGO ensures that stock leaves a member's CGO account only against an irrevocable payment commitment from another member's bank.

Before joining the CGO service each prospective member must enter into contractual agreements with its settlement bank, in respect of the CGO's Assured Payment System, and with the Bank of England (CGO). There are also two sets of agreements between the CGO and the settlement banks – the duties of the banks to one another are set down in a single global agreement, whilst the banks' direct relationships with the Bank (CGO) are governed by separate bilateral agreements.

There are currently around eighty direct CGO member firms, comprising market-makers in government stock, Stock Exchange money brokers, inter-dealer brokers, discount houses, banks, broker-dealers and institutional investors. In addition, there are many more indirect CGO members, who are able to access the CGO service through agency arrangements with a direct member. These indirect members include both institutional investors, such as pension funds, investment trusts and insurance companies, and private companies.

Movement of stock across CGO accounts is initiated by the seller and is dependent upon both the seller having sufficient stock available on his CGO account and the buyer positively accepting the

offer of stock. An irrevocable payment instruction is generated under the Assured Payment System simultaneously with (but in the opposite direction to) the movement of stock between CGO accounts.

The CGO Assured Payment System has the effect of converting the buyer's liability into an irrevocable commitment on the part of the buyer's bank to effect payment on the same day as the transfer of stock. The movement of funds takes place at the end of the day on a net basis, between the accounts of the settlement banks at the Bank of England.

CMO

CMO provides an electronic book-entry transfer and payment system for a variety of sterling bearer instruments, i.e. Treasury bills, local authority bills, bank bills, trade bills, bank and building society CDs and commercial paper. For these instruments CMO provides a comprehensive range of settlement functions.

There are currently around forty-five institutions which are members of CMO. Before joining the CMO service each prospective member must enter into contractual agreements similar to those described in the case of CGO. Each CMO settlement bank must also enter into an agreement with the Bank of England (CMO). CMO members have a book-entry account in their own name and make arrangements for a settlement bank to make and receive payments on their behalf for instruments transferred from and to other direct members. Over one hundred firms also participate indirectly in CMO through agency arrangements with CMO members.

In the CMO system, the transfer of ownership of money market instruments is initiated by the seller and is dependent upon the seller having the instruments on his account and the buyer positively accepting the offer of instruments. Transfer of the instruments from seller to buyer is accompanied by the simultaneous transmission of the payment instruction in the opposite direction. As with CGO, the movement of funds takes place at the end of the day on a net basis, between accounts at the Bank of England. The status of a CMO payment is the same as a cheque; unlike CGO, payments are not assured and a purchaser's settlement bank may, in exceptional circumstances, refuse to make one or more payments. However, since CMO was set up there has been no instance of a purchaser's settlement bank refusing to make a payment.

TALISMAN

The settlement system currently in use in the Stock Exchange, known as TALISMAN, is a computerised system which operates on the basis of data on trades which Stock Exchange members transmit to the Stock Exchange by the close of business each day. A contract is established between the two trading parties at the time of the trade.

There are two categories of Stock Exchange member, market principals and others. Trades which involve either those Stock Exchange members who are not market principals or the non-member clients of Stock Exchange members must be traded and settled through an agency agreement with a market principal.

Details of a day's trades received by the Stock Exchange from its members are matched through the Exchange's computerised matching system, known as CHECKING, which runs overnight. All trades between market principals are held in SEPON, a form of depository, in which the details of each security are captured in electronic form with settlement achieved by book-entry transfer. Market principals are the only group to hold stock in SEPON; for other Stock Exchange members and for non-members SEPON acts as an intermediary. When securities are to be sold by a Stock Exchange member other than a market principal or by a non-member, they are deposited in SEPON for computerised transfer. Conversely, when stock deposited in SEPON is bought by a Stock Exchange member who is not a market principal or by a non-member, a new physical share certificate is issued when the stock is transferred back out of SEPON.

Payment between the Stock Exchange and the market-makers (including the Bank of England) is generally made through CHAPS or through the Town Clearing and, for smaller amounts, the cheque clearing. Settlement should occur on the second Monday following the end of the trading period ("the Account"), which typically runs for two calendar weeks. Therefore, trades made at the start of the Account are settled after fifteen business days. Although official settlement days usually fall approximately fortnightly, a trade that fails to settle on one settlement day may be settled on any

subsequent business day. The settlement system operates every day to allow any unsettled trades to be completed as soon as possible.

TAURUS

TALISMAN is due to be replaced in 1993 by TAURUS, an automated system which will dematerialise UK equity and other quoted corporate securities and provide a full book-entry transfer system for *all* stock movements. UK company law has been amended to permit such changes. The new system will still be operated by the Stock Exchange but with a significant role for TAURUS Account Controllers (TACS), who will hold records of investors' entitlement to stock and be linked to the company registrars by the TAURUS system. TACS are likely to be major market intermediaries and professional investors. TAURUS is likely to use the existing payment arrangements.

A major step towards the introduction of TAURUS was taken with the launch in February 1990 of the Institutional Net Settlement (INS) positive acceptance service. Whereas CHECKING matches trades where both parties are market participants, the INS system is essentially an accounting facility which notifies non-market institutional participants of the net payment due to or from them in respect of their transactions with market-makers. INS thus allows same-day matching for INS trades, which will in turn facilitate the adoption of rolling settlement and a delivery versus payment (DVP) system. Trades between institutions and broker-dealers will therefore be verified before they proceed to the settlement process, reducing the number of failures to settle and helping the move to a shorter, rolling settlement cycle.

London Clearing House Protected Payment System (PPS)

Settlement of transactions in derivative instruments is effected through the London Clearing House (LCH). Payments associated with futures and options contracts are made to and from LCH through the PPS. Under this arrangement, every clearing member maintains an account with at least one participating bank and, the LCH maintains accounts with all thirty-six banks. Payments are made by internal branch transfers between the accounts of the clearing members and LCH. There is thus no direct interbank clearing exposure in the payments between LCH and its members. However, the banks may take on a clearing exposure to a customer who is a clearing member if they commit themselves to crediting LCH before receiving funds from the clearing member. Where these funds are denominated in sterling, they may be sent to the PPS banks either through CHAPS or through the Town Clearing. Transfers in sterling and US dollars provide same-day value, whereas transfers in Deutsche mark, yen and ECUs are assured by the banks but for value the following day.

Eurobonds and short-term Eurocurrency paper

Exchange, settlement and payment arrangements vary according to the nature and currency of the instrument. The market in the United Kingdom makes extensive use of the services provided by the two competing depository systems, Euroclear and CEDEL (see Chapter 13).

SECTION 5: THE ROLE OF THE CENTRAL BANK IN INTERBANK SETTLEMENT SYSTEMS

5.1. General responsibilities

5.1.1. Statutory responsibilities

There is no specific legislative framework governing the operations of any of the UK payment clearing systems, nor has the Bank of England any specific statutory responsibilities in connection with them. The Bank has, however, a clear interest in the quality of these systems, which stems from its various core responsibilities as a central bank. Firstly, the discharge of its responsibilities for the implementation of monetary policy, and for the stability of markets in the United Kingdom, presupposes reliable and efficient clearing and settlement procedures. Secondly, the nature and extent of risks incurred by participants in payment and settlement systems, arising from their and their customers' transactions, is of concern to the Bank in its capacity as banking supervisor under the Banking Act, 1987. Thirdly, the Bank has a direct operational interest in its capacity as banker to the banks, which means that it has itself significant exposure to the clearing systems.

5.1.2. Establishment of common rules

The rules governing the operations of each of the UK payment clearing systems, other than those associated with CGO and CMO, are laid down by their members through the relevant clearing company and the umbrella organisation, APACS. The Bank of England is a member of APACS and of the individual clearing companies as of right, as well as by virtue of the business it conducts, with the right to appoint a director to the boards of each of the clearing companies and to participate in all APACS policy-making committees. Although the legal powers the Bank enjoys from this representation are no greater than those of other members, its special interest is recognised on questions of public policy.

As a part of the debate, initiated by the Bank of England in 1989, on credit exposures in the wholesale payment systems, the settlement members of the clearings are now addressing ways of controlling settlement exposures on a consistent basis; this is likely to lead to changes in the systems' rules and structures.

Explicit and published criteria are laid down by APACS for admission to settlement membership of each clearing (see Section 3.2.). These criteria include the agreement of the Bank of England to open a settlement account in its books in the name of the prospective member, for use in settling its position in the clearing in question.

The operations of CGO and of CMO are subject to rules embodied in standard form contractual agreements between the Bank as operator of these services, the members respectively of CGO and CMO, and the relevant settlement banks.

In the Bank's capacity as banking supervisor, it does not currently impose any explicit liquidity requirements on intra-day exposures. Banks are, however, required to maintain adequate liquidity at all times and are subject to monitoring of their mismatch positions and of their available stocks of liquid assets.

5.1.3. Supervision and audit

There is no framework, statutory or other, for the supervision or regulation of UK payment clearing systems whether by the Bank of England or by any other body.

As a member of APACS, the Bank has participated in a regular audit of the central functions of CHAPS since 1988, and has also been represented on the audit committee of BACS Ltd. The operations of the CGO are subject to oversight by its Joint Management Committee, which consists of senior representatives of the Bank and the London Stock Exchange. CGO and CMO are also subject to regular internal audit.

5.2. Provision of settlement facilities

5.2.1. Use of central bank accounts for payment services

The Bank provides settlement accounts for institutions participating directly in the APACS clearings and for settlement banks in CGO and CMO. The opening of a settlement account requires a positive decision by the Bank; it is not a facility available as of right to every bank or building society in the United Kingdom. Settlement account balances are non-interest-bearing. Each bank holding such an account sets a target level at which it aims to maintain its overnight balance on the account.

The Bank also provides accounts to facilitate certain settlement arrangements external to the APACS clearings, for example, ATM network settlements between groups of banks and building societies.

Banks in the United Kingdom are not subject to reserve requirements for monetary policy purposes. Cash ratio deposits, which banks hold with the Bank of England as a means of financing the Bank's activities, are not available for use in the settlement process.

5.2.2. Role in gross settlement systems

All APACS payment clearing systems operate at present on a net net settlement basis.

5.2.3. Role in netting systems

It is uncertain whether the netting calculation involved in the existing clearing systems in operation in the United Kingdom has a basis in law, although some protection is provided, in respect of certain systems, by the banker's right of set-off under insolvency law. The Bank's role in these systems (in addition to being a member) is that of settlement institution, holding the accounts through which the banks' positions in each of the clearings are finally settled.

5.2.4. Role in the settlement of securities transactions

The Bank's role in the settlement arrangements for secondary markets in securities (i.e. aside from its role as issuing agent for UK government securities) is confined to CGO and CMO. These settlement services cover, respectively, UK government securities, and money market instruments such as CDs, commercial bills and commercial paper. The settlement services involve transfer of title by book-entry, circumventing the need for stock transfer forms and stock certificates in the case of UK government securities and for physical delivery of bearer documents representing money market instruments. The settlement services provided by both CGO and CMO are accompanied by payment arrangements (described in Section 4.2.).

The Bank is responsible for operating the CGO and CMO settlement and associated payment services.

5.2.5. Provision of credit facilities

The Bank of England does not give any explicit or implicit undertaking to underwrite the settlement operations of the UK clearings. Credit facilities are specifically excluded on settlement accounts; banks and building societies holding these accounts are expected to keep them in credit overnight.

As a part of its normal open market operations, the Bank does, however, lend in sterling against security to discount houses, gilt-edged market-makers and Stock Exchange money brokers. The Bank does not grant intra-day loans explicitly, nor does it normally lend outside the context of its open market operations. However, since settlement accounts in the Bank's books are debited/credited on a batch basis, and the unwind of any settlement is regarded as a practical impossibility, implicit intra-day advances are therefore made to the holders of these accounts and, on occasion, explicit unsecured overnight overdrafts.

5.2.6. Pricing policies

The Bank's charging policy is based on the principle of recovering the fully allocated costs of the banking services it provides.

5.3. Monetary policy and payment systems

5.3.1. Existing relationships

The Bank of England conducts open market operations in the sterling money market as the primary tool of monetary policy. These operations take the form of dealing in "eligible bills" (i.e. Treasury bills, eligible bills issued by UK local authorities, and bank bills accepted by banks whose acceptances are eligible for discount at the Bank) with a list of counterparties, consisting currently of nine discount houses, eight of which are authorised as banks under the Banking Act, 1987, and one of which is a market-maker in government stock. Institutions admitted to this list assume responsibilities geared towards maintaining the liquidity of the UK banking system. Specifically, they undertake to offer continuously, against security, deposit facilities at call to banks which are members of CHAPS and the Town Clearing, to make a continuous market with these counterparties in sterling money market instruments, especially "eligible bills", to participate actively in the Bank's money market operations, and to underwrite, collectively, the weekly tender of Treasury bills. The Bank's dealing counterparties have secured borrowing facilities at the Bank, of a size related to their capital.

When there is a shortage in the market, the Bank's operations take the form of invitations at specified times of day to its dealing counterparties to offer eligible bills either for outright sale or for sale and subsequent repurchase. The latest time at which the Bank may invite offers is 14.00. If, after this round of operations, a dealing counterparty finds itself short of funds, at 14.45 it may ask to make use of its borrowing facilities. It is also possible for a dealing counterparty to make a request to borrow later in the day, but such lending is at the Bank's discretion and usually carries progressively higher rates of interest. If an insignificant shortage or surplus is forecast, the Bank need not invite business. If a significant surplus is forecast, the Bank will invite bids for Treasury bills at 14.00. (Unless a very large surplus is forecast, the Bank will not usually act before 14.00.)

5.3.2. Influence of changes in payment systems on monetary policy

The relationship between the operation of monetary policy and developments in the UK payment systems (see Section 3.3.) is kept under review. (The banks' current use of the Town Clearing to adjust the impact on their books of daily settling of other clearing obligations is described in Section 3.2.).

5.4. Main projects and policies being implemented

The Bank is currently working on a number of initiatives, both domestic and international, which may in due course affect its role in payment clearings:

(a) The Bank is participating, in the forum of APACS, in efforts to identify and implement measures to reduce credit and liquidity risks in the domestic clearings, especially in the large-value systems. While some short-term measures are designed at the least to control the exposures between the settlement banks and between each of those banks and the Bank of England, the longer-term objective is to reduce and where possible to eliminate them. It is, however, recognised that this will be a major task for all the banks and their customers, given the extent to which the markets currently depend on the unlimited availability of intra-day credit from the central bank.

(b) On the European front, the Bank is taking part in work by EC central banks on EC payment systems; this work is addressing, among other questions, issues related to efficiency and risk in EC clearings, including the Private ECU Clearing and Settlement System.

(c) In the forum of the Group of Ten the Bank is involved, as a concerned central bank (in accordance with the recommendations of the Committee on Interbank Netting Schemes), in scrutinising bilateral netting schemes, and projects to set up multilateral foreign exchange netting schemes. The Bank also actively participates in the work of the G-10 Committee on Payment and Settlement Systems, which is currently considering the steps central banks might take to improve efficiency and to reduce risks in the settlement of cross-border and multi-currency transactions, including in the operation of foreign exchange clearing houses.

Basic Statistical Data
(1990)

Population: 57,327,000
 Gross Domestic Product: GBP 535.196 billion (1) (ECU 749.68 billion)
 GDP per capita: GBP 9,336 (ECU 13,077)
 Exchange rate: 1 ECU = GBP 0.7139

(1) Source: Eurostat

Table A.: Monetary aggregates
(average of end of month)

	billions GBP		Per capita (GBP)
	1989	1990	1990
Notes and coins	15.6	15.3	267
Transferable deposits in local currency (1)	222.9	239.9	4,185
Others	0	0	0
Total money supply (M1) (2)	238.5	255.2	4,452

Notes: (1) M2 less notes and coins
 (2) Definition of M2 changed in 1990

Table B.: Credit Institutions offering payment services (end of 1990)

Categories of Institutions	Number of Institutions	Number of branches	Number of accounts (thousands)	Share of market (%)	Value of accounts (5) (GBP billions)	Share of market (%)	Average Value of accounts (GBP)
Central bank	1	5			n/a	–	n/a
Commercial banks (1)	537	14,509	82,300	59.1	136.9 (2)	56.7	1,663
Building Societies	99	6,051 (3)	41,200	29.6	103.0	42.7	2,500
Post Office (4)	1	20,871	15,700	11.3	1.5	0.6	96
TOTAL	638	41,436	139,200	100%	241.4	100%	1,734

(1) Comprises institutions other than the Bank of England, which where at end-1990, authorised to accept deposits under the Banking Act 1987. The number of branch offices excludes post offices at which some Girobank services are provided on an agency basis.

(2) Includes value of accounts held with Central Bank (separate figures are not available).

(3) In addition to their branch offices, the building societies have a large number of agents (e.g. solicitors, estate agents) where depositors can pay into or withdraw from their accounts.

(4) National Savings Bank facilities are available at Post Offices on an agency basis. Figures include National Savings Ordinary Accounts only.

(5) Figures for value of accounts with banks (including Girobank) and building societies are compatible with M2. Post Offices (National Savings Bank) accounts are not included in M2.

Table C.: Cash dispensers, ATMs and EFT/POS terminals

	Cash dispensers and ATMs						EFT/POS			
	Number of			Value of transactions (GBP billions)			Number of			
	Networks (1)	Machines	Transactions (millions)	Machines	Transactions (millions)	Value of transactions (GBP billions)	Networks	Machines	Transactions (millions)	Value of transactions (GBP billions)
end 1989	3	15,820	910.5	15,820	910.5	35	3	75,000	n/a	n/a
end 1990	3	17,000	989.0	17,000	989.0	43	3	110,000	n/a	n/a
increase 89/90		7%	9%			23%		47%	n/a	n/a

(1) Excluding networks operating in Northern Ireland.

Table D.: Number of payment cards (end of 1990)

	Number of cards (thousands)	Number of cards per 1,000 inhabitants
Cards with a cash function	80,200	1,399
Cards with a debit/credit function	50,400	907
Cards with a cheque guarantee function	42,800	747
Retailers Cards	11,000	192

Note: A card which has several functions appears in several lines and therefore the figures in this table cannot be added.

Table E.: Payments exchanged through the official payment systems

Name	Number of transfers (millions)		Value (billions GBP)	
	1989	1990	1989	1990
Town Clearing – cheques	2	1	6,754	4,776
CHAPS – automated credit transfers	6	8	14,733	18,880
BACS	1,416	1,602	526	668
– credit transfers	707	756	333	418
– direct debits	709	846	193	250
Cheque and credit clearing	2,647	2,708	1,258	1,329
– cheques	2,449	2,517	1,142	1,210
– paper-based credit transfers	198	191	116	119

Table F.: Relative importance of cashless payment instruments in the payment system

Instruments	Number of transactions (millions)		Value of transactions (billions)		Percentage of total volume	Number of transactions per capita	Average value per transaction
	1989	1990	1989	1990			
Cheques issued (1)	3,145	3,213	8,924.0	6,669.0	51.0	56.0	2,076
Large value ("Town")	2	1	7,454.0	5,120.0	0	0	5,120
Others	3,143	3,212	1,470.0	1,549.0	51.0	56.0	482
Payments by debit and credit cards	718	885	25.5	32.9	14.0	15.4	37
Paper-based credit transfers: (2)	494	496	633.0	677.0	7.9	8.7	1,365
Paperless credit transfers: interbank*	806	856	15,086.0	19,323.0	13.6	14.9	22,574
	6	8	14,733.0	18,880.0	0.1	0.1	2,360,000
Others	800	848	353.0	443.0	13.5	14.8	522
Direct debits	709	846	193.0	250.0	13.4	14.8	296
TOTAL (3)	5,872	6,296	24,861.5	26,951.9	100%	109.7	4,281

* or large-value

(1) Excludes an estimated 500 million in 1989 (670 million in 1990) cheques processed at branch level whose value is not known. Includes cheques used to obtain cash.

(2) Excludes items processed at branch level.

(3) Excludes postal orders and government payments in cash from post offices against state benefit vouchers.

13. Cross-border Payment Systems

CROSS-BORDER PAYMENT SYSTEMS IN EUROPE

Introduction

The previous chapters gave a description of the fund transfer systems that are used within each of the EC countries. However, on an ever-growing scale payments are not restricted to national territories, but are made across borders as well. The causes of this growth may be different for retail and large-value payments.

Although the number of cross-border retail payments is very small compared with the total number of retail payments in Europe, it is growing steadily and this rate of increase might accelerate within the context of the Single Market, and the liberalisation of the supply of services to customers. However, geographical proximity, language and local habits should limit this growth.

With regard to large-value payments, some growth is to be expected stemming from the real economy, for instance as a result of cross-border competition for public sector contracts. However, the main growth will primarily come from the money and financial markets in response to the same forces that already gave rise to a large growth in these payments in recent years, i.e. deregulation and internationalisation, together with greater volatility in the prices of financial assets.

In this chapter, attention will be given to the following cross-border systems¹:

- Systems which process face to face small-value payments: (Section 1).
- Systems which process (or will process) “remote” small-value payments: (Section 2).
- Netting systems for foreign exchange contracts: (Section 3).
- Systems for settlement/delivery of securities: (Section 4).
- The ECU Clearing and Settlement System: (Section 5).
- S.W.I.F.T.: (Section 6).

SECTION 1: SYSTEMS WHICH PROCESS “FACE TO FACE” SMALL VALUE PAYMENTS

In this section, Eurocard, Eurocheque and Visa will successively be described.

1.1. The international Eurocard organisation

1.1.1. The organisation

The international Eurocard/MasterCard association is founded on a cooperative venture by the credit card organisations, Eurocard International and MasterCard International. The national Eurocard companies (owned in each case by banks) of all the western European countries are shareholders in Eurocard International, based in Brussels. Eurocard International's principal shareholders, each with a 15% holding, are Eurocard France (France), the Payment Systems Company GZS (Germany), UK Forum (United Kingdom) and MasterCard International (United States). Worldwide acceptance of the Eurocard credit card issued by the affiliated banks is ensured through cooperation with MasterCard International, New York. Thus, Eurocard credit cards are accepted by retailers participating in the MasterCard system and vice versa.

1.1.2. The Services

There are no special statutory rules in Europe governing the handling of payment card operations. However, over time, written codes of practice binding on all participants have evolved for internationally accepted bank cards; these can be summarised as follows.

¹ The systems mentioned are only examples; other similar systems might exist. The fact that a system is mentioned or not does not imply any kind of judgement by EC central banks.

In the case of Eurocard (as with, for example, Amexco, Diners Club and VISA), the credit card issuer makes available to the card holder a card which entitles the holder to obtain the services of a participating retailer without cash payment, upon presentation of the card. The participating retailer accepts the card in lieu of payment and collects the amount due from the issuer. The latter usually makes daily or weekly payments of the amounts due to the participating retailer less a discount. The discount is a fee for the issuer's guarantee of payment and the additional services provided in connection with the card (e.g. insurance). The card holder periodically receives from the issuer a consolidated statement listing all the card transactions effected. The total amount is in many instances collected from the card holder by direct debit.

In addition to bank credit cards, Eurocard is also involved in so-called co-branded cards, for which Eurocard acts as joint issuer together with a commercial enterprise. Eurocard assumes the bank's payment and credit function, while the commercial enterprise is responsible for marketing the service to its customers.

To complete the range of travellers' payment products offered by the European banks, through Eurotravellers Cheques International, the Eurocard/MasterCard association has granted a licence to issue "Euro Travellers Cheques" to Thomas Cook, which also has an agreement with MasterCard International. These Euro Travellers Cheques have the second largest share (40%) of the world market in travellers cheques.

1.1.3. The size of the market

At end-1990, the international figures for the Eurocard/MasterCard association, whose cards are accepted in 170 countries worldwide, were as follows:

	Europe	Worldwide
(a) number of card holders:	23 million	163 million
(b) number of participating enterprises:	2.3 million	9.4 million
(c) transactions value (in ECUs):	47 billion	160 billion
(d) number of cash dispensers:	16,000	50,000

1.1.4. Technical and organisational aspects

The major forces shaping the handling of credit card transactions in recent years are the large increase in transactions volumes, the growing internationalisation of the business and greater automation of the national and international clearing centres. The Eurocard/MasterCard association, like other such organisations, has accordingly set up a worldwide data communication system for urgent transmissions, such as authorisation requests, and also for the transmission of clearing and settlement data.

To handle international transactions, Eurocard uses the data transmission network set up and operated by EPSS (European Payment Systems Services S.A., Brussels), whose shareholders are Eurocard International, Brussels (which have a 50% holding), MasterCard International, New York (15%) and Eurocheque International Holdings S.A., Brussels (35%). National transactions use various national communication networks, which are linked to the international communication networks.

The EPSS network is used in the main to provide the following services: data transmission, authorisations, clearing and settlement, and, for Eurocheque ATM transactions, a security procedure to counter abuse. EPSS enables data to be exchanged between the acquirer and the Eurocard-issuing bank. Each working day, all international Eurocard transactions (including transactions reported by MasterCard from St. Louis (USA)) are routed from the trader's bank via the national clearing centres to the EPSS clearing centre (ECC) in Brussels. Here, incoming transactions from the various countries are aggregated for each card-issuing company and are submitted for daily settlement in the Eurocard Net Settlement System (ENESS). They are converted from the transaction currency into the respective national currency; claims and liabilities are then offset and the net balance is calculated for each company. Foreign exchange operations are limited to those necessary to settle this net balance and are executed by Eurocard International with a bank located in Brussels. The national company, which

is notified in detail of claims and liabilities by telex, then settles or receives the net balance in its own currency. This settlement data is then transmitted to the card-issuing bank or the acquirer.

The "Banknet" data network set up in the United States by MasterCard International functions, from a technical point of view, in a similar way to the European network. Over 300 network computers, in four continents, have been installed to manage the networks. Banknet does not include Europe, but is connected to the European network through EPSS. Within the next few years "OMNI", a high-speed network with new functions, is to be introduced for MasterCard.

1.1.5. Co-operation between Eurocheque and Eurocard (Europay)

Nationally and at the European level, Eurocard competes with the Eurocheque system for the custom of consumers, retailers and banks; although on the other hand, in some fields, cooperation exists. The banks' cooperation in the Eurocheque and Eurocard field is exemplified by the fact that in the future, the existing Eurocheque cash dispenser network will be available to Eurocard/MasterCard holders. The possibility of using the credit card to obtain cash over the counter or from cash dispensers is regarded as a major competitive advantage over cards issued by non-banks.

Eurocard International and Eurocheque International are preparing a market strategy for Europe called "Europackage", which will comprise the following cashless payment services:

- pay before = travellers' cheques;
- pay now = cash dispenser cards, Eurocheque cards as cheque guarantee and debit cards;
- pay later = credit cards.

In addition, the two Brussels-based European payment systems organisations plan to set up a joint company in the first half of 1992 as a means of achieving closer collaboration. The intention is to create a wider range of payment products, together with additional services (for example supplying technical applications and standardising systems and procedures), available to affiliated banks via, inter alia, the existing subsidiary EPSS (European Payment Systems Services).

1.2. Eurocheque International

1.2.1. The Organisation

The foundations of the Eurocheque system were laid down in 1968. The system was established to replace the numerous individual bilateral cheque encashment arrangements that existed between banks in Europe. The primary aim was to provide a uniform cash advance service in bank branches abroad, based on the cheque and the guarantee card.

In 1981, the so-called "Package Deal Agreement" was signed, enabling Eurocheque instruments to be used in the retail sector.

The "Eurocheque International" organisation, located in Brussels, is a private cooperative company, whose shareholders are national banks' and/or other financial institutions' associations from 19 countries. Eurocheque can be considered as an open system since banks, saving banks, cooperative banks and some postal administrations encash Eurocheques at their branches. Furthermore, all of them can become issuers.

Eurocheque International Holdings S.A. is, with Eurocard International and Mastercard International, a shareholder (for 35%) of EPSS (European payment Systems Services S.A., Brussels) which operates the data transmission network (see Section 1.1.).

1.2.2. The Eurocheque Services

At present, the service provided by the Eurocheque system is twofold:

- firstly, the use of the standardised Eurocheque with the guarantee card for cash withdrawals at encashment points in Continental Europe and North Africa (240,199 encashment points at end 1990, 189,462 of them (79%) in the EC-countries) (see detailed information in table 1) or for payments in the retail sector (Eurocheques are accepted in almost 5 million retail outlets). Cheques are usually denominated in local currency and the rule is that no commission is deducted at the time of encashment;

- secondly, the use of the Eurocheque card as an international cash card. By the end of 1990, there were nearly 40 million cards in circulation having access to 21,493 on-line ATMs in 14 countries.

Transactions management by EPSS is based on a decentralised network in which authorisation passes directly from the acquirer to the issuer or, if the issuer, has delegated this function, to any designated processor in the network, without having to pass through a central switch.

Both leased links and public switching links are used; the choice between the two mechanisms depends on volume and economic considerations.

A further major development is underway, namely the use of the Eurocheque card for EFTPOS transactions at an international level. This project of Eurocheque International is based on the same principles as those applied to international ATM transactions. In any case, the creation of a Europe-wide EFTPOS system is dependent on the interlinking of the national EFTPOS infrastructures, which also requires a minimum standardisation.

1.2.3. Clearing Procedures

In order to establish a full international payment system, two *basic agreements* have been introduced to rationalise clearing procedures:

- The Package Deal Agreement, introduced in 1981, contains the following elements:
 - no commission being deducted by the retailer or the bank (acquirer);
 - cheques denominated in local currency both in banks and in retail outlets;
 - centralised clearing procedure (in theory, one centre per country);
 - uniform maximum commission (Interbanking Remuneration) charged to the issuing bank as remuneration for the services provided by the acquiring bank;
 - guarantee up to the countervalue of CHF 300.
- The Agreement for Simplified Clearing for encashing countries (for countries where the previous agreement does not yet apply) is based on the following elements:
 - no commission deducted at the time of encashment;
 - cheques written in foreign currency;
 - centralised clearing procedures;
 - uniform commission.

In encashing countries where no agreements apply, traditional correspondent bank clearing procedures are followed.

When the Package Deal Agreement applies, the *procedure* to clear the cheques or the card transactions involves the Eurocheque Clearing Centres (ECCs).

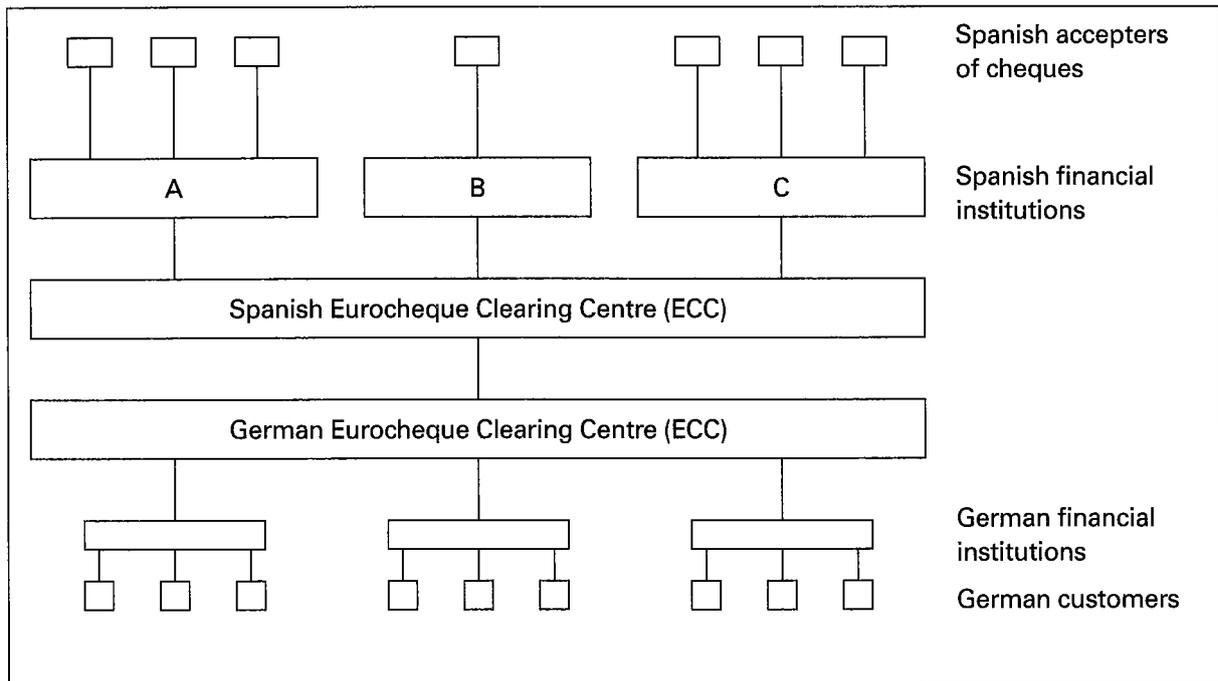
Clearing is done via these centres if the acceptance requirements of the Eurocheque clearing system are fulfilled. The ECC in the acquiring country collects and sorts the clearing data per issuing country. For the cross-border dispatching of the clearing data, different methods are used: cheques can be physically mailed or electronically captured with cheque reading equipment. The electronically captured clearing data is then transmitted via a data communication link or mailed on a tape directly to the issuing ECC. If legally permitted, cheques can be stored in the acquiring country (cheque truncation). For clearing data relating to electronic card transactions magnetic tape or data communication links are used.

Electronic clearing data can be sent directly to the issuing ECC or via the centralised “store and forward” function provided by EPSS; at the moment this is only available for the clearing of ATM transactions. The issuing ECC receiving the clearing data checks the remittance details and makes the necessary settlement arrangements. The issuing ECC forwards the individual transactions to the cardholder’s bank according to domestic arrangements.

The diagram shows how the clearing functions under the Package Deal Agreement.

The *settlement* between the banks and their ECC in the acquiring and issuing countries is nationally agreed. The commission paid by the customer when his account is debited is left to the discretion of each issuing bank. The Eurocheque organisation only deals with the cross-border settlement regulations between ECCs: the issuing ECC reimburses the acquiring ECC with the total amount of the remittance plus the interbank remuneration (see below).

Simplified Eurocheque clearing system (*)



(*) Clearing of Eurocheques made out in pesetas by German tourists visiting Spain.

1.2.4. Fees

For cheque-based transactions, a percentage of the cheque constitutes the maximum interbank remuneration (IBR) (with a maximum flat fee on cheques issued below a certain amount).

For card-based ATM transactions, the maximum IBR basically consists of a fixed fee per transaction with a supplement of a relatively low percentage of the transaction amount.

1.2.5. Co-operation between Eurocheque and Eurocard (Europay)

Information is given in Section 1.1.5. concerning the Eurocard organisation.

Table 1: Eurocheque cards, encashment points and ATMs

1990	Number of cards	Number of encashment points	Number of ATMs
BELGIUM	3,345,000	14,000	845
DENMARK	242,400	3,200	198
FRANCE	86,426	31,350	1,200
GERMANY	25,000,000	73,000	2,000
GREECE		2,532	0
IRELAND	129,888	786	432
ITALY	1,150,442	14,000	2,596
LUXEMBOURG	155,000	400	54
NETHERLANDS	3,600,000	8,000	2,100
PORTUGAL	115,004	1,850	800
SPAIN	10,000	27,339	6,700
UNITED KINGDOM	1,848,185	13,005	3,790
TOTAL EEC	35,682,345	189,462	20,283
OTHER COUNTRIES	4,272,485	50,737	1,210
TOTAL ALL COUNTRIES	39,954,830	240,199	21,493
% EEC/ALL COUNTRIES	89.31%	78.88%	94.37%

Source: Eurocheque and for Number of ATMs in Ireland, Central Bank of Ireland.

Table 2: Number of Cross-border ATM transactions (1990) with a Eurocheque card

ACQUIRER	ISSUER	BELGIUM	DENMARK	FRANCE	GERMANY	IRELAND	ITALY	LUXEMBOURG	NETHERLANDS	PORTUGAL	UNITED KINGDOM	TOTAL EEC	OTHER COUNTRIES	TOTAL COUNTRIES
BELGIUM			580	41	39,747	702	603	10,408	61,342	1,296	5,728	120,447	4,088	124,535
DENMARK		2,510		4	36,753	190	298	559	4,705	207	3,165	48,391	2,656	51,047
FRANCE		21,429	1,118		88,282	808	1,509	4,268	14,751	946	18,609	151,720	9,453	161,173
GERMANY		49,766	4,545	194		870	1,663	8,651	30,135	1,172	27,557	124,553	74,459	199,012
GREECE												0		0
IRELAND		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
ITALY		30,853	3,944		314,792	1,026		3,203	24,059	1,627	192,000	398,704	36,489	435,193
LUXEMBOURG		9	201		6,742	22	43		4,563	107	355	12,042	240	12,282
NETHERLANDS		40,374	1,166	13	193,885	571	990	1,433		494	10,580	249,506	10,565	260,071
PORTUGAL		12,758	1,358	2	59,837	442	360	2,750	11,856		12,770	102,133	6,311	108,444
SPAIN		177,635	6,146	14	495,178	2,949	4,089	8,326	71,155	22,037	90,731	878,260	39,190	917,450
UNITED KINGDOM		3,472	2,897		137,558	6,895	2,351	1,384	33,335	3,897		191,789	9,232	201,021
TOTAL EEC		338,806	21,955	268	1,372,774	14,475	11,906	40,982	255,901	31,783	188,695	2,277,545	192,683	2,470,228
OTHER COUNTRIES		3,020	1,755	4	254,593	344	3,886	1,093	23,078	241	6,678	294,692	2,218	296,910
TOTAL		341,826	23,710	272	1,627,367	14,819	15,792	42,075	278,979	32,024	195,373	2,572,237	194,901	2,767,138

Source: Eurocheque

1.3. Visa International Service Association (VISA)

1.3.1. The Organisation

Visa is an international membership association owned by over 27,000 financial institutions that offer members the use of telecommunication networks for payment products bearing the Visa name.

The origins of Visa go back to the launching of the BankAmericard credit card, which was introduced by Bank of America in 1958. The card spread rapidly and an increasing number of American, European and other banks started to issue it under license from the Bank of America.

At the beginning of the 1970s, Bank of America formed a joint venture with the licensees, Nation Bank Americard Incorporated (NBA), to which it handed over the management of the card and of which it was itself a member. Subsequently, the requirements involved in the card's worldwide management led to the establishment of IBANCO Limited, a non profit-making multinational association with registered offices in San Francisco. In 1977, the name IBANCO was changed to Visa International and that of the NBA was changed to Visa USA.

Visa membership is restricted to financial institutions authorised to take deposits and to bank-owned bodies operating in the bank payment card sector, such as Servizi Interbancari in Italy and Carte Bleue in France.

Visa is managed by an international board and by 5 regional boards with decision-making powers for their specific areas. The countries of Europe are included with those of the Middle East and Africa in the EMEA region (Europe, Middle East, Africa) whose head office is in London.

Decisions relating to telecommunications infrastructures, operational standards and the development of payment services necessary for the worldwide functioning of the circuit are taken centrally by Visa International. By contrast, the 5 regions have full autonomy in the definition of commercial policies and the promotion of Visa products with their clients; more particularly, they are free to lay down the conditions for the payment of purchases executed with payment cards (end-of-month debiting of the whole amount or in instalments).

1.3.2. Basic Services

Payment services offered by Visa include payment cards and travellers cheques. As of June 1991, there were 270 million Visa cards in circulation worldwide; these could be used for purchases at 9 million commercial outlets in 187 countries and for cash withdrawals from all associate banks or 94,000 ATMs in 40 countries. In the year to end-June 1991, the overall total of payments made with Visa cards was USD 369 billion; Visa travellers cheques turnover amounted to USD 384 billion.

Authorisations for individual operations and the exchange and clearing of transactions are carried out through the VisaNet screen-based network, which operates worldwide and links the computers of the member banks (VisaNet Access Points) with 4 Visa Interchange Centres. For the EMEA region the Interchange Centre operates from London.

The applications managed through VisaNet are:

- *Base I Authorisation service*: which operates 24 hours a day worldwide. This handles requests for authorisation between the issuing bank and the bank of the commercial outlet;
- *Base II Clearing and Settlement Service*: this application enables each member bank to acquire, in electronic form, information concerning operations effected by its customers and to transfer to other Visa banks the funds they have advanced to the commercial outlets in connection with those operations. These flows of information are batched and transmitted overnight in contrast to the Base I service, which operates in real time. The system operates 6 days a week and manages 23 currencies, calculating net balances for individual associates; members in the EMEA area settle their balances through accounts with one London based bank or its correspondent banks.

The VisaNet network and the applications it manages are currently being reviewed (VisaNet 2000 project) with the aim of enhancing operational capacity and security.

Visa's revenue is derived exclusively from the charges paid by members for the use of the telecommunication infrastructures and all income is either reinvested in the system or repaid to members.

1.3.3. Other services offered by Visa International

In the United States, Visa has, since 1987, provided ACH net settlement services in competition with the Federal Reserve and other private operators.

Visa ACH handles a vast range of outpayments and inpayments: insurance premiums, public utility bills, monthly repayment instalments, POS terminal operations, credit card settlements, crediting of salaries and pensions, dividends and funds transfers on behalf of enterprises.

Between 1987 and 1990, Visa was confined to settling transactions of institutions which maintained accounts at the Federal Reserve Bank of San Francisco. Since November 1990, however, Visa has been allowed to provide a nationwide settlement service for institutions with accounts held at any Federal Reserve Bank. Transfers are made by Fedwire to and from Visa's special net settlement account with the Federal Reserve Bank of San Francisco.

The system embodies a number of risk control measures, including control of membership, monitoring of participation through setting of caps and mechanisms for managing non-payment.

Visa is currently studying plans to extend its funds transfer operations to Europe.

SECTION 2: RECENT IMPROVEMENTS IN THE PROCESSING OF REMOTE SMALL-VALUE CROSS-BORDER PAYMENTS

Until now, almost all remote cross-border payments, including retail ones, have been processed through correspondent banking.² In recent years however, some banks have developed proprietary systems enabling them to handle low-value cross-border payments at a lower cost. Some specialised credit institutions have also established such systems, as have the post offices in various countries. The geographical scope of these systems is not necessarily limited to the EC. At the moment, most systems exclusively deal with credit transfers, but the possibility of processing direct debits through them is being studied.

An initial improvement in correspondent banking, which is already in use, consists of sending batches of payment orders to the correspondent bank (instead of sending them one by one), once or several times a day, together with a single payment. As in traditional correspondent banking, the correspondent bank takes care of the final processing in the local ACH.

Another kind of new cross-border payment processing method is contemplated by some groups of banks (and some postal organisations) in Europe. They are based on dedicated data transmission lines which would enable the on-line exchange of payment orders between the payor's deposit-taking institution and its correspondent in the payee's country which would then route the payment to the payee's deposit-taking institution through the local ACH. In such schemes, the settlement of the payment orders between participants would not necessarily coincide with the sending/receiving of the payment order: it could be made once a day on a net basis for instance.

Other developments might by-pass correspondent banking. One of them consists of establishing linkages between local ACHs. Such linkages do not exist at the moment but have been suggested by the EC Commission as a possibility. They are under examination at present by banks and ACHs in certain EC and EFTA countries. Cross-border payment orders would be processed first in the country of the payor through the local ACH which would send the details of the order to the ACH located in the country of the payee.

In the next few years, under the provisions of the Second Banking Coordination Directive, it will also become possible for credit institutions located in one country, to ask for access to ACHs located in other EC countries even if they have no physical presence in these countries. Such possibilities however will entail costs and it is likely that only a few EC banks will have enough cross-border payment activities to be able to justify those costs.

² Including payments processed through the international branch networks of the major banks.

SECTION 3: NETTING SYSTEMS FOR FOREIGN EXCHANGE CONTRACTS

3.1. ECHO Netting

A group of international banks are investigating the feasibility of creating a global clearing house for the multilateral netting of spot and forward foreign exchange contracts between participating banks. The project is called ECHO Netting, which stands for Exchange Clearing House Organisation. According to the current proposals, the Clearing House would become the common counterparty for all foreign exchange deals which members bilaterally arrange, although members would have the option to transact deals outside the Clearing House. The Clearing House would then calculate per currency and value date the net amounts it has to receive from, or to pay to, each member.

It is proposed that membership will be restricted to banks incorporated in OECD countries, and which meet certain other criteria. It is also proposed that the Clearing House, which will be based in London, will net 24 currencies, subject to the availability of adequate settlement and standby liquidity arrangements.

Although the project's initial focus was on the potential reduction in the costs of settling foreign exchange transactions through the reduction in payment flows, equal prominence is now given to the possible risk reduction benefits from sound multilateral netting.

3.2. FX NET

3.2.1. Netting mechanisms

FX NET Limited is a limited partnership formed under English Law, owned by the UK subsidiaries of 12 major banks. It facilitates bilateral netting for spot and forward foreign exchange obligations between participating banks, using the concept of netting by novation. Banks are able to participate in FX NET by obtaining the necessary software package (prepared by Quotron) under licence from FX NET for installation in their own in-house systems.

Through participation in FX NET, banks are able to reduce their credit and liquidity risks from gross to bilateral net positions for each of their branches which participate in the service, vis-à-vis branches of other banks.

Once a bank has installed the FX NET/Quotron software, it is then free to negotiate which other participants to net with and in which currencies. Within this process, FX NET provides well-documented model netting agreements which its participants may choose to use, though it is each participant's responsibility to obtain independent legal advice regarding the effectiveness of these agreements.

As of February 1992, 31 bank branches in London, New York, Los Angeles, Tokyo and Singapore were participating in FX NET, netting both within each centre and between different centres. In addition, a further 16 branches of existing, as well as new member banks, were preparing to join FX NET in these financial centres as well as in Hong Kong, whilst banks were also considering the establishment of FX NET in Paris and Zürich.

3.2.2. Central banks oversight

In early 1986, before FX NET was first implemented in pilot form, formal approval was sought from the Bank of England and the Federal Reserve Bank of New York (FRBNY). The Bank of England's approval was given in the following terms (similar to those of the FRBNY):

- (i) each participant bank would be expected to satisfy itself as to the legal validity of netting by novation in the UK, and in the country of origin of each of its participating counterparties;
- (ii) a commensurate reduction would be expected in each participant's limits on such counterparties;
- (iii) these aspects of participation would be subjects for discussion during the routine prudential interviews between each participant in the UK and the Bank of England in its role of banking supervisor.

Both the Bank of England's and the FRBNY's formal responses form part of the package for legal documentation that FX NET currently provides to its participants.

SECTION 4: THE SETTLEMENT OF SECURITIES TRANSACTIONS THROUGH EUROCLEAR AND CEDEL

Euroclear and Cedel are the two major depositories and settlement organisations in the international securities markets. However, both institutions also accept and settle transactions involving domestic securities. Their combined turnover in 1990 amounted to USD 6.3 trillion, or roughly USD 25 billion on average per business day. In terms of related payments this corresponds roughly to the total value of the transactions on an average day in SAGITTAIRE, the foreign exchange interbank settlement system in France.

4.1. The international securities market

The international securities market consists of a number of segments which have their own characteristics. They include the international bond market for long-term debt instruments (Euro-bonds and foreign bonds³) and the Euro-note market, where short-term paper such as commercial paper and other short and medium-term notes are issued and traded. At the end of 1990, the total outstanding stock of international securities was estimated to be about USD 1,585 billion, of which more than 90 per cent were long-term instruments. Of these, 75 per cent were Eurobonds. The international securities market is a multicurrency market; by far the largest proportion of the international bond market is denominated in US dollars (USD 606 billion in 1990) with other currencies trailing well behind.

Since in many countries institutional investors are prohibited from buying unlisted securities, most international bonds are listed on established stock exchanges to improve their marketability. This is done, most commonly, on the Luxembourg Stock Exchange and the London Stock Exchange. Trading, however, is normally done over-the-counter and conducted by various specialised dealer groups. One particular feature of the international securities market is that most of the securities (especially in the Euro-markets) are in bearer form and are not dematerialised. In principle, the transfer of ownership thus involves the transfer of the securities by physical delivery. The advantage of depositing the bearer securities in a securities account with Cedel or Euroclear is that the transfer of ownership can then take place through book entry in these security accounts. Furthermore, by simultaneously holding cash deposits with Euroclear and Cedel, users can also let the cash leg of the securities transactions be settled by these organisations. As a result Euroclear and Cedel are both a securities and a large-value funds transfer system.

4.2. Organisation

The Euroclear system is operated by Morgan Guaranty Brussels, through a separate administrative unit called the Euroclear Operations Centre, under an operating agreement with the Euroclear Clearance System "Société Coopérative" set up under Belgian law. The "Coopérative", in turn, is controlled partly by a large number of participants in the system (11.5% of its share capital) and by the UK-based Euroclear Clearance System Public Limited Company (88.5%). The latter company, which actually owns the system, is owned by 124 banks, brokers and investment institutions. Cedel (Centrale de Livraison de Valeurs Mobilières) S.A. is a Luxembourg-based limited company (société anonyme) which provides, in return for payment, for the circulation, custody, and management of securities (and precious metals). It is currently owned by 108 shareholding financial institutions from some twenty different countries. Both institutions have customers or participants comprising of major banks and securities companies (about 2,500 each) in a large number of countries⁴. Reflecting the cooperative approach taken by the owners of both the Euroclear and Cedel systems, no institution is entitled to hold more than a small fraction (3.25% and 5% respectively) of the shares in these companies.

³ Foreign bonds are issued in domestic capital markets by non-resident borrowers and underwritten and sold by a syndicate composed of institutions located in the country in which the bonds are offered (which may, however, include subsidiaries of multinational financial institutions). Euro-bonds are usually issued simultaneously in several capital markets and underwritten by an international syndicate (they are almost wholly exempt from disclosure and registration requirements and from withholding taxes). However, the distinction between Euro-bonds and foreign bonds has become increasingly blurred.

⁴ They include a number of central banks and official international institutions.

Euroclear and Cedel operate as international securities depositories though they do not hold the securities themselves but rely on a worldwide network of depository banks. The custody services offered by the depositories include storing the issue in the vault, administration of coupon, dividend and redemption payments, related tax services, and the exercise of warrants, conversion and other options. To limit physical movements of securities and enhance security, each individual issue is deposited and immobilised with only one depository; in the case of Eurobonds this is normally the paying agent for the issue. Typically, the deposited securities become fully fungible which means that the owner no longer has title to a security with a particular registration number but receives a claim on the pool of securities held by the settlement organisations; the transfer of ownership takes place by book-entry in the securities accounts with Euroclear and Cedel.

4.3. Settlement procedures

The settlement procedures followed by Euroclear and Cedel are similar and can be summarised in five points. Firstly, both institutions operate a gross securities and cash settlement system: each instruction is carried out individually with the crediting/debiting of securities accounts taking place simultaneously with the correspondent debiting/crediting of the cash accounts. However, the instructions are not carried out on a continuous basis but are stored by the computer up to a certain cut-off time after which they enter an automated batch settlement program. The settlement process takes place at particular times of the day in each system: in Euroclear all validated and matched settlement instructions enter the settlement process which is carried out during the night prior to the settlement date, while Cedel processes the validated and matched instructions in the afternoon on the settlement day⁵.

Secondly, securities transfers and the related payments are executed on a delivery against payment principle. This means that the settlement of individual transactions is successfully completed only if the selling participant has sufficient securities in his securities account to permit delivery and if the buyer has a sufficient cash or collateralised credit position available for payment. Once the settlement programme is terminated settlement is final and participants are notified of their securities and cash positions. The strict application of the principle means that a number of instructions entering the automated settlement process are not executed. They normally enter the settlement process on the following business day.

Thirdly, delivery instructions are not processed in the chronological order in which they are transmitted by the participants but according to a certain rank for each individual issue. The ranking criteria differs between Euroclear and Cedel but includes the priority codes given by the participants themselves, the settlement date (normally old instructions before more recent ones) and the nominal amount of the transaction. The automated settlement process groups all trades related to the same issue and subsequently attempts to settle as many trades as possible for each issue using a so-called "chaining" procedure. Very often settlement instructions reflect the fact that the same security has been bought and sold through one or more intermediaries (brokers) a number of times during the trading day. The computer program will, for instance, try to recognise so-called back-to-back transactions involving the purchase and sale by two participants of the same security through a broker and put them in a "chain". The chaining program also tries to settle as many transactions as possible related to the same security in light of the cash and security positions available in the participants' accounts and by taking account of the expected movements in the accounts during the settlement processing cycle. These patterns of settlement are optimised by recourse to recursive simulations.

Fourthly, the securities lending programmes are run before the start of the actual settlement process so that the securities lent can be transferred at the start of the process.

Fifthly, since many trades in the international securities market will be conducted by counterparties belonging to the other settlement system, Euroclear and Cedel have automated the linkage between their securities settlement systems by installing an electronic "Bridge". Cross-system settlement is thus also handled by book-entry transfers between the two systems. For this, each system maintains a securities and a cash account with the other. When one of the two organisations finds itself with a substantial custody holding for the other, the two systems transfer securities physically from one

⁵ Cedel has announced that it will also shift its batch processing to the night prior to settlement date.

system's depository to the other system's depository. In contrast, cash settlements between the two systems take place on a net basis for each individual currency each day. Given that the volume of securities movements between the two systems results in substantial cash movements as well, each system has arranged a special credit line for the other.

In order to enable participants to settle transactions in domestic markets through the international settlement systems, Euroclear and Cedel provide two types of linkages to domestic clearing systems. In the case of direct links, Euroclear and Cedel themselves hold an account with a local clearing system and cross-border transactions can be settled without the intervention of the local depository. Such direct links are available in both systems with domestic clearing systems in Germany and France. Where there is no direct link, a local depository holds an account with its domestic clearing system and trades between Euroclear and Cedel participants and their counterparties in the domestic market are settled through the intermediary of this depository. (In the case of Euroclear, turnover in domestic securities through indirect and direct linkages accounts for more than one-third of total turnover.)

4.4. Borrowing and lending

To be able to perform the cash leg of the securities transfers, Euroclear and Cedel offer typical banking services to the participants in their system. For the management of the *cash deposit facilities*, the two organisations rely on an extensive network of correspondent banks, at least one for each currency accepted in the system. Typically, participants pay their funds into a central account with these correspondents, which will also invest the cash balances on behalf of the central institutions. Apart from normal payment services, the cash management services offered by Euroclear and Cedel include various cash credit facilities for the participants. The individual types of credit lines differ between the systems but their common feature is that drawings must normally be covered by the collateral constituted by the securities which the participants hold in their securities account.

Participants pay funds into their cash accounts through their own correspondents in the country of the currency involved. By "pre-advising" Cedel and Euroclear of incoming funds the participants' cash accounts may be credited for good value before the cash correspondents of the clearing organisations confirm the receipt of the funds. (Given time zone differences, early closing hours and end-of-day or next-day settlement finality in many domestic payment systems, this may be one or more business days following the participants' original payment instruction in the respective currency). Credit in the form of accepted pre-advises normally has to be collateralised or is made available under a specific credit facility.

Both Cedel and Euroclear also provide a *securities lending and borrowing* programme. The programme allows participants who own particular securities to lend them for a fee to other participants. Lenders are mainly portfolio managers who are not active dealers. Securities borrowers on the other hand are able to "finance" temporary shortages of particular securities and thereby reduce the risk of settlement failure. They are usually active traders such as market-makers or dealers. Both the Euroclear and Cedel securities lending programmes are run on a so-called pool concept. This means that each business day the needs of borrowers are matched with a lending pool of securities in each issue. Confidentiality is effectively ensured: securities are borrowed from an anonymous pool of lenders and borrowers or lenders' identity is never revealed to the counterparty. The value of all securities borrowings has to be collateralised at all times by the value of the securities deposited with the clearing organisations.

4.5. Other features

With respect to the risk management in both the Euroclear and Cedel system, principal risk is limited by the delivery against payment principle used by both organisations, while liquidity risk is reduced by the various cash credit facilities and the securities lending programmes. Moreover, the combined exposure for each participant under both these lending schemes must normally be collateralised by holdings of securities (expressed in US dollars). For this, the value of the securities eligible as collateral is marked to market each day and "adjustments" are made taking into account the type of instrument and the exchange rate of the respective currency of issue vis-à-vis the dollar. With respect to the credit line which Euroclear and Cedel have opened for one another to cover the execution

of "Bridge" settlements, this facility is covered by a letter of credit which each system obtains from a separate syndicate of banks.

Central banks are not directly involved in providing payment services for the settlement of international securities transactions. The link with the respective domestic payment systems is through the participation of the institutions' cash correspondents in their local interbank funds transfer systems. Various central banks have a relationship with one or both of the international clearing organisations, however, through the direct or indirect linkage which these systems have with a number of domestic securities settlement systems. For example, Euroclear and Cedel have links with the Banque de France for the settlement of transactions in various domestic government securities, with the Bank of England (for ECU Treasury bills), the Nederlandsche Bank (for Euro-commercial paper) and with the Nationale Bank van België/Banque Nationale de Belgique (for certain government bonds and Treasury bills).

SECTION 5: THE ECU CLEARING AND SETTLEMENT SYSTEM

5.1. Origin of the System

The Private ECU Clearing and Settlement System was developed in order to replace a clearing scheme for the settlement of private ECU balances which had been set up in 1982 by a small group of commercial banks active in the ECU market. This original scheme, known as MESA (Mutual ECU Settlement Accounts), soon proved to be ill-suited to handling the increasing number of ECU payment orders between a growing circle of financial institutions.

The ECU clearing banks and the BIS explored the possibility of creating a system in which the BIS would act as a settling agent. The Committee of Governors was consulted prior to setting up the present system and, in March 1983, it issued certain guidelines for the operation of the system.

5.2. Major participants to the System

The Association Bancaire pour l'Écu – ECU Banking Association (EBA) is a body formed under French Law in September 1985, whose headquarters are in Paris. Membership is open to commercial banks which have their head office or branch in one of the EC countries and which demonstrate sufficient interest in the development of ECU transactions; members which meet certain criteria set forth in the EBA clearing rules, may also be designated as clearing banks.

The Bank for International Settlements (BIS), as agent of the individual clearing banks, acts as the settlement bank for the system. Each clearing bank agrees to maintain an account with the BIS which may only be used for settlement operations, does not bear interest and may never show a debit balance; as a result, the BIS does not take any credit risk in the ECU clearing and settlement system.

S.W.I.F.T. Service Partners (SSP) is a subsidiary of S.W.I.F.T. which acts as the netting centre of the System and provides the data support for the netting phase.

5.3. Operating rules of the System

The netting stage lasts until 14.00 (Brussels time) every working day. During this period, clearing banks exchange payment orders in ECUs through the netting centre. Immediately after 14.00, the netting centre determines the preliminary credit or debit balances of each clearing bank, value same day; it then reports all these balances to the BIS and notifies each clearing bank of its preliminary balance.

The borrowing and lending stage begins immediately after the netting phase. In this clearing system, where the sum of preliminary debit balances is equal to the sum of preliminary credit balances, those clearing banks in a debtor position must, in a second phase up to 3.15 p.m., borrow funds from creditor banks in order to reduce their preliminary debit balances to an amount not exceeding ECU 1 million⁶.

⁶ This remaining position will be then covered during the settlement stage by the transfer of funds, up to 1 million ECU per account, that the BIS is entitled to organise under the terms of the standing transfer order it has received from each clearing bank.

Shortly after 3.15 p.m., the netting centre determines the final netting balances, notifies each ECU clearing bank of its own balance and reports all balances to the BIS. These final balances – which take account of all bilateral operations which the clearing banks have been able to conclude with each other between 2.00 and 3.15 p.m. – must be confirmed by each bank to the BIS before 3.45 p.m.

If then, a clearing bank's netting balance remains in debit of more than ECU 1 million, the debtor clearing bank must, before 3.45 p.m., require the assistance of the BIS, with a view to borrowing ECUs from other clearing banks to permit the settlement of its final netting balance.

Any sum thus transferred constitutes a loan between the banks in question, value the same working day and repayable the following working day. All these transactions bear interest at a fixed rate which is calculated every day by the BIS according to the "tomorrow/next" ECU interest rate, reported to it by the clearing banks on the previous day.

At 3.45 p.m. the BIS is normally able to carry out *the settlement operations* by debiting or crediting the respective ECU sight accounts held in its books with the amounts necessary to square all the corresponding netting balances.

If after 3.45 p.m., owing to some incident, a clearing bank is unable to cover its debit position, the BIS may, as far as possible, proceed with the operations authorised by the risk reduction measures described below. If however, cover cannot be produced, an "unwind" procedure occurs. The entire clearing for that day is then carried over to the following working day: all payments to and by the debtor bank are withdrawn from the day's clearing transactions and new balances calculated and added to the clearing for the following settlement day. This "next day" solution means that beneficiaries of payments would not have good funds until the completion of the clearing the next day. Furthermore, the clearing may have to be cancelled if the BIS does not receive notification of all the final netting balances from the netting centre. So far, it has never been necessary to carry over or cancel any clearing.

5.4. Volume of transactions

At mid-November 1991, the System cleared about 5,600 transactions every day among the 44 clearing banks for an amount of about 38 billion ECUs.

5.5. Risk reduction measures

Measures *to strengthen the safety features* of the settlement of ECU transactions began to be reviewed in early 1990. The conclusions of the report of the Committee on Interbank Netting Schemes (the Lamfalussy Report), issued in November 1990, provided additional incentives to implement them. The EBA has now begun a short-term risk reduction program in close cooperation with the BIS and the EC central banks.

As the ECU clearing and settlement system is a closed circuit with no scope for injecting same-day liquidity into it, each participant with a provisional net debit balance can only square its position by borrowing the excess funds from participants with a net provisional credit balance. The successful completion of the clearing each day relies on the willingness of those banks in net credit positions to take on the additional credit risk that results from lending to the banks with net debit positions.

As a *first step* towards strengthening the settlement arrangements, the BIS, at the request of the EBA, has with effect from 1st August 1991 implemented an "intermediation facility". Under this facility, in the event of a participant with a net credit position being totally opposed to lending its surplus to the corresponding participant with a net debit position, then that surplus will effectively be channelled through all the other clearing banks who will each on-lend up to a maximum of ECU 5 million to the "net debit" bank. This arrangement can potentially cover a shortage of ECU 215 million (i.e. 5×43).

In January 1991, the Committee of Governors established an Ad Hoc Working Group on EC Payment Systems, whose first task was to undertake a thorough review of the ECU Clearing and Settlement System in the light of the Lamfalussy Report, and in cooperation with the BIS and the EBA. As a result of this review, the Committee of Governors in September 1991 asked the EBA to implement without delay certain short-term measures to improve the system's compliance with the Lamfalussy standards. Specifically, these measures involved the carrying out of a legal and technical audit of the system and the implementation of a system of limits on bilateral and multilateral exposures and of a

loss-sharing agreement. In March 1992, the EBA agreed to implement, before March 1993, bilateral limits between participants and to set up a loss-sharing agreement.

In addition, certain EC central banks have been developing collateralised liquidity facilities to operate alongside the BIS "intermediation facility" and further strengthen the end-of-day settlement arrangements. In September 1991, the Bank of England and the Banque de France were the first to announce such facilities. Their aim is to facilitate the channelling of surplus funds from net credit to net debit banks by mobilising collateral held by net debit banks so that it can be used as security for overnight borrowing.

As a medium term objective, the EBA has decided to study the possibility of replacing the existing net-settlement system by a gross-settlement system.

SECTION 6: S.W.I.F.T.

6.1. The Organisation

The Society for Worldwide Interbank Financial Telecommunication (S.W.I.F.T. s.c.) is a private company, created in Belgium in 1973, which engages in the transmission of financial messages for the benefit of its shareholding member banks and of other approved categories of financial institutions. The S.W.I.F.T. Group is also involved in the development and marketing of specific network applications and in research, development, marketing and sales of terminals and related software. S.W.I.F.T. s.c. is a cooperative company, owned by 1,963 banks worldwide⁷. It fully owns S.W.I.F.T. Service Partners s.a. (SSP) and S.W.I.F.T. Terminal Services s.a. (STS), two limited liability companies also incorporated in Belgium, as well as a number of subsidiaries in other countries and a re-insurance company in Luxembourg, through which part of the Group's insurance is placed.

S.W.I.F.T. transmits financial messages between the 3,648 financial institutions connected to the company's proprietary network which covers 73 countries. While access to the network has traditionally been restricted to S.W.I.F.T. s.c.'s shareholding members and their subsidiaries (sub-members) – all of whom are banks – a number of so-called participants have been allowed to use it since 1987 (at the end of 1991 there were 78). These participants include securities brokers and dealers and various other institutions, mostly in the securities business, such as Euroclear and Cedel. Participants are not shareholders in S.W.I.F.T. s.c. and their message traffic over the network is restricted. Some categories of participants may, for instance, neither send nor receive certain types of messages, while other categories may exchange specific messages with their banks (e.g. payment messages), but not with each other.

6.2. Basic Services

The core service offered by S.W.I.F.T. s.c. consists of operating its proprietary network (composed of computer facilities, switching equipment, leased lines and related software) to handle the exchange of financial messages. The network functions comprise of the acceptance, validation, storing and delivery of messages. The network, which is accessible 24 hours a day, seven days a week, handled a total message traffic of 365 million in 1991 or an average of about 1.5 million per business day. These messages are highly structured and cover a wide range of banking and other transactions such as payment orders, foreign exchange confirmations and securities deliveries. There are nine categories of banking messages covering more than 120 message types, each designed to meet specific data requirements of the transactions involved. S.W.I.F.T., with its members, is active in enhancing existing message text standards and developing new standards, for the benefit of all network users. Thus, for instance, S.W.I.F.T. has developed Bank Identifier Codes (BIC) which amount to a universal standard for identifying financial institutions in telecommunication messages. More recently, S.W.I.F.T. has become actively involved in drawing up EDIFACT standards.

To ensure secrecy, each message is automatically encrypted by S.W.I.F.T. when it enters the network while users have the option to encrypt the message flow between their in-house terminals and their S.W.I.F.T. access point. Each message also contains an authenticator which permits the

⁷ All figures in this section relate to the end of 1991 or to the year 1991.

identification of the sender and receiver and which guarantees that the message text has not been modified during transmission. Authentication is based on a common algorithm provided by S.W.I.F.T. and on bilateral keys, known only to the sending and receiving pair of users. The network's operating system generates a broad range of automatic reports on individual users' message traffic, for instance relating to undelivered messages, but users may also request special reports, such as terminal error reports, queue status reports and delivery status reports.

S.W.I.F.T. s.c. accepts a contractual responsibility, and associated financial liability in respect of the carriage and delivery of messages. The rules governing the use of the system and the company's responsibility and liability are set out in the S.W.I.F.T. users handbook, and are contractually binding on every member and participant. They spell out some of the responsibilities of the originating and receiving banks, and of S.W.I.F.T. itself, in respect of the timely transmission and handling of payment orders and other financial messages. The rules are often taken as a reference source for correspondent bank relationships.

6.3. Traffic size

Statistics on the geographical breakdown of S.W.I.F.T. users and of message flows over the network are shown in the tables. This shows a strong presence of EC members (especially Italy, Germany and France), sub-members (especially the United Kingdom) and participants (mainly located in the United Kingdom) in the S.W.I.F.T. user community. Banks in EC members countries also generate almost half of the traffic over the network and hold almost half of the shares in the company – with the banking community of France, Germany and the United Kingdom each holding around nine per cent.⁸

With respect to message traffic, the S.W.I.F.T. network may be used for both cross-border and internal domestic transactions involving member banks or participants. The proportion of domestic traffic in the total varies considerably from country to country, partly depending on the rules of the national telecommunication authority and partly on the types of alternative interbank telecommunication facilities available. Among EC countries, France and the United Kingdom generate the largest proportion of domestic traffic, in relation to their total traffic. In the case of France this reflects the fact that the SAGITTAIRE system uses S.W.I.F.T. as message carrier. Total intra EC traffic, including both domestic traffic within EC countries and cross-border traffic between EC countries, is around 60 per cent of the total traffic from EC countries. Reflecting the increasing diversification of the use of the network, the tables also shows that messages other than those relating to customer or bank transfers account for 45% of total S.W.I.F.T. traffic.

6.4. Value-added services

In addition to the basic service, S.W.I.F.T. provides application and processing services to groups of banks engaged in particular activities. One so-called value-added processing service relates to the ECU Banking Association's private *ECU Clearing and Settlement System*, described elsewhere in this chapter, for which ECU payment messages between the Association's members sent over the network are copied and forwarded to a central ECU netting computer. Another service, called *Accord*, was introduced in 1990. It is a computerised system for the automatic matching of foreign exchange and money market deal confirmations sent through the S.W.I.F.T. system. In 1991, the Accord service was extended to include an advisory bilateral foreign exchange netting service: payment information from matched confirmations are extracted to provide statements of bilateral net positions, which subscribers can use in the implementation of bilateral netting agreements. Both the ECU netting and Accord services are supplied by S.W.I.F.T. Service Partners (SSP), with the messages carried by the network.

In 1991, S.W.I.F.T. announced a new application service for its members and participants – Interbank File Transfer (IFT). This allows bulk data to be sent across the network, for example reports between branches of the same bank, or batches of low-value payment orders. For the latter application (Mass Payments Facility), a bulk payments format has been devised, generic enough to allow receiving banks to input the instructions into their domestic automated clearing house(s). In the long term, the IFT facility will also be used to exchange EDI messages, using EDIFACT standards.

⁸ The shareholdings in S.W.I.F.T. by individual members are a function of their share in message traffic over the network.

Finally, through its second major subsidiary, S.W.I.F.T. Terminal Services (STS), S.W.I.F.T. supplies specialised hardware and software to its members for handling their message traffic. STS also provides computer-based training programmes for S.W.I.F.T. users.

6.5. Nature of S.W.I.F.T. messages

A S.W.I.F.T. message containing a payment order is different from those electronic messages passing through domestic large-value funds transfer systems because the S.W.I.F.T. payment order does not, by itself, create an irrevocable obligation on the part of the sending bank. Financial institutions exchanging S.W.I.F.T. messages have to arrange the clearing and/or settlement of the incoming payment orders themselves, either by relying on bilateral correspondent relationships which they have with one another or by forwarding incoming orders to domestic interbank funds transfer systems. However, an increasing number of major banks have introduced "straight-through processing", in which there is an automated linkage between their S.W.I.F.T. connection and their computer systems linking to the domestic payment system. Banks are also increasingly tending to treat an incoming S.W.I.F.T. payment order as authoritative, particularly if it includes the beneficiary's account number. Although these automated links will normally include, as in the case of manual procedures, internal mechanisms for controlling banks' exposures to their correspondents and customers, S.W.I.F.T. is often an integral part of interbank funds transfer systems, especially those handling internationally related payments. Furthermore, where S.W.I.F.T. messages are sent or copied to clearing houses or netting providers, as in the case of SAGITTAIRE in France or the ECU Clearing and Settlement System, they are the backbone for the particular funds transfer systems involved. The technical standards set by the S.W.I.F.T. community for international financial transaction messages – including those drawn up in cooperation with international bodies such as ISO and with EDIFACT – are increasingly used by outside organisations and also tend to set the norm for many countries' domestic financial messages.

Table 1: Intra-EEC Member/Affiliated sub-members matrix (end of 1991)

Members registered in ...	Affiliated sub-members located in ...														TOTAL
	BE	DK	FR	DE	GR	IE	IT	LU	NL	PT	ES	GB	EEC	countries	
BELGIUM (BE)	0	0	3	1	0	0	2	6	0	1	2	6	21	14	35
DENMARK (DK)	0	0	0	6	0	0	0	4	0	0	1	3	14	11	25
FRANCE (FR)	6	2	10	6	5	1	7	10	2	2	8	13	72	90	162
GERMANY (DE)	3	1	4	9	1	1	3	17	2	1	3	13	58	62	120
GREECE (GR)	0	0	0	2	0	0	0	0	1	0	0	1	4	2	6
IRELAND (IE)	0	0	0	0	0	2	0	0	0	0	0	4	6	7	13
ITALY (IT)	0	0	7	6	0	0	0	11	1	0	6	14	45	40	85
LUXEMBOURG (LU)	1	0	1	1	0	0	0	1	0	0	0	1	5	3	8
NETHERLANDS (NL)	3	1	4	4	1	1	1	2	1	1	1	5	25	51	76
PORTUGAL (PT)	0	0	4	0	0	0	0	1	0	0	3	4	12	8	20
SPAIN (ES)	3	0	8	5	0	0	2	0	2	2	16	8	46	30	76
UNITED KINGDOM (GB)	2	0	6	1	5	5	1	1	2	1	3	4	31	23	54
Sub-total EEC	18	4	47	41	12	10	16	53	11	8	43	76	339	341	680
Other non-EEC countries	11	1	36	40	5	2	12	40	12	4	12	128	303	624	927
TOTAL	29	5	83	81	17	12	28	93	23	12	55	204	642	965	1,607

Source: Banque de France, S.W.I.F.T. monthly progress report (December 1991) and list of S.W.I.F.T. members and sub-members.

Table 2: Members, Sub-members and participants

Country or Region	Number of S.W.I.F.T. Members and their affiliated sub-members (end of 1991)				Number of Users of the S.W.I.F.T. network (end of 1991)							Share of total traffic in 1991		Share of Equity Holding end of 1991 %
	S.W.I.F.T. Members	Their affiliated sub-members			Sub-members			Participants	Total number of Users	Sent %	Received %			
		In EEC countries	In non-EEC countries	Total worldwide	Affil. to mbs in EEC	Affil. to non-EEC	Total							
BELGIUM (BE)	36	21	14	35	18	11	29	1	66	4.5	3.8	3.99		
DENMARK (DK)	35	14	11	25	4	1	5	0	40	1.6	1.3	1.98		
FRANCE (FR)	105	72	90	162	47	36	83	4	192	7.6	7.1	9.24		
GERMANY (DE)	150	58	62	120	41	40	81	1	232	8.5	11.5	8.87		
GREECE (GR)	18	4	2	6	12	5	17	0	35	0.4	0.4	0.28		
IRELAND (IE)	4	6	7	13	10	2	12	2	18	0.3	0.4	0.40		
ITALY (IT)	196	45	40	85	16	12	28	0	224	5.3	5.0	6.38		
LUXEMBOURG (LU)	23	5	3	8	53	40	93	0	116	2.2	1.7	0.91		
NETHERLANDS (NL)	30	25	51	76	11	12	23	1	56	3.5	3.3	4.61		
PORTUGAL (PT)	20	12	8	20	8	4	12	0	32	0.7	0.6	0.69		
SPAIN (ES)	56	46	30	76	43	12	55	0	111	2.0	2.1	1.87		
UNITED KINGDOM (GB)	54	31	23	54	76	128	204	28	286	11.8	10.3	8.87		
Sub-total EEC	727	339	341	680	339	303	642	37	1,406	48.4	47.5	48.09		
Other non-EEC countries	1,236	298	624	927	341	624	965	41	2,242	51.6	52.5	51.91		
TOTAL	1,963	637	965	1,607	680	927	1,607	78	3,648	100.0	100.0	100.0		

Source: Banque de France, S.W.I.F.T. monthly progress report (December 1991) and list of S.W.I.F.T. members and sub-members

Table 3: Intra-EEC Message-Flows Matrix in 1991 (number of messages [in thousands])

FROM	TO														TOTAL sent
	BE	DK	FR	DE	GR	IE	IT	LU	NL	PT	ES	GB	EEC	non-EEC countries	
BELGIUM (BE)	2,525	164	1,873	2,047	69	56	909	758	1,607	145	373	1,331	11,857	4,703	16,560
DENMARK (DK)	156	850	207	921	24	23	215	154	164	71	108	585	3,478	2,453	5,931
FRANCE (FR)	1,671	210	8,226	2,798	89	94	2,220	438	886	314	931	1,955	19,382	7,755	27,857
GERMANY (DE)	983	560	1,897	5,158	257	141	1,972	454	1,516	225	779	2,681	16,623	14,341	30,964
GREECE (GR)	39	16	75	229	195	4	122	5	52	4	21	133	865	592	1,457
IRELAND (IE)	38	19	58	140	4	172	47	9	43	10	24	307	871	383	1,254
ITALY (IT)	740	226	1,968	2,662	111	53	2,945	415	607	140	572	1,560	11,999	7,204	19,203
LUXEMBOURG (LU)	1,253	128	562	1,020	6	11	497	1,100	212	31	113	521	5,454	2,464	7,918
NETHERLANDS (NL)	1,299	160	701	2,480	44	47	501	139	1,420	92	268	1,148	8,299	4,645	12,944
PORTUGAL (PT)	100	34	268	324	6	10	173	21	77	260	267	253	1,793	641	2,434
SPAIN (ES)	274	90	718	796	16	31	533	77	214	207	1,111	736	4,803	2,545	7,348
UNITED KINGDOM (GB)	1,187	525	2,014	4,176	183	531	1,557	541	1,090	294	847	10,058	23,003	20,089	43,092
Sub-total EEC	10,264	2,982	18,567	22,751	1,004	1,173	11,691	4,111	7,888	1,793	5,414	21,268	108,906	67,815	176,962
Other non-EEC countries	3,605	2,029	7,329	19,330	655	422	6,457	2,137	4,270	699	2,369	16,498	65,800	122,638	188,197
TOTAL received	13,869	5,011	25,896	42,081	1,659	1,595	18,158	6,248	12,158	2,492	7,783	37,766	174,706	190,453	365,159

Source: Banque de France, S.W.I.F.T. monthly progress report (December 1991) and list of S.W.I.F.T. members and sub-members.

Table 4: Geographical breakdown of Message flows over the S.W.I.F.T. network in 1991 (general overview)

Country or Region	Pattern of Messages sent					Pattern of Messages received				
	Total messages sent (thousands)	Share sent to domestic users %	Total EC share (1)	Share sent to other EC countries %	Share message category I	Share message category II	Total messages received (thousands)	Share received from domestic users %	Share received from other EC countries %	Total EC share %
BELGIUM	16,560	15.2	71.6	56.4	32.9	28.1	13,869	18.2	55.8	74.0
DENMARK	5,931	14.3	58.6	44.3	25.0	35.9	5,011	17.0	42.5	59.5
FRANCE	27,587	29.8	71.2	44.4	29.4	34.4	25,896	31.8	39.9	71.7
GERMANY	30,964	16.7	53.7	37.0	37.4	20.5	42,081	12.2	41.9	54.1
GREECE	1,457	13.4	59.4	46.0	34.2	35.6	1,659	11.8	48.7	60.5
IRELAND	1,254	13.7	69.5	55.8	19.8	32.0	1,595	10.8	62.7	73.5
ITALY	19,203	15.3	62.5	47.2	32.6	27.7	18,148	16.2	48.2	64.4
LUXEMBOURG	7,918	13.9	68.9	55.0	23.2	35.6	6,248	17.6	48.2	65.8
NETHERLANDS	12,944	11.0	64.1	53.1	47.6	21.0	12,158	11.7	53.2	64.9
PORTUGAL	2,434	10.7	73.7	63.0	23.4	30.8	2,492	10.4	61.6	72.0
SPAIN	7,348	15.1	65.3	50.2	21.1	31.6	7,783	14.3	55.3	69.6
UNITED KINGDOM	43,092	23.3	53.4	30.1	19.6	33.6	37,766	26.6	29.7	56.3
Sub-total EEC	176,962	19.2	61.5	42.3	29.6	29.4	174,706	19.5	42.8	62.3
Other non-EEC countries	188,197	15.0			24.5	26.5	190,453	14.8		
TOTAL	365,159	17.0			27.0	27.9	365,159	17.0		

Note: Daily averages can be calculated dividing the figures by 250.3 (number of S.W.I.F.T. "working days" in 1991).

(1) domestic + other EC

(2) Category I : customer (funds)/transfers

(3) Category II: bank (funds)/transfers

Source: Banque de France and S.W.I.F.T. monthly progress report (December 1991)

PART II

COMPARATIVE TABLES

Table 1: Notes and coins in circulation (1990)

	Total (ECU) (millions)	ECU per inhabitant	% GDP	% M1
BELGIUM	9,589	960	6.73	31.6
DENMARK	2,866	558	2.84	10.7
GERMANY	72,251	907	6.35*	31.3
GREECE	5,769	574	11.45	61.8
SPAIN	30,421	782	8.41	19.7
FRANCE	36,954	653	4.05	15.0
IRELAND	1,600	457	4.78	43.4
ITALY	40,278	700	4.79	15.0
LUXEMBOURG	372	988	6.03	21.7
NETHERLANDS	15,744	1,043	7.45	29.0
PORTUGAL	3,157	320	7.56	26.3
UK	21,432	374	2.86	n/a
EC	240,430	699	5.19**	n/a

* in 1989, western Germany only

** 1989 figures for Germany

Table 2: Points of Entry into the Payment System (end of 1990)

	Number of Institutions offering payment services (1)	Number of Central Bank branches (1)	Number of Bank branches (1)	Number of Post Office branches (1) (2)	Others (1)	Total number of branches offering payment services (1)	Number of accounts on which payments can be made (per capita)
BELGIUM	12	2.3	735	321	291	1,349	1.00
DENMARK	44	0.2	605	271		876	1.97
GERMANY	58	2.6	607	366		973	0.94
GREECE	4	2.7	139	-	18	159	0.08
SPAIN	8	1.3	905	-		906	1.80
FRANCE	14	3.9	453	300	73	829	1.05
IRELAND	14	0	322	-		322	0.64
ITALY	19	1.7	308	251		560	0.39
LUXEMBOURG	475	0.0	793	281		1,074	3.20
NETHERLANDS	10	0.8	361	180		541	1.06
PORTUGAL	27	2.1	243	106		351	1.68
UNITED KINGDOM	11	0.1	359	364		723	2.43
EC	25	2.0	490	266	21	778	1.23

(1) per 1,000,000 inhabitants

(2) if the post office offers payment services

Table 3: Cash Dispensers and ATMs

	Number of machines per 1,000,000 inhabitants (end 1990)	Number of Transactions per capita (in 1990)	Average value per transactions (in 1990 in ECUs)	Increase in the number of machines (1989/90)	Increase in the number of transactions (1989/90)	Increase in the value of the transactions (1989/90)
BELGIUM	94	7.1	83	3%	4%	9%
DENMARK	195	n/a	n/a	8%	n/a	n/a
GERMANY	142	n/a	n/a	22%	n/a	n/a
GREECE	32	n/a	n/a	n/a	n/a	n/a
SPAIN	360	9.1	92	24%	27%	32%
FRANCE	256	9.7	64	11%	11%	6%
IRELAND	153	9.6	57	32%	21%	28%
ITALY	170	2.2	188	25%	26%	34%
LUXEMBOURG	215	6.5	112	47%	n/a	n/a
NETHERLANDS	179	11.1	66	47%	n/a	n/a
PORTUGAL	83	5.0	43	58%	49%	59%
UNITED KINGDOM	297	17.3	61	7%	9%	23%
EC	212	n/a	n/a	18% (1)	n/a	n/a

(1) excluding Greece

Table 4: EFT/POS

	Number of machines per 1,000,000 inhabitants (end 1990)	Number of Transactions per capita (in 1990)	Average value per transactions (in 1990 in ECUs)	Increase in the number of machines (1989/90)	Increase in the number of transactions (1989/90)	Increase in the value of the transactions (1989/90)
BELGIUM	2,829	7.9	40	15%	19%	35%
DENMARK	3,078	12.0	57	25%	48%	41%
GERMANY	291	n/a	28	112%	338%	100%
GREECE	0	0	-	-	-	-
SPAIN	8,006	2.0	85	44%	11%	24%
FRANCE	3,179	n/a	n/a	13%	n/a	n/a
IRELAND	0	0	-	-	-	-
ITALY	385	0.1	109	117%	127%	153%
LUXEMBOURG	7,578	23.0	67	n/a	n/a	n/a
NETHERLANDS	147	1.8	21	-8%	59%	86%
PORTUGAL	271	0.8	32	230%	160%	119%
UNITED KINGDOM	1,919	n/a	n/a	47%	n/a	n/a
EC	2,120	n/a	n/a	36% (1)	n/a	n/a

(1) excluding Luxembourg

Table 5: Use of Payment Cards (end of 1990)

	Number of cards per 1,000 inhabitants						Average number of		
	Cards with a cash function	Cards with a debit or a credit function	Cards with a cheque guarantee function	Retailers Cards	Cash withdrawals per card with a cash function	Cash payments per card with a credit/debit function			
BELGIUM	639	640	466	69	11	15			
DENMARK	394	394	47	258	n/a	42			
GERMANY	404	404	342	18	n/a	4			
GREECE	n/a	n/a	n/a	n/a	n/a	n/a			
SPAIN	606	606	0	n/a	15	3			
FRANCE	352	391	2	353	27	53			
IRELAND	702	176	255	n/a	14	29			
ITALY	158	195	24	n/a	11	4			
LUXEMBOURG	615	790	403	n/a	11	28			
NETHERLANDS	724	970	687	n/a	15	2			
PORTUGAL	243	348	78	1	21	2			
UNITED KINGDOM	1,340	907	747	192	13	17			
EC (excl. Greece)	541	503	255	n/a	n/a	15			

Table 6: Major Interbank funds Transfer Systems in the European Community (Figures for 1990)

(1) LARGE-VALUE SYSTEMS								nb tranvalue	average value of transactions	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) Name of the system	(thous.)	(B ECUs)	(Mios ECUs)
DK	CB	RTT	RTGS	O	C	V	15.30 DN Inquiry and Transfer system	719	1,173	1.63
DK	B	RTT	GS	O	C	F	14.30 S.W.I.F.T. (domestic)	82	496	6.05
D	CB	RTT	N	O	C	V	12.00 EAF	2,300	12,180	5.30
E	CB	RTT	N	O	C	F	13.00 STMD	553	7,011	12.68
F	CB	RTT	N	RM	C	F	13.00 SAGITTAIRE	2,500	5,119	2.05
IRL	B	M	GS	RM	C	S	15.00 Special Presentations	20	22	1.12
IRL	CB	M	GS	RM	C	S	16.00 Daily Interbank Settlement	200	751	3.76
I	CB	RTT	N	O	C	V	14.00 SIPS	1,833	3,711	2.02
I	CB	RTT	RTGS	O	C	V	17.00 BISS	1,005	1,074	1.07
I	CB	RTT	N	O	C	V	16.00 Electronic Memoranda	1,255	3,383	2.70
NL	CB	RTT	RTGS	O	C	V	15.30 Central Bank system	800	4,385	5.48
NL	B	ACH	N	O	C	F	11.30 BGC S.W.I.F.T.	1,400	2,272	1.62
GB	B	M	N	RM	C	V	15.50 Town-Clearing	1,000	7,172	7.17
GB	B	RTT	N	RM	D	V	15.10 CHAPS	8,000	26,446	3.31
EUR	B	RTT	N	RM	C	F	14.00 Ecu Clearing and Settlement System	1,115	6,479	5.81
projected (1993)										
F	CB	RTT	RTGS	O	N	F	17.00 TBF (Transferts Banque de France)	7,500	28,927	3.86
(2) SYSTEMS WHICH PROCESS LARGE-VALUE AND RETAIL (BULK) TRANSACTIONS								nb tranvalue	avt	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) Name of the system	(thous.)	(B ECUs)	(thous. ECUs)
B	CB	(a)	N	O	C	F	13.30 CEC	610,330	225	0.4
B	CB	M	N	O	D	S	14.30 Clearing House of B. (excl. CEC)	27,866	4,270	153
D	CB	RTT	RTGS	O	D	F	12.00 Intercity credit transfer syst.	5,400	4,615	855
D	CB	M	GS	O	D	N	12.00 Conventional local cr. tr. syst.	23,100	4,096	177
D	CB	M	N	O	D	N	13.00 Daily local clearing	234,400	41,998	179
GR	B	M	N	O	D	V	15.00 Athens Clearing Office	12,244	161	13
F	B	M	N	RM	C	F	15.00 Paris clearing House	788,700	17,395	22
I	CB	M	N	O	D		13.30 Local Clearing	513	3,568	7
L	B	M	N	O	C	F	10.30 Clearing House	5,932	12	2
NL	B	RTT	GS	O	C	F	13.30 BGC Spoedcircuit	3,000	229	76
P	CB	M	N	RM	D	N	14.00 Traditional Clearing	66,700	283	4
(3) RETAIL SYSTEMS (FOR BULK PAYMENTS)								nb tranvalue	avt	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) Name of the system	(Mios)	(B ECUs)	(ECUs)
DK	CB	ACH	N	O	C/D	S	09.00 DN Retail clearing	329	264	803
D	B/CB	(c)	GS	O	D	V	NO Machine/optional voucher processing (MAOBE)	678	1,423	2,101
D	B/CB	ACH	GS	O	D	V	NO Paperless exch. of data media (DTA)	1,745	553	317
E	B	M	N	O	D	N	NO Clearing houses	198	466	2,357
E	CB	RTT	BN	O	D	V	NO SNCE	258	331	1,284
F	CB	M	N	O	D	N	11.00 Clearing Houses (outside Paris)	2,801	1,148	410
F	CB	ACH	N	RM	D	F	11.00 Computer Clearing Centers	1,723	925	537
F	CB	ACH	N	O	D	V	NO CREIC	202	16	80
F	B	ACH	N	RM	D	F	10.30 National Syst. for pay. by cards	1,326	68	51
IRL	B	(b)	N	RM	C	F	NO Dublin Bankers' Clearing	140	264	1,890
IRL	CB	M	N	RM	C	S	NO The Central Exchange	4	14	3,399
I	CB	ACH	N	O	C	V	NO Retail sub. system	47	10	225
L	B	ACH	N	RM	C	F	NO Bancomat	4	0.4	91
NL	B	ACH	N	O	C	F	11.30 BankGiro System	941	511	543
P	B	RTT	N	RM	C	V	NO Telecompensação	120	169	1,415
GB	B	ACH	N	RM	C	V	NO BACS	1,604	936	583
GB	B	M	N	RM	D	V	NO Cheques and Credit Clearing	3,708	3,118	841
projected (1992)										
F	B	RTT	BN	R	D	F	13.30 Interbank Teleclearing System (SIT)	5,000	2,893	579

(1) Country.

(2) Owner/Manager: B = Banks, CB = Central Banks.

(3) Processing Method: M = Manual, ACH = Automated Clearing House (off line), 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) or RM = Restricted Membership (subject to criteria).

(6) Geographical access to the system: C = Centralised (one processing center only) or D = Decentralised.

(7) Prices charged to participants: F = Full costs (including investments), V = Variable costs, S = Symbolic costs (below variable costs), N = No costs.

(8) Closing time for same day transactions (NO = no same day transactions).

(a) ACH and RTT

(b) M and ACH

(c) ACH for paper-based instruments

Table 7: Use of Payment Instruments in 1990 (Total number of transactions, in millions)

	Cheques	Payments by Cards	Credit transfers	Direct Debits	Others	Total
BELGIUM	207	96	501	58	-	861
DENMARK	156	85	298	57	-	596
GERMANY	784	122	4,272	2,940	-	8,117
GREECE	n/a	n/a	n/a	n/a	n/a	n/a
SPAIN	270	79	58	501	-	908
FRANCE	4,514	1,167	1,341	845 (2)	170	8,038
IRELAND	163	18	39	12	-	231
ITALY (1)	867	49	894	59	-	1,869
LUXEMBOURG (3)	4	8	16	8	-	36
NETHERLANDS	260	27	1,058	360	-	1,705
PORTUGAL (4)	194	8	28	11	-	241
UNITED KINGDOM	3,213	885	1,352	846	-	6,296
EC (excl. Greece)	10,632	2,544	9,808	5,696	170	28,850

(1) These figures refer to the whole system, they have been estimated for comparative analysis and differ from those provided in the statistical annex of the Italian chapter.

(2) includes TIPs

(3) 1991

(4) 1989

Table 8: Use of Payment Instruments in 1990 (Number of instruments per inhabitant)

	Cheques	Payments by Cards	Credit transfers	Direct Debits	Others	Total
BELGIUM	21	10	50	6	-	87
DENMARK	30	17	58	11	-	116
GERMANY	10	2	54	37	-	103
GREECE	n/a	n/a	n/a	n/a	n/a	n/a
SPAIN	7	2	1	13	-	23
FRANCE	80	21	24	15	3	142
IRELAND	47	5	11	3	-	66
ITALY (1)	15	1	15	1	-	32
LUXEMBOURG (2)	10	22	42	22	-	96
NETHERLANDS (3)	17	2	70	24	-	113
PORTUGAL	20	1	3	1	-	25
UNITED KINGDOM	56	15	24	15	-	110
EC (excl. Greece)	31	7	29	17	0	84

(1) These figures refer to the whole system, they have been estimated for comparative analysis and differ from those provided in the statistical annex of the Italian chapter.

(2) 1991

(3) 1989

Table 9: Use of Payment Instruments in 1990 (% of total number of transactions)

	Cheques	Payments by Cards	Credit transfers	Direct Debits	Others	Total
BELGIUM	24	11	58	7	-	100
DENMARK	26	14	50	10	-	100
GERMANY	10	1	53	36	-	100
GREECE	n/a	n/a	n/a	n/a	n/a	100
SPAIN	30	9	6	55	-	100
FRANCE	56	15	17	10	2	100
IRELAND	70	8	17	5	-	100
ITALY (1)	46	3	48	3	-	100
LUXEMBOURG (2)	11	23	43	23	-	100
NETHERLANDS	15	2	62	21	-	100
PORTUGAL (3)	81	3	11	5	-	100
UNITED KINGDOM	51	14	22	13	-	100
EC (excl. Greece)	37	9	34	20	0	100

(1) These figures refer to the whole system, they have been estimated for comparative analysis and differ from those provided in the statistical annex of the Italian chapter.

(2) 1991

(3) 1989

PART III

ANNEX 1

List of Terms and Abbreviations

LIST OF TERMS AND ABBREVIATIONS*

ACH (Automated Clearing House): an electronic *clearing system*, in which data on *payment orders* are exchanged by magnetic media or via a telecommunication network and handled by a data processing centre. See also *clearing*.

Advisory netting: see *position netting*.

Assured payment system: a mechanism whereby a seller of securities delivers securities in exchange for an irrevocable commitment by the buyer's bank to make an unconditional and irrevocable *payment* to the seller's bank. The seller's bank may, on receipt of this assurance, agree to make an unconditional credit to the seller's account; the buyer's bank may obtain collateral in the form of the securities held by, or delivered to, its customer. Can also be used more generally to indicate any arrangement in which a payer's obligation to a payee is guaranteed by a third party (typically a bank), whose credit standing is understood to be higher than that of the payer.

Automated teller machine (ATM): electro-mechanical device allowing the authorised user to withdraw cash from his account and/or to access a varying range of other services such as balance inquiry, transfer of funds and acceptance of deposits. The ATM may be operated *on-line* with real-time reference to an authorisation database or *off-line*.

Bank Draft: a *draft* drawn by a bank on itself. The draft is purchased by the payer and sent to the payee, who presents it to his bank for payment. That bank presents it to the payer's bank for reimbursement.

Batch: the transmission or processing of funds and/or securities transfer instructions as a set at a single point in time.

Bilateral net settlement system: a *netting* system in which *participants'* bilateral or *net settlement positions* are settled between every bilateral combination of participants; see also *net credit or debit position*.

Bill of exchange: a written order from one person (the drawer) to another (the drawee) requiring the drawee to pay a specified sum on demand or on a specified date to the drawer or to a person specified by the drawer. Widely used to finance trade and (when discounted with a bank) to obtain credit. See also *cheque*.

Book-entry system: an accounting system which permits the transfer of claims (e.g. securities) to facilitate elimination of physical movement of paper documents.

Bulk transfer system: see *retail transfer system*.

Call money: a loan contract which is automatically renewed every day unless the lender or the borrower indicates that it wishes the funds to be returned within a short period of time.

Capital risk: see *principal risk*.

Caps: a risk management arrangement whereby limits are placed on the positions that *participants* in an *interbank funds transfer system* can incur during the business day; they may be set by each

*This glossary gives an explanation of terms used on the basis of best consensus between the central banks involved but does not attempt to give legal definitions. Furthermore, it has been written primarily to explain payment systems and as such does not always provide definitions with a universal validity.

individual participant or by the body governing the transfer system; they can be set in *multilateral net*, *bilateral net* or (less commonly) in gross terms and can be either a credit cap or a debit cap; for example, bilateral net credit caps, set by an individual participant, will constitute a limit on the credit exposure that that participant will accept vis-à-vis each other participant; in contrast, sender net debit caps may be set (by the governing body of the *clearing system* based on a particular formula), which limit the aggregate value of transfers that an individual participant may send to all other participants over and above its incoming transfers.

Card: see *cash card*, *cheque guarantee card*, *chip or IC card*, *credit card*, *debit card*, *delayed debit card*, *prepaid card*, *retailer's card* or *travel and entertainment card*.

Cash card: card for use only in *ATM* or *cash dispenser* (often, other cards also have a cash function, that permits the holder to withdraw cash).

Cash dispenser: electro-mechanical device allowing the authorised user to withdraw bank-notes and, in some cases, coins. See also *ATM*.

Central bank credit (liquidity) facility: a standing credit facility which can be drawn upon by the account holders (banks) at the central bank. In some cases, the facility can be used automatically at the initiative of the account holder, while in other cases, the central bank may retain some degree of discretion. The loans typically take the form either of advances or secured overdrafts in current account (also known as Lombard loans in some European countries) or of traditional rediscounting of bills.

Central securities depository: a facility for holding securities which enables securities transactions to be processed by book-entry. Physical securities may be immobilised by the depository or securities may be dematerialised (i.e. so that they exist only as electronic records). In addition to safekeeping, a central securities depository may incorporate *comparison*, *clearing* and *settlement* functions.

Chaining: A method used in certain transfer systems (mostly for securities) for processing instructions. It involves the manipulation of the sequence in which transfers are processed to increase the number or value of transfers that may be settled with available funds and/or securities balances (or available credit lines).

Charge card: see *travel and entertainment card*.

Cheque: a written order from one person (the drawer) to another (the drawee – normally a bank) requiring the drawee to pay a specified sum on demand to the drawer or to a person specified by the drawer. Widely used for settling debts and withdrawing money from banks. See also *bill of exchange*.

Cheque guarantee card: a card issued as part of a cheque guarantee system. If the *cheques* are written with a valid guarantee card, they are, up to a specified amount, guaranteed by the issuing/drawee bank (may sometimes be combined with another function e.g. a *cash card* or *debit card*.)

Chip or IC card: card into which have been inserted one or more integrated circuits.

Clearing (or clearing system): a set of procedures whereby financial institutions present and exchange data and/or documents relating to funds or securities transfers to other financial institutions at a single location (clearing house). The procedures often also contain a mechanism for the calculation of participants' bilateral and/or multilateral net positions with a view to facilitating the settlement of their obligations on a net or net net basis. See also *netting*.

Clearing house: see *clearing*.

Comparison: see *matching*.

Confirmation: the process by which a market participant notifies its customers of the details of a trade.

Correspondent banking: an arrangement under which one bank provides payment and other services to another bank. Payments through correspondents are often executed through reciprocal accounts (so-called *nostro* and *vostro* accounts), to which standing credit lines may be attached. Correspondent banking services are primarily provided across international boundaries but are also known as agency relationships in some domestic contexts.

Credit caps: see *caps*.

Credit card: card indicating that the holder has been granted a line of credit. It enables him to make purchases and/or draw cash up to a pre-arranged ceiling; the credit granted can be settled in full by the end of a specific period, or can be settled in part, with the balance taken as extended credit. Interest is charged on the amount of any extended credit and the holder is sometimes charged an annual fee.

Credit card company: a company which owns the trademark of a particular credit card, and may also provide a number of marketing, processing or other services to the members of the card services.

Credit risk (or exposure): the risk that a counterparty will not settle an obligation for full value, either when due or at any time thereafter. In exchange for value systems, the risk is generally defined to include *replacement cost risk* and *principal risk*.

Credit transfer: one or more payment orders, beginning with the originator's payment order, made for the purpose of placing funds at the disposal of a beneficiary. In the course of a credit transfer, payment orders may be transmitted through separate *credit transfer systems*.

Credit transfer system (or Giro System): a system through which *payment orders* and the funds described therein may be transmitted for the purpose of effecting credit transfers.

Cross currency settlement risk (or Herstatt risk): risk relating to the settlement of foreign exchange contracts which arises when one of the counterparties to a contract pays out one currency prior to receiving payment of the other. Given that the hours of operation of domestic interbank fund transfer systems often do not overlap because of time zone differences and/or that there is usually no means available for assuring the simultaneous unconditional and irrevocable settlement of both currency legs of a foreign exchange transaction, there will be an interval between the final settlement of each leg. (This kind of credit risk is generally known as Herstatt risk after the 1974 failure of the Bankhaus Herstatt).

Custody: the safekeeping and administration of securities and financial instruments on behalf of others.

Daylight credit (or daylight overdraft, daylight exposure, intra-day credit): credit extended for a period of less than one business day; in a *credit transfer system* with end-of-day *final settlement*, daylight credit is tacitly extended by a receiving institution if it accepts and acts on a *payment order* even though it will not receive final funds until the end of the business day.

Debit card: card enabling the holder to have his purchases directly charged to funds on his account at a deposit-taking institution (may sometimes be combined with another function e.g. that of a *cash card* or *cheque guarantee card*).

Debit transfer system (or debit collection system): a funds transfer system in which debit collection orders made or authorised by the payer move from the bank of the payee to the bank of the

payer and result in a charge (debit) to the account of the payer; for example, *cheque*-based systems are typical debit transfer systems.

Default: inability to complete a funds or securities transfer according to its terms for reasons that are not technical or temporary, but usually as a result of bankruptcy. Default is usually distinguished from a "*failed transaction*".

Delayed debit card: card issued by banks indicating that the holder may charge his account up to an authorised limit. It enables him to make purchases but does not offer extended credit, the full amount of the debt incurred having to be settled at the end of a specified period. The holder is usually charged an annual fee.

Deletion: *unwind* mechanism whereby some or all transfers to/from a *defaulting* participant are excluded from the settlement process; in a netting scheme other participants' bilateral and/or multilateral net positions are recalculated. See also *bilateral net settlement system* and *multilateral net settlement system*.

Delivery: *final transfer* of a security or financial instrument.

Delivery-versus-payment (or DVP, delivery against payment): phrase used to summarise the conditions that must hold if the counterparties to a transaction in an exchange-of-value system are not to be exposed to principal risk (the risk that one counterparty loses the full value of the transaction); DVP in its most rigorous form implies that both the asset transfer and the related funds transfer are simultaneously irrevocable and unconditional for the parties involved.

Dematerialisation: the elimination of physical certificates or documents of title which represent ownership of securities so that securities exist only as accounting records.

Direct debit: debit on the debtor's bank account initiated by the creditor, based on the prior written agreement of the debtor.

Direct participant: participant in an interbank funds transfer system which directly exchanges payment orders with other direct participants in the system and which directly settles with the settlement agent for the system. In some cases, direct participants can also operate on behalf of indirect participants through tiering arrangements. See also *settlement member*.

Draft: a written order from one person (the drawer) to another (the drawee) requiring the drawee to pay to a person identified on the order (payee) a specified sum, either on demand or on a specified date.

EFT POS: see *Point-of-sale terminal for electronic funds transfer*.

Electronic Data Interchange (EDI): electronic exchange of data between commercial entities (including in some cases public administrations) on the basis of universally accepted standards for both the subject matter and the format of the messages. Data pertain to a wide spectrum of message categories such as ordering, invoicing, customs documents, remittance advises and payments. The standardisation process is carried out under the umbrella of a United Nations body called EDIFACT (Electronic Data Interchange for Administration, Commerce and Transport).

Exchange-of-value system: system which involves the exchange of money for assets, such as foreign exchange and securities; these systems need to utilise one or more funds transfer systems in order to satisfy the payment obligations that are generated; the links may be manual or electronic.

Face to Face payment: payment carried out by the exchange of instruments between the payer and the payee in the same physical location.

Failed transaction: a transaction relating to a funds or securities transfer in which the securities and/or funds are not exchanged as agreed on the settlement date, usually because of technical or temporary causes. See *default*.

Final settlement: *settlement* of the obligations between two parties by irrevocable transfer of credit across their accounts at a defined settlement institution. Where such transfers are made by irrevocable credit to accounts on the books of a central bank, the transfer could be described as an “*ultimate settlement*” in the economic sense that it is effected in central bank liabilities.

Final transfer: an irrevocable and unconditional transfer which effects a discharge of the obligation to make the transfer. The terms “*delivery*” and “*payment*” are each defined to include a final transfer.

Finality: see *receiver finality*, *sender finality* and *settlement finality*.

Giro system: see *credit transfer system*.

Gross settlement system: a transfer system in which each *credit transfer* or *debit collection* order is settled individually (i.e. without netting debits against credits) (see also *real-time gross settlement*).

Herstatt risk: see *cross currency settlement risk*.

Home banking: services which a customer of a financial institution can access using a telephone, television set or a terminal as a telecommunication link to the institution’s computer centre.

Immobilisation: placement of certificated securities and financial instruments in a *Central Securities Depository* to facilitate book-entry transfers.

Imprinter: mechanical device to reproduce the name and account number of a cardholder on a paper sales slip. See also *imprinter voucher*.

Imprinter voucher: in card transactions, a sales slip that is to be signed by the customer on which name and card number of the customer are imprinted. See also *imprinter*.

Indirect participant: institution which has been granted access to a funds transfer system but which, for whatever reason, needs to exchange orders and/or settle through another participant which has the status of direct participant.

Interbank funds transfer system: a formal arrangement, based on private contract or statute law, with multiple membership, common rules and standardised arrangements for the transmission and settlement of money obligations arising between the members; the transfers may be made for the members’ own account or at the request of their customers (on either an agency or principal basis). Interbank funds transfer systems include *gross* or *net settlement systems*.

International payments: payments which cannot be processed entirely within one “domestic” payment system under the oversight of a single central bank. They primarily consist of “cross-border” payments in which the payee and the payor are not located in the same country.

Intra-day credit: see *daylight credit*.

Irrevocable transfer: a transfer which cannot be revoked by the transferor.

Large value transfer system (or wholesale transfer system): interbank funds transfer system through which large value and high priority fund transfers are made between banks for their own account or on behalf of their customers. Though as a rule no minimum value is set for the payments they carry, the average size of payments through such systems is relatively high.

Letter of credit: an arrangement whereby a bank promises to a third party to pay a customer's maturing obligations as they are due and presented. Frequently used in international trade to make funds available in a foreign location.

Liquidity risk: the risk from a *participant's* failure to settle a debit position at the time due because it does not have enough liquid assets; liquidity risk does not imply that a participant is insolvent since he might be able to settle the required obligations at some unspecified time thereafter.

Loss-sharing rule (or loss-sharing agreement): an agreement between participants in a *clearing* system regarding the allocation of any loss arising when one or more participants fail to fulfil their obligations; the arrangement stipulates how the loss will be shared among the parties concerned in the event the agreement is activated.

Matching (or comparison, checking): in securities settlement, the process used by market participants before settlement of a transaction to ensure that they agree with respect to the terms of the transaction.

MICR (Magnetic Ink Character Recognition): a technique by which documents are read by machines for electronic processing. See also *OCR*.

Money order: document used to remit money to persons who don't hold an account with a bank or whose account number is unknown. Payees can either cash their order or present it to their bank for collection.

Multilateral net settlement system (or net net settlement system): a *netting* system in which *direct participants* settle only their net net positions resulting from the clearing process; see also *clearing* and *net credit or debit position*.

Net credit or debit position: a *participant's* net credit or debit position in a *netting* system is the sum of all the *transfers* it has received up to a particular point in time from another participant less the transfers it has sent to the same participant; if this sum is positive, the participant is in a net credit position vis-à-vis the other participant; if the sum is negative, he is in a net debit position; the net credit or debit position at settlement time is called the net settlement position. See also *bilateral net settlement system*.

Net net settlement (credit or debit) position: the sum of all the *transfers* a *participant* in a net settlement system has received at a particular point in time from all the other participants in the system less the transfers it has made to all other participants; it is also equal to the sum of the participant's net credit positions less its net debit positions; if the sum is positive, the participant is in a net net credit position; if the sum is negative, he is in a net net debit position. In a net settlement system, the net net settlement positions of all participants sum to zero. See also *multilateral net settlement system*.

Net or net net debit cap: see *caps*, *net credit or debit position*, *net net settlement position*.

Net settlement: see *bilateral net settlement system* and *multilateral net settlement system*.

Netting (or netting scheme): an agreed offsetting of positions or obligations by trading partners or participants in a system. The netting reduces a large number of individual positions or obligations to a smaller number of positions. Netting may take several forms which have varying degrees of legal enforceability in the event of default of one of the parties. See also *position netting* and *novation*.

Novation: satisfaction and discharge of existing contractual obligations by the substitution of new obligations (whose effect, for example, is to replace gross with net payment obligations). The participants to the new obligations may be the same as to the existing obligations ("bilateral netting by

novation") or the new obligations may include a new party or parties, for instance some form of clearing house ("multilateral netting by novation").

OCR: Optical Character Recognition; a technique by which documents are read by machines for electronic processing. See also *MICR*.

Off-line: pertaining to data processing equipment or procedure which operates locally, without *real-time* reference to data managed by a central unit.

On-line: pertaining to data processing equipment or procedure which operates with *real-time* reference to data managed by a central unit.

Overnight money (or day-to-day money): a loan with a maturity of one business day.

Paperless credit transfers: refers in the Blue Book to credit transfers that are exchanged paperless between banks. In the Blue Book, other credit transfers are called **paper-based**.

Participant: see *direct participant* and *indirect participant*.

Payment: the satisfaction and discharge of an obligation by the debtor's irrevocable provision of an unconditional claim on a third party acceptable to the creditor (for example bank-notes, deposit balance held at a financial institution or at the central bank).

Payment order (or payment instruction): an order or message requesting the transfer of funds (in the form of a claim on a third party) to the order of the creditor. The order may relate either to a *credit transfer* or a *debit transfer*.

Payment lag: the time lag between the execution of the payment order by the sending bank and its final settlement. See also *settlement lag*.

Payment system: it consists of a defined group of institutions, and of a set of instruments and procedures, used to ensure the circulation of money within a geographical area, usually a country.

PIN (Personal Identification Number): the alphanumeric code which the cardholder may need to quote for verification of identity. In electronic transactions, it is seen as the equivalent of a signature.

Point-of-sale terminal for electronic funds transfer (EFT POS): a terminal at a retail location which is designed to capture, and in some cases also transmit, payment information by electronic means.

Position netting (or advisory netting): *netting* of instructions in respect of obligations between two or more parties which neither satisfies nor discharges those original individual obligations. Also referred to as payment netting in the case of payment instructions.

Prepaid card: a card 'loaded' with a given value, paid for in advance.

Principal risk (or capital risk): the risk that a party will lose the full amount involved in a transaction, typically when there is an interval between the final settlement of the two legs of a transaction. See also *credit risk* and *cross currency settlement risk*.

Queuing: a risk management arrangement whereby transfer orders are held pending by the originator/deliverer or by the system until sufficient cover is available in the originator's/deliverer's clearing account or under the net limits set against the payer; in some cases, cover may include unused credit lines or available collateral. See also *caps*.

Real time transmission or processing: the transmission or processing of funds and/or securities transfer instructions on an individual basis at the time they are initiated.

Real time gross settlement: a *gross settlement system* in which each transaction is processed and settled in *real-time*. This means that settlement takes place at the same time as or before the instruction is passed to the transferee.

Receiver finality: one of three forms of *payment finality*; represents an unconditional obligation on the part of the receiving participant in a transfer system to make final and irrevocable funds available to its beneficiary customer on value date; see also *sender finality* and *settlement finality*.

Remote payments: payments carried out through sending payment orders or payment instruments (e.g. by mail).

Replacement cost risk (or market risk, price risk): the risk that a counterparty to an outstanding transaction for completion at a future date will fail to perform on the settlement date. This failure may leave the solvent party with an unhedged or open market position or deny the solvent party unrealised gains on the position. The resulting exposure is the cost of replacing, at current market prices, the original transaction. See also *credit risk*.

Retailer's card: a card issued by non-banking institutions, to be used in specified stores. The holder of the card has usually been granted a line of credit.

Retail transfer system: interbank funds transfer system which handles a large-volume of payments of relatively low value in such forms as *cheques*, *credit transfers*, *direct debits*, *ATM* transactions and *EFT* at the point of sale.

Securities depository (*book-entry system*): see *central securities depository*.

Sender finality: one of three forms of payment finality; represents an unconditional obligation on the part of the initiating participant in a funds transfer system to make final and irrevocable *payment* to the receiving *participant* on value date; see also *receiver finality* and *settlement finality*.

Settlement: completion of a payment or the discharge of an obligation between two or more parties. Frequently used to refer to the payment or discharge of interbank transactions or a series of prior existing transactions. See also *final settlement*, *gross settlement system*, *net credit or debit position* or *net net settlement (credit and debit) position* and *ultimate settlement*.

Settlement agent: the institution initiating the *final settlement* of a *clearing*, on behalf of all the *participants*.

Settlement finality: one of three forms of payment finality; refers to the point at which the final and irrevocable transfer of value has been recorded in the books of the relevant *settlement institution*. The timing of settlement can be any of the following: immediate, same day (end of day), next day.

Settlement institution: the institution across whose books transfer takes place to achieve *settlement*.

Settlement lag: the time lag between the input of the original transaction in the *payment system* and its *final settlement*.

Settlement member (or direct participant): a member of the system that holds a settlement account at the settlement institution. (Non-settlement members settle their positions using a settlement member).

Settlement risk: general term used to designate both credit and liquidity risk in a transfer system, i.e. the risk that a party will fail to meet one or more obligations to its counterparties or to a *settlement agent* or *settlement institution*.

Single net settlement system: see *bilateral net settlement system*.

Standing order: an instruction from a customer to his bank to make a regular (often monthly) payment of a fixed amount to a named creditor.

S.W.I.F.T. (Society for Worldwide Interbank Financial Telecommunication): an international financial transaction message network. Created and owned by banks, the network is also available to some categories of non-bank institutions.

Systemic risk: the risk that the failure of one *participant* in an *interbank funds transfer system* or securities settlement system, as in financial markets generally, to meet his required obligations will cause other participants or financial firms to be unable to meet their obligations when due.

Telematics: combined use of data-processing and data-transmission techniques.

Tiering arrangement: an arrangement allowing a bank which does not directly participate in funds transfer (or securities settlement) systems, to operate through the services of another bank, which is a member of the system. See also *direct participant*.

Transfer: an act which transmits or creates an interest in a security, a financial instrument, or money.

Transfer system: a generic term covering *interbank funds transfer systems* and *exchange-of-value systems*.

Travel and entertainment (charge) card: card issued by non-banks indicating that the holder has been granted a line of credit. It enables him to make purchases but does not offer extended credit, the full amount of the debt incurred having to be settled at the end of a specified period. The holder is usually charged an annual fee.

Truncation: a procedure in which the physical movement of paper items within a bank or between banks is curtailed, being replaced by the transmission of all or part of their content in electronic form.

Ultimate settlement: *final settlement* of funds transfer when it takes place across the books of the central bank issuing the currency.

Unwinding: a procedure for unravelling the transactions effected in a *net settlement system* in order to eliminate transactions entered by one or more *participants*. See also *deletion*.

Videotex (Viewdata): a two-way interactive computer system capable of displaying centrally stored pages of text and graphics on adapted television screens using simplified commands.

Wholesale transfer system: see *large value transfer system*.

ANNEX 2

Comparative analysis of Payment Systems in EC Countries

COMPARATIVE ANALYSIS OF PAYMENT SYSTEMS IN EC COUNTRIES

Introduction

1. The Institutional aspects

- 1.1. General legal aspects (general legal and regulatory provisions concerning payment systems and their supervision; institutions allowed to offer payment services; definition of deposit-taking institution; anti-trust regulations etc.).
- 1.2. Financial intermediaries that provide payment services (banks, other credit institutions, the postal system, credit card companies, etc.).
- 1.3. The role of the central bank (note issuance, current-account services for banks, payment services for the Government, banking supervision, etc.).
- 1.4. The role of other private and public sector bodies (banking associations, specialised payment associations, etc.).

2. Summary information on payment media used by non-banks

- 2.1. Cash payments.
- 2.2. Non-cash payments:
 - “money available for non-cash payments” (characteristics of accounts, interest, close substitutes);
 - main instruments used by non-banks (cheques, transfers, direct debits, payment cards, ATMs, post office instruments, etc.).
- 2.3. Recent developments (including where appropriate, Electronic Data Interchange – EDI, prepaid cards, home banking etc.).

3. Interbank exchange and settlement circuits

- 3.1. General overview:
 - description of interbank circuits;
 - description of the major characteristics of interbank systems (with particular attention given to the retail systems as they are not to be mentioned in Section 3.2.).
- 3.2. Structure, operation and administration of major large-value systems:
 - major legislation, regulations and policies;
 - participants in the system (direct and indirect, resident and non-resident, etc.);
 - types of transactions handled (including volumes and values);
 - operation of the transfer system (gross/continuous vs net settlement systems, role of clearing houses, etc.);
 - transaction-processing environment (network, back-up solutions);
 - settlement procedures (accounts, agents, etc.);
 - pricing policies;
 - credit and liquidity risks and their management (finality of payments, net or net net debit caps, collateral requirements, loss sharing).
- 3.3. Main projects and policies being implemented.

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

- 4.1. Exchange and settlement systems for international transactions:
 - general overview (role of correspondent banking, role of tiering agreements, role of S.W.I.F.T., role of banking groups, large-value vs retail payments, etc.);
 - the retail transactions (the use of individual payment instruments such as cards, cheques, Eurocheques, etc.);
 - the large-value transfers (the use of domestic and specific large-value electronic fund transfer systems).
- 4.2. Exchange and settlement systems for securities transactions:
 - the institutional framework (types of securities transactions, organisations such as depositories or clearing houses, etc.);
 - structure, operation and administration of systems with special attention given to the links between securities transfers and payment systems (“delivery against payment” arrangements).

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

- 5.1. General responsibilities:
 - establishment of common rules and credit risk management;
 - audit and supervision of interbank fund transfer systems.
- 5.2. Provisions of settlement facilities:
 - use of central bank accounts for payment services;
 - role in gross settlement systems;
 - relation with netting systems;
 - role in the settlement of securities transactions;
 - provision of credit facilities (intra-day and overnight, collateralised or not etc.);
 - pricing policies.
- 5.3. Monetary policy and payment systems:
 - existing relationships;
 - influence of changes in payment systems on monetary policy.
- 5.4. Main projects and policies being implemented.

Conclusion

ANNEX 3

List of the members of de Ad Hoc Working Group on EC Payment Systems

MEMBERS OF THE AD HOC WORKING GROUP ON EC PAYMENT SYSTEMS

Chairman

Belgium

Denmark

Germany

Greece

Spain

France

Ireland

Italy

Luxembourg

Netherlands

Portugal

United Kingdom

EC Commission

Secretariat of the Committee of Governors

Dr. T. Padoa-Schioppa

Mr. R. Reynders

Mr. J. Ovi

Mr. W. Hartmann

Mr. A. Foskolos

Mr. J. Ariztegui

Mr. D. Bruneel

Dr. P. McGowan

Mr. C. Santini

Mr. P. Beck

Mr. J.A. Sillem (until 31.03.92)

Mr. G.J. Hogeweg (from 31.03.92)

Mr. A. Sequeira

Mr. B. Quinn

Mr. J.P. Fèvre

Mr. J.M. Godeffroy

Mr. M. Santema

When preparing the Blue Book the Ad Hoc Working Group was assisted by a Co-ordination Group and an Editorial Group, chaired by Mr. M. Perdrix (Banque de France) and the Secretariat, respectively. Furthermore, it has benefited from technical assistance provided by the Bank for International Settlements.

