Payment systems in the euro area

Table of contents

List of abbreviations

BAS	Business Administration System
CBF	Clearstream Banking Frankfurt
CBL	Clearstream Banking Luxembourg
CCB	correspondent central bank
CCBM	correspondent central banking model
CEPS	common electronic purse specifications
CESR	Committee of European Securities Regulators
CLS	continuous linked settlement
EACH	European Association of Central Counterparty Clearing Houses
EBA	Euro Banking Association
ECB	European Central Bank
ECN	electronic communications network
ECOFIN	Council of Economic and Finance ministers
ECS	Euro Clearing System
ECSDA	European Central Securities Depository Association
EEA	European Economic Area
ELMI	electronic money institution
EMI	European Monetary Institute
EMU	Economic and monetary union
EMV	standard for integrated circuit cards established by Europay, MasterCard and Visa
EPC	European Payments Council
EPM	ECB payment mechanism
EPSS	European Payment Systems Services SA
ERP	Euro Retail Payment
ESCB	European System of Central Banks
ESCC	European Securities Clearing Corporation
Eurex	European Exchange (common futures market of the German and Swiss stock exchanges)
EURO 1	EU-wide payment system of the EBA
Eurogiro	European network for postal giro systems
EuroMTS	electronic bond trading platform for European benchmark bonds
Euronext	single stock exchange created by the merger between the Amsterdam, Brussels and Paris stock exchanges
FESE	Federation of European Securities Exchanges
FIN	store and forward messaging service for financial institutions on the SWIFT network
FIN Copy	function of the SWIFT network by which instructions may be copied and optionally authorised by a third party before being released to the beneficiary.
HCB	home central bank

IBAN	International Bank Account Number
IOSCO	International Organization of Securities Commissions
IP	internet protocol
IST	Information Society Technologies programme of the European Commission
LCH	London Clearing House
MoU	Memorandum of Understanding
MT100, MT102, MT103	SWIFT message formats for transferring payments
NCB	national central bank
Necigef	the Dutch CSD
PACE	Purse Application for Cross-border use in Euro
PNS	Paris Net Settlement system
SEPA	single euro payment area
SET	secure electronic transaction
SFD	Settlement Finality Directive
Sicovam SA	Société Interprofessionelle pour la Compensation des Valeurs Mobilières SA (French CSD and clearing authority)
SIPN	Secure Internet Protocol Network
SOS	Single Obligation Structure of the EURO 1 system
STEP 1	Straight-Through Euro Payment system of the EBA
SWIFTNet FIN	store and forward messaging service for financial institutions on the new SWIFTNet platform
TARGET	Trans-European Automated Real-time Gross settlement Express Transfer system
XML	extensible markup language

Introduction

On 1 January 2002, euro banknotes and coins were introduced in the euro area. It was an event of paramount importance in the history of Europe. The production of more than 15 billion banknotes posed a huge challenge, especially considering that it required concerted action across 15 printing works in the euro area and that banknotes had to be produced to the same quality standards all across Europe, using raw materials from different suppliers. In addition, the logistics of the actual changeover process were an enormous project requiring very early preparation and intense discussions at several levels. The cash changeover proceeded extremely well and, in fact, in many ways exceeded expectations. The success can be attributed to the quality of the preparatory work performed by all sectors involved and at all levels, as well as to the enthusiasm with which the citizens of the euro area have embraced their new money.

Payment and securities settlement systems in the European Union were originally created with the aim of meeting domestic requirements. They were rather diverse in nature and not necessarily suited to the needs of a single currency area, where an infrastructure is needed which enables the quick and smooth flow of payments and securities at a low cost in the whole area. Against this background, the financial infrastructure in the European Union has undergone rapid changes both in the run-up to and following the introduction of the euro. The launch of the euro and developments in technology led to an overhaul and reshaping of the infrastructure for effecting payments and for the trading, clearing and settlement of securities. In addition, the advent of the single currency has also accelerated efforts to harmonise and consolidate payment and securities settlement systems.

Some payment and securities settlement systems are common to, or relevant for, all the EU member states which have adopted the euro as their single currency. The aim of this chapter is to describe these systems and to depict the legal and regulatory environment in which they operate. Major emphasis has been placed on the role of the Eurosystem, which comprises the European Central Bank (ECB) and the national central banks (NCBs) of the euro area. Last, but not least, the chapter also endeavours to describe aspects and features of payment and securities settlement systems which are common to all EU member states. The reason for this is that, with regard to the legal and banking environment in which payment and securities settlement systems operate, the EU member states which have not yet adopted the euro share a great deal with those which have done so.

The reshaping of the infrastructure and accelerated efforts to harmonise and consolidate payment and securities settlement systems have been particularly prevalent in large-value payment systems. The creation of the Trans-European Automated Real-time Gross settlement Express Transfer (TARGET) system has established an EU-wide RTGS system which is used for the settlement of central bank operations, cross-border and domestic interbank transfers as well as other large-value euro payments. TARGET is an essential vehicle for the implementation of the monetary policy for the Eurosystem, and has helped to create a single money market within the euro area.

The only privately owned and operated EU-wide payment system is the EURO 1 system of the Euro Banking Association (EBA). EURO 1 processes interbank payments as well as commercial payments.

In addition to TARGET and the EBA's EURO 1, three other large-value net settlement systems[1] are in operation as of November 2002: Pankkien On-line Pikasiirrot ja Sekit-järjestelmä (POPS) in Finland, Servicio de pagos interbancarios (SPI) in Spain and the Paris Net Settlement system (PNS) in France. More detailed information on the French system can be found in the relevant country chapter.

With regard to correspondent banking, it has generally been noted that its former role of being one of the main ways of making cross-border payments has diminished in the euro area since the launch of the euro. There are signs that this development will also continue in future.

The situation with regard to cross-border retail payment systems within the euro area is not yet as developed as is the case for cross-border large-value payment systems. Despite the introduction of the euro, cross-border retail payment services have not yet reached the service levels of domestic retail payment services. Significant differences in quality, efficiency and price between domestic and

[1] Euro Access Frankfurt (EAF), operated by the Deutsche Bundesbank, ceased operations on 5 November 2001 when the new German TARGET component RTGS^plus was introduced.

cross-border services are still preventing people from reaping the benefits of the single currency. Correspondent banking relationships and enhanced correspondent banking relationships in the form of networks have experienced a remarkable concentration of business in some major correspondent banks. In addition, large-value payment systems are also used for cross-border retail business. The only retail payment system which covers the whole of the euro area and which is open to all banks is the EBA's STEP 1 arrangement (see Section 3.3.3). In order to foster an improvement in the situation for cross-border retail payments, the Eurosystem published a report entitled *Improving cross-border retail payment services - the Eurosystem's view* in September 1999. This report identified the issues to be tackled and drew up a list of objectives to be fulfilled by the beginning of 2002. A progress report was published in September 2000 describing the achievements which the banking community had made and highlighting areas where further work was necessary. In September 2001, the ECB was asked by the ECOFIN Council to prepare a report outlining an agenda for the implementation of a modern payment systems infrastructure for credit transfers in euros. The report entitled *Towards an integrated infrastructure for credit transfers in euro* was sent to the ECOFIN Council and the Internal Market Council in November 2001. The report highlighted the measures which should accompany the reform of the infrastructures and presented a road map for those measures. A Regulation of the European Parliament and the Council on cross-border payments in euros was adopted in December 2001. The Regulation establishes that the charges for cross-border retail payments in euros should be the same as those for similar domestic payments (see Section 1.1 for details on the Regulation).

In the area of securities, the introduction of the euro has eliminated currency segmentation, which was one of the main reasons for the fragmentation of listing, trading and settlement in the countries of the euro area. The increased homogeneity of the securities markets within the euro area has encouraged investors to regard the euro area securities markets as a single entity. Trading, clearing and settlement institutions are trying to respond to this change in the market by increasing their cross-border operations. Moreover, an integrated euro area-wide money market has emerged and the need in part to collateralise money market transactions has provided an incentive for the cross-border use of securities in the euro area. Another factor pushing in the same direction was the requirement for all collateral eligible for monetary policy operations of the central banks of the euro area to be equally usable by all monetary policy counterparties. As no suitable facilities for the cross-border transfer of securities existed at the beginning of monetary union, the central banks set up the correspondent central banking model (CCBM). In the CCBM, central banks act as correspondents for each other, thus enabling the cross-border transfer of securities used for the Eurosystem's monetary policy operations and the intraday credit operations of the European System of Central Banks (ESCB). In response to the increasing need for cross-border transfers of securities in euros, including for commercial purposes, securities settlement systems (SSSs) within the European Union have established links between themselves for the cross-border transfer of securities.

In response to the demands of the securities markets for effective economies of scale and scope, the securities settlement industry is also in the process of consolidating its cross-border activities. The consolidation process covers trading, clearing and settlement structures.

1. Institutional aspects

1.1 The general institutional background

Most of the provisions of the Treaty establishing the European Community (the Treaty) which relate to monetary union and most of the provisions of the Statute of the European System of Central Banks and of the European Central Bank (the Statute of the ESCB) apply only to EU member states which have adopted the euro and/or their central banks and to the ECB. In order to clarify which central banks are meant in which context, the name "Eurosystem" was coined at the beginning of stage three of EMU. The Eurosystem comprises the ECB and the NCBs of those EU member states which have adopted the euro. The decision-making bodies of the Eurosystem are the Executive Board of the ECB and the Governing Council of the ECB. The NCBs of Denmark, Sweden and the United Kingdom, ie those EU member states which are not yet participating in monetary union and continue to conduct an independent monetary policy, are not part of the Eurosystem. When reference is made to the ECB and the central banks of all EU member states, the more general term "European System of Central

Banks" (ESCB) is used. The third decision-making body of the ECB, the General Council, comes into play when matters relating to the ESCB are involved.

One of the basic tasks of the Eurosystem is to promote the smooth functioning of payment systems. The relevant provisions are enshrined in the Treaty and the Statute of the ESCB. The Statute of the ESCB is annexed to the Treaty as a Protocol and thus forms an integral part of the Treaty.

The following legal provisions in the Treaty and the Statute of the ESCB are of particular importance with regard to payment and settlement systems:

- Article 105 (2) of the Treaty (reiterated in Article 3.1 of the Statute of the ESCB), which defines as a basic task of the Eurosystem the promotion of the smooth operation of payment systems;
- Article 22 of the Statute of the ESCB, which states that the ECB and NCBs may provide facilities, and the ECB may make regulations, to ensure efficient and sound clearing and payment systems within the Community and with other countries. Such ECB regulations are directly applicable in the member states which have adopted the euro.

The Treaty assigns to the ECB the regulatory powers to adopt any legal acts which are necessary to implement the basic tasks assigned to the Eurosystem. A distinction can be made between two different kinds of ECB legislation. First, there are legal acts addressed to third parties (other than the NCBs of the Eurosystem). These legal acts are ECB Regulations, Decisions, Recommendations and Opinions. Second, there are internal legal acts, which take the form of ECB Guidelines, ECB Instructions and internal ECB Decisions.

In addition, the EU Council and the European Parliament are empowered by the Treaty to adopt legal instruments. These legal instruments, which are applicable in all member states, include rules relating to the banking industry and the provision of financial services. Thus they also affect the framework for payment and securities settlement systems. The main legal instruments used by the EU Council and the European Parliament are Directives, which have to be implemented at the national level. They are used to harmonise existing rules at the national level or to establish new legislation where national rules do not exist but are deemed necessary. The EU Council and the European Parliament may also use Regulations, which are directly applicable in the member states. Some of the main Directives and Regulations which have an impact on payment and securities settlement systems are the following:

The Settlement Finality Directive (SFD)

The main objective of Directive 98/26/EC of 19 May 1998 on settlement finality in payment and securities settlement systems is to (i) eliminate the main legal risks to which payment and securities settlement systems are exposed, taking into account the significant systemic risk inherent in such systems - both net and gross; (ii) ensure that the smooth functioning of a system cannot be compromised by the application of a foreign insolvency law in the event of the participation of a foreign entity; and (iii) enhance the legal certainty of collateral (also to the benefit of the credit operations of the ESCB). The provisions of the SFD apply to (a) systems, (b) participants in systems, and (c) collateral security provided in connection with participation in a system or in the framework of the operations of the ESCB.

The Cross-Border Credit Transfers Directive

Directive 97/5/EC of 27 January 1997 on cross-border credit transfers is concerned with enabling individuals and businesses, especially small and medium-sized enterprises, to make credit transfers in euros rapidly, reliably and cheaply from one part of the Community to another. The Directive only applies to cross-border credit transfers up to a value of EUR 50,000. It lays down minimum requirements needed to ensure an adequate level of customer information both before and after the execution of a cross-border credit transfer and it sets forth minimum execution requirements. In this respect, it provides that:

- customers be given, in advance, prices which they can understand clearly for any type of credit transfer;
- a transfer should be credited to the beneficiary's account within a clearly defined time scale (not exceeding six days);

- transfers for which the originator pays all the costs ("OUR" mode) will be the rule, unless otherwise stipulated. An intermediary or receiving bank may not make any further charges, in particular not to the beneficiary; and
- when a transfer goes astray, a "money-back" guarantee up to EUR 12,500 is provided.

The Cross-Border Credit Transfers Directive assists the ECB in its task of promoting efficient cross-border payments in the third stage of EMU.

The E-money Directive

Directive 2000/46/EC of 18 September 2000 on the taking up, pursuit of and prudential supervision of the business of electronic money institutions is aimed at fostering the single market in financial services by introducing a minimum set of harmonised prudential rules for electronic money issuance and by applying the arrangements for the mutual recognition of home supervision provided for in Directive 2000/12/EC[2] to electronic money institutions (ELMIs). This includes the safeguarding of the financial integrity and the operations of ELMIs by, on the one hand, ensuring the stability and soundness of ELMIs and, on the other hand, ensuring that the failure of any one individual ELMI does not result in a loss of confidence in this new means of payment. The E-money Directive further creates a level playing field for the issuance of electronic money by both traditional credit institutions and ELMIs, thus ensuring that all issuers of electronic money are subject to an appropriate form of prudential supervision. The amendment introduced by Directive 2000/28/EC of 18 September 2000 to the definition of credit institution in Article 1, paragraph 1, first subparagraph of Directive 2000/12/EC of 20 March 2000 relating to the taking up and pursuit of the business of credit institutions obliges institutions that do not intend to enter into the full range of banking operations to issue electronic money in accordance with the fundamental rules governing all credit institutions. This amendment promotes the harmonious development of the issuance of electronic money throughout the Community and avoids any distortion of competition between electronic money issuers, including with regard to the application of monetary policy measures.

The Investment Services Directive

Directive 93/22/EEC of 10 May 1993 on investment services in the securities field is also important in the context of payment and securities settlement systems as it abolishes (see Article 15) (i) restrictions on access to regulated markets in EU member states, and (ii) restrictions on access to, and membership of, bodies performing clearing and settlement functions for regulated markets. The abolition of these restrictions on access benefits both investment firms and credit institutions (see Article 2.1).

The Regulation on cross-border payments in euros

Regulation 2560/2001/EC of 19 December 2001 on cross-border payments in euros is aimed at bringing the prices of cross-border payments into line with the prices of similar domestic payments within a country (the so-called principle of non-discrimination). Among the provisions of the Regulation is the requirement that providers of payment services establish charges for the domestic and cross-border use of ATMs and card payments at the same level at the latest from 1 July 2002, and charges for domestic and cross-border credit transfers at the same level from 1 July 2003 for transfers up to EUR 12,500 and from 1 January 2006 for transfers up to EUR 50,000. Furthermore, enhanced price transparency requirements were imposed on the providers of payment services, obliging institutions to provide their customers with prior information on charges. In order to facilitate straight through processing, the Regulation imposes an obligation on institutions to communicate the relevant International Bank Account Number (IBAN) and the Bank Identifier Code (BIC) to their customers upon request. The Regulation also establishes a reporting threshold for balance of payments statistics of EUR 12,500 from 1 July 2002, and increases it to EUR 50,000 from 1 January 2006. The EU member

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[2] Directive 2000/12/EC of the European Parliament and of the Council of 20 March 2000 relating to the taking up and pursuit of the business of credit institutions (includes the former First Banking Coordination Directive and the Second Banking Coordination Directive, which were essential in achieving the single market for banking services in the European Union).

states not participating in EMU were given the possibility to also apply the Regulation to their currencies.

1.2 The role of the Eurosystem

The smooth functioning of payment systems is of particular concern to central banks for three main reasons: (i) a major malfunction in a payment system could undermine the stability of financial institutions and markets; (ii) the soundness and efficiency of payment systems and the security of payment instruments affect the confidence of users and, ultimately, public confidence in the currency; (iii) payment systems represent essential vehicles for the implementation of monetary policy. The payment system policies of central banks are aimed at ensuring the efficiency and soundness of payment systems. In order to achieve these policy objectives the payment and settlement services offered by the private sector are overseen by central banks (for further details on the oversight of payment systems see Section 1.2.1). Central banks also offer settlement services themselves and sometimes assume an operational role in payment systems. For the Eurosystem, this dual role of regulator ("overseer") and service provider is emphasised, in particular, in Article 22 of the Statute of the ESCB. In addition, the Eurosystem acts as a catalyst for change in the field of payment systems.

Central banks' payment systems function and prudential banking supervision share the objective of financial stability, ie they are both aimed at reducing the risk of financial crisis. However, while prudential supervision looks at institutions, central banks focus on the oversight of systems. The Eurosystem considers close cooperation between payment system overseers and banking supervisors essential. Therefore, EU payment systems overseers and banking supervisors have agreed on a Memorandum of Understanding (MoU). The MoU is aimed at promoting cooperation between payment systems overseers and banking supervisors in relation to large-value interbank funds transfer systems (IFTSs).

With regard to securities clearing and settlement systems, the Treaty contains no explicit reference to the role of the Eurosystem. Nevertheless, the interest of the Eurosystem goes beyond the limited perspective of a user of collateral in the context of its monetary policy and intraday credit operations. With its general responsibility for financial stability, the Eurosystem, like any central bank in the developed world, has a general interest in the smooth functioning of securities clearing and settlement systems with a view to ensuring the smooth implementation of monetary policy and the smooth functioning of payment systems.

In pursuing the above-mentioned objectives, the Eurosystem also cooperates with other bodies and institutions which are active in the field of payment and securities settlement systems (see Section 1.2.4).

1.2.1 Payment systems oversight

As part of their payment systems function, central banks monitor developments in the field of payment and settlement systems in order to assess the nature and scale of the risks inherent in these and to ensure the transparency of the arrangements concerning payment instruments and services. Where necessary they define principles and standards for the promotion of safe, sound and efficient payment and settlement systems. They ensure that the systems, whether these are operated by the central banks themselves or by private operators, comply with these principles and standards.

The oversight role of the Eurosystem - which is recognised in the Treaty (Article 105 (2)) and the Statute of the ESCB (Articles 3 and 22) - covers both large-value interbank funds transfer systems and retail payment systems. With regard to the systems managed by the Eurosystem, standards are applied which are at least equivalent to those applied to privately operated payment systems.

The Eurosystem has clarified its payment systems oversight policy in a statement entitled *Role of the Eurosystem in payment systems oversight*, published in June 2000. Accordingly, within the Eurosystem, oversight activities are performed in the following manner:

In line with the provisions of the Treaty and the Statute of the ESCB, the Governing Council of the ECB formulates the common policy stance by determining the objectives and setting the standards for payment systems whose functioning may affect the implementation of monetary policy, systemic stability, the establishment of a level playing field between market participants and cross-border payments within the European Union and with other countries.

In areas not specifically covered by the common oversight policy, policies defined at the NCB level apply within the framework of the general common policy stance defined at the Eurosystem level, in relation to which the Governing Council can always take initiatives where necessary. An appropriate level of coordination between the ECB and the NCBs of the Eurosystem is ensured for any proposed policy or action in the field of oversight which an individual NCB may wish to pursue at the national level.

The Eurosystem may also formulate a policy concerning the security of payment instruments in order to maintain user confidence. An example of the latter is the *Report on electronic money*, published in August 1998.

In line with the principle of decentralisation, implementation of the common oversight policy stance is ensured by the NCBs in relation to domestic payment systems. For systems which have no clear national base, the body entrusted with the oversight responsibility is the NCB of the country in which the system is legally incorporated, unless the Governing Council of the ECB decides otherwise on the basis of features of the system and entrusts oversight responsibility to the ECB. This is the case for the Euro System of the EBA Clearing Company (EURO 1) and for the Continuous Linked Settlement Bank (CLS Bank).[3] In view of increasing cross-border participation in payment systems within the euro area, the Eurosystem favours a cooperative approach towards the implementation of the oversight policy stance, with the local NCB acting as lead overseer, and being responsible for liaising with other relevant NCBs whenever this is required.

The common oversight policy stance can also be legally ensured by ECB legislation in accordance with Article 22 of the Statute. So far, however, only more traditional, informal tools (eg moral suasion) are used. Where applicable, implementation can also be enforced by legal instruments available to an NCB.

The ECB and the NCBs of the Eurosystem ensure consistency in the implementation of the oversight policy stance and, in particular, that standards are applied in the same way for all the payment systems concerned. To this end, these oversight activities are coordinated at the level of the Eurosystem, through appropriate committees and working groups.

As outlined above, the ECB or the NCB concerned will ensure the management of emergency situations in their capacity as overseers of the different systems. Appropriate information and coordination channels have been established within the Eurosystem to ensure timely communication between the overseers.

In carrying out its oversight role the Eurosystem applies general principles, standards, requirements and objectives which are largely defined in the following reports:

In 1993 the Committee of Governors of the Central Banks of the Member States of the European Community endorsed the report entitled *Minimum common features for domestic payment systems*, which contained the guiding principles for the preparation of payment systems for monetary union. The report underlined the importance of RTGS systems through which as many large-value payments as possible should be channelled in order to maximise the containment of systemic risk. Other large-value systems may continue to operate in parallel with RTGS systems if they fully comply with the minimum standards set out in the *Report of the Committee on Interbank Netting Schemes of the central banks of the Group of Ten countries*, published by the Bank for International Settlements (BIS) in November 1990 ("Lamfalussy report"), and if they settle on the same day at a central bank. The 1993 report also elaborated on access criteria, specifying the requirements set out in the Lamfalussy report in this respect within the context of EU legislation. The common oversight policy of the Eurosystem for large-value IFTSs is based, in particular, on these principles. Moreover, in order to provide further guidance for the implementation of Lamfalussy standard 1, which requires all systems to have a well founded legal basis under all relevant jurisdictions, the Eurosystem has developed

[3] It should be noted in this respect that the ECB is the primary overseer for EURO 1, while the ECB is involved in the oversight of CLS as the overseer in respect of the settlement of the euro, in the framework of cooperative oversight set out in the Lamfalussy report. NCBs of participating countries are associated with the oversight activity of the ECB as members of the Eurosystem - the central bank of issue of the euro - and as NCBs of the banks which act as settlement members of CLS Bank.

harmonised "terms of reference" for legal opinions (ie a list of issues which have to be addressed in the legal opinion) for foreign participants in large-value payment systems.

The guiding principles of the Eurosystem's oversight policy in the field of electronic money are the requirements set out in the ECB's *Report on electronic money* (1998).

In January 2001, the Governing Council of the ECB also adopted the G10 report on *Core Principles for Systemically Important Payment Systems* as one of the standards the Eurosystem must apply when performing its oversight role.

The cooperation between payment systems overseers and banking supervisors contributes to an overall strategy of risk reduction in the financial system. Cooperation between these authorities is necessary since the stability of the financial system may be affected by the risks borne by credit institutions arising from their participation in payment systems or by their provision of settlement services. In early 2001 the ECB, the NCBs of the Eurosystem and the NCBs of EU member states which have not adopted the single currency, in their capacity as overseers of payment systems, and the EU banking supervisory authorities agreed to an MoU to set out a framework for their cooperation. According to the MoU, overseers will endeavour to ensure that supervisors are made aware of the risks credit institutions run through their participation in payment systems or by being the operator/settlement agent of a payment system. In turn, supervisors will endeavour to ensure that overseers are made aware of the risks posed to the system they are overseeing by the participation of a credit institution and, where the case arises, from the fact that the operator/settlement agent of a payment system is engaged in other banking activities, insofar as these may have implications for its settlement activities. Both authorities will endeavour to ensure that either is able to take prompt remedial action in the event of problems in a payment system which stem from, or have an impact on, a participating credit institution.

As a rule, the oversight of retail payment systems will continue to be defined by the relevant NCBs. However, where new developments occur or where retail schemes would have potential cross-border implications, general policy lines are defined at the Eurosystem level. In this context, in September 1999 the Eurosystem concluded that the situation for cross-border retail payments was unsatisfactory (see the report entitled *Improving cross-border retail payment services - the Eurosystem's view*), in particular by comparison with domestic payments with regard to prices and execution times. Prices for cross-border transactions, particularly for cross-border credit transfers, are substantially higher than for domestic ones despite the introduction of the euro, and the execution time needed for cross-border transactions is substantially longer than for domestic ones. The low volumes by comparison with domestic business, the still predominant use of correspondent banking arrangements involving many intermediaries instead of using a single payment infrastructure as is the case domestically, and the lack of standardisation and automation at the interbank and intrabank levels were identified as some of the main reasons for these deficiencies. The Eurosystem set out seven objectives (such as a major price reduction for cross-border credit transfers) and decided to act as a "catalyst for change". The progress report, published in September 2000, acknowledges that the banking community in the European Union has made progress but observes that the objectives defined in the 1999 report have clearly not yet been achieved. At the request of the ECOFIN Council, the ECB prepared a report in September 2001, outlining an agenda for the implementation of a modern payment systems infrastructure for credit transfers in euros. The report entitled *Towards an integrated infrastructure for credit transfers in euro* was published in November 2001. The report recalled the fact that, despite efforts on the part of the European institutions, the banking sector had failed to address effectively the issue of cross-border retail payments in euros and the situation remained highly unsatisfactory. The report summarised the efforts already made to improve some features of cross-border retail payments in euros, as well as the Eurosystem's view on the possible future development of the retail payment infrastructure. Furthermore, it highlighted the measures which should accompany the reform of the infrastructures and presented a road map for achieving that reform.

The Eurosystem will closely monitor the banks' further progress and will continue to assist them in achieving the common goal by playing the role of a "catalyst for change".

1.2.2 Activities in the area of securities clearing and settlement systems

According to the Treaty, the Eurosystem's monetary policy and intraday credit operations should be collateralised. The Eurosystem therefore has a keen interest in ensuring that the transfer, settlement and custody of collateral are safe and efficient. In order to ensure a level playing field within the euro area, the Eurosystem has developed and endorsed nine standards to be met by EU SSSs used for ESCB credit operations.[4] Individual SSSs have been assessed against these standards in order to qualify for use by the Eurosystem. The first assessment was completed before the start of phase three and 29 SSSs qualified. The assessment is carried out on a regular basis in order to monitor major changes in individual SSSs. The Eurosystem also regularly assesses the links established by SSSs for the cross-border transfer of securities.

1.2.3 Operational role of the Eurosystem

One way for central banks to promote the safe and efficient functioning of payment systems is to operate their own payment systems. The main operational role of the Eurosystem lies in the provision of the TARGET system. However, TARGET is not run by the central banks of the Eurosystem alone. All central banks of the ESCB are connected to TARGET. TARGET is the real-time gross settlement system for the euro. It provides facilities for settlement in central bank money. A more detailed description of TARGET can be found in Section 3.1.

The ECB and NCBs also offer their settlement services to other payment and settlement systems - eg the balances of large-value net settlement systems are settled at the central bank. Some NCBs also run retail payment systems and operate in-house SSSs.

The ESCB is also operationally involved in the cross-border transfer of securities which can be used as collateral to obtain intraday credit from NCBs and for monetary policy operations. For this purpose, the correspondent central banking model (CCBM) was established in order to facilitate the cross-border use of collateral in the Eurosystem’s monetary policy operations and the intraday credit operations of the ESCB. Within the CCBM the NCBs act as correspondents for each other and thereby enable counterparties to use all their eligible assets to obtain credit from their NCBs. Counterparties to the monetary policy operations of the Eurosystem and participants in TARGET in the EU area can only obtain credit from the central bank of the country in which they are established - their home central bank. However, through the CCBM, they can use collateral held in other countries. A more detailed description of the CCBM can be found in Section 4.3.

1.2.4 Cooperation with other institutions

In addition to defining principles, etc on its own, the Eurosystem also actively cooperates with other bodies and institutions which are active in the area of payment and settlement systems.

First, there is the cooperation with the EU Commission, which regularly participates in meetings with the central banks on issues related to payment and securities settlement. In turn, the central banks participate in meetings at the EU Commission, thus ensuring that cooperation is as close as possible (see also Section 1.3.1 below).

The ECB and several NCBs of the ESCB participate in the Committee on Payment and Settlement Systems (CPSS) of the G10 central banks. The CPSS operates under the auspices of the BIS in Basel. It monitors and analyses developments in payment and securities settlement systems. Its activities are generally more analytical than policy-oriented in nature. Nevertheless, its reports on many different issues have often had a strong influence on practical developments worldwide (for further information visit the BIS website at www.bis.org).

The ECB and several NCBs are participating in a joint task force of the CPSS and the International Organization of Securities Commissions (IOSCO) in the field of SSSs. The task force has already published the *Recommendations for securities settlement systems* containing recommendations for the design, operation and oversight of SSSs. The purpose of these recommendations is to reduce systemic risk, increase efficiency and provide adequate safeguards for investors.

The Governing Council of the ECB and the Committee of European Securities Regulators (CESR) have agreed to conduct joint work on issues of common interest in the field of securities clearing and settlement systems. This work aims at establishing standards and/or recommendations for SSSs and for central counterparties at the European level. The first objective of this joint work is to define

[4] *Standards for the use of EU securities settlement systems*, January 1998.

common standards for clearing and settlement activities aimed at ensuring a safe and efficient securities market infrastructure in Europe and at creating a level playing field for the providers of securities clearing and settlement services.

The Eurosystem also cooperates closely with banking supervisors. Such cooperation and coordination contribute to achieving the overall objective of reducing risk in the financial system and help to promote stability.

Furthermore, the Eurosystem actively promotes the further harmonisation of codes and operational standards which would enable the straight through processing (STP) of payments. This is crucial for achieving greater security and efficiency in payment and settlement systems.

Last, but not least, the Eurosystem regularly meets with market participants in order to maintain close contact with the market, to convey its ideas to the market and to obtain feedback from market participants on how the work of the Eurosystem in the area of payment and securities settlement systems is perceived.

1.3 The role of other private and public sector bodies

1.3.1 The Commission of the European Communities, the Council of the European Union and the European Parliament

The promotion of the smooth operation of payment systems is mentioned in the Treaty as one of the basic tasks of the Eurosystem. Nevertheless, the Commission of the European Communities (the Commission), in its function as the executive body of the European Union, and the Council of the European Union (EU Council) and the European Parliament in their function as the legislative bodies of the European Union continue to concern themselves with issues related to payment and securities settlement systems.

One of the tasks of the Commission is to strive for further harmonisation of the laws within the Union, including those which have an impact on payment systems, by issuing Directives which have to be implemented in national law by the member states. One of the principal aims is to create a single market with a level playing field and equal opportunities throughout the European Union. Consumer protection is another area in which the Commission is active. A recent example can be found in the field of cross-border retail payment systems, where the Cross-Border Credit Transfers Directive of the EU Council and the European Parliament (see Section 1.1) complements the initiatives of the Eurosystem and is pushing the industry to improve the situation quickly. The most recent piece of legislation is the Regulation on cross-border payments in euros. The Commission has also launched an initiative to explore how fraud and counterfeiting in payment systems can be prevented. Another area in which the Commission has recently been active is the cross-border use of collateral. The Directive on financial collateral arrangements (2002/47/EC) outlining a harmonised framework for the use of collateral was adopted by the European Parliament and the Council in June 2002.

1.3.2 Banking federations and associations

Most banks in the European Union are organised into national federations or associations in order to represent their interests as a group towards public and private institutions. The national federations and associations also cooperate at the European level in the European Association of Co-operative Banks, the European Savings Banks Group and the European Banking Federation. These European organisations act as platforms for exchanges of views, for reaching agreement on common business policies and for other matters which require a common understanding at the European level. Such activities take place both within the organisations and between the organisations and their bodies. In some countries the banking federations and associations play an important role in negotiating with third parties and agreeing on matters (including payment systems issues) on behalf of their members.

1.3.3 Other federations and associations

There are other relevant federations and organisations in the field of securities clearing and settlement systems which act as platforms to promote the interests of their members, to facilitate exchanges of views and to develop common standards and practices. The most significant organisations are the European Central Securities Depositories Association (ECSDA), the European Association of Central

Counterparty Clearing Houses (EACH), the Federation of European Securities Exchanges (FESE) and the Committee of European Securities Regulators (CESR).

2. Payment media used by non-banks (aggregated euro area description)

2.1 Cash payments

The euro was introduced as a currency in its own right on 1 January 1999, although euro banknotes and coins were only brought into circulation on 1 January 2002. From 1 January until the end of February 2002 (the dual circulation period), the legacy currencies of the euro area countries, which were national subdivisions of the euro, continued to be legal tender and could be used for cash transactions in the euro area. In 2000, the total value of banknotes and coins in circulation outside credit institutions in the euro area amounted to EUR 347.7 billion, slightly less than the EUR 349.8 billion in 1999. The growth rate of cash in circulation varied widely across the euro area, with the highest, double digit increases usually found in the fastest growing economies.

Owing to their anonymous nature, there is no precise data on the value and number of cash payments conducted in the euro area. Taking as an indicator the amount of cash in circulation as a percentage of GDP in 2000, cash payments seemed to be in least demand in Luxembourg (1.9%), Finland (2.2%) and France (3.2%). The highest ratios were found in Spain (8.9%), Germany (6.2%), Italy (6.0%) and Austria (5.9%), indicating a higher use of cash for payments. However, any comparison is made difficult by the fact that for some of the legacy currencies there was a substantial though not precisely measurable amount of cash in circulation outside the country of origin.

2.2 Non-cash payments

Credit transfers are the most widely used means of non-cash payment in the euro area, followed by direct debits, as these means of payment offer the most convenience to their users. Also on the rise are card-based payments, with debit cards being preferred to credit cards in most countries.

Although traditionally a very important payment instrument, in many countries of the euro area cheques have been replaced to a large extent by other payment instruments. Even in countries where the actual number of cheque payments is still rising (Ireland, Italy), their importance relative to other payment instruments is declining. A further reduction in the use of cheques can be expected owing to the discontinuation of the eurocheque guarantee at the beginning of 2002.

2.2.1 Credit transfers

Credit transfers are the most widely used means of non-cash payment in the euro area. In 2000 they accounted for more than one third of all non-cash transactions.

Credit transfers are the preferred non-cash payment instrument in six euro area countries. In Finland they made up 57% of all non-cash transactions in 2000, in Austria 56%, in Germany 49%, in Belgium 47% and in Italy and the Netherlands 40%.

2.2.2 Direct debits

The importance of direct debits in the euro area has grown in recent years because of an increased tendency for utility and retail companies to offer this service. In 2000 direct debits accounted for over one quarter of non-cash transactions in the euro area.

The use of direct debits ranged from 4.5% of total non-cash transactions in Finland to 53% in Spain. Direct debits were the second most frequently used non-cash payment instrument in Germany (38%), Austria (30%) and Ireland (23%) and accounted for 29% of total non-cash transactions in the Netherlands. In the other euro area countries direct debits played a significantly smaller role, with their share in total non-cash transactions in 2000 ranging between 6% and 17%.

2.2.3 Payment cards

Though still outweighed in many euro area countries by credit transfers or direct debits, the use of credit and debit cards has increased throughout the euro area as a result of a growing acceptance of card-based payments by retailers. In 2000 more than one fifth of all non-cash transactions in the euro area were completed using some form of payment card.

Debit cards are more widely held than credit cards in most countries of the euro area, outweighing the latter on average 3:1 in terms of the number of cards in circulation in 2000. Although there are more terminals which accept credit cards than debit cards in the euro area (15,356 per 1,000,000 inhabitants as compared with 11,267), debit cards are used on average four times as often as credit cards.

Payment cards dominated non-cash payments in Luxembourg and Portugal, where in 2000 some 60% and 51% of transactions respectively were completed using credit or debit cards. They were the second most important payment instrument in Finland (39%), Belgium (33%), the Netherlands (30%), France (28%) and Spain (23%). At the other end of the scale, a mere 10% of total non-cash transactions in Germany and 12% in Austria were conducted using credit or debit cards.

2.2.3.1 Credit cards

The number of credit cards in circulation in the euro area reached 295 per 1,000 inhabitants in 2000. They were used for an average of 5.8 transactions per person per year.

In 2000, the most cards per 1,000 inhabitants were found in Luxembourg (706), which at the same time had the most credit card transactions per person per year (31.7). Also well above the euro area average in usage were Finland (22.2 transactions per person per year and 588 cards per 1,000 inhabitants), Portugal (19.8 and 303) and Ireland (12.7 and 357). Although in Spain there were 402 credit cards per 1,000 inhabitants in circulation, they were used rarely - just 5.6 transactions per person per year. There was also less demand for credit cards in the other euro area countries, with cards in circulation ranging between 200 and 300 per 1,000 inhabitants and usage below the euro area average.

2.2.3.2 Debit cards

Debit cards are the most widely held kind of payment card in the euro area. There were 874 debit cards per 1,000 inhabitants in circulation in the euro area in 2000, which were used for an average of 23.7 transactions per person per year.

The leading country in the circulation of debit cards in 2000 was the Netherlands with 1,313 cards per 1,000 inhabitants and 50.3 transactions per person per year. Debit cards were also frequently used in Finland (49.3 transactions per person per year and 493 cards per 1,000 inhabitants), France (54.5 and 611), Portugal (45.3 and 1,175), Belgium (39.8 and 1,216) and Luxembourg (26.2 and 710). Despite a large number of debit cards in circulation, Germany (1,207 cards per 1,000 inhabitants) and Spain (1,147) recorded less than 13 transactions per person per year, which was the same range of usage observed in Austria (with 746 cards per 1,000 inhabitants in circulation), Italy (350) and Ireland (211).

2.2.4 Cheques

In 2000, 72% of all cheques in the euro area, or 4.5 billion, were used in France, while in the rest of the euro area approximately 1.7 billion cheques were used. Following the trend of recent years, the use of cheques declined by 2.7% in 2000 compared with 1999 and they are now used for one sixth of non-cash transactions in the euro area.

In France and Ireland cheques are still the most widely used payment instrument, accounting for 38% and 33% respectively of all non-cash transactions. Cheques were also quite popular in Portugal (29% of total non-cash transactions) and Italy (24%). In Finland and Luxembourg, on the other hand, the use of cheques was very marginal, representing just 0.1% of total non-cash transactions. Cheques also accounted for 9% of non-cash transactions in Spain and for 5% or less in the other euro area countries.

2.3 Recent developments

The most notable recent development in the usage of payment instruments by non-banks is the increased tendency for consumers to issue and transmit payment instructions electronically to their banks. Banks in the euro area are actively taking advantage of recent advances in technology and are increasingly offering internet-based and mobile phone-based banking to complement established forms of remote banking, like self-service banking, home banking and phone banking. Acceptance of those new media by consumers for payment purposes depends on the availability and cost structure of the underlying technology, which vary quite significantly between individual countries. Recent initiatives by the banking sector to standardise and simplify the use and enhance the security features of internet banking, electronic bill presentment and payment (EBPP) and e-money schemes should facilitate this process.

Although there has been a lot of discussion about the use of e-money and its importance, it is still not a widely used medium. In 2000 only 0.4% of all non-cash transactions were conducted using e-money. A number of national e-money and prepaid card schemes are preparing or currently testing the adaptation of their cards for use in internet transactions, either through an online verification procedure or through a plug-in terminal for personal computers. Such an expansion in the features of those cards could eventually lead to a stronger demand from the consumer side, and growing familiarity with this means of payment could stimulate its use.

3. Interbank exchange and settlement systems

3.1 The real-time gross settlement system: TARGET

The Trans-European Automated Real-time Gross settlement Express Transfer (TARGET) system is the RTGS system for the euro. It is a decentralised system consisting of 15 national RTGS systems, the ECB payment mechanism (EPM) and the Interlinking system. The latter connects the national RTGS systems and the EPM by means of common procedures which allow payment orders to move from one system to another. The system successfully commenced live operations on 4 January 1999 with some 5,000 participants throughout the European Union.

The decision to construct the TARGET system was taken by the Council of the European Monetary Institute (EMI) in March 1995. TARGET was developed to meet three main objectives: first and foremost, to facilitate the integration of the euro money market in order to allow for the smooth implementation of the single monetary policy; second, to improve the soundness and efficiency of payments in euros; and third, to provide a safe and reliable mechanism for the settlement of payments on an RTGS basis, thus contributing to a minimisation of risks in making payments. In order to achieve these objectives, TARGET offers the possibility of transferring central bank money on a cross-border basis as smoothly as in the domestic market, making it possible to reuse these funds several times a day.

In order to minimise the time required and the costs to the central banks and credit institutions of establishing TARGET, it was agreed to harmonise national RTGS systems only to the extent necessary to ensure both uniformity in the implementation of the monetary policy of the ECB and a level playing field for credit institutions. Although several technical and organisational features continue to differ between NCBs, TARGET has been set up in such a way that the use of the system is very similar for participants, whether in domestic or in cross-border mode.

A unique feature of TARGET is that its euro payment services are available throughout the European Union, which is a wider area than that in which the single currency has been adopted. Indeed, the three EU countries which have not yet adopted the euro (Denmark, Sweden and the United Kingdom) are connected to TARGET. Since it is necessary for all countries adopting the euro to participate in TARGET, and as the time that was available to set up the system was limited, all EU NCBs had to start investing money in TARGET before they knew whether they would be part of the euro area. Thus, in 1995, the EMI Council agreed that all current EU NCBs should be ready to connect to TARGET by 1999. It was pointed out, however, that for those countries which did not adopt the euro from the outset, the connection would be subject to certain conditions which were subsequently decided by the Governing Council of the ECB.

3.1.1 Operating rules

The rules governing TARGET and its operation can be found in the Guideline of the European Central Bank on a Trans-European Automated Real-time Gross settlement Express Transfer system ("TARGET Guideline") and the sets of rules and procedures contained in the national regulations and/or contractual provisions ("national RTGS rules") applying to each of the national RTGS systems and the EPM which are the component parts of TARGET. The TARGET Guideline came into effect on 1 January 1999, ie the starting date of stage three of EMU.

The TARGET Guideline applies to the ECB and the NCBs participating in the Eurosystem. It includes provisions on, inter alia, a number of minimum common features with which each national RTGS system participating in or connected to TARGET has to comply (eg access criteria, currency unit, pricing rules, time of operation, rules referring to what kind of payments may be processed through TARGET, when a payment order should be processed or when a payment order is considered to be irrevocable, and intraday credit); arrangements for cross-border payments through the Interlinking system; security strategy and security requirements for TARGET; provisions establishing the framework for the audit of TARGET; and the management of TARGET.

An agreement has been entered into by the Eurosystem and the NCBs of the member states which did not adopt the single currency on 1 January 1999. It provides a mechanism through which the NCBs of member states outside the euro area are able to connect to TARGET and adhere to the rules and procedures referred to above. Some modifications and refinements have been made to these rules and procedures in order to take into account the special situation of the NCBs of member states outside the euro area.

3.1.2 Participation in the system

According to the TARGET Guideline, only supervised credit institutions as defined in the first indent of Article 1 of the First Banking Coordination Directive[5] which are established in the European Economic Area (EEA) can be admitted as direct participants in a national RTGS system. In addition, as an exception, the following entities may also be admitted as participants in a national RTGS system subject to the approval of the relevant NCB:

- treasury departments of central or regional governments of member states active in money markets;
- public sector bodies of member states authorised to hold accounts for customers;
- investment firms established in the EEA which are authorised and supervised by a recognised competent authority; and
- organisations providing clearing or settlement services subject to oversight by a competent authority.

The criteria for participation in a national RTGS system are set out in the RTGS rules concerned and are available to the interested parties. RTGS rules require reasoned legal opinions, based on the Eurosystem's harmonised terms of reference for legal opinions, to be requested from applicants and reviewed by the relevant NCB. The harmonised terms of reference are available to interested parties. Capacity opinions (which establish that an applicant is legally able to conclude agreements) are requested for each individual (domestic and foreign) applicant when joining the system, unless such opinion has been received in another context. Country opinions (which establish that there are no foreign legal provisions which could have adverse effects on the agreements concluded) are requested from the jurisdictions of foreign participants, whether they are incorporated in an EEA or a non-EEA country.

All credit institutions participating in national RTGS systems automatically have access to the cross-border TARGET service.

[5] This is now incorporated into Directive 2000/12/EC of the European Parliament and of the Council of 20 March 2000 relating to the taking up and pursuit of the business of credit institutions.

It is also possible for credit institutions to access TARGET remotely. Remote access to settlement facilities in TARGET is defined as the possibility for an institution, established in a country in the EEA, to become a direct participant in an RTGS system in TARGET in another country and, for that purpose, to have a settlement account in euros in its name with the central bank of that country without necessarily having established a branch or subsidiary in that country. Such credit institutions can only participate in TARGET on a positive balance basis as they do not have recourse to intraday credit or to the Eurosystem's marginal lending facility.

Regarding electronic money institutions (ELMIs), the European Commission has interpreted that they are not covered by the definition of credit institutions in the SFD. Consequently, ELMIs would not be "institutions" within the meaning of the SFD and could not be regarded as "participants" in systems designated under the SFD. As a result, the participation of ELMIs in TARGET would not be advisable, as this could jeopardise the irrevocability and finality of payments processed through the system. Therefore, the Governing Council has decided that ELMIs are not eligible participants in TARGET as long as uncertainties remain with regard to their protection under the SFD.

3.1.3 Types of transaction handled

TARGET can be used for all credit transfers in euros. It processes both interbank and customer payments and there is no upper or lower limit placed on the value of payments. All payments are treated equally, irrespective of their value.

The following types of transaction are handled by TARGET:

- payments directly connected with central bank operations in which the Eurosystem is involved on either the recipient or the sender side;
- the settlement operations of large-value netting systems operating in euros; and
- interbank and commercial payments in euros.

It is mandatory for the first two types of transaction to be settled through TARGET.

TARGET is also used for the handling of transfers made between ESCB central banks.

3.1.4 Operation of the transfer system

In order to meet the needs of the financial markets in general and of its customers in particular, TARGET provides long daily operating hours: it opens at 7 am and closes at 6 pm ECB time (Central European Time). In order for participants to better manage their end-of-day liquidity, customer payments are subject to a cutoff time set at 5 pm. Furthermore, common closing days apply to TARGET. As a rule, TARGET is closed not only on Saturdays and Sundays, but also on New Year's Day, (Catholic/Protestant) Good Friday, (Catholic/Protestant) Easter Monday, Labour Day (1 May), Christmas Day and 26 December. TARGET closing days are, in effect, non-settlement days for the money market and the financial markets in euros, as well as for foreign exchange transactions involving the euro. The CCBM for the cross-border use of collateral is closed on TARGET closing days.

The TARGET setup can be described as a decentralised system in which payment messages are exchanged on a bilateral basis without a central counterparty. No information on payment orders exchanged is sent to the ECB during the business day. However, in order to ensure the correctness of the processing of the cross-border payments exchanged within the system during the business day and the inter-NCB balance positions resulting from this activity, specific control operations are performed at the end of the day by the End-of-Day Application maintained by the ECB. These operations include a check that all bilateral messages sent by one NCB to another have been received and that the total values of cross-border payments sent and received by the NCBs during the day match. No NCB may close before it has finalised its positions with all bilateral partners.

3.1.5 Transaction processing environment

Cross-border TARGET payments are processed via the national RTGS systems and exchanged directly on a bilateral basis between NCBs. All participants are identified by a Bank Identifier Code (BIC) and are listed in the TARGET Directory, which is available from SWIFT and contains BICs worldwide.

National RTGS systems and the EPM are connected via the Interlinking system, which is composed of a telecommunications network linked in each country to a local interface called the national Interlinking component. These components consist of infrastructures and procedures which are used within or in addition to each RTGS system to process cross-border payments. The role of the Interlinking components is, among other things, to convert the presentation of payment data from the national standard into the Interlinking standard and vice versa.

The technical design of the national RTGS systems and the Interlinking components (RTGS operating systems, hardware and software, development tools, design of links between technical components, etc) falls under the responsibility of the individual NCBs and the ECB, subject to some minimum common security features and performance requirements which have been defined for RTGS systems linked to TARGET. Areas which have been subject to harmonisation include operating time, pricing and the provision of intraday credit. Given that TARGET incorporates RTGS systems which have been established under local conditions, the payment services offered to the end users of different national systems are not fully identical. The Interlinking procedures, however, are the same for all countries.

A test centre is maintained at the ECB so that the NCBs and the ECB can test the compliance of their systems with the Interlinking Specifications. All relevant new or amended software facilities have to be tested before being integrated for multilateral testing and for subsequent live operation in TARGET.

3.1.6 Settlement procedures

TARGET is a real-time gross settlement system. Payment transactions are settled one by one on a continuous basis in central bank money.

In order to initiate a cross-border payment, the ordering credit institution sends a payment order to the local NCB through the local RTGS system. The sending NCB checks the validity of the payment (it has to be presented according to the agreed standards and contain the information needed) and the availability of sufficient funds or overdraft facilities. The sending NCB also checks that the receiving RTGS is operational.

The sending NCB is entrusted with the tasks, if necessary, of converting the payment order into the message standard which is used by the Interlinking system, of including the additional security features used for the communication between NCBs and of sending the message through the Interlinking network to the receiving NCB. Once the sending NCB has checked the validity of a payment message and the availability of funds or sufficient overdraft facilities, the amount of the payment is debited irrevocably and without delay from the RTGS account of the sending credit institution and credited to the Interlinking account of the receiving NCB.

As soon as the receiving NCB receives the payment message, it checks the security features and verifies that the beneficiary bank, as specified in the payment order, is a participant in the domestic RTGS system. If this is the case, the receiving NCB converts, where appropriate, the message from the Interlinking standard into the domestic standard, debits the Interlinking account of the sending NCB, credits the beneficiary's RTGS account and delivers a positive acknowledgement to the sending NCB/ECB. Finally, the receiving NCB sends the payment message, through the local RTGS system, to the beneficiary credit institution. If the receiving bank is not a participant in the RTGS system, the receiving NCB rejects the payment message and asks the sending NCB to recredit the amount to the sending bank's account.

3.1.7 Credit and liquidity risk

TARGET settles payments in central bank money with immediate finality. In TARGET, the account of the receiving institution is never credited before the account of the sending institution has been debited. As a result, there is always the certainty for the receiving institution that funds received through TARGET are unconditional and irrevocable. The receiving institution is therefore not exposed to credit or liquidity risk originating from such payments received.

The availability and cost of liquidity are two crucial issues for the smooth processing of payments in RTGS systems. In TARGET, liquidity can be managed very flexibly and it is available at a low cost, since minimum reserves - which credit institutions are required to hold with their central bank - can be used for settlement purposes during the day and intraday credit is provided free of charge. Moreover, the averaging provisions applied to minimum reserves allow for flexibility in the banks' end-of-day liquidity management. The overnight lending and deposit facilities also allow for "last minute" reactions to unexpected liquidity situations. In addition, the Eurosystem provides intraday credit free of charge. However, all central bank credit has to be fully collateralised. The range of eligible collateral is very wide. Assets eligible for monetary policy purposes are also eligible for intraday credit.

3.1.8 Pricing

The charge for TARGET cross-border payments (excluding VAT) between direct participants is based on the number of transactions sent by a participant within a single RTGS system according to the following degressive scale:

- EUR 1.75 for each of the first 100 transactions per month;
- EUR 1.00 for each of the next 900 transactions per month; and
- EUR 0.80 for each subsequent transaction in excess of 1,000 per month.

The cross-border fee does not depend on the destination or on the value of the payment. Fees are charged only by the sending NCB/ECB to the sending participants in the national RTGS system/EPM. No fees are charged by the receiving NCB/ECB to the receiving participant.

The cross-border TARGET fee structure does not include the costs of the telecommunications link between the sender and the national RTGS system in which the sender is a participant. The fee for this telecommunications link is paid according to domestic rules.

RTGS systems may charge extra fees for any additional services they may provide (eg the acceptance of paper-based payment instructions).

The price of domestic RTGS transfers is determined at the national level by the NCBs. When determining the price structure, the NCBs take into account the principles of cost recovery, transparency, an open market economy with free competition and non-discrimination. They must also take into account the fact that the fees for domestic and cross-border transfers should be in the same range so as not to affect the singleness of the money market. These fee structures are disclosed to interested parties.

3.1.9 Statistical data for TARGET

The turnover figures in TARGET have steadily increased since January 1999. In 2001, the daily average of payments processed by the system as a whole (ie both cross-border and domestic payments) was 211,282, representing a value of EUR 1,299 billion. TARGET cross-border traffic amounted to 39.0% of the total TARGET value in 2001, compared with 41.8% in 2000, and to 21.4% of the total TARGET volume, compared with 21.2% in 2000. Of the cross-border TARGET payments, 96.5% in terms of value and 60.8% in terms of volume were interbank transactions, with the remainder being customer payments. The average value of a cross-border interbank payment was EUR 17.7 million and the average value of a cross-border customer payment was EUR 1.0 million. More detailed statistics can be found in the statistical tables and on the ECB’s website (www.ecb.int).

3.2 The EURO 1 system of the Euro Banking Association

3.2.1 Institutional setup

The Euro Banking Association (EBA) is a cooperative undertaking between EU-based commercial banks and EU branches of non-EU banks. With EURO 1, it provides a multilateral large-value EU-wide payment system for euro credit transfers.

The system is governed by three bodies, which have been established under French law. First, there is the Euro Banking Association (EBA), which is an umbrella organisation intended to be a forum for exploring and debating all issues of interest to its members, in particular issues related to euro payments and the settlement of transactions in euros. Second, there is the EBA Clearing Company, which operates the EURO 1 system. It has its registered office in Paris and its shareholders are the clearing banks. The EBA Clearing Company was set up by the Euro Banking Association (EBA) and incorporated for the purpose of operating and managing the EURO 1 system. The EBA defines the general principles for the Clearing Company. Third, there is the EBA Administration Company, which was set up to provide administrative services, in particular human, technical and other support to the

EBA and the Clearing Company. The relationship between the EBA, the EBA Clearing Company and the EBA Administration Company is governed by a master agreement.

3.2.2 Participation and access criteria

EURO 1 is an international system. As at 31 December 2001 there were 73 clearing banks participating in EURO 1. These banks are from all the EU member states and five non-EU countries (Australia, Japan, Norway, Switzerland and the United States), but all banks concerned are incorporated in the European Union or have branches located in the European Union. There are three sets of access criteria for EURO 1: legal, financial and operational.

The legal criteria stipulate that each participant or applicant must be a bank with a registered office in a country which belongs to the Organisation for Economic Co-operation and Development (OECD) and is recognised by the EBA Clearing Company as a “qualifying jurisdiction” (see below). Its system office, ie its operating branch or, subject to certain preconditions, its operating subsidiary, should be located in the European Union, and it should be a member of the EBA. The participant (or applicant) should provide a legal opinion to substantiate its ability to participate in the system (capacity opinion) and to confirm that the Single Obligation Structure (SOS - see Section 3.2.3), which is the legal basis of the system, is recognised and enforceable in the country in which the participant is incorporated and/or its system office is located (country opinion). This country opinion need only be provided once. Afterwards the country will be added to the list of jurisdictions which recognise the SOS (“qualifying jurisdiction”).

The financial criteria are that a participant has own funds of at least EUR 1,250 million and a short-term credit rating of at least P2 attributed by Moody’s Investors Service, Inc. or A2 attributed by Standard & Poor’s Rating Services, or any other short-term rating recognised by the EBA Clearing Company.

The main operational criteria are as follows: (i) any participant or applicant must be a direct participant in an EU RTGS system connected to TARGET; (ii) a system office must be designated for participation in EURO 1; (iii) adequate technical and operational facilities must be provided which meet the technical specifications laid down by the EBA Clearing Company and their operational reliability and robustness should be certified by the EBA Clearing Company; and (iv) the EBA Clearing Company must be notified of all branches, offices and subsidiaries located in the European Union which may participate as indirect members via a clearing bank. The clearing bank would be responsible for the activities of such indirect members and should ensure their proper technical and operational performance in accordance with the rules. The admission of an applicant is subject to a vote by the shareholders of the Clearing Company, ie the clearing banks.

In November 2000, the EBA launched the STEP 1 initiative for cross-border retail payments (see Section 3.3.3.4).

3.2.3 Rules of the system

EURO 1 operates under the Single Obligation Structure (SOS), a legal structure subject to German law whereby the participants agree to enter into a contractual agreement that on each settlement day, at any given time, each participant will have only one single payment obligation or claim with respect to the community of other participants as joint creditors/debtors. In accordance with the SOS, the processing of payments in EURO 1 will entail no bilateral payments, claims or obligations between participants. Nor will there be any form of setoff, novation or netting resulting from the continuous adjustment of the participants’ claim or obligation. The SOS is intended to prevent any unwinding in the event of a participant being unable to honour its single obligation at the end of the day.

3.2.4 Types of transaction handled

EURO 1 processes credit transfers only. Although there are no restrictions as regards the value or the originator of the transactions processed, the EBA intended EURO 1 as a system which should primarily focus on processing large-value payments made by the EBA participants.

Furthermore, the balances of the EBA’s cross-border retail credit transfer service STEP 1 are settled via a EURO 1 participant in the EURO 1 system. The setup of STEP 1 is such that a bank which has joined the EBA’s STEP 1 arrangement is able to submit and receive low-value payments to or from other STEP 1 banks and settle the netted balances via a EURO 1 bank which is acting as its settlement agent. (Detailed information on the STEP 1 service is provided in Section 3.3.3.4.)

3.2.5 Transaction processing environment

The continuous calculation of the single obligation or claim of each participant is carried out by the system computer located at SWIFT, which provides the network and transmission facilities for EURO 1 and acts as processing agent.

The hardware and software equipment used by the EBA for the management of EURO 1 - including the EBA monitoring station for the clearing phase and the Business Administration System (BAS) for the settlement phase - is duplicated at a backup site. SWIFT provides two operation centres for the Euro Clearing System (ECS): one in the Netherlands and the other in the United States. At both sites, clearing activity is mirrored by a second set of equipment at all times.

3.2.6 Settlement procedures

EURO 1 settles at the end of the day in central bank money at the ECB. The relevant provisions are set out in the Settlement Service Agreement concluded between the EBA and the ECB. After the cutoff time (4 pm Central European Time), clearing banks with debit positions will pay their single obligations into the EBA settlement account at the ECB through TARGET. After all amounts due have been received, and upon instruction from the EBA Clearing Company, the ECB will pay the clearing banks with credit positions, also through TARGET.

3.2.7 Credit and liquidity risk

EURO 1 payments cannot be cancelled once they have been processed by the system. Each processed payment leads to an adjustment of the single claim or obligation of the participant. However, settlement of the single claim or obligation occurs only after the cutoff time, and the participants continue to be subject to certain credit and liquidity risks until final settlement in central bank money.

As a tool for managing risks, each participant must establish credit lines for all other participants individually (varying from a minimum of EUR 5 million to a maximum of EUR 30 million). On the basis of these bilateral credit lines, the system determines for each participant the multilateral debit cap (sum of limits set for a participant by each other participant) and credit cap (sum of limits set by a participant for each other participant). These multilateral debit and credit limits, which are capped at EUR 1 billion, are binding throughout the operating day. No payment that would cause a breach of any limit is processed by the system at any time. Instead, any payment order which would cause the limit to be exceeded is queued. Participants can change bilateral limits on a daily basis according to their assessment of the creditworthiness of counterparties.

A standby liquidity pool, covering the maximum debit position possible in the system, ie EUR 1 billion, is held at the ECB. It enables the system to complete settlement in the event that one or more participants fail to settle their single obligation at the end of the day, up to a total amount not exceeding the balance in the liquidity pool. Each participant contributes to the liquidity pool in equal shares. Each share is assigned or pledged to the benefit of the other participants, so that the amount deposited in the pool can be used to cover the settlement obligations of failing participants. The ECB can only use the cash deposited in the pool to complete settlement if it receives an instruction from the EBA Clearing Company to activate the pool. In the event that the pool is used partially or entirely to complete settlement at the end of the day, the participants must replenish it before the start of processing the following day.

In the event of failures to settle representing an amount in excess of the balance of the liquidity pool, surviving participants will be obliged to provide additional liquidity in order to complete daily settlement. In the event of failures of up to three banks, the amount of liquidity to be provided by each surviving participant is proportional to the credit (representing the bilateral limit) granted to the failing participants. If more than three banks fail on the same day, the amount of liquidity to be provided by each participant is proportional to their multilateral credit limit (market crisis scenario). Losses are allocated according to the same mechanisms.

The establishment, maintenance and activation of the liquidity pool at the ECB is governed by the Deposit Agreement[6] between the ECB and the EBA for the benefit of the banks participating in EURO 1 as third-party creditors.

3.2.8 Pricing

The transaction fee for a EURO 1 payment is based on the number of payments sent by participants according to the degressive scale below.

Average daily number of transactions during the invoice period	**Charge per transaction (in cents)**
less than 800	18
from 800 to 1,499	16
from 1,500 to 2,499	14
from 2,500 to 3,499	13
from 3,500 to 4,499	12
from 4,500 to 5,499	10.5
5,500 and above	9.5

In addition, EURO 1 clearing banks have to pay an annual fee of EUR 10,000 to the EBA Clearing Company. The annual operating charge of the processing agent (SWIFT) and the operating costs of the EBA Clearing Company are shared quarterly among the clearing banks according to a special distribution key.

3.2.9 Statistical data for EURO 1

The turnover figures in EURO 1 have steadily increased since January 1999. The average number of transactions in EURO 1 in 1999 was 67,895 payments per day with a total value of EUR 170.7 billion. In 2001 the average number of transactions increased to 113,000 payments per day with a total value of EUR 205.2 billion.

3.3 Cross-border retail payment systems

3.3.1 E-money schemes

So far, two initiatives have been taken to enable the cross-border use of electronic money schemes in euros. The first one, the PACE project (Purse Application for Cross-border use in Euro), was an interoperability initiative launched by CETREL (Centre de Transferts Electroniques) with miniCASH in Luxembourg, by ZKA (Zentraler Kreditausschuss) with GeldKarte in Germany, and by Groupement des Cartes Bancaires and SEME (Société Européenne de Monnaie Electronique) with Moneo in France. The European Commission contributed to the financing of the project within the scope of its IST (Information Society Technologies) programme. The project ran from July 2000 to June 2001. The three domestic electronic purses in the project were first interlinked on the basis of their current standards to enable euro-denominated payments in Luxembourg, Germany and France. The three schemes committed themselves to adopting gradually the Common Electronic Purse Specifications (CEPS).

The second project, Ducato, was set up to validate the CEPS technology in a real environment and to demonstrate interoperability between different electronic purse systems based on CEPS. The project

[6] The Deposit Agreement is based on §328 (1) of the German Civil Code.

ran from September 2000 to December 2001. The partners involved in the initiative included Banksys, Groupement des Cartes Bancaires, Europay International (now MasterCard Europe), Interpay Nederland, Proton World, Sermepa, Sistema 4B and Visa International. In addition to the domestic e-purse brands of Belgium, France, the Netherlands and Spain, the international e-purse brands Clip (Europay International) and Visa Cash (Visa International) were included in the project. Domestic transactions were cleared through the existing clearing networks and international transactions were cleared through either the VisaNet network (for Visa Cash-branded cards) or the EPSNet network (for Clip-branded cards). A general migration of the existing e-purse schemes towards CEPS is foreseen.

3.3.2 Card-based schemes

For the card-based schemes MasterCard and Visa, see the chapter “International payment arrangements”.

3.3.3 Retail credit transfer systems

Apart from bilateral correspondent arrangements among banks, some networks have been established between groups of banks for the purpose of enabling customers to make low-value retail payments across borders.

3.3.3.1 TIPANET

TIPANET (Transferts Interbancaires de Paiement Automatisés) is a network of member banks from the cooperative banking sector which have set up an arrangement for the execution of cross-border bulk payments. The respective local payment systems can be accessed via the receiving correspondent banks. Cooperative banks from six countries set up an association called TIPA Group, S.C. in 1993. TIPANET is in fact a network of 11 cooperative banks from eight countries, not only in Europe, but also overseas, namely in Canada. In addition, some banks have established their own international correspondent networks, which apply the TIPANET standards without being members of the TIPA Group, S.C. For example, the German cooperative banking association has an international clearing network with 25 partners in a total of 18 countries.

Each TIPANET member is free to seek out the most suitable international partners for its business interests, its business tradition and its international trade relations.

TIPANET processes credit transfers, direct debits and cheques, of which credit transfers account for the biggest share of transactions processed. The maximum amount of a transaction that can be transferred corresponds to the balance of payments reporting threshold in the recipient’s country. The beneficiary should usually receive TIPANET payments within two business days.

The local correspondent collects all payment instructions and converts them into the TIPANET message format, which complies with the SWIFT MT 102 message. The TIPANET format is sufficiently open to allow for the processing of credit transfers as well as for the processing of cheques. After collecting the payment orders, the local correspondent creates payment batches, which are then sent to the respective foreign correspondent, which will then convert the data into its domestic format and process the payments in the relevant local payment system. The cutoff time for the exchange of files is 4 pm (local time of the receiving bank) on the day before processing. The beneficiary’s account will usually be credited two days later.

The settlement of payments takes place via the existing reciprocal accounts, which the correspondents hold for each other (loro and nostro accounts). The conditions for settlement are agreed bilaterally between the banks concerned.

Fees are charged individually by each participant bank. The fees are often differentiated according to the type of customer and the way in which the payment instructions are submitted (paper-based or in electronic form).

The next steps are the increase of the transaction ceiling to EUR 50,000 and the exchange of direct debit files, not only at a cross-border level, but also at the national level.

3.3.3.2 Eurogiro

Eurogiro was established in 1989 as a cooperation between the postal and giro organisations to build a network for the exchange of cross-border payments. The participants act as correspondents for each other.

In July 2002, the group consisted of 39 members in 37 countries. All EU countries and seven accession countries are covered, as well as the United States and Japan. Not all participants belong to the postal bank sector. Some commercial banks also act as access points in some countries.

Eurogiro processes credit transfers and cash-on-delivery orders. The network uses SWIFT message formats for transferring the payment (MT 100, MT 100-20, MT 00-50/60) and achieves a high level of straight through processing in the interbank chain.

The payments are executed through reciprocal accounts (nostro and loro accounts) which the correspondents hold for each other. Eurogiro is run by Eurogiro Network A/S, which is based in Denmark. It is a limited company and is owned by 16 European post office banks/postal financial services companies.

Eurogiro has laid down some internal standards which must be met by participants in order to be able to process payments via the network. The standards address areas such as accessibility and maintenance of the system, formatting of transactions, time scales for the processing of standard payments and key interbank transactions, as well as transparency of customer pricing (no regulation of the pricing in itself).

Eurogiro offers solutions for both large payments and small payment business and stipulates no minimum business size.

Types of transaction handled

Eurogiro handles any commercial payments. The bulk of its business is in the area of low-value payments (credits and cash payments), but it can also process large-value payments as there is no maximum limit on the amounts that can be transferred.

Credit transfers are usually credited to the beneficiary’s account within three business days. The execution time can be reduced to two days if the “urgent” option is chosen. Cash payment orders are normally processed and carried out within five business days.

In general transactions are sent directly from member to member in a decentralised way. Eurogiro can also act as a hub and provide add-on services to the members (such as conversion from MT 100 to MT 103). In general, all consistency and validation checks (risk control) are carried out by the sending institution, not by Eurogiro centrally.

Transactions are formatted according to SWIFT standards and are then wrapped up in the unique Eurogiro envelopes. Implementation of new services is subject to a two-step test programme.

Settlement procedures

Eurogiro payments are settled on a gross basis once a day bilaterally between the members concerned. It is normal practice for Eurogiro members to hold accounts with each other and to settle in the currency of the payment. The members agree bilaterally on the terms and conditions of the accounts (statements, interest, minimum deposit, etc).

Eurogiro has entered into a settlement arrangement with Postgirot Bank in Sweden (now owned by Nordea) as the single settlement service provider for euro payments. Postgirot Bank will keep accounts for all members and act as the single point of entry in the settlement of euro payments. The service went live on 2 November 2001.

Pricing

In 2001, participants paid:

- a monthly service fee (network licence fee, software service, maintenance of encryption equipment) of between EUR 1,200 and EUR 2,100 (depending on the number of transactions processed); and
- additional costs for extra installation units.

Transaction fees are not dependent on the type of transaction. They are only differentiated according to the number of transactions sent:

Flat transaction fee	Transaction tiers	Fee per transaction
Minimum monthly fee EUR 1,000	0-8,000	EUR 0.25
	8,001-40,000	EUR 0.12
	40,001-80,000	EUR 0.07
	80,001 +	EUR 0.03

A discount for large numbers of payments sent on the same day to the same institution (eg pension payments) is available.

Statistical data

Eurogiro records the number of transactions processed on the network, but not the value of individual transactions. Statistics are issued monthly and the daily averages below are calculated on the basis of the monthly statistics (1 year = 252 days).

Key figures are:

Sent transactions	1998		1999		2000	
	average day	**year**	**average day**	**year**	**average day**	**year**[1]
Credits	18,963	4,778,645	18,104	4,562,273	19,972	3,774,664
Cash	7,821	1,970,784	16,084	4,053,136	28,613	5,407,803
Interbank	68	17,229	123	31,082	239	45,193
Total	26,852	6,766,658	34,311	8,646,491	48,824	9,227,660

[1] January to September 2000 (189 days).

A survey in spring 2000 revealed that the average transaction size in Eurogiro was EUR 2,375.

3.3.3.3 S-Interpay

S-Interpay was set up in 1994 by the German savings banks and their central institutions, the Landesbanken, to facilitate cross-border payments. Since then the system has expanded and it now consists of a network of correspondent banks in the European Union and beyond. Detailed access criteria are not published. However, participants are mainly from the savings banks sector. The services of S-Interpay are available to all members of the European Savings Bank Group and, in principle, also to other commercial banks.

In general, one bank in each country functions as the central correspondent for that country. However, in larger countries there may be two or more correspondents, which then take care of the relationships with particular foreign countries. The correspondent “collects” all payment orders which are to be transferred abroad from the participants. These payment orders are transferred to the foreign correspondent, which will then convert the data into the domestic format and process the payment within the relevant local payment system. The network only handles cross-border credit transfers for amounts of up to EUR 10,000 (or the equivalent value in the relevant currency). It is planned to increase this limit to EUR 50,000 in the future.

Cross-border payment orders can be submitted up until 2.30 pm each day for processing on the following business day. The payment orders are then sent to the correspondents abroad, which under normal circumstances enter the payment instructions into their domestic clearing systems the following business day.

Processing is automated throughout the interbank chain. Straight through processing is possible by using the SWIFT MT 102 message format as the standard format. The exchange of payments between correspondents takes place on the basis of file transfers. Payment orders which do not meet the agreed standards are automatically rejected and returned to the sender. No repair work is carried out on the recipient's side.

Cover payments are made in the form of TARGET or EURO 1 payments to the respective foreign correspondent. If currencies other than the euro are to be settled the settlement takes place via existing accounts which the correspondents hold for each other.

The correspondent banks in the various countries have concluded service level agreements which address issues such as message standards and formatting rules as well as execution time and settlement rules.

Charges for cross-border service are determined by the individual banks participating in the S-Interpay system. Charges are always based on a flat fee.

S-Interpay has already reached a high level of straight through processing with the implementation of the IBAN and SWIFT MT 103 message types. There are plans to develop new software which is capable of settling domestic as well as cross-border payments.

3.3.3.4 STEP 1 initiative of the Euro Banking Association

The STEP 1 initiative of the EBA entered into operation on 20 November 2000. Its main aims are to enable a reduction in the execution time of cross-border retail payment instructions, to foster the use of industry standards for messaging in order to enhance straight through processing within banks, and to develop and encourage the adoption of European business practices in the execution of cross-border retail payment instructions.

STEP 1 uses the existing infrastructure of the EBA's EURO 1 system for large-value payments without being subject to the risk management requirements of the large-value segment, and allows access to a greater number of banks. In fact, STEP 1 has a two-tier membership: the EURO 1 clearing members and, in addition, any other bank which is not a member of EURO 1 but acquires the status of a STEP 1 bank and uses a EURO 1 clearing bank as a "settlement bank" for its low-value payments.

Participation in the system

The EBA's STEP 1 arrangement is open to all banks which have a system office (ie an office from where they are connected to STEP 1) located in an EU member state and are either EURO 1 banks or have appointed a EURO 1 bank to act as their settlement agent within EURO 1. As at 15 July 2002, 85 banks were participating in the STEP 1 arrangement.

Types of transaction handled

STEP 1 can be used for the processing of credit transfers, which should be below EUR 50,000, although there is no actual limit. As of late 2002, the system will also be able to process direct debits.

Operation of the transfer system

STEP 1 is set up in such a way that a bank which has joined the STEP 1 arrangement with the EBA and which is not at the same time a participant in the EURO 1 system (a STEP 1 bank) is able to submit and receive low-value payments to or from other STEP 1 banks and settle the netted balances via a EURO 1 bank (its "settlement bank"). The balance calculated for a STEP 1 bank for a particular value date is settled by its settlement bank within the EURO 1 system.

Transaction processing environment

STEP 1 uses the technical platform of EURO 1 for the processing of low-value payments.

In order to distinguish STEP 1 payments from EURO 1 payments, the former carry a specific three-letter tag in field 103 of the SWIFT message ("ERP" for Euro Retail Payment). A payment with an "ERP" tag is automatically captured by SWIFT, which forwards a partial copy to the EURO 1 platform.

The processing of STEP 1 retail payments is carried out on the EURO 1 platform according to the same technical processing principles as for EURO 1, but in a separate "ERP cycle" on the day of settlement.

The same SWIFT message types as in EURO 1 can also be sent in STEP 1. In particular, the following STEP 1 messages can be sent: SWIFT MT 100, MT 102 and MT 103 messages with the tag “ERP” in field 103. SWIFT MT 202 messages are used for transfers between a STEP 1 bank and its settlement agent. Direct debits will be processed using the SWIFT MT 104 and MT 204 messages.

STEP 1 does not process batch files (other than the MT 102 messages) and does not provide a central sorting function.

Any large-value payments which are sent to or received by a EURO 1 bank, whether for itself or for one of the STEP 1 banks for which it acts as settlement bank, are processed within the credit and debit caps of the EURO 1 bank within the EURO 1 system.

Settlement procedures

Shortly after 9.30 am on day D (settlement day), SWIFT informs each STEP 1 bank, and its settlement bank, of its Potential Net Balance (PNB), which is the total value of payments to be received on day D minus the total value of payments to be settled on day D. Settlement of balances within EURO 1 starts at 10.30 am on day D.

If under exceptional circumstances (eg major technical failures or the breach of the credit or debit cap of one of the settlement banks) STEP 1 payments cannot be processed by 4 pm on day D, they are automatically carried over to the next settlement day.

The balances in STEP 1 will be recalculated in the event that one participant is unable to settle its balances by 10.30 am on day D. After recalculation of the balances at 11.30 am, the banks are informed by EBA Clearing that processing has started again.

Credit and liquidity risk

STEP 1 banks cannot cancel their retail payment orders after 9.30 am on day D. The settlement of EURO 1 balances takes place at the ECB shortly after 4 pm on day D. STEP 1 messages are irrevocable as soon as they are processed on the settlement day. However, STEP 1 banks cannot forward and credit incoming STEP 1 payments to their customers without incurring any credit or liquidity risk until the EURO 1 balances have been settled on day D.

Pricing

One SWIFT MT 102 message, which can contain several STEP 1 payments, is charged by the system at EUR 0.48. The joining and annual fees for STEP 1 banks are EUR 5,000 and EUR 1,000 respectively. STEP 1 banks are entitled to a reduced admission fee to the EBA (EUR 1,000).

3.4 Future developments

3.4.1 Electronic banking

The overall trend seems to be that financial institutions are increasing their efforts to move towards electronic banking, ie online PC banking and internet banking. Online PC banking enables customers to execute bank transactions from a personal computer via a modem, using a financial software program supplied by the bank. Internet banking uses the internet as the medium through which customers can manage their financial affairs. The internet banking software is not stored on the user’s personal computer (as with online PC banking) but on the bank’s server. Internet banking is expected to have the highest growth potential as users are becoming more familiar with the internet and the ability to access bank activities from different locations may gain in importance. Recent developments in mobile phone technology and digital television, enhancing customer access to internet banking services, may even further increase the use of internet banking. The same applies to accessing banking services, including access to payment systems, via mobile phones. The growth potential in these areas seems to be significant.

Besides providing an online overview of account balances and facilities for the payment of domestic bills and the transfer of funds between domestic accounts, some banks already offer facilities for making cross-border payments via the internet. In the near future, financial institutions are expected to offer more sophisticated services, such as loans, investment products and cross-border retail payments.

The creation of a legal framework for electronic signatures was of great importance for the development of electronic banking. Electronic signatures, which use technologies such as cryptography, allow individuals who receive data over the internet or other online networks to determine the origin of the data and to check whether or not it has been altered. Directive 1999/93/EC of the European Parliament and of the EU Council on a Community framework for electronic signatures was published in December 1999. This Directive aims to ensure that electronic signatures that are subject to certification procedures by third parties are considered legally equivalent to hand-written signatures.

At present, the public and the private sector in Europe are setting up certification institutions and infrastructures for the creation and use of digital signatures. These certification institutions, which may be public authorities, chambers of commerce, federations of notaries or selling agents, credit institutions or issuers of payment cards, act as management and approval centres for the certificates. The banking industry in particular is very active in designing the services which can be used by banks to provide secure and efficient financial services to their customers. However, public authorities are also beginning to get involved. In Spain, for example, it is possible for citizens to fill in their tax return forms electronically. Furthermore, in January 2000 the Finnish Population Centre launched a national digital identity card (HST-card) with a digital signature, which can also be used in place of the conventional personal identity card. The latest developments are intended for mobile commerce solutions. The Finnish Sonera SmartTrust (former Finnish Telecom), for example, has developed an authentication solution for mobile telephones. The technology allows transferred data to be encrypted and signed with digital signatures.

All of these private and public service providers operate on a domestic basis. However, some have started to sign agreements with certification agencies in other countries, such as the Agencia de Certificación Electrónica in Spain, in order to guarantee mutual recognition of certificates. In future, there is expected to be not only a clear growth in the number of national certification agencies offering services on a domestic level, but also an increasing internationalisation of their services.

3.4.2 Card-based payments over the internet

Payment cards are currently the most popular means of making payments over the internet. Credit cards in particular are widely accepted and easy to use, as only the card numbers are sent over the internet. However, there is always a trade-off between ease of use and security, as the unprotected flow of data over the internet could lead to the misuse of credit cards. The Secure Electronic Transaction (SET) standard was introduced to facilitate secure credit card transactions over the internet. Visa is currently developing 3-D Secure and MasterCard is developing Secure Payment Application (SPA), two initiatives for securing credit and debit payments over the internet.

3.4.3 Correspondent banking

The impact of monetary union on the correspondent banking business in the euro area has been substantial, as there is a trend towards a reduction in the number of correspondent banking accounts and a concentration among a few major banks. Immediately after the start of stage three of monetary union developments were still at a preliminary stage. Since then, the trend towards concentration has accelerated. The driving factors behind this trend are new payment systems initiatives (eg CLS), technological innovation and financial sector consolidation. Each of these forces is expected to continue to foster ongoing trends. As a result of the increasing concentration, the nature of "traditional" correspondent banking business is already changing. Some banks have become the settlement institutions of "quasi-systems" or run innovative payment arrangements which combine the features of correspondent banking and funds transfer systems. A further step towards greater concentration is expected to occur as a result of the introduction of euro banknotes and coins, since the correspondent banking relations which used to exist in respect of payments in legacy currencies are no longer needed.

3.4.4 The single euro payment area and the European Payments Council

In the first half of 2002, the European banking industry prepared a White Paper called *Euroland: our single payment area*, with a vision that Europe will gradually develop into a single euro payment area (SEPA) of 500 million citizens and consumers making and receiving over 100 billion non-cash payments each year. These transactions will all be made within a "domestic" euro area market, with the cross-border transactions of today becoming a relic of the past. The expectation is that everybody will be able to make any payment within the SEPA as easily and inexpensively as in his or her home town.

European banks and banking associations established a European Payments Council (EPC) on 17 June 2002 to represent the industry and to support the development of the SEPA. The EPC has also confirmed a number of objectives that will contribute to increased efficiency for pan-European payments such as:

- establishing a pan-European ACH with fair and open access, able to process credit transfers from 1 July 2003 and direct debits by July 2005;
- phasing out cheques over the long term; and
- achieving a level of STP in the SEPA even higher than in domestic processing today.

The Eurosystem shares the vision of the SEPA and strongly supports its achievement in cooperation with the industry. In this respect, the Eurosystem also welcomes the steps taken to create an effective new governance structure to foster the cooperation and commitment of the banking industry at the euro area level.

3.4.5 Retail credit transfer systems

Towards the middle of 2003, the EBA intends to introduce a complementary arrangement to its current STEP 1 initiative for the processing of retail credit transfers and direct debits, which will be called STEP 2.

STEP 2 will process high-volume commercial and retail payments sent to the system in files containing a large number of payments (batches), unlike STEP 1, which currently processes every payment separately.

STEP 2 will offer a clearing and sorting function. The participating banks will be able to submit all their retail payments for one settlement day in a single batch file to the system. STEP 2's sorting function will open the file, sort the payments according to the recipients and establish the amounts which need to be settled by the participants.

As in STEP 1, the balances calculated in STEP 2 will be settled in EURO 1. In order to ensure straight through processing, the payment messages will initially be based on the SWIFT MT 103+ data set.

At present, it is envisaged to have three different categories of participants:

- settling participant: a EURO 1 bank which is, at the same time, a member of STEP 2 and settles directly in EURO 1;
- non-settling participant: a STEP 2 member which is directly addressable in the system, but settles indirectly via a EURO 1 bank, ie these would be banks participating in STEP 2, but not in EURO 1. This is the same setup as in STEP 1, where members have a "settlement agent" which settles their balances in EURO 1;
- indirect participants: STEP 2 members which are not directly addressable in STEP 2 and settle indirectly via a EURO 1 bank. These would be correspondents of a EURO 1 bank which do not want to join the STEP 2 arrangement themselves.

4. Securities clearing and settlement systems

The introduction of the euro has accelerated the process of consolidation in securities market infrastructures in the euro area which had been initiated by the harmonisation of European domestic securities markets and new developments in technology. This is reshaping the trading, clearing and settlement industries.

This reshaping is, for example, evident from consolidation in the securities market infrastructure, which is taking place both vertically and horizontally. Vertical consolidation is the process of consolidating different activities which take place at various points in the securities transaction chain, such as the integration of trading, clearing, settlement and custody services within a single institution. Horizontal consolidation includes mergers or alliances between systems providing similar services, such as the merger of two SSSs.

This section describes recent developments in trading, clearing and settlement which have a mainly euro area dimension. Detailed information concerning domestic institutions can be found in the relevant country chapters.

4.1 Trading

The introduction of the euro has eliminated currency segmentation, which was one of the main reasons for the fragmented listing and trading environment in the euro area. This has permitted investors to adjust their portfolios and look beyond their national markets. This is also true for investors from outside the euro area, who see the euro area securities markets as a single market. Increased cross-border trading has put pressure on stock exchanges to integrate their trading platforms in order to provide cost-efficient euro area-wide mechanisms. As a result, there is increased demand for further integration between stock exchanges in the form of cross-border cooperation and mergers.

In addition to traditional stock exchanges, several “alternative trading systems” such as new electronic communication networks (ECNs) offering similar functionality and services to traditional exchanges have been introduced in the euro area.

The common, fully electronic German-Swiss derivatives market Eurex resulted from the first European cross-border merger of exchanges between Deutsche Terminbörse (DTB) and the Swiss Options and Financial Futures Exchange (SOFFEX) in 1998. Furthermore, in 1999 the boards of Eurex and Helsinki Exchanges Group Ltd. (HEX) signed a cooperation agreement for a strategic derivatives market alliance. Concerning the spot market, the Irish Stock Exchange (ISE) and the Deutsche Börse agreed on an alliance through which the ISE operates the electronic trading system for Irish equities ISE XETRA on a special segment of the XETRA trading platform in Frankfurt. Moreover, the Wiener Börse has introduced the electronic trading system XETRA.

In September 2000, the Amsterdam Stock Exchange, the Brussels Stock Exchange and the Paris Bourse were merged into a single stock exchange called Euronext. The three exchanges retain their status as regulated exchanges. They are held by a Dutch limited holding company. Euronext is maintaining its presence in the three countries by having a regulated exchange in each of them, while the exchanges are at the same time becoming increasingly legally and operationally integrated. Since November 2001, the three Euronext cash markets have been using the same order-driven trading platform based on the French NSC trading system. In October 2001, Euronext took over the London derivatives market LIFFE. In February 2002, Euronext and the Portuguese stock exchange (Bolsa de Valores de Lisboa e Porto) announced the conclusion of a merger agreement and, as a result, the formation of Euronext Lisbon. Furthermore, HEX signed a cross-membership agreement with Euronext in September 2001. French and Belgian derivatives trading will move to the Connect platform in the first quarter of 2003.

Consolidation is also taking place in EU accession countries. On 8 February 2002, the Warsaw Stock Exchange SA signed an agreement on reciprocal membership with Euronext N.V. HEX acquired majority ownership of the Tallinn Exchange (TSE) in April 2001 and subsequently, in February 2002, the TSE implemented the HETI trading system of HEX.

Trading in fixed interest instruments has traditionally been dominated by OTC trading. The introduction of the euro has highlighted the need to have facilities for cross-border trading. Alternative electronic trading platforms have emerged, offering services ranging from simple order transmission to fully fledged trade execution facilities such as EuroMTS, CoredealMTS, virt-x, Brokertec and Instinet. Most of these systems are located outside the euro area, but have a high proportion of euro area-based institutions as owners and participants.

As far as the euro area is concerned, the so-called MTS galaxy, composed of several national markets (MTS Italy, MTS France, MTS Belgium, MTS Amsterdam, MTS Portugal and EuroMTS) sharing the same trading technology (the “telematico” system), currently has the most widespread presence among European trading service providers in the fixed income segment.

4.2 Clearing

The clearing landscape in the euro area has remained relatively fragmented since the introduction of the euro. In the derivatives markets, the clearing house acts as a central counterparty (CCP) for exchange-traded instruments, while in spot markets the use of a CCP is not widespread.

Nevertheless, there is a consensus among market participants that clearing with a CCP will play an increasingly important role in reshaping the securities markets. This is due firstly to the increasing use of electronic order-driven trading platforms with trader anonymity and secondly to the rising number of foreign trading firms operating via remote access on the markets, whose activity is perceived by the other counterparties to represent an increase in counterparty risk.

When a clearing house acts as a CCP, it interposes itself as legal counterparty to both sides of a securities transaction. As such, it provides a number of benefits to market participants. For instance, it simplifies the management of counterparty risk by providing a single counterparty instead of several. Even though a CCP does not in itself eliminate credit risk in a market, it redistributes this risk and makes it easier for the firms to manage it. Moreover, a CCP increases the liquidity of the marketplace through netting. Finally, it reduces the number of settlements and therefore the associated risks and operational costs. However, establishing a CCP is not without costs. In particular, it needs a robust risk management system. Thus, several European markets are currently assessing the costs and benefits of having a CCP.

Initiatives among service providers to establish a pan-European CCP are progressing. For instance, the clearing functions of the three Euronext exchanges (Amsterdam, Brussels and Paris) legally merged at the beginning of 2001 into Clearnet (operating in the French market before), which acts as the CCP for all the transactions carried out on Euronext. Euronext Lisbon will also use the clearing facilities of Clearnet. Furthermore, Clearnet, Eurex Clearing and the London Clearing House (LCH) have repeatedly explored the possibilities of various merger combinations.

Discussions on the integration of clearing activities within the market are focusing on issues related to governance, jurisdiction, legal status and types of products. In particular, it is not clear at this stage whether CCP services will be provided through a single entity or through multiple entities across product lines and markets, with multicurrency capability, and consequently how many jurisdictions will be involved.

Integration in terms of international joint ventures has also been visible. An example is the establishment of the European Securities Clearing Corporation (ESCC) as a pan-European clearing house, which was set up by Euroclear and the US Government Securities Clearing Corporation (GSCC) to provide trade comparison and netting services for European government debt securities. The LCH has recently joined this partnership.

4.3 Settlement

Three different solutions have emerged in response to securities market demands for the rationalisation of the European securities settlement industry:

- cross-border links, which are bilateral networks between SSSs. Here, a national SSS provides a single point of entry which allows its customers to hold securities issued in any other SSS and to use these securities within its own country;
- mergers and joint ventures between SSSs. Until now, two major mergers of ICSDs with domestic CSDs have effectively taken place: the merger of Cedel International with Deutscher Kassenverein (the German CSD) resulting in the formation of Clearstream International, and the merger of Euroclear with Sicovam (the French CSD) and Necigef (the Dutch CSD) resulting in the creation of the Euroclear Group. Other initiatives are being carried out at the national level;
- the “relayed links” solution - currently being considered by several SSSs - whereby one SSS acts as an intermediary on behalf of another for the settlement of international business.

Cross-border links

Links between SSSs have been established in order to facilitate cross-border transfers of securities. These links are used for the transfer of collateral for the Eurosystem’s credit operations, as well as for all interbank operations. In order to be eligible for use in the Eurosystem's credit operations, the links are assessed against the Eurosystem's standards. The links which have been assessed so far allow the cross-border transfer of securities to/from the Eurosystem on a free of payment basis.

In July 2001, the total number of eligible links assessed and approved by the Eurosystem was 66. So far, the use of links has been more modest than expected. In fact, frequent and significant use is only made of 29 of the 66 eligible links. Although the links cover several countries, this activity is concentrated within a few countries and is dominated by the two ICSDs - Clearstream International and Euroclear.

Clearstream International

Clearstream International was formed in January 2000 through the merger of Cedel International (the Luxembourg-based ICSD) and Deutsche Börse Clearing (the German CSD). Deutsche Börse initially held a 50% stake in Clearstream International, but acquired Cedel's 50% stake on 11 July 2002. Clearstream International is an international clearing and settlement organisation with extensive services for equities and bonds for both domestic and international business. The holding company, which is incorporated in Luxembourg, has three main subsidiaries: Clearstream Banking Luxembourg (CBL), Clearstream Banking Frankfurt (CBF) and Clearstream Services Luxembourg. Joint regional offices are used for representation in the major financial centres.

CBF offers clearing and settlement facilities for the German securities markets. CBL also operates LuxClear, which is the Luxembourg CSD.

Clearstream Services Luxembourg provides the single IT platform for international transactions, called Creation, for clearing, settlement and custody. Since CBF's international business was successfully migrated to the platform in February 2001, both CBL and CBF have been using it for international transactions in commercial bank money. CBF continues to operate the settlement system for the German market in central bank money on a separate platform. Settlement currently takes place in several night-time and daytime processing cycles (for further details see Section 4.3.2 of the German chapter).

Euroclear Group

The takeover of the French CSD Sicovam SA by the Brussels ICSD Euroclear Bank took effect in January 2001. As a result, Sicovam SA has been renamed Euroclear France and has become a full subsidiary of Euroclear Bank. Euroclear Bank was created in December 2000 and has taken over the former Euroclear system operating and banking roles.

A common, dual platform for batch and real-time settlement in both central bank and commercial bank money will be available to customers of Euroclear Bank and Euroclear France via a single interface. The respective technology platforms will be rationalised gradually, ultimately leading to a single settlement process.

In December 2000 all Irish government bond settlement activity previously carried out by the Central Bank of Ireland was transferred to the Euroclear System. This arrangement allows financial institutions to hold Irish government bonds and settle domestic and cross-border transactions in a single settlement location. Consequently, the Central Bank of Ireland's own settlement system, CBISSO, ceased operations. However, the Central Bank of Ireland continues to act as registrar for Irish government bonds.

In July 2001, the Euroclear and Euronext groups announced an agreement leading to the absorption of the settlement activities of CIK and Necigef, the CSDs of Belgium and the Netherlands respectively, into the Euroclear group. The shares of Necigef and the settlement activities of CIK were taken over by Euroclear in the first quarter of 2002. Euroclear will provide a unified preferred settlement and custody platform for the Euronext markets. The agreement commits all the parties to integrate the settlement functions of CIK and Necigef into a single platform, in a single entity and under a single legal jurisdiction.

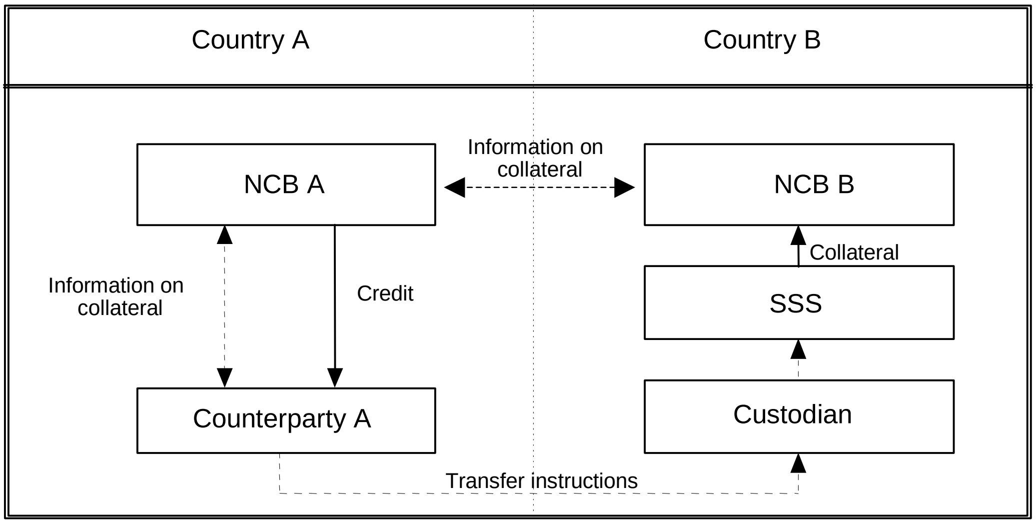
The correspondent central banking model

The correspondent central banking model (CCBM) came into operation on 4 January 1999. It was established in order to facilitate the cross-border use of collateral in the Eurosystem's monetary policy operations and intraday credit operations. The Eurosystem's counterparties and TARGET participants in the European Union can only obtain credit from the central bank of the country in which they are incorporated. However, within the CCBM the NCBs act as securities correspondents for each other, thus enabling counterparties to use all of their eligible assets to obtain credit from their own NCB regardless of where the securities are located (see Chart 1). For the functioning of the CCBM, market participants must make arrangements with the SSSs where the collateral is deposited for the delivery of the securities intended to serve as collateral to an account at the local NCB. Acting as correspondent central bank (CCB), the local NCB will then hold the collateral on behalf of the central bank granting the credit (the home central bank (HCB)).

Chart 1

The correspondent central banking model

The use of eligible assets deposited in country B by a counterparty established in country A in order to obtain credit from the NCB of country A



The CCB is responsible for providing the necessary information on the delivery and eligibility of the securities, while the HCB is responsible for processing that information, as well as for conducting the valuation process and for providing liquidity (ie via a cash payment or by raising a debit cap).

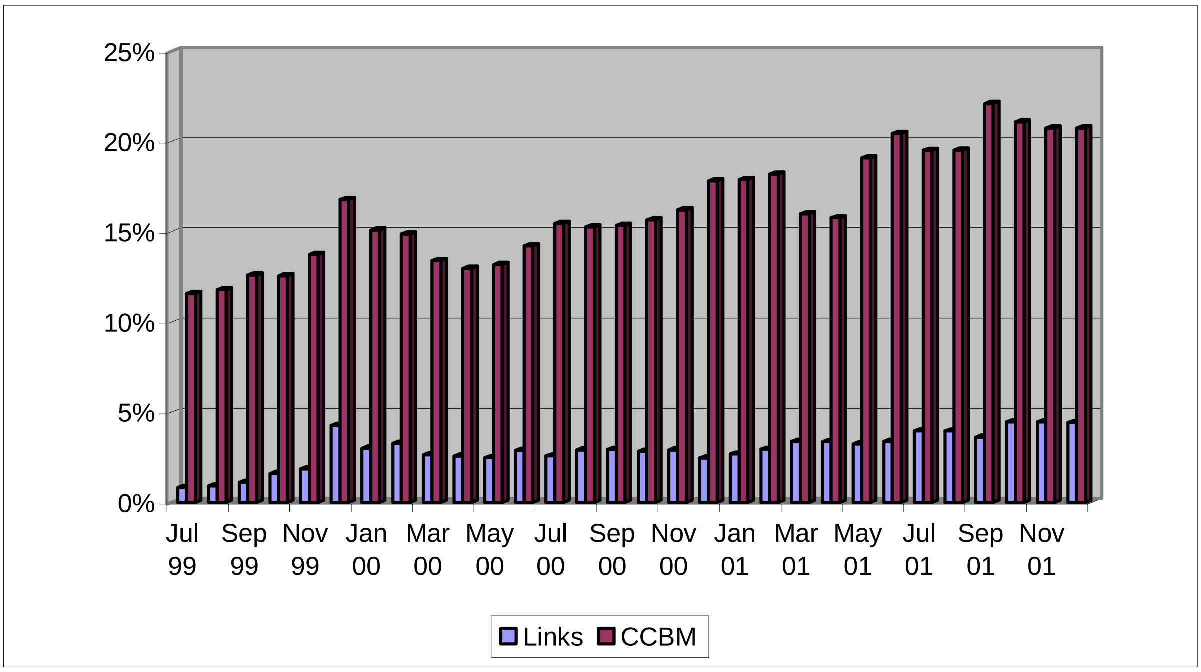
In 2001, collateral submitted to the Eurosystem via the CCBM represented 19% on average of the total collateral provided. This figure is remarkable when compared with the 4% of collateral held in custody through link arrangements between SSSs, the only alternative to the CCBM for transferring cross-border collateral (see Chart 2). The remaining 78% is held domestically.

During 2001 assets held in custody by Eurosystem counterparties through the CCBM averaged EUR 133 billion. The main collateral provider (acting as CCB) was Italy with 32% of the total assets held through the CCBM, followed by Luxembourg (23%), Germany and Belgium (14% each). One reason for the high proportion of collateral provided by Luxembourg and Belgium is that Clearstream Luxembourg and Euroclear, the two ICSDs where eurobonds are deposited, are located in those countries.

The main users of collateral (acting as HCB) were Germany with 48% of the collateral held through the CCBM, the Netherlands (14%), Luxembourg (12%) and Ireland (11%). Owing to the relative scarcity of domestic collateral in Luxembourg and Ireland, foreign collateral held via the CCBM on a cross-border basis amounted to 57% of all collateral held by counterparties in Luxembourg and to 85% of that held in Ireland.

Chart 2

Evolution of cross-border collateral as a percentage of total collateral provided to the Eurosystem



Note: The total collateral provided to the Eurosystem refers to the sum of domestic collateral, cross-border collateral held via the CCBM and cross-border collateral held via the links between SSSs. The first wave of links was approved in May 1999. To date, the Governing Council of the ECB has approved 66 cross-border links.