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# TARGET ANNUAL REPORT 2008

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# 2008





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In 2009 all ECB publications feature a motif taken from the €200 banknote.



## TARGET ANNUAL REPORT

2008

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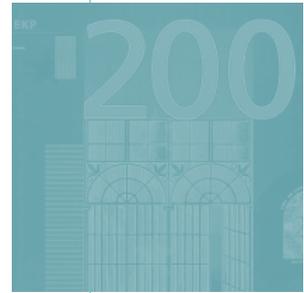
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The Eurosystem has a direct interest in the prudent design and management of payment and securities settlement systems within its currency area. The smooth functioning of these systems – particularly those that process very large amounts – is of paramount importance for the stability of the financial system and is essential for the effective implementation of the single monetary policy.

Payment and securities settlement systems in the EU were originally created with the aim of meeting domestic requirements. They were relatively diverse in nature and not necessarily suited to the needs of a single currency area, where an infrastructure is needed to enable the quick and smooth flow of payments and securities.

Over the last two decades the financial infrastructure in the EU 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 have led to a 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 accelerated efforts to harmonise and consolidate payment and securities settlement systems.

In Europe, thanks to the TARGET<sup>1</sup> system, the area of large-value payments is very clearly the area that has achieved the highest level of harmonisation. The creation of the TARGET system established an EU-wide RTGS system for the settlement of our common currency. From day one, TARGET became an essential vehicle for the implementation of the monetary policy of the Eurosystem and has helped to create a single money market within the euro area.

Today, the second-generation system TARGET2 introduces a literally uniform wholesale payment infrastructure by means of a single technical platform. This provides the euro money markets with an infrastructure for settlement that is comparable to those of other currency areas (for instance, Fedwire in the United States and BOJ-NET in Japan) and thus creates a level playing field for users across Europe. This provides direct support and will also be a driver for a greater harmonisation of, and more efficiency in, business practices in other related areas, such as post-trade services in euro.

The Eurosystem is well aware that – in particular in these times of difficult market conditions – the robustness and smooth operation of its clearing and settlement infrastructure is indispensable for the stability of the currency, the financial system and the economy in general. I think it is fair to say that, with TARGET, the Eurosystem is well equipped with a reliable backbone for payments in euro, and its second-generation system will further facilitate the ongoing integration of post-trade services in euro.

We regard TARGET as one step in a broader process. The Eurosystem is currently working

<sup>1</sup> Trans-European Automated Real-time Gross settlement Express Transfer system.

on two additional integrated projects, namely TARGET2-Securities (for securities settlement) and CCBM2 (for collateral management). The combination of TARGET with these two Eurosystem projects in an independent but integrated manner will allow efficiency to be increased, market integration to be stepped up and competition to be fostered. The efficiency gains that the three infrastructures will bring will obviously go far beyond the sum of the benefits of the three projects on their own. This is especially true when looking at liquidity management and the fostering of harmonisation for technical processes and market practices.

In conclusion, the ECB and the Eurosystem wish to underline that the ongoing infrastructure initiatives cannot work in isolation and are instead integral parts of a package of measures that complement one another with the aim of delivering an integrated, efficient and competitive market infrastructure for EU money and capital markets.

I believe that this report will help relevant stakeholders and the general public to better understand the permanent and irreversible process of integration we are immersed in today: a process in which TARGET has been and continues to be instrumental.

Gertrude Tumpel-Gugerell

## INTRODUCTION

This report is the ninth edition of what has become known as the “TARGET Annual Report”. The first edition was published in 2000, covering TARGET’s first year in operation (1999). This ninth edition takes account of the fundamental developments which took place in TARGET in the course of 2008. The report is addressed to decision-makers, system users, lawyers and academics wishing to acquire an in-depth understanding of TARGET. It will hopefully also be of interest to students with an interest in market infrastructure issues and TARGET in particular.

A payment is the process by which cash, deposit claims or other monetary instruments are transferred between economic agents in transactions. The market infrastructure for payments consists of the set of instruments, networks, rules, procedures and institutions that ensures the circulation of money. The principal objective of the market infrastructure for payments is to facilitate the conduct of transactions between economic agents and to support the efficient allocation of resources in the economy. It represents one of the three core components of the financial system, together with markets and institutions.

The complexity and, in particular, importance of the market infrastructure for payment handling has greatly increased over the last two decades owing to the tremendous growth in volumes and values of financial activities, financial innovation and advancements in information and communication technologies. At present, economic agents buy and sell goods (including financial instruments) and services in markets, making use of real-time transfer services provided by the market infrastructure.

TARGET, the Trans-European Automated Real-time Gross settlement Express Transfer system, is the real-time gross settlement (RTGS)<sup>2</sup> system for the euro and commenced operations on 4 January 1999. TARGET was developed by the Eurosystem, the central banking system of the euro area, and offers a premium payment

service which transcends national borders in the European Union (EU).

TARGET was developed to meet three main objectives:

1. to provide a safe and reliable mechanism for the settlement of euro payments on an RTGS basis;
2. to increase the efficiency of inter-Member State payments within the euro area; and, most importantly,
3. to serve the needs of the monetary policy of the Eurosystem.

The Eurosystem has the statutory task of promoting the smooth operation of payment systems. Its main instrument for carrying out this task – aside from the oversight function (see Chapter II, paragraph 5.2) – is the provision of payment settlement facilities. To this end, the Eurosystem created the TARGET system for the settlement of time-critical and large-value payments in euro.

TARGET settles payments related to monetary policy operations, as well as payments related to other payment and securities settlement systems. TARGET provides intraday finality: settlement is final for the receiving participant once the funds have been credited. The money received is central bank money and it is possible to reuse these funds several times a day.

TARGET is accessible to a large number of participants. Most credit institutions are able to use it to make payments on their own behalf, or on behalf of other (indirect) participants. More than 5,900 banks, including branches and subsidiaries, use TARGET to initiate payments

<sup>2</sup> A real-time gross settlement system is a payment system in which processing and settlement take place in real time (i.e. continuously) rather than in batch processing mode. It enables transactions to be settled with immediate finality. Gross settlement means that each transfer is settled individually, rather than on a net basis. TARGET and its second-generation system TARGET2 are examples of real-time gross settlement systems.

on their own or on their customers' behalf. Over 55,000 banks worldwide (and thus all the customers of these banks) can be addressed via TARGET. Consequently, TARGET is instrumental in promoting an integrated euro area money market, which is a prerequisite for the effective conduct of the single monetary policy and contributes to the integration of the euro financial markets.

### STRUCTURE OF THE REPORT

This report provides background information on TARGET, its performance and the main developments that took place in 2008. Chapter I provides information on the current TARGET system and its predecessor. Chapter II details TARGET activity in 2008. Chapter III contains two articles on current topics of interest: on the impact of the financial turmoil on TARGET and on the effect of the migration to TARGET2. Finally, the annexes provide details of the main features of TARGET, a chronology of developments in TARGET, a list of acronyms and a glossary, and additional tables and charts.

In the following paragraphs, the references made to the first-generation TARGET system (which was in operation from January 1999 to May 2008) are also applicable to its second generation, TARGET2 (which has been in operation since November 2007). Indeed, the provision of euro RTGS services is continuing with significant improvements in the second-generation system. This is the reason why, in many instances in this report, both the first and the second-generation systems are referred to as "TARGET", i.e. no distinction is made between TARGET and TARGET2.

## CHAPTER I

# FROM THE FIRST-GENERATION TARGET SYSTEM TO TARGET2

### I TEN YEARS OF THE FIRST-GENERATION TARGET SYSTEM

#### I.1 PREPARATION FOR THE SINGLE CURRENCY

In the mid-1990s Europe was pursuing a single currency and EU countries were preparing for the change from their national currencies to the euro. Within the EU's community of national central banks (NCBs) the question arose as to how the euro could circulate between the Member States in a fast and reliable way. Indeed, there was an urgent need to develop a payment service to serve the needs of what would be the single monetary policy and, at the same time, to facilitate the settlement of euro payments across national borders in the EU. At the time, the majority of Member States already had their own RTGS systems, but only for the settlement of transactions in their national currencies.

Thus, in March 1995 the Council of the European Monetary Institute (EMI) decided that all current EU NCBs should be ready to connect to TARGET by 1999. However, the necessity to be ready in time for the introduction of the euro did not grant sufficient time to build a fully-fledged single RTGS system. Therefore, the most practical and immediate solution was to link the existing RTGS systems and define a minimum set of harmonised features, basically for sending and receiving payments across national borders (i.e. inter-Member State payments). At the national level, central banks continued to function as they did for the settlement of payments within their banking community (i.e. intra-Member State payments). This approach kept the changes that the banks and central banks had to undergo to a minimum, which was important at a time when they were already heavily involved in the changeover to the euro and the single monetary policy. As a result, the TARGET system was built by linking together the different RTGS structures that existed at the national level. TARGET, the first-generation RTGS system for the euro, commenced operations on 4 January 1999 following the launch of the euro.

#### I.2 TARGET'S FIRST GENERATION

The first-generation TARGET system had a decentralised technical structure which, by the start of the migration to the second-generation system (TARGET2) in November 2007, consisted of 17 national RTGS systems and the ECB payment mechanism (EPM). All these components were interlinked so as to provide a technical framework for the processing of payments across national borders in the EU. TARGET was available for all credit transfers in the countries that had adopted the euro as their currency, as well as in Denmark, Estonia, Poland and the United Kingdom.<sup>3</sup> As a result of its wide participation criteria, it was possible to reach almost all credit institutions established in the EU via TARGET, and hence all their account holders.

Liquidity availability in TARGET is facilitated by permitting the use of minimum reserve holdings for settlement purposes during the day. In addition, the Eurosystem provides unlimited (collateralised) intraday credit to its counterparties free of interest. Incoming funds are available for immediate reuse, and the high speed at which payments in TARGET are processed facilitates and improves cash management for its participants. There is no upper or lower value limit for TARGET payments.

TARGET was originally intended for the processing of time-critical, large-value payments in euro with the objective of reducing systemic risk<sup>4</sup> throughout the EU. In particular, payments related to monetary policy operations involving the Eurosystem or to the final settlement of systemically important payment and settlement systems have to be made via TARGET. Besides these operations, TARGET users increasingly began using the system for other types of transaction, including commercial payments, thereby benefiting from all the advantages of

<sup>3</sup> Sweden was also connected to TARGET between January 1999 and December 2006.

<sup>4</sup> The risk of a problem in one area easily spreading to other areas owing to the high number and value of interactions between banks.

### CHAPTER I

From the  
first-generation  
TARGET system  
to TARGET2

TARGET in terms of speed, liquidity management and security. Owing to its attractive pricing scheme, even smaller credit institutions in the EU are able to offer their customers an efficient cross-border payment service.

The use of the first-generation TARGET system was supported by a transparent pricing structure, by which inter-Member State payments were subject to degressive transaction fees (from €1.75 down to €0.80). Still, intra-Member State transaction fees were not harmonised and were fixed by individual central banks.

All the national RTGS systems comprising TARGET were operational every day, with the exception of Saturdays and Sundays, New Year's Day, Good Friday, Easter Monday, 1 May (Labour Day), Christmas Day and 26 December. TARGET operated for 11 hours on each of its working days from 7 a.m. to 6 p.m. CET, with a cut-off time for customer payments at 5 p.m. CET.

The rapid integration of the euro area money markets has been closely related to the establishment of the TARGET system. After its inception in 1999 TARGET became a benchmark for the processing of euro payments in terms of speed, reliability, opening times and service level. It also contributed to the integration of financial markets in Europe by providing its users with a common payment and settlement infrastructure.

Most of TARGET's first-generation features explained here are still valid today or have been enhanced in the second-generation system TARGET2.

## 2 THE SECOND-GENERATION TARGET SYSTEM (TARGET2)

### 2.1 WHY TARGET2?

The first generation of TARGET operated successfully over a number of years in a market environment that evolved rapidly and

was highly competitive. TARGET was able to meet all its main objectives: it supported the implementation of the single monetary policy, it contributed to reducing systemic risk and it helped banks to manage their euro liquidity at national and cross-border level. Despite these considerable successes, the approach to TARGET adopted in the mid-1990s proved to have some shortcomings, which called for a redesign of the system. TARGET participants increasingly called for an enhanced and more harmonised service offered at the same price across the EU. Furthermore, cost-efficiency was also considered problematic by the Eurosystem, as the revenues generated did not cover a sufficient proportion of the costs. This was largely attributable to the decentralised structure of TARGET, which multiplied the local technical components and therefore increased the maintenance and running costs. And finally, in the context of EU enlargement, new Member States were expected to connect to the system, thereby increasing the number of TARGET components. In order to meet these challenges, the Eurosystem started to examine the options for the evolution of TARGET.

On 24 October 2002 the Governing Council of the ECB took a strategic step and decided on the principles and structure of the next-generation TARGET system: TARGET2. The Governing Council decided that TARGET2 would offer harmonised core services. These core services would be provided by a single technical platform and would be priced according to a single price structure. This new approach was based on technical consolidation that would allow the Eurosystem to achieve lower costs and at the same time recover a very large part of the total costs of TARGET2. A "public good" factor corresponding to the positive externalities generated by TARGET2 (e.g. in terms of the reduction of systemic risk) would be defined, for which costs would not have to be recovered. Finally, the Governing Council acknowledged that, despite the technical consolidation of TARGET2, the decentralised nature of the relationships that the national central banks had with the counterparties in

their respective countries would be preserved, including monetary policy and lender of last resort relationships.

## 2.2 MIGRATION

After five years of planning, the Eurosystem successfully launched the TARGET2 system in November 2007, replacing the first-generation TARGET system completely in May 2008. In TARGET2, the decentralised structure of the first-generation TARGET system has been replaced by a single technical platform, the “Single Shared Platform” (SSP). Three Eurosystem central banks – the Banca d’Italia, the Banque de France and the Deutsche Bundesbank – jointly provide the SSP for TARGET2 and operate it on behalf of the Eurosystem.

The second-generation TARGET system started operations on 19 November 2007, when the first group of countries (Austria, Cyprus, Germany, Latvia, Lithuania, Luxembourg, Malta and Slovenia) migrated to the Single Shared Platform. This first step was very successful and confirmed the reliability of the TARGET2 platform, which, following this initial migration, was already settling around 50% of overall TARGET traffic in terms of volume and 30% in terms of value.

On 18 February 2008 the second migration group (Belgium, Finland, France, Ireland, the Netherlands, Portugal and Spain) successfully connected to TARGET2, followed on 19 May by the final group (Denmark, Estonia, Greece, Italy, Poland and the ECB). As a result of careful monitoring by the national central banks, all related testing activities were completed successfully and on time for all user communities. Between November 2007 and May 2008 procedures were put in place to ensure that those user communities which had a later migration date (and were therefore still connected to the former TARGET system) could interact effectively with the user communities already connected to the SSP of TARGET2. The six-month migration process was very smooth and did not cause any operational disruptions.

More details on the migration to the second-generation system can be found in the special interest article entitled “The effect of the migration to TARGET2” (see Chapter III).

## 2.3 HARMONISED SERVICES

The move from a decentralised multi-platform system to a technically centralised platform has made it possible to offer harmonised services at EU level. Today, a harmonised service level is offered to TARGET2 participants ensuring a level playing field for banks across Europe. A single price structure applies to both domestic and cross-border transactions. Moreover, TARGET2 provides a harmonised set of cash settlement services in central bank money for all kinds of ancillary system, such as retail payment systems, money market systems, clearing houses and securities settlement systems. The main advantage for ancillary systems is that they are able to access any account in TARGET2 via a standardised interface. There are currently 69 ancillary systems settling in TARGET2. Before the launch of TARGET2, each ancillary system was settling in its own way. Now TARGET2 offers six generic procedures for the settlement of ancillary systems (two real-time and four batch procedures), thereby allowing the substantial harmonisation of business practices.

The new functionalities of TARGET2 enable banks, in particular multi-country banks, to further consolidate their internal processes, such as treasury and back office functions, and to better integrate their euro liquidity management. For example, participants are able to group some of their accounts and pool the available intraday liquidity for the benefit of all the members of the group. Within a group of accounts, group pricing is possible, which means a degressive transaction fee applies to all of the group’s payments as if they were sent from one account.

The TARGET2 system provides its participants with tools to further streamline their payment and liquidity management in euro. Today, managers of cash and collateral wish to have



automated processes to optimise payment and liquidity management, appropriate tools to monitor their activities and facilitate accurate funding decisions, preferably with the possibility of managing all their central bank money flows from a single location.

More details on the features and functionalities of the second-generation TARGET system can be found in Annex 1 (“Features and functionalities of the second-generation system”).

### 3 SYSTEM RULES

#### 3.1 SPECIFICATIONS

The general functional specifications (GFS) provide a high-level overview of the SSP for TARGET2 and its functional specifications. The latest version of the GFS (version 2.1) was made available to the user community in June 2007. The user detailed functional specifications (UDFS) provide a more in-depth and detailed explanation of the core services (book 1) and the optional services (book 2) offered by the SSP, as well as XML messages (book 4). The latest version of books 1, 2 and 4 of the UDFS (i.e. version 3.0) was made available to the user community in March 2009.

The user handbook for the information and control module (ICM) of the SSP describes the ICM’s online information tools and control measures, which allow access to the other relevant modules of the SSP. The latest version of the user handbook (version 2.4) was made available to the user community in November 2007.

#### 3.2 TARGET2 GUIDELINE

In June 2007 the Eurosystem finalised the TARGET2 Guideline, which repeals the guideline governing the operation of the first-generation TARGET system. The new TARGET2 Guideline provides the basis on which the NCBs establish their TARGET2 component systems, governed by their national

legislation. It contains the main legal elements of the second-generation TARGET system, including governance arrangements and audit rules, as well as transitory provisions on the migration from the original TARGET system to TARGET2. In addition, to ensure the maximum legal harmonisation of the rules applicable to TARGET2 participants in all jurisdictions concerned, the Guideline includes harmonised conditions for participation in TARGET2. These conditions have been drafted in a way that allows the Eurosystem NCBs to implement them in an identical manner, with certain derogations only in the event that national laws require other arrangements.<sup>5</sup> Moreover, the harmonised conditions already contain alternatives which enable NCBs to customise their implementation in line with the requirements of national law. This approach implements the decision of the Governing Council of the ECB in October 2005 to “legally construct TARGET2 as a multiple system, but aiming at the highest degree of harmonisation of the legal documentation used by the central banks within the constraints of their respective national legal framework”.

The Guideline was published in the Official Journal of the European Union in September 2007 and is also available on the ECB’s website in all EU languages.

### 4 PARTICIPATION OF NON-EURO AREA CENTRAL BANKS

On 24 October 2002 the Governing Council of the ECB decided that after joining the EU, the NCBs of the new Member States would be given the same rights and obligations with regard to TARGET connection as the non-euro area NCBs already participating in the system.<sup>6</sup> Different technical options for such connections, including variants avoiding the need for individual euro RTGS platforms, were

<sup>5</sup> No national derogations have been identified so far by the national central banks.

<sup>6</sup> At the time, the Bank of England, Danmarks Nationalbank and Sveriges Riksbank.

elaborated and presented to the NCBs of the new Member States on a “no compulsion, no prohibition” basis. Only when new Member States join the euro area does the connection to TARGET become mandatory, as its use is mandatory for the settlement of any euro operations involving the Eurosystem. A very recent example is Slovakia, which adopted the euro on 1 January 2009. On the next day, Národná banka Slovenska and its national user community started sending/receiving euro payments via TARGET.

For NCBs which have not yet adopted the euro, participation in TARGET is optional to facilitate the settlement of euro-denominated transactions in these countries. In the course of the development of TARGET2, 21 of the 28 central banks comprising the European System of Central Banks (ESCB) confirmed their connection to the new system. In addition to the ECB and the 16 national central banks<sup>7</sup> that have already adopted the euro, five other national central banks<sup>8</sup> opted for a connection.

Following Narodowy Bank Polski’s connection to TARGET via the Banca d’Italia’s RTGS system in 2005, in November 2006 Eesti Pank’s euro RTGS system was also connected to TARGET via the Banca d’Italia’s system. In view of Slovenia’s entry into the euro area in January 2007, Banka Slovenije decided, for efficiency reasons, not to develop its own euro RTGS system, but to use the RTGS system of the Deutsche Bundesbank to connect to TARGET. Banka Slovenije commenced operations as a member of the Eurosystem in January 2007.<sup>9</sup>

Other new Member States, i.e. Cyprus, Latvia, Lithuania and Malta, have been able to send and receive payments via TARGET since its second generation commenced operations in November 2007. Moreover, Cyprus and Malta carried out all the preparatory work necessary to act as a Eurosystem central bank in TARGET from 2 January 2008 onwards. The same is true of Slovakia, which adopted the euro and was connected to TARGET on 2 January 2009.

Although connected to the former TARGET system via the local component CHAPS euro, the Bank of England decided to discontinue its connection on 16 May 2008, which was the last operational day of TARGET’s first-generation system. Likewise, although connected to the former TARGET system via the local component E-RIX, Sveriges Riksbank decided to discontinue its connection on 31 December 2006.

## 5 COOPERATION WITH USERS AND INFORMATION GUIDES

### 5.1 USER COOPERATION

During its development TARGET2 benefited greatly from cooperation between the Eurosystem and future users of the system. This considerably improved the understanding of market requirements and was instrumental in ensuring a smooth migration process and high levels of acceptance of the system by users. The user-consultation process was very fruitful, although taking the different needs of national stakeholders into account was not always an easy task. Nevertheless, the second-generation TARGET system had to be designed to fully meet users’ requirements. The main requirements were: maximum harmonisation of services and related fees, increased cost-efficiency, flexible liquidity management facilities, high levels of business continuity and effective contingency measures.

The cooperation with the user community has continued beyond the migration phase. The Eurosystem maintains close relations with TARGET users and regular meetings are held at national level between the NCBs connected to the system and the respective national user

<sup>7</sup> The central banks of Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Portugal, Slovenia, Spain and the Netherlands, as well as Malta and Cyprus, which joined the euro area in January 2008, and Slovakia, which joined the euro area in January 2009.

<sup>8</sup> Denmark, Estonia, Latvia, Lithuania and Poland.

<sup>9</sup> Slovenian banks and Banka Slovenije had been able to use TARGET since July 2005 by means of remote access to the German TARGET component.

groups. In addition to the cooperation at the national level, joint meetings of the Eurosystem Working Group on TARGET2 (WGT2) and the TARGET Working Group (TWG), which comprise representatives of the European banking industry, take place regularly at a pan-European level. Three such joint meetings took place in 2008, being held in Frankfurt (in March and October) and Rome (in July). Operational issues are regularly discussed in the joint TWG-WGT2 meetings. In addition, joint meetings were held in 2008 on specific issues of common interest, e.g. risk management or testing and migration. Strategic issues are addressed in the Contact Group on Euro Payments Strategy (COGEPS), a forum in which the senior management of commercial and central banks is represented.

Relevant information of interest to the user community was published regularly on the dedicated TARGET2 website, on the ECB's website and on the websites of the national central banks.

### 5.2 INFORMATION GUIDE FOR TARGET2 USERS

The "Information guide for TARGET2 users" aims to provide banks and ancillary systems using TARGET2 with a standard set of information in order to give their operators a better understanding of the overall functioning of the system and enable them to make use of it as efficiently as possible. It answers the most frequently asked questions relating to TARGET2 and tries, in particular, to give users a clear understanding of those features that are common and those that are specific to each country. In addition to information on the operational procedures in normal circumstances, the information guide also provides information for abnormal and contingency situations.

Additional documentation on country-specific features can be found on the websites of the respective national central banks. The information guide is purely intended to provide information on the second-generation TARGET system and should not be seen as a legal or contractual document.

### 5.3 INFORMATION GUIDE FOR TARGET2 PRICING

The "Information guide for TARGET2 pricing" provides TARGET2 users with a comprehensive overview of the pricing schemes related to TARGET2 (core services, liquidity pooling and ancillary system services) and a detailed guide to the billing principles for the various types of transaction, as well as the entities to be invoiced. This information guide serves as reference documentation on pricing and billing issues, but does not confer any legal rights on operations or entities.

## 6 SYSTEM DEVELOPMENT AND CHANGE MANAGEMENT

It is foreseen that a new release of the SSP will be made available each year, offering a range of enhancements and new features to TARGET users. The content of these annual releases will be defined following a broad consultation of the user community. The first annual release of the SSP went live on 17 November 2008. Its content was mainly driven by the new SWIFT standards release, which went live on the same day. Exceptionally, two releases are scheduled for 2009. The first, in May (SSP release version 2.1), will enhance the interface with ancillary systems, in particular allowing settlement across central securities depositories. The second release, in November 2009 (SSP release version 3.0), will incorporate various other enhancements requested by central banks and by the user community.

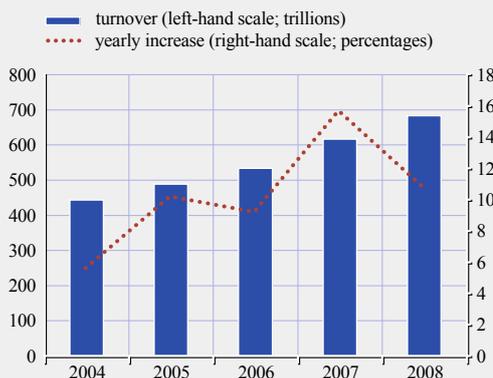
## CHAPTER II

### TARGET ACTIVITY IN 2008

The TARGET system functioned smoothly in 2008 and continued to settle an increasing number of euro payments. The total number of payments processed by the TARGET system increased by 1% in volume and 10% in value compared with last year, with an average daily volume of 369,966 transactions, representing an average daily value of €2,667 billion. The system's market share remained stable, with around 90% of the total value of payments in euro large-value payment systems being executed via TARGET. The availability of the system reached 99.98%. Finally, on 22 December 2008 TARGET reached a peak of 574,022 transactions: an all-time high for the system since its launch in January 1999.

Chart I Target turnover

(value settled per year; EUR trillions)



Source: ECB.

## CHAPTER II TARGET activity in 2008

#### I EVOLUTION OF TARGET TRAFFIC

##### I.1 TARGET TURNOVER

In 2008 TARGET settled transactions with a total value of €682,780 billion, which corresponds to a daily average value of €2,667 billion. This means that TARGET settles the equivalent of the euro area annual GDP in around 3.5 days of operations. This illustrates the efficiency of TARGET, which provides intraday finality for transactions and allows the funds credited to the participant's account to become immediately available for other payments. Consequently, the

same euro can be reused several times within the same day by several TARGET participants. Over the last five years the turnover has increased by an average of 10% per year, which has consolidated TARGET's dominant position in the market for large-value payment systems operating in euro. However, it should be noted that in 2008 a significant part of the increase corresponds to the migration to TARGET2, which artificially inflated the value exchanged, particularly for intra-Member State traffic, where a sharp increase of 18% was reported (see Chapter III, Section 3 on the effect of the migration to TARGET2).

Table I Evolution of TARGET traffic

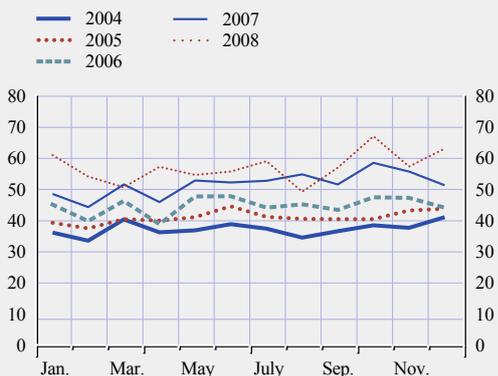
		2007	2008	Change	2007	2008	Change
		EUR billions		%	Number of payments		%
<b>TARGET overall</b>	Total	616,731	682,780		93,375,701	94,711,380	
	Daily average	2,419	2,667	10	366,179	369,966	1
<i>of which:</i>							
<b>Intra-Member State</b>	Total	395,412	466,572		72,574,446	69,212,880	
	Daily average	1,551	1,823	18	284,606	270,363	-5
<b>Inter-Member State</b>	Total	221,319	216,208		20,801,255	25,498,500	
	Daily average	868	845	-3	81,574	99,604	22
<i>of which:</i>							
<b>Interbank</b>	Total	209,198	201,216		9,739,430	10,838,016	
	Daily average	820	786	-4	38,194	42,336	11
<b>Customer</b>	Total	12,121	14,992		11,061,825	14,660,484	
	Daily average	48	59	24	43,380	57,268	32

Source: ECB.

Note: There were 256 operating days in 2008 and 255 in 2007.

**Chart 2 TARGET turnover**

(thousands; total value exchanged on a monthly basis in EUR billions)



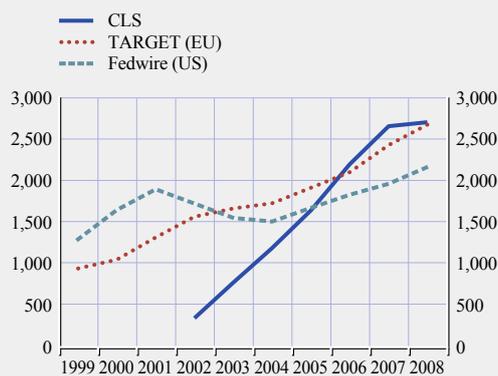
Source: ECB.

Chart 2 looks at the value settled in TARGET on a monthly basis and confirms the regular increase in turnover since 2004. It also shows that over the years the seasonality of turnover has become increasingly marked and is now comparable to what is observed in volume terms (see Section 1.2). In 2008 the monthly turnover varied 36% between the highest figure in October and the lowest figure in August. However, this phenomenon was accentuated by the financial crisis, which contributed to a very high value being exchanged in the last quarter (see Chapter III, Section 1, on the impact of the financial turmoil on TARGET).

Finally, Chart 3 provides the average value settled<sup>10</sup> in the major payment systems in the world over the last five years. It indicates the importance of TARGET and its worldwide positioning among the biggest systems alongside the Continuous Linked Settlement (CLS) as well as the RTGS systems operated by the US Federal Reserve (Fedwire). It is interesting to note that since 2004 the growth of the two RTGS systems has followed a similar trend, while the value exchanged in CLS has increased more sharply. Nevertheless, in 2008 CLS turnover stopped its rapid progression and, presumably as a direct effect of the financial crisis, has started to flatten out. However, before drawing hasty conclusions it should be kept in mind that the figures reported

**Chart 3 Major large-value payment systems in the world**

(daily turnover in EUR billion (equivalent))



Source: ECB.

in Chart 3 are biased by the volatility of the EUR/USD exchange rate, as both Fedwire and CLS publish figures in US dollars.

## 1.2 TARGET VOLUME

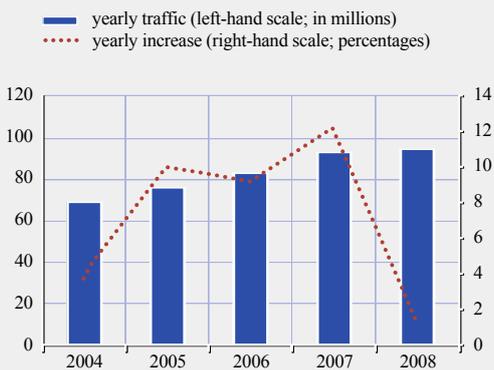
In 2008 a total of 94,711,380 transactions were settled in TARGET, which corresponds to a daily average of 369,966 transactions. This figure represents an increase of 1.4% compared with 2007. Nevertheless, Chart 4 shows that the yearly increase recorded in 2008 is relatively low: it actually represents the lowest yearly increase of traffic since TARGET started operations in 1999. This is even more striking when one considers that between 2005 and 2007 volumes increased by an average of more than 10% per year. Furthermore, it is worth noting in Table 1 that in 2008 intra-Member State traffic decreased by 1%, while inter-Member State volume increased by 5% (in particular customer payments). This phenomenon, fairly unusual in TARGET, is largely attributable to the effect of the migration to TARGET2 (see Chapter III, Section 1, on the effect of the migration to TARGET2).

As in previous years, the seasonality of TARGET volumes is relatively marked. Within the same year

<sup>10</sup> For a meaningful comparison, the value exchanged in foreign systems has been converted into euro using the fixing rate on 31 December for each year.

Chart 4 TARGET traffic

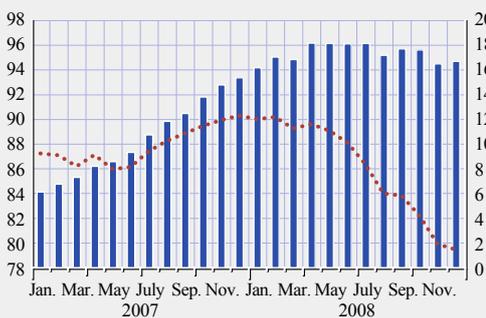
(number of transactions settled)



Source: ECB.

Chart 6 Target volume

— cumulative volume over 12 months (left-hand scale; in million transactions)  
 ..... yearly trend (right-hand scale; percentages)



Source: ECB.

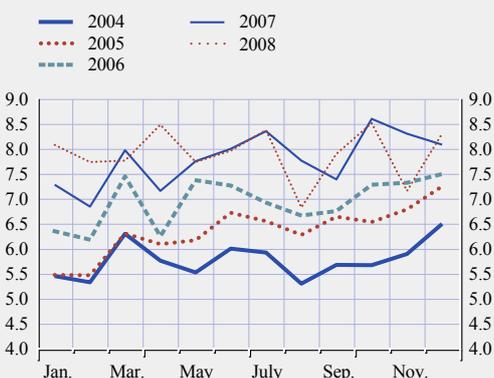
monthly volume varied 25% between the highest figure in October and the lowest figure in August. However, in 2008 the yearly pattern differed from that of previous years – particularly in the second half, with an unusually low volume in November. Furthermore, it should be noted that for the first time in a number of years, in some particular months, such as August and November, TARGET monthly traffic was significantly lower than the corresponding months in the previous year.

Chart 6 shows for each month the yearly moving average of TARGET volumes (i.e. the

cumulative volume processed in the preceding 12 months). This indicator helps to eliminate the strong seasonal pattern observed in TARGET traffic. It confirms that in 2007 volumes grew at a relatively strong pace of between 8% and 12%. The situation changed at the end of the first quarter of 2008, when growth started to stagnate. It then declined continuously until the end of the year. Still, the overall volume exchanged in 2008 is slightly higher than in 2007, but this is largely attributable to the high volumes accumulated during the first half of 2008 (an increase of 6% compared with the first half of 2007), while the second half of 2008 followed a negative trend (-3% compared with the second half of 2007). Looking at Chart 7, it appears that TARGET's market share in volume terms was relatively stable in 2008. Consequently, the decline in growth does not appear to be the result of TARGET2 losing volume to other systems, but rather the result of a more general shrinking of the large-value payment market in the context of the market turmoil.

Chart 5 Target traffic

(volume exchanged on a monthly basis; EUR millions)

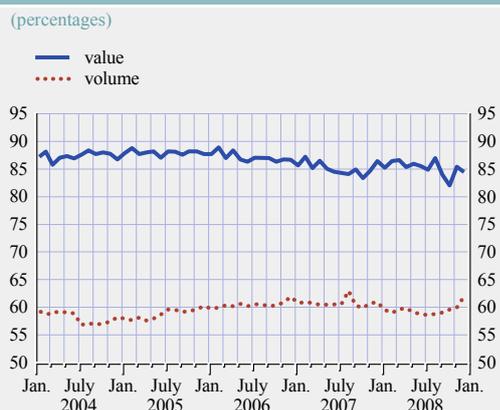


Source: ECB.

### 1.3 LVPSs MARKET SHARE

TARGET's market share is defined as the percentage of traffic flowing through all large-value payment systems operating in euro which was processed in TARGET. In 2008 it stayed at the same high level observed in previous years,

**Chart 7 TARGET market share vs other LVPS in euro**



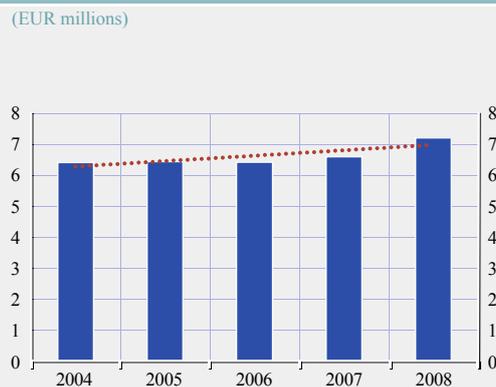
Source: ECB.

more precisely 90% in value terms and 59% in volume terms. This confirms that TARGET remained the market's preferred system for the processing of large-value payments in euro. It also confirms that the migration to the Single Shared Platform did not affect TARGET's competitiveness. The other large-value payment systems which represent an alternative for banks are the EURO1 system operated by EBA Clearing and the Finnish system Pankkien On-line Pikasiirrot ja Sekit-järjestelmä (POPS). It is worth noting that in the last five years two other large-value payment systems have ceased operations: the Spanish system Servicio Español de Pagos Interbancarios (SEPI), which closed in December 2004; and the French system Paris Net Settlement (PNS), which closed in February 2008.

#### 1.4 VALUE OF TARGET PAYMENTS

Chart 8 shows the evolution of the value of a TARGET payment since 2004. While the average has remained relatively stable over the last five years, in 2008 it increased by around €600,000 to €7.2 million. Looking at the different quarters in 2008, it appears that the average value of a payment was generally in line with 2007 figures for the first three quarters, standing at around €7 million. The increase was observed mainly in the last quarter of 2008, when the average quarterly

**Chart 8 Average value of a TARGET payment**

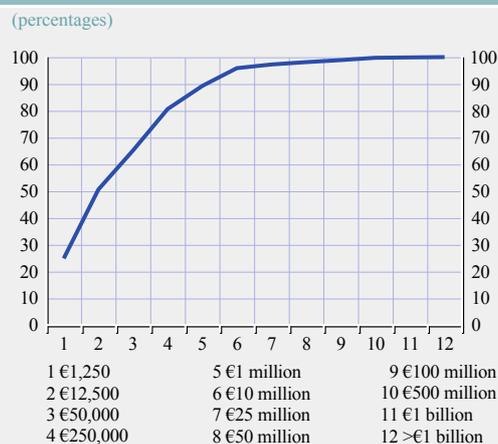


Source: ECB.

payment value rose significantly to stand at €7.8 million. This phenomenon is presumably an effect of the financial crisis, which saw a combination of lower volumes remitted to TARGET in the last quarter and, at the same time, higher values settled, in particular higher amounts transferred to deposit facility accounts (see Chapter III, Section 1, on the impact of the financial turmoil on TARGET).

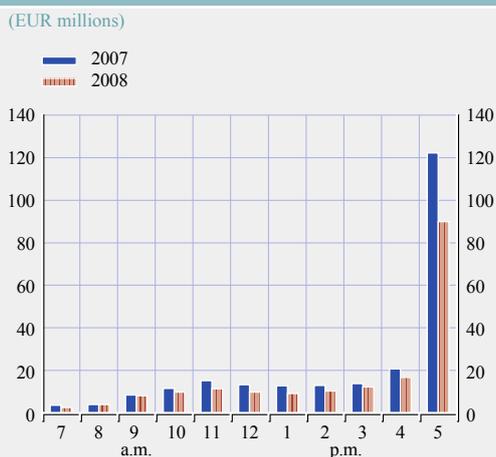
Chart 9 illustrates the distribution of TARGET transactions per value band, indicating the share

**Chart 9 TARGET payment value bands**



Source: ECB.

Chart 10 Average value of a TARGET payment-intraday pattern



Source: ECB.

of the volume which is below certain pre-selected values. Half of TARGET transactions were for values less than €12,500, and payments above €1 million only accounted for 11% of traffic. On average there were 254 payments per day with a value above €1 billion, which accounted for less than 0.1% of payment flows. Compared with previous years, these figures are fairly stable. They confirm that even though TARGET was primarily designed to settle large-value payments, it offers very competitive services and prices not only for large-value payments, but also for transactions with a lower value.

Finally, Chart 10 provides the value of TARGET inter-Member States payments at different times of the day. It confirms the very strong intraday pattern observed in previous years. The hourly average value of a transaction increases steadily throughout the day and reaches a peak between 5 p.m. and 6 p.m. CET, which is a consequence of banks' refinancing operations on the money market. Nevertheless, in 2008 the average value of TARGET payments in this last hour decreased sharply compared with previous years, falling from €120 million to €90 million. This is again the result of the financial crisis and, more specifically, the contraction of money market activities in the last quarter (see Chapter III,

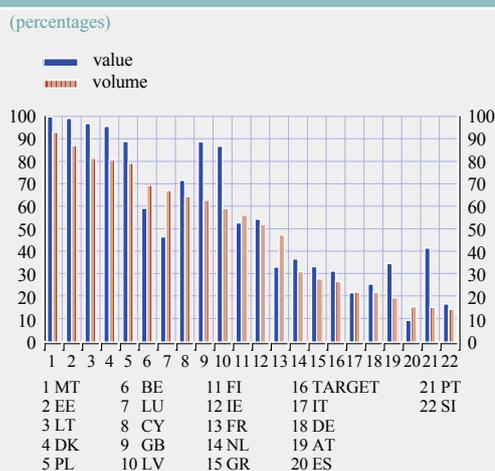
Section 1, on the impact of the financial turmoil on TARGET).

### 1.5 SHARE OF INTER-MEMBER STATE TRAFFIC

In 2008 the share of inter-Member State traffic in TARGET (i.e. payments exchanged between two participants belonging to different national banking communities) was 32% in value terms and 27% in volume terms. These figures mark a significant change compared with 2007, when they were 36% and 22% respectively, while they were generally stable in previous years. This change is largely attributable to the migration to TARGET2, which fostered the consolidation of payment activities in multi-country banks. More information on the effect of the migration to TARGET is provided in Chapter III.

Despite the migration to TARGET2, there are still substantial deviations across countries with regard to the share of inter-Member State traffic, which indicates that the various national banking communities connected to the system are using it in different ways. Chart 11 shows that for countries which have not yet adopted the euro, the share of inter-Member State traffic is significantly higher than the TARGET average. This is logical, considering that for non-euro

Chart 11 Share of inter-Member States traffic per country



Source: ECB.

area banking communities the business case for using TARGET essentially concerns inter-Member State transactions in the absence of a fully-fledged “national” market in euro.

### 1.6 SHARE OF NATIONAL BANKING COMMUNITIES

Even though TARGET should be seen as a single system providing settlement services to all its participants from a single technical platform, it is still possible to break down the turnover and volume by national banking communities.

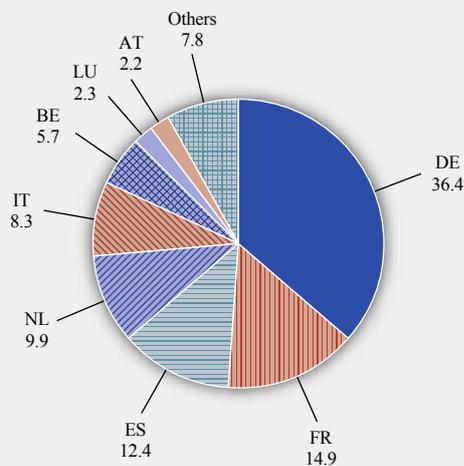
Chart 12 shows how the different banking communities contribute to the value settled in TARGET. In the interests of legibility, only those countries representing more than 2% of the overall TARGET turnover are represented. As in previous years, activity is highly concentrated around a small number of banking communities. For example, five countries were the main contributors to TARGET turnover, namely Germany, France, Spain, the Netherlands and Italy, with 82% of the value exchanged. This figure was lower and relatively stable in previous years at around 79%. The reasons explaining this

higher concentration are twofold: the first is the migration to TARGET2, the effects of which are presented in Chapter III; the second is the rerouting of British banks’ traffic, which, after the termination of the Bank of England’s connection to TARGET in May 2008, was directed to other countries where these banks had branches or subsidiaries (in practice mainly in Germany and the Netherlands).

Chart 13 breaks down the contribution of the banking communities to TARGET volumes. In the interests of legibility, only those countries representing more than 2% of the overall volume are represented. Here the concentration phenomenon is even more marked, with one single banking community, namely the German banking community, representing roughly half of the volume exchanged. Adding the Dutch, Italian, Spanish and French banking communities increases this figure to 86%. Here, too, the concentration rate around the five biggest countries marks a significant increase compared with previous years, when it was stable at around 81%. The explanation for this is again the rerouting of the British banking community’s traffic to other countries.

Chart 12 Contribution to TARGET turnover

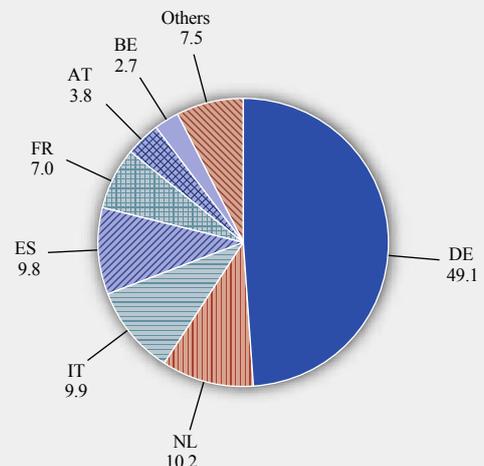
(percentages)



Source: ECB.

Chart 13 Contribution to TARGET volume

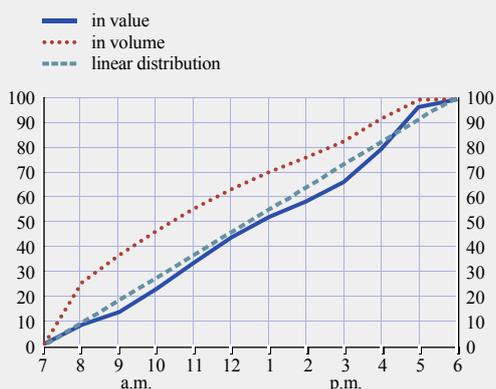
(percentages)



Source: ECB.

Chart 14 Intraday pattern

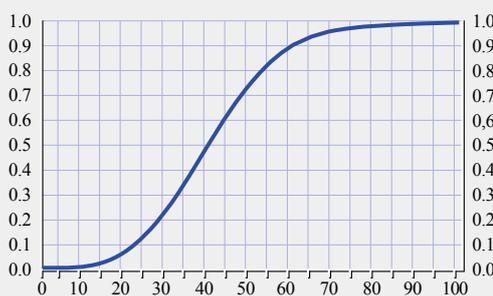
(percentages)



Source: ECB.

Chart 15 Distribution of processing times on the SSP on 22 December 2008

(seconds; x-axis; percentages; y-axis)



Source: ECB.

## 1.7 PATTERN OF INTRADAY FLOWS

Chart 14 shows the intraday distribution of TARGET traffic, that is to say the percentage of daily volumes and values processed at different times of the day. In value terms, the curve is very close to the linear distribution. This indicates that turnover is evenly spread throughout the day and that liquidity is circulating appropriately among participants, thereby ensuring the smooth settlement of TARGET transactions. At 1 p.m. CET 51% of the value exchanged in TARGET has already been settled, a figure which reaches 96% one hour before the end of the day. In volume terms, the curve is well above the linear distribution, with 25% of transactions submitted to the system after one hour of operations and 46% after three hours. One hour before the system closes 99.6% of TARGET volume has already been processed.

## 2 TARGET SERVICE LEVEL AND AVAILABILITY

### 2.1 PROCESSING TIMES

In the second half of 2008<sup>11</sup> 99.91% of the payments settled on the Single Shared Platform of TARGET2 were processed in less than five minutes.<sup>12</sup> For 0.06% of the transactions the

processing time was between five and fifteen minutes, and for 0.03% more than fifteen minutes. Comparing this with the first-generation system, the percentage of inter-Member State transactions which were processed in less than five minutes in 2007 was 97.89%. This illustrates the progress made in terms of the migration to the Single Shared Platform and the high level of performance delivered to participants. With regard to other requests or enquiries<sup>13</sup>, 99.98% were processed in less than one minute and only 0.02% between one and three minutes.

Chart 15 helps to better quantify the system's performance by providing the distribution of processing times on the Single Shared Platform,

<sup>11</sup> In the first-generation TARGET system, owing to the decentralised structure of the technical platform, it was not possible to measure and report on the average processing times for all TARGET transactions. Only inter-Member States transactions were considered, that is to say slightly less than one quarter of overall TARGET flows. With the start of TARGET2, it is now possible to report on the processing times for all payments settled on the Single Shared Platform, regardless of whether they are inter or intra-Member State transactions. However, because the migration to TARGET2 was only completed in May 2008, only figures for the second half of 2008 are reported.

<sup>12</sup> This figure covers all payments made to the Payment Module of the SSP, with the exception of ancillary settlement transactions using the ASI, as well as payments settled in the first hour in order to neutralise the effect of the morning queue.

<sup>13</sup> This figure covers the InterAct real-time messages received by the SSP, both in U2A and A2A mode.

i.e. the percentage of traffic with a processing time below a certain number of seconds. The reference taken is the all-time peak day, namely 22 December 2008, when 574,022 transactions were processed. The chart shows that on this day 50% of transactions were settled within 40 seconds and 90% within 60 seconds, thereby confirming the high level of performance of the system. In practice, there was no significant difference between the transactions marked as “normal” priority, “urgent” or “highly urgent”.

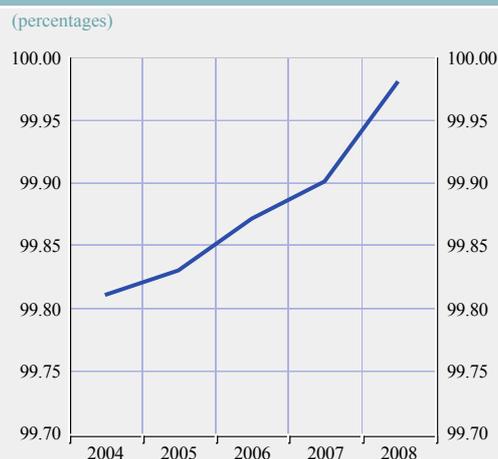
A specific phenomenon is worth reporting in the context of TARGET performance: the “morning queue effect”. When TARGET starts daylight operations at 7 a.m. CET a huge number of transactions are already waiting for settlement, which correspond either to payments remitted by banks on previous days with a future value date (i.e. “warehoused payments”), or to payments released by banks via SWIFT in the hours preceding the opening of the system. On peak days more than 100,000 transactions may be queued, which affects the average settlement time during the first hour. This huge batch of transactions normally takes between 15 and 30 minutes to be processed and up to 45 minutes on a peak day, such as 22 December. However, this does not affect the transactions marked as “urgent” or “highly urgent” by participants, which are processed within a few minutes even at such critical times. It is therefore important for participants to make appropriate use of the urgency flags so that the processing time of critical transactions (such as CLS transactions) is not affected.

In order to neutralise the effect of the morning queue, which is considered a completely normal phenomenon, TARGET performance figures do not take account of the first hour of operations.

## 2.2 TECHNICAL AVAILABILITY

The overall availability of TARGET was 99.98% in 2008, compared with 99.90% in 2007. The TARGET availability rate considers any event during which participants cannot execute payments or a slowdown affecting

Chart 16 TARGET availability



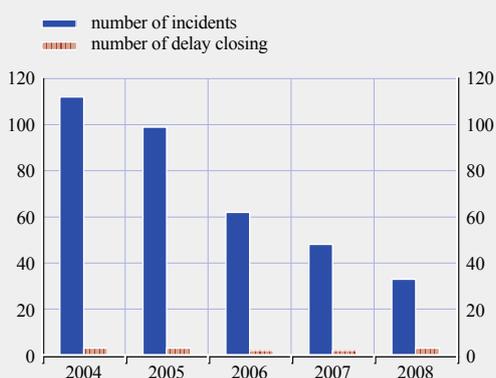
Source: ECB.

settlement services for more than 10 minutes. This confirms the continual progress made year on year in terms of technical availability, as shown in Chart 16. This progress was largely supported by the high availability of the Single Shared Platform of TARGET2. Nevertheless, it should be noted that one incident was not taken into account for the availability calculation because of its exceptional nature: from 7 a.m. CET on 3 March until 11.30 a.m. CET on 6 March no payments within Greece or to/from Greece could be settled in TARGET because of a general strike. At the time of this incident the Greek banking community had not yet migrated to TARGET2 and payments were still being settled on the first-generation TARGET component operated by the Bank of Greece. This explains why the strike blocked all settlement activities in Greece. If this exceptional event, which could be qualified as “force majeure”, had been considered in the availability figure for 2008, that figure would have been 99.79%.

## 2.3 REPORTED INCIDENTS

In 2008 a total of 33 incidents were reported in TARGET, compared with 48 in 2007 and 112 in 2004. The constant decrease in the number of

Chart 17 TARGET incidents and delay closing



Source: ECB.

incidents over the last five years is evidence of the Eurosystem's continuous efforts to increase the reliability of TARGET. In this respect, the migration to TARGET2 was an important turning point.

The most significant TARGET incidents reported in 2008 are as follows.

- On 14 January the Finnish component of TARGET was unavailable between 8.10 a.m. and 11.50 a.m. CET because of the failure of a network component.
- From 7 a.m. CET on 3 March until 11.30 a.m. CET on 6 March the Greek component of TARGET did not operate because of unexpected strike action which affected the whole of the Bank of Greece.
- On 30 June the Single Shared Platform experienced a technical problem from around 4.30 p.m. CET onwards. This significantly slowed down the ICM, although payments continued to be processed smoothly. In order to give participants time to check their liquidity positions via the ICM, the Eurosystem decided to postpone the closing of TARGET by one hour to 7 p.m. CET. Unfortunately, the cut-off time could not be

changed and contrary to the announcement made to the market, the closing of TARGET was performed at 6 p.m. CET, thereby causing the rejection of interbank and ancillary system transactions.

During these and all other incidents, appropriate contingency measures and well-trained staff ensured that all (very) critical payments were processed successfully. In addition, the Eurosystem's standing facilities were available to TARGET participants to support them in their liquidity management if necessary. Following these incidents, appropriate corrective measures were implemented with the aim of preventing such interruptions from happening in the future. To help users to cope with such incidents, the ECB publishes up-to-date information about the availability of TARGET by means of the TARGET Information System (TIS), which is accessible via the financial information provider Reuters (page ECB46) and via the ECB's website under the "payment and markets" section ([www.ecb.int/paym/t2/html/index.en.html](http://www.ecb.int/paym/t2/html/index.en.html)).

Two problems at the level of ancillary systems required a prolongation of the operational day by one hour in each case; this was on 4 March and 29 December 2008. Chart 17 also shows the steady decline in the number of incidents over the last five years. Both the increase in the overall availability rate and the reduction in the number of incidents confirm that the system's reliability improved with the migration to TARGET2.

#### 2.4 PEAK DAYS

Fluctuations in TARGET flows are mainly triggered by the settlement of periodical transactions (term deposits, payment of interest, etc.) at the end of each month/quarter/year. On the last day of the month the volumes and values exchanged can be up to 55% and 30% higher respectively than on an average TARGET day. On 28 November 2008 TARGET values registered a historical peak of €3,485 billion, while the highest peak in volume terms was

recorded on 22 December<sup>14</sup> 2008 with 574,022 transactions processed.

Other fluctuations observed in TARGET flows are explained below.

- Holidays in the United States (Independence Day, Thanksgiving Day, etc.) generally result in lower traffic than usual, as no EUR/USD deals can be settled on these days.
- Holidays in TARGET (Easter, Labour Day, Christmas, etc.) generally result in higher volumes on the preceding and following days because no settlement in euro can take place when TARGET is closed.
- Where major public holidays are celebrated simultaneously in several euro area countries on days which are not TARGET holidays (e.g. Whit Monday, Ascension or Assumption), there is less traffic than usual because of the general reduction in economic and financial activities.

### 3 TARGET PARTICIPANTS

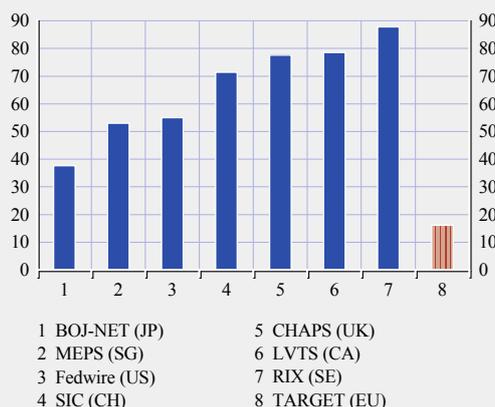
#### 3.1 DIRECT PARTICIPANTS

By 31 December 2008 a total of 747 direct participants had opened an RTGS account on the Single Shared Platform of TARGET2. These direct participants registered 3,806 indirect participants from European Economic Area (EEA) countries, as well as 11,031 correspondents worldwide. Adding to these numbers the branches of the direct and indirect participants, 55,867 credit institutions around the world are addressable via TARGET, which represents around 60% of banks

Participation type	Number
Direct participation	747
Indirect participation	3,806
Multi-addressee – Credit Institution	83
Multi-addressee – Branch of direct participant	1,330
Addressable BIC – Correspondent	11,031
Addressable BIC – Branch of direct participant	18,881
Addressable BIC – Branch of indirect participant	19,989

Chart 18 Concentration rate (top 5 participants)

(in value exchanged; percentages)



Source: ECB.

connected to SWIFT worldwide. Participants and institutions addressable via TARGET are listed in the TARGET2 Directory, which is available to all direct participants for information and routing purposes. A comparison of these participation figures with those of the first-generation TARGET system is provided in Chapter III, Section 4 on the effect of the migration to TARGET2.

In terms of concentration, the five largest direct participants represent 16% of the total value exchanged in TARGET.<sup>15</sup> Compared with other RTGS systems<sup>16</sup> shown in Chart 18, this figure is relatively low. It is also low when considering the concentration figures reported for the national components in the context of the first-generation TARGET system: 50% in the German component, 70% in the French component and 90% in the Belgian component. Despite the migration to TARGET2, which favoured the rationalisation and concentration of payment activities in multi-country banks, the European landscape remains more fragmented than other currency zones.

<sup>14</sup> Contrary to the other months, the peak in December is traditionally observed on the last business days before Christmas and not on the last business day of the month.

<sup>15</sup> Based on figures for the fourth quarter of 2008.

<sup>16</sup> Source: BIS report "CPSS – System interdependencies", June 2008. Figures from 2006.

## 3.2 ANCILLARY SYSTEMS

At the end of 2008 a total of 69 ancillary systems were settling in TARGET2, of which 36 were retail payment systems/clearing houses and 33 were securities settlement systems. The vast majority of these systems – 57 to be precise – were settling directly on the Single Shared Platform of TARGET2, while the 12 others were settling temporarily on the proprietary home accounting system (PHA) of a national central bank. Of those ancillary systems settling on the Single Shared Platform, 36 were making use of the Ancillary System Interface, a feature which was developed to facilitate and harmonise the cash settlement of these systems in TARGET2. The use of the six available ASI models is shown in the following Table.

ASI settlement model	Use <sup>1)</sup>
Model 1 – Liquidity transfer	3
Model 2 – Real-time settlement	11
Model 3 – Bilateral settlement	11
Model 4 – Standard multilateral settlement	14 <sup>2)</sup>
Model 5 – Simultaneous multilateral settlement	7
Model 6 – Dedicated liquidity	13 <sup>3)</sup>
PI – Payment interface	20

1) The number of times each model is used is higher than the number of ancillary systems which opted for the ASI because one ancillary system may make use of more than one model.  
2) Of which six are using a guarantee mechanism.  
3) Of which eight are used in the context of night-time settlement.

## 4 TARGET REVENUES

### 4.1 ANALYSIS OF THE COLLECTED REVENUES

The new pricing policy for TARGET2 entered into force after the migration of the last wave of countries on 19 May 2008. From that date onwards participants were billed on a monthly basis in application of the single pricing structure, which applied to both payment transactions initiated on the Single Shared Platform and on the proprietary home accounting systems<sup>17</sup> of the national central banks. Even though figures are only available for the second half of 2008, a number of observations can already be made.

- The SSP alone is generating 97% of overall TARGET2 revenues, while local PHAs account for the remaining part. This is

roughly in line with the distribution of volumes, as the SSP contributes the same proportion to overall TARGET2 traffic.

- 84% of the direct participants in the SSP opted for the flat fee option (i.e. option A<sup>18</sup>), while 16% opted for the degressive fee option (i.e. option B). This illustrates that TARGET2 was capable of attracting both the major players in the euro area and, at the same time, a large number of small/medium-sized institutions.
- The 120 direct participants which opted for option B generate around 90% of the traffic on the SSP. As a result of this concentration effect, 29% of SSP transactions were priced at the lowest pricing band, i.e. €0.125. This demonstrates that key participants, in particular multi-country banks, greatly benefited from the attractive degressive fee option offered by TARGET2 and from the competitive group pricing offers.<sup>19</sup>
- Transactions exchanged between credit institutions generate around 90% of TARGET2 volumes, with the remaining 10% being attributable to ancillary system transactions. The breakdown is roughly the same for TARGET2 revenues. This confirms that the Eurosystem's objective of setting TARGET2 prices on the basis of usage has been fulfilled.

### 4.2 COST RECOVERY OBJECTIVES

While it is premature to draw conclusions about the system's cost recovery, the collection of TARGET2 revenues for the

17 These cover bank-to-bank payments, as well as ancillary system settlement and open market operations.

18 Option A (i.e. a monthly fee of €100 and a flat transaction fee of €0.80) targets small/medium-sized institutions submitting less than 5,000 TARGET transactions per month. For institutions making greater use of TARGET, option B (i.e. a monthly fee of €1,250 and a degressive transaction fee of between €0.60 and €0.125) is proposed.

19 Some specific features of TARGET2 (e.g. liquidity pooling or multi-addressee access) offer the possibility of applying the degressive transaction fee to all payments initiated from accounts belonging to the same group.

second half of 2008 is roughly in line with the Eurosystem's expectations. During the development of TARGET2 a number of assumptions were made regarding the volume of operations when considering the recovery of the costs of TARGET2. It was estimated that in the first year of TARGET2 operations (i.e. May 2008-April 2009) TARGET2 would have to settle a total of 93.1 million transactions and that this figure would then increase by an average of 6% per year. While on the one hand, these objectives should be met in terms of traffic, uncertainty remains concerning the ability to achieve the targeted annual growth, in particular if the financial crisis persists. Nevertheless, it should be recalled that the assumptions regarding volume and traffic growth were not set as annual objectives, but rather as an average over the six years of the amortisation period.

## 5 TARGET RISK MANAGEMENT AND OVERSIGHT ACTIVITIES

### 5.1 TARGET RISK MANAGEMENT

Security and operational reliability are key assets of the TARGET system that need to be suitably protected. In order to meet this objective, a comprehensive risk management framework has been put in place. This framework comprises, inter alia, a fact-finding analytical part, as well as dynamic elements to ensure that the security of the TARGET system is continuously monitored and maintained.

The consistent use of the dynamic modules and processes of the TARGET risk management framework reassures users that the overall security situation in TARGET will be kept at a satisfactory level.

Risk management<sup>20</sup> is not static. The business and technical environment in which the TARGET system operates is constantly changing, and new threats and vulnerabilities can occasionally emerge. Hence, a risk management framework, the "TARGET2 risk

management framework", was developed, comprising processes for the continuous monitoring and reviewing of the risk situation throughout the life-cycle of the second-generation system TARGET2.

TARGET2's risk management processes aim to monitor developments in order to ensure that progress on the implementation of security controls in response to issues resulting from risk assessments is satisfactory. Another objective is to learn from operational experience and ensure that appropriate measures are taken to prevent an incident from reoccurring. Finally, risk management aims to proactively identify new threats and initiates deliberations regarding the implementation of additional security controls in order to prevent these from materialising.

Updated information obtained from the risk management processes is reported on a regular basis in the form of an action plan. Progress made with regard to the implementation of mitigating measures listed in the action plans is monitored with the aim of ensuring that satisfactory progress is being made and of creating awareness of any potential security problems that might arise.

### 5.2 OVERSIGHT ACTIVITIES

The migration from the decentralised architecture of the first-generation TARGET system to the technically centralised platform of TARGET2 led to some amendments in the allocation of tasks and responsibilities between the oversight function of the ECB and the oversight functions of the participating national central banks. The Governing Council of the ECB tasked the ECB's oversight function with leading and coordinating all TARGET2 oversight activities. The ECB overseers act in close cooperation with the overseers from the participating national central banks. The latter remain responsible for the conduct of the oversight of the local features

<sup>20</sup> In the context of this section, risk management concerns information security issues. It does not cover the management of financial risks (i.e. credit and market risks).

of TARGET2 and contribute to the oversight of the central features of the system (i.e. the SSP) on a voluntary basis.

The comprehensive assessment of the TARGET2 design against the relevant oversight standards<sup>21</sup>, which was initiated in 2006, reached its final phase in 2008. The interim results of this comprehensive assessment were submitted to the decision-making bodies of the ECB in April 2008. While the overall outcome of the assessment was positive and did not reveal any serious concerns regarding the compliance of the TARGET2 design with the applicable Core Principles, the report highlighted a small number of issues which still needed to be addressed by the operator. It was decided that the assessment should be finalised and the results should be published in the first half of 2009, based on further investigations by the TARGET2 operation function in relation to open issues on the basis of an agreed action plan.

In November 2008 the TARGET2 operation function reported on the status of the investigations carried out in order to address open oversight findings. Most of the issues raised have since been addressed by TARGET2's system operator. Although some oversight findings require some further action on the part of the operator (investigation of technical options for the real-time synchronisation of the two processing regions and the provision of additional collateral in contingency processing, as well as work on operational overhead costs, on change and release management, on the involvement of users in the future development of TARGET2 and on the level of cost recovery for the liquidity pooling functionality), these issues are not having an adverse impact on the design of TARGET2 – which seems, overall, to be well-established – or its full compliance with the Core Principles. Moreover, the operation of the six proprietary home accounting systems settling specific payment transactions (see also Chapter III, Section 2.3, on the effect of the migration to TARGET2) is not having an adverse effect on the smooth operation of TARGET2 or its compliance with the Core Principles.

21 These standards comprise the Core Principles for Systemically Important Payment Systems and the Eurosystem's Business Continuity Oversight Expectations for Systemically Important Payment Systems.

## 6 FURTHER INFORMATION

More detailed information on TARGET can be found in the “Information Guide for TARGET2 users” and in previous versions of the “TARGET

Annual Report”. All relevant documents and reports can be accessed on the ECB’s website (<http://www.ecb.europa.eu>) and the websites of the national central banks. Further information is also available from [target.hotline@ecb.europa.eu](mailto:target.hotline@ecb.europa.eu).

### Box I

#### MAIN TARGET INDICATORS IN 2008

In 2008 TARGET had 747 direct participants, 3,806 indirect participants and 11,031 correspondents.

TARGET settles the cash positions of 69 ancillary systems.

TARGET processed a daily average of 369,966 payments, representing a daily average value of €2,667 billion.

The average value of a TARGET transaction was €7.2 million.

65% of TARGET payments had a value of less than €50,000.

The peak day was 22 December 2008, with 574,022 payments.

TARGET’s share of total large-value payment system traffic in euro was 90% in value terms and 59% in volume terms.

The availability of the system was 99.98%.

99.91% of TARGET payments were processed in less than five minutes.

The top five participants settle 16% of overall TARGET values.

## CHAPTER III

### ARTICLES

# THE IMPACT OF THE FINANCIAL TURMOIL ON TARGET

Central banks and governments have reacted to the market turmoil with a variety of new policy programmes to address market conditions. Many of these programmes have relied on existing payment infrastructures to transmit the mechanics of these policy directives to market participants. It has been absolutely essential that payment infrastructures function seamlessly during these critical times in order to assure policy-makers that their directives have been implemented expeditiously. Moreover, in a market shaken by unprecedented volatility, bank closures and hastily arranged acquisitions, and with traders growing more risk-averse, it has been essential to assure participants that their payments will be effected in a timely and accurate manner. TARGET2 had been fully implemented for fewer than four months when news of the sub-prime crisis surfaced. However, the effects on TARGET2 have not been as dramatic as those on other payment infrastructures, and TARGET2 has been able to meet the challenges. This article provides both a brief summary of the effects that the recent turmoil has had on TARGET2 and a review of the important lessons learned.

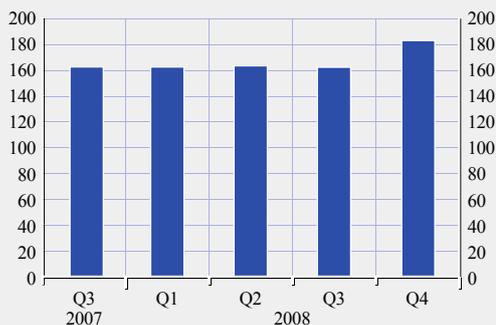
## I IMPACT ON THE RTGS BUSINESS

### I.1 VALUE EXCHANGED

The considerable increases observed in the values exchanged within TARGET2 are presumably a result of the turmoil. As shown in Chart 19, some €185 trillion was processed by TARGET2 in the fourth quarter of 2008, easily surpassing the previous three quarters. Indeed, this represented an increase of 13% by comparison with the first three quarters of the year, which saw, an average of around €165 trillion being settled per quarter. Such a sharp increase in the last quarter is unusual in TARGET and goes well beyond any seasonality effect. This reflects two facts, both linked to the financial crisis: first, the Eurosystem's increased provision of liquidity to the market through various fine-tuning and other refinancing operations effected in the course of the fourth quarter; and second, the shorter maturity of interbank loans as observed on the money market.

Chart 19 TARGET turnover per quarter

(value exchanged in EUR trillions)



Source: ECB.

In general, the effect of the crisis on TARGET2 settlement activities is relatively limited, as shown in Chart 20, which compares the average values settled at different times of the day in the third and fourth quarters. Three main conclusions can be drawn from this. Firstly, for each time band between 9 a.m. and 5 p.m. CET, the values exchanged are relatively similar for the two quarters. This indicates that during the crisis the efficient liquidity management tools offered by TARGET2, combined with the wide range of collateral accepted by the Eurosystem, has ensured the smooth settlement of payments throughout the day. Secondly, the crisis has not affected participants' behaviour with regard to the early submission of payments to the system. By contrast with other RTGS systems, and Fedwire Funds Transfer in particular, the Eurosystem has not needed to prolong TARGET2's operating hours to give participants more time to release payments retained during the day. As a consequence, TARGET2 opened and closed as scheduled on all<sup>22</sup> business days in the fourth quarter of 2008. Thirdly, the increase in turnover mainly affected the last hour of operations. This is logical when considering the average liquidity surplus on participants' accounts at the end of the day. Furthermore, a deeper analysis of these

<sup>22</sup> On 29 December the closing of TARGET was delayed by one hour because of a problem affecting an ancillary system. However, this problem was of a technical nature and was entirely unrelated to the financial crisis.

**Chart 20 Valued settled in TARGET2 per time band**



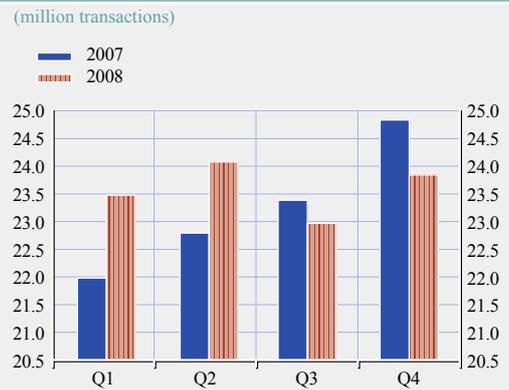
Source: ECB.

transactions in the last hour would show that during the third quarter the majority were money market transactions, while during the fourth quarter most were overnight deposits with the national central banks. This is a consequence of the lack of confidence among participants, which moved away from unsecured transactions on the money market and opted instead for standing facilities offered by the Eurosystem, which were not as well remunerated, but were more secure.

## 1.2 VOLUME OF TRANSACTIONS

As already reported in Chapter II, Section 1.2, TARGET2 volumes increased only marginally in 2008, rising by 1%. This represents a moderation in volume growth compared with previous years, when traffic grew at a stronger pace. An unusual level of volatility was observed, deviating from the traditional yearly pattern. On a quarterly basis there were even fewer transactions settled in the third and fourth quarters of 2008 than in 2007. Considering that TARGET2's market share remained stable, this slowdown in the payment market is mainly attributable to the effect of the financial crisis. Although sharp transaction volume peaks were reported by other infrastructures such as Euroclear, Clearstream and CLS, these market conditions did not affect TARGET2 as dramatically. In times of crisis, the traffic

**Chart 21 Evolution of TARGET volume per quarter**



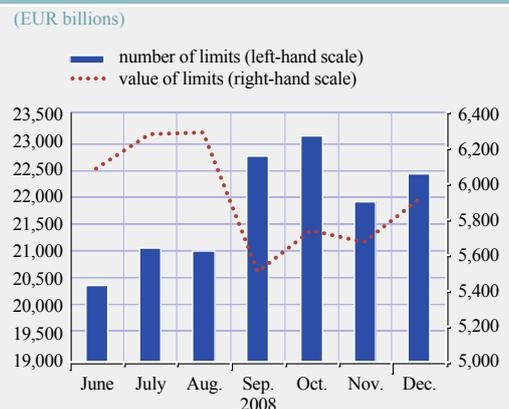
Source: ECB.

in these systems seems to be correlated much more closely with the volatility of the financial markets.

## 1.3 USE OF LIMITS

Participants on the Single Shared Platform of TARGET2 can define bilateral or multilateral sender limits. These limits aim to avoid a situation in which some participants wait to receive payments from their counterparties before issuing their own payments (i.e. "free-riding" behaviour). As expected in times of crisis, the use of limits started to change from August

**Chart 22 Evolution of the limits on the SSP**



Source: ECB.

onwards, with a visible peak in September and October. During the second half of 2008 the number of limits set in the system increased from 20,400 to 23,150, while their level decreased from €6,300 billion to €5,400 billion, thereby reflecting the growing tensions on the market. Although these changes were significant, they were not spectacular. This shows that the increased use of limits had only a marginal effect on payment flows and did not affect the early submission of payments to the system.

#### 1.4 NON-SETTLED PAYMENTS

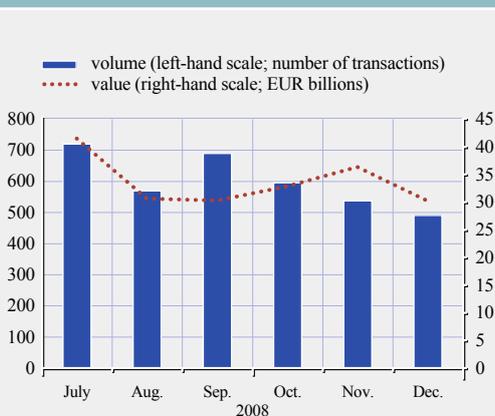
In theory, liquidity tensions combined with greater use of limits may result in an increased number of non-settled payments, as many transactions may still be pending for lack of funds or for breaching sender's limits at the time the system closes, ultimately being rejected. In practice, the number of non-settled payments remained relatively stable throughout the second half of 2008, both in terms of volume (around 600 daily) and in terms of value (around €30 billion). This confirms the observation made on the marginal effect of the limits and

indicates that the distribution of liquidity across participants was fairly appropriate throughout that period.

#### 1.5 SYSTEM PERFORMANCE

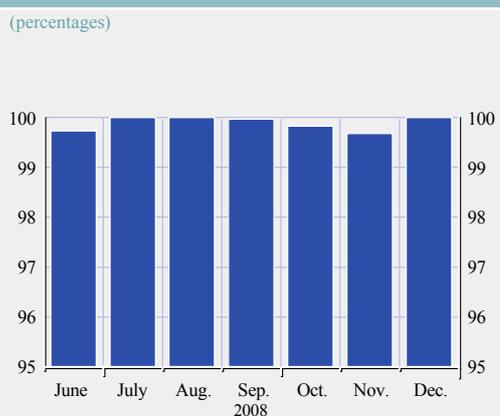
Chart 24 shows a key indicator of the platform's performance, namely the percentage of transactions that are settled in less than five minutes. It confirms that month after month the volatility of traffic has not affected the settlement times of the SSP. Furthermore, TARGET2, and more specifically its Single Shared Platform, provided a high level of performance to its users during the whole of the fourth quarter. In fact, the availability rate for the last three months reached 100%, the first time TARGET2 had had full availability for a whole quarter. Only a very limited number of incidents were reported, and these concerned the partial unavailability of non-critical system components. This is a remarkable achievement considering that a technical incident, combined with a tense and volatile market, might have had significant implications for overall financial stability.

Chart 23 Non settled payments on the SSP



Source: ECB.

Chart 24 Percentage of transaction settled in less than 5 minutes



Source: ECB.

## 2 COORDINATION ASPECTS

### 2.1 REINFORCED MONITORING OF THE SYSTEM

The ECB is responsible for the TARGET2 coordination function. Typically, the ECB organises three conference calls each day with the national central banks to confirm readiness for openings and closings. As the turmoil unfolded, the ECB sensed the need for enhanced communications and organised ad hoc calls with the national central banks (bilateral and multilateral). Completion of the migration to the Single Shared Platform facilitated global monitoring and the detection of behaviour deviating from normal patterns. In parallel, the national central banks operating the Single Shared Platform also reinforced the technical monitoring of the platform and were ready to react quickly to any incident.

### 2.2 COORDINATION WITH OTHER STAKEHOLDERS

The national central banks multiplied contacts with their participants, in particular with ancillary systems, which were more exposed given their considerable interdependencies vis-à-vis payment and settlement activities. As a direct result of these contacts, the national central banks were able to anticipate potential problems in the smooth and timely settlement of ancillary systems in TARGET2 and were able to take appropriate action. As a result of these exceptional measures, no significant delay in the settlement of ancillary systems occurred during the crisis. Furthermore, the national central banks liaised closely with regulatory authorities,

such as banking supervisors and payment system overseers, to share any relevant information.

### 2.3 EXCLUSION OF PARTICIPANTS

For the first time in TARGET2, and for the first time in a number of years, the national central banks had to confront the need to exclude participants. On 15 September 2008 three participants' accounts were suspended or terminated in the days that followed. A complication in this area is that suspension/termination decisions are made locally by the relevant regulatory authorities, but must be implemented and communicated at the Eurosystem level, requiring close coordination to ensure they are made promptly and consistently to allow all affected parties to react accordingly. The experience gained in September, combined with the feedback of participants, helped to identify some areas where this communication could be improved. For instance, it was not clear for participants how a participant's suspension or exclusion may affect the payment flows to/from this participant. Action has already been taken to address these issues with high priority.

### 2.4 REQUEST FOR OPENING OF ACCOUNTS

As an effect of the crisis, national central banks have received an increasing number of requests from banks, as well as non-banks, to open accounts in TARGET2 expeditiously. These institutions have made such requests in order to have direct access to the Eurosystem's refinancing operations and/or to benefit from overnight deposit facilities.

## Box 2

## MAIN FINDINGS CONCERNING THE FINANCIAL TURMOIL'S IMPACT ON TARGET

- As a key market infrastructure, the reliability of TARGET2 is critical to the smooth functioning of the European financial system in times of crisis.
- TARGET2 was available 100% of the time during the fourth quarter and was able to open and close on schedule each day.
- The transaction values processed in the fourth quarter set a record, representing an increase of 13% by comparison with previous quarters.
- Without being affected dramatically, the growth rate of TARGET volumes slowed towards year-end.
- The effect on participants' behaviour has been relatively limited, although increased recourse to overnight facilities and a sharp decrease in money market transactions at the end of the day has been observed.
- Closer coordination and enhanced communications among stakeholders has contributed to the timely sharing of information and allowed affected parties to react appropriately.

## THE EFFECT OF THE MIGRATION TO TARGET2

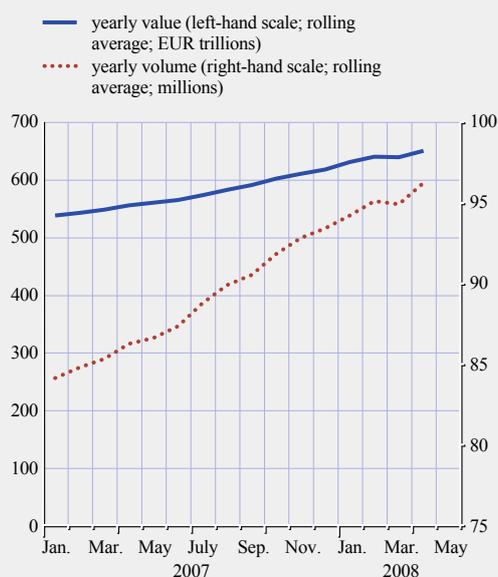
The migration to TARGET2 was organised in three different waves of countries, each wave consisting of a group of central banks and their respective national banking communities. It was successfully completed in a six-month period from 19 November 2007 to 19 May 2008, and the fourth and last migration date, which was reserved for contingency arrangements, was not needed. This section aims to provide details of the main impact of the migration on TARGET as observed during the migration phase and shortly after its completion.

### I EFFECT ON TARGET TRAFFIC

Chart 25 shows the cumulative volumes and values processed over the preceding 12 months throughout the migration period. This approach, using a rolling average, allows the elimination of the seasonal effect observed in TARGET traffic. It appears that the evolution of TARGET2 volumes and values was relatively regular and deviations from the trend line were limited. This confirms that the migration was extremely smooth and did not induce any discontinuity or significant changes in TARGET traffic. In particular, no loss of activity was observed, as confirmed by the stability of TARGET's market share during this period.

When drawing up its pricing policy for TARGET2, the Eurosystem estimated that for the first year of operations 93.1 million transactions would have to be processed to facilitate recovery of the system's costs. This estimate required that assumptions be made on the effect that a number of events would have on TARGET2. These events were: i) the closing of CHAPS euro following the decision of the Bank of England not to connect to TARGET2; ii) the closing of the French Paris Net Settlement system; and iii) the connection of four new banking communities that were not directly connected to the first-generation TARGET system (Cyprus, Latvia, Lithuania and Malta).

Chart 25 TARGET volume and value



Source: ECB.

- i) While the initial assumption was that 60% of the traffic in CHAPS euro would be routed to TARGET2, in fact the large majority of the transactions issued by CHAPS euro participants stayed in TARGET2. These transactions are now settling via the branches/subsidiaries of British banks in the euro area or directly via remote participation in TARGET2.
- ii) In the case of PNS, the assumption was also that around 60% of the traffic would be moved to TARGET2. However, studies showed that only one third of the transactions were actually moved to TARGET2, with the remaining two-thirds rerouted to other payment systems, in particular EURO1.
- iii) Finally, the connection of Cyprus, Latvia, Lithuania and Malta positively contributed to overall TARGET volumes.

Nevertheless, this effect was marginal, as the traffic generated by these communities represented around 25,000 transactions per month, which corresponds to around 0.3% of TARGET2 traffic.

These three elements combine to offset one another and the net effect on traffic has been negligible. Overall, the objective of processing 93.1 million transactions in TARGET2's first year in operation remains realistic.

## 2 IMPACT ON LIQUIDITY FLOWS

TARGET2 provided its participants with a number of advanced features, some of which may have had an effect on participants' behaviour and ultimately on the smooth settlement of operations.

### 2.1 LIMITS AND QUEUE MANAGEMENT

One of the risks monitored by the national central banks was the negative impact that the limits and queue management features could have on the early settlement of transactions, e.g. when counterparts have reached their limits or when payments are moved downwards in queues. In practice, the figures collected in the first few months of operations did not reveal any significant deviation in the intraday distribution of TARGET payments, neither in terms of volume nor in terms of value. On the contrary, as indicated in Chapter II, Section 1.7, a significant percentage of TARGET volumes and values continue to be processed in the first few hours of operations.

### 2.2 ANCILLARY SYSTEMS CHRONOLOGY

Another issue examined by the national central banks was the chronology of the settlement of the 69 ancillary systems. The new chronology in TARGET2 was largely inspired by the timing applied in the first-generation TARGET system, albeit with the rescheduling of some systems after the consultation of market participants.

The liquidity flows related to ancillary systems' settlement were carefully monitored throughout the migration phase. No problem was revealed which would have required the amendment of the current chronology. However, the Eurosystem will continue to scrutinise these critical transactions, especially when new ancillary systems connect to the SSP.

### 2.3 IMPACT OF THE PROPRIETARY HOME ACCOUNTING SYSTEMS

Of the 21 national central banks that have connected to TARGET2, in practice only 12 have chosen to keep a local proprietary home accounting system. Only in six countries is an account on the local PHA needed for settling specific payment transactions (e.g. domestic payments or ancillary system settlement), namely in Germany, Belgium, Austria, Poland, Portugal and Lithuania. In December 2008 the volume of TARGET2 transactions settled on the local PHAs was very limited and accounted for less than 3% of total traffic. Following the completion of the migration, action has already been taken to shift some transactions, in particular ancillary systems' settlement, from local PHAs to the SSP (e.g. in Germany and Belgium). Other shifts are planned for 2009, as some central banks have even decided to pre-empt the end of the transition period and discontinue settlement operations on their PHAs (Portugal in March 2009 and Belgium in June 2009). In 2008, the share of overall TARGET2 values settled in PHAs was only 4%, which indicates that the existence of settlement accounts outside the Single Shared Platform only had a limited impact on the fragmentation of participants' liquidity.

## 3 INTER-MEMBER STATE VS INTRA-MEMBER STATE

Chart 26 indicates the percentage of TARGET traffic which is attributable to transactions between participants belonging to different

**Chart 26 Share of inter-Member State**



Source: ECB.

banking communities (i.e. “inter-Member State”<sup>23</sup> traffic) in both volume and value terms. The two curves follow two different trends: an increase in volume terms and a decrease in value terms. The two phenomena are linked and a direct effect of the migration to TARGET2.

### 3.1 INCREASE IN THE SHARE OF INTER-MEMBER STATE TRAFFIC IN VOLUME TERMS

The increase in volume terms is a consequence of the consolidation model adopted by the majority of multi-country banks. In the first-generation TARGET system, the branches/subsidiaries in other EU countries often had direct access to the local RTGS system and submitted their payments to local counterparts via the national TARGET component, with the majority of their traffic thereby constituting intra-Member State traffic. In TARGET2, the branches/subsidiaries in other EU countries are often participating indirectly via their head office. Their payments to local counterparts are forwarded to the head office and debited from its TARGET2 account, with the majority of their traffic thereby constituting inter-Member State traffic. The share of inter-Member State traffic in volume terms increased from

around 22% before the migration to almost 29% at the time of its completion. This means that roughly half a million transactions per month were processed as intra-Member State payments in the first-generation TARGET system and are now defined as inter-Member State in TARGET2. Furthermore, the majority of these payments are customer transactions, as confirmed by the overall TARGET statistics (see Table 1) and the increase of 32% in inter-Member State customer transactions in volume terms.

In general, the migration to TARGET2 helped to further blur the distinction between inter-Member State and intra-Member State transactions. The fact that a payment is sent to or received from a given banking community may have more to do with the bank’s internal organisation than real geographical anchorage. For this reason, TARGET statistics published by the Eurosystem will make less reference to such a distinction in future.

### 3.2 DECREASE IN THE SHARE OF INTER-MEMBER STATE TRAFFIC IN VALUE TERMS

The variation is less marked in value terms than in terms of volume, but is still significant. By contrast with the share of inter-Member State traffic in volume terms, the share of inter-Member State traffic decreased in value terms at the end of the migration period. Two explanations can be provided: one is linked to market practice, while the other has more technical grounds.

- On the one hand, one can observe that the value of inter-Member State traffic decreased in a number of banking communities, or at least did not increase

<sup>23</sup> The distinction between inter and intra-Member State payments considers the banking community to which the debited and credited RTGS accounts belong. It does not consider the party which initiated the payment or the final beneficiary. For instance, a transaction between two Italian indirect participants, debited from and credited to the accounts of their respective Dutch and Belgium direct participants would qualify as an inter-Member State transaction as defined in TARGET.

as much as intra-Member State traffic. For TARGET as a whole, the value of inter-Member State traffic decreased by 3% in 2008 compared to 2007 (see Table 1). Again, this phenomenon is attributable (at least partly) to the consolidation of payment and treasury activities in multi-country banks. In the first-generation TARGET system, the fragmentation of liquidity for a multi-country bank led to regular liquidity shifts across the RTGS accounts held in the various TARGET components. In particular, a large amount of liquidity was distributed in the morning from the head office to the local branches/subsidiaries, while towards the end of the day liquidity was repatriated to the head office for treasury activities, which were managed centrally. In TARGET2, the reduction of the number of accounts (sometimes to just one managed by the head office) reduces the need for such liquidity shifts in both directions. This is having a negative impact on the value of inter-Member State traffic.

- In parallel to the decrease in the value of inter-Member State traffic, intra-Member State traffic values grew by 18%, as shown in Table 1. However, this sharp increase is not linked to real growth in the value of traffic between market participants, but rather to a number of “technical” transactions which were introduced by the migration to TARGET2 and did not exist in the first-generation system. These transactions include liquidity shifts at the end of the day between the SSP and some PHAs, as well as the shifting of liquidity from participants’ main accounts to their sub-accounts (mainly in the context of night-time settlement).

As a combined effect of the decrease in the value of inter-Member State turnover and the increase in the value of intra-Member State traffic, the share of inter-Member State traffic in TARGET2 turnover decreased from approximately 38% to 32% during the migration phase. However, it would appear from the section above that this

phenomenon is influenced to a large extent by a statistical method which originated in the first-generation TARGET system and is not suited to the reality of TARGET2. For this reason, the Eurosystem has defined a new framework for the collection of TARGET payment data which will provide more accurate indicators. This new framework will be put in place from 2009 onwards and will allow the enhancement of regular reporting to participants, both in the provision of monthly figures and in the context of the TARGET Annual Report.

#### 4 IMPACT ON TARGET’S PARTICIPANTS

In the first-generation TARGET system, participation types were not fully harmonised across countries and there were different definitions of indirect participants or addressable institutions. In some countries these concepts did not exist at all. For this reason, the only reliable figures which can be used for a comparison of TARGET and TARGET2 participation figures are the number of direct participants and the number of reachable institutions.

##### 4.1 DIRECT PARTICIPANTS

Before the start of the migration, a total of 1,072 direct participants were recorded in the various TARGET national components. In December 2008 there were only 747, meaning that there are around a quarter less in TARGET2. There are three main reasons for this decrease.

- First, a number of credit institutions reconsidered their participation as direct participants at the time of their migration and opted, for instance, to connect indirectly via another direct participant. This phenomenon was supported by the competitive offers (in terms of service and prices) made by the big clearing banks.
- Second, TARGET2 created strong incentives for banks to rationalise their euro

liquidity management and centralise it in fewer RTGS accounts. This is particularly true for multi-country banks, whose liquidity used to be fragmented across several accounts in the first-generation TARGET system. In November 2007 there were still 16 of these multi-country banks holding five accounts or more in the different TARGET components. At the end of the migration phase only three of them had more than five accounts on the SSP. As a result of this greater than expected centralisation, banks had less recourse to the liquidity pooling feature offered by TARGET2 (see the section on liquidity management in Annex 1). Even though this feature was developed at banks' request to help them rationalise their liquidity management, it was not used as much as national central banks had expected. At the end of 2008 there were 66 accounts benefiting from one of the two variants (i.e. Aggregated Liquidity or Consolidated Account Information), while up to twice as many had been expected.

- Third, a number of banks (in particular multi-country banks) opted for the opening of special-purpose RTGS accounts, which are neither addressable by third parties nor reported as direct participants in the TARGET2 Directory. These special-purpose accounts are, for instance, opened to fulfil the minimum reserve obligations in countries where reserves are computed on RTGS accounts. There are around 150 special-purpose accounts of this kind in TARGET2.

The question can be raised as to how the number of direct participants in TARGET2

may evolve in the future. On the one hand, the end of the transition period and the phasing out of local PHAs may have a positive effect on the number of direct participants, as some PHA participants, not yet being direct participants on the SSP, may take the decision to open an RTGS account on the SSP. Similarly, the market crisis may also lead some small/medium-sized institutions which were previously not directly connected to TARGET to open RTGS accounts on the SSP in order to have direct access to the Eurosystem's refinancing operations. Finally, the connection of new banking communities to TARGET2, either when they adopt the euro (e.g. Slovakia, which connected on 2 January 2009) or as a non-euro area country (e.g. Bulgaria, whose connection is planned for 2010), is also likely to bring new direct participants. On the other hand, it is expected that market trends, such as the further consolidation of banks' payment and/or treasury activities, as well as mergers of credit institutions, may lead to a reduction in the number of RTGS accounts.

#### 4.2 ADDRESSABLE INSTITUTIONS

The number of institutions directly or indirectly addressable via TARGET slightly increased from 52,761 in 2007 to 55,867 at the end of 2008. This increase is mainly attributable to the fact that while the first-generation TARGET system was in operation, the registration of non-EEA customers was legally not allowed in some countries and only became possible after the migration to TARGET2. Of all the credit institutions addressable via TARGET2, two-thirds are credit institutions from Member States connected to TARGET and one-third are from other countries worldwide.

## Box 3

## MAIN EFFECT OF THE MIGRATION TO TARGET2

- The migration to TARGET2 has not caused any discontinuity or disruption in the general traffic trends as observed so far. In particular, the objective of 93.1 million transactions for the first year is still realistic.
- Neither payment flows nor participants' behaviour has been significantly affected by the migration.
- The consolidation of multi-country banks' payment activities has shifted around half a million commercial transactions from "intra-Member State traffic" to "inter-Member State traffic", thereby further blurring the distinction between these two segments.
- The value of intra-Member State traffic has been artificially inflated by "technical" transactions (i.e. liquidity shifts between accounts of the same participant), which will have to be eliminated in forthcoming statistics on TARGET2.
- The number of direct participants has decreased by around one-third compared with the first-generation system, while the number of addressable institutions increased.



# ANNEXES

## I FEATURES AND FUNCTIONALITIES OF THE SECOND-GENERATION SYSTEM (TARGET2)

### SYSTEM STRUCTURE

A modular approach has been adopted in developing the TARGET2 single technical infrastructure, the SSP (see the chart below). Every module in the SSP is closely related to a specific service (e.g. the Payments Module (PM) for the processing of payments). Some of the modules (the Home Accounting Module, the Standing Facilities Module and the Reserve Management Module) can be used by the individual central banks on an optional basis. Central banks which do not use these modules may offer the respective services via proprietary applications in their domestic technical environments.

SWIFT standards and services are used (FIN, InterAct, FileAct and Browse) to enable standardised communication between the TARGET2 system and its participants.

### BUSINESS CONTINUITY

The business continuity concept of TARGET2 consists of a multi-region/multi-site architecture. There are two regions for payment processing and accounting services, and in each region there are two distinct sites. The principle of region rotation is applied thus ensuring the presence of experienced staff in both regions.

TARGET2 offers the highest possible level of reliability and resilience, as well as sophisticated business contingency arrangements commensurate with the systemic importance of the TARGET2 infrastructure.

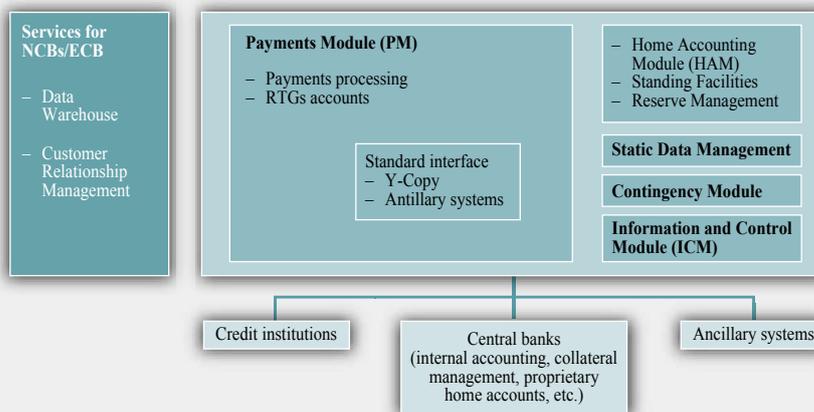
### PARTICIPATION

A number of options are provided for accessing TARGET2. These include direct and indirect participation, “addressable BICs” and “multi-addressee access”, also known as “technical BIC access”.

The criteria for direct participation in TARGET2 are the same as for the original TARGET system. Direct participants hold an RTGS account in the PM of the SSP with access to real-time information and control features. They are therefore able to:

- (i) submit/receive payments directly to/from the system; and
- (ii) settle directly with their respective national central bank. Direct participants are responsible for all payments sent from or received on their account by any TARGET2 entity (i.e. indirect participants, addressable BICs and multi-addressee access entities as described below) registered through them.

Chart I.1 Structure of the SSP



Source: ECB.

Indirect participation implies that payment orders are always sent to/received from the system via a direct participant. Payments are settled in the direct participant's account in the PM of the SSP. Indirect participants are registered by and are under the responsibility of the direct participants which act on their behalf, and are listed in the TARGET2 Directory. Only supervised credit institutions established within the EEA can become indirect participants.

Another category of access which was already available in the original TARGET system is that of TARGET2 addressable BICs. Any direct participant's correspondent or branch that holds a BIC is eligible to be listed in the TARGET2 Directory, irrespective of its place of establishment. Moreover, the Eurosystem has not established any financial or administrative criteria for such addressable BICs, meaning that it is up to the relevant direct participant to define a marketing strategy for offering such status. It is the responsibility of the direct participant to forward the relevant information to the appropriate national central bank for inclusion in the TARGET2 Directory.<sup>1</sup> Addressable BICs always send and receive payment orders to/from the system via a direct participant, and their payments are settled in the account of that direct participant in the PM of the SSP.

Although there is no difference between an indirect participant and an addressable BIC<sup>2</sup> in legal terms, only indirect participants are recognised by the TARGET2 system and, as such, benefit from the protection of the Settlement Finality Directive (SFD) (in the countries where such protection has been granted).

Finally, with the multi-addressee access to TARGET2, direct participants are able to authorise branches and other credit institutions belonging to their group, and located in EEA countries, to channel payments through the direct participant's main account without its involvement by submitting/receiving payments themselves directly to/from the system. This offers a direct participant's affiliate banks, or a group of banks, greater efficiency for their

liquidity management and payments business. The payments are settled on the account of the direct participant.

## PROCESSING OF PAYMENTS

TARGET2, like its predecessor TARGET, offers its participants settlement services in euro. Any euro payment which participants wish to process in real time and in central bank money can be executed in TARGET2. TARGET2 supports the SWIFTNet FIN payment types MT 103/103+, MT 202 and MT 204. Every payment order can be assigned a specific payment priority ("normal", "urgent" and "highly urgent"). In addition, ancillary systems connected via the ASI are able to send XML payment messages. Furthermore, the increased time criticality of payments is taken into account by enabling payments to be submitted with a debit time indicator, such as those needed in the context of CLS. Payments to TARGET2 can be submitted up to five working days in advance.

Unless participants have indicated a settlement time, payment orders are settled immediately or at least by the end of the business day, provided that sufficient funds are available and any liquidity limits and reservations are not breached. For highly urgent and urgent payments, the "first in, first out" (FIFO) principle applies, i.e. they are settled in chronological order. Urgent and normal payments are not settled where highly urgent payments are queued. The only exception is that payments with lower priority will be executed if – and only if – this allows an offsetting transaction to be settled, and the overall effect of this offsetting results in a liquidity increase for the participant in question. Normal payments are also settled in accordance with the FIFO by-passing principle. This means that they are settled immediately (independently of other queued normal payments accepted at an earlier time), provided that sufficient funds are available. Payment orders that are not settled

<sup>1</sup> For routing purposes, an indirect participant/addressable BIC can only be linked to one direct participant.

<sup>2</sup> The TARGET2 Directory distinguishes between indirect participants and addressable BICs.

as described in the entry disposition are placed in queues in accordance with their assigned priority. The settlement of queued payments is made as effective as possible by several optimisation procedures on a continuous basis. The participant can also influence the processing of payments by moving payment orders to either the front or the end of the respective queue.

### LIQUIDITY MANAGEMENT

The following sources of liquidity can be used in TARGET2: balances on RTGS accounts, provision of intraday liquidity and offsetting payment flows (i.e. the use of algorithms to settle a number of queued payments). As in the original TARGET system, intraday credit is granted to participants by the respective national central bank against eligible collateral.

A direct participant in the PM has the option to control the use of available liquidity by means of a reservation and a limit system, which may be combined as required. In TARGET2, it is possible for participants to reserve liquidity for urgent and highly urgent payments and to dedicate liquidity to the settlement of ancillary systems. Participants can also define bilateral and multilateral sender limits and actively manage their payment queues (e.g. by changing the priority or the order of queued transactions).

Furthermore, banks can use a liquidity pooling functionality within a group to view and use their liquidity, irrespective of the RTGS account on which it is held.

Liquidity pooling is achieved by grouping a number of accounts. TARGET2 offers two variants for liquidity pooling: (i) aggregated liquidity; and (ii) consolidated information. In the aggregated liquidity option, a payment order submitted by a participant belonging to a group of accounts is settled if the payment amount is smaller than or equal to the sum of the liquidity available on all accounts (including credit lines, if any) in the group; otherwise the payment order is queued. The consolidated information option is an information tool: it gives comprehensive

information to the participant subscribing to the service about the liquidity position of all of the entities of the group at any given moment. Such information is also provided in the aggregated liquidity option. However, in the consolidated information option, payment amounts are checked only against the liquidity available on the individual RTGS account of the sending participant. In this option, the liquidity available on other accounts in the group is not used to settle the payment. In the event of insufficient liquidity on the sending bank's account, money needs to be transferred to that account.

Only credit institutions directly participating in the system are able to use the consolidated information option. Owing to business and legal constraints, the virtual account option is only available for accounts of euro area banks held with euro area central banks.

It is only possible to establish a group of accounts for the consolidated information or aggregated liquidity options among credit institutions fulfilling certain legal criteria.

### ONLINE INFORMATION AND CONTROL

TARGET2 users have access, via the Information and Control Module (ICM), to comprehensive online information and control of balances and payments. Through the ICM, TARGET2 users have access to the PM and the static data (management) module. Depending on the decision of the respective central bank with regard to the use of the optional modules offered by the SSP, participants may also have access to the home accounting facility of the central banks and the applications for reserve management and standing facilities. Only data for the current business day are available through the ICM, the only exception being warehoused payments that have been delivered to TARGET2 up to five business days in advance. Users of the ICM are able to choose what information they receive and when. Urgent messages (e.g. system broadcasts from central banks and warnings concerning payments with a debit time indicator) are displayed automatically on the screen.

## ANCILLARY SYSTEMS

TARGET2 provides cash settlement services in central bank money for all kinds of ancillary system, including retail payment systems, large-value payment systems, foreign exchange systems, money market systems, clearing houses and securities settlement systems. The main advantage of TARGET2 for ancillary systems is that they are able to access any account on the SSP via a standardised interface. TARGET2 offers six generic procedures for the settlement of ancillary systems (two real-time procedures and four batch procedures), which represents a substantial harmonisation of current practices.

## OPERATING DATES AND TIMES

TARGET2 has the same operating dates and times as the first-generation TARGET system. TARGET2 is open from 7 a.m. to 6 p.m. CET on each of its working days, with a cut-off time of 5 p.m. CET for customer payments.

However, TARGET2 starts the new business day on the evening of the previous day. The night-time window is available from 7.30 p.m. to 6.45 a.m. CET the next day, with a technical maintenance period of three hours between 10 p.m. and 1 a.m. CET. The night-time window<sup>3</sup> facilitates the night-time settlement of the different ancillary systems in central bank money with finality, and also supports cross-system settlement during the night. During the night-time window, liquidity transfers via the ICM between RTGS accounts and the dedicated sub-accounts are technically possible. Ancillary systems and their participants are able to choose whether or not to enable this liquidity transfer functionality, or to limit the functionality. Alternatively, banks may decide not to participate in night-time settlement. The night-time window generally increases the efficiency of night-time settlement and favours initiatives such as cross-system delivery versus payment.

## PRICING

The pricing scheme for TARGET2 core services is as follows:

<b>Option A</b>			
Monthly fee			€100
Flat transaction fee			€0.80
<b>Option B</b>			
Monthly fee			€1,250
<b>Band</b>	<b>Volume</b>		<b>Price</b>
	<b>From</b>	<b>To</b>	
1	1	10,000	€0.600
2	10,001	25,000	€0.500
3	25,001	50,000	€0.400
4	50,001	100,000	€0.200
5	above	100,000	€0.125

The liquidity pooling service (aggregated liquidity option and consolidated information option) is an optional and separately priced core service. The liquidity pooling service is charged at €1,200 per account per annum for the consolidated information option and €2,400 per account per annum for the aggregated liquidity option (which includes the consolidated information option). Furthermore, within a group of accounts (with either the consolidated information option or the aggregated liquidity option) group pricing applies, which means that the degressive transaction fee is applied to all payments of the group as if they had been sent from one account.

- 3 Only procedure 6 (settlement on dedicated liquidity accounts) of the generic settlement procedures of the SSP's ancillary system interface (ASI) is offered during the night-time window.

Type of participation	Monthly fee per account/BIC
Direct participation	€100 or €1,250 depending on the scheme chosen (see the TARGET2 core pricing scheme above)
Multi-addressee access	€80 per BIC address in addition to the BIC of the account of the direct participant
Unpublished account in the PM of the SSP	Direct participant which do not wish their BIC to be published in the TARGET2 directory will pay €30 per account (BIC) per month in addition to the monthly fee above

1 A) Monthly fee plus regressive transaction fee			1 B) Monthly fee plus regressive transaction fee		
Monthly fee:			€1,250	Monthly fee:	€100
Band	From	Volume (monthly) To	Transaction fee:	Flat rate transaction fee:	€0.80
1	0	5,000	€0.600		
2	5,001	12,500	€0.400		
3	12,501	25,000	€0.400		
4	25,001	50,000	€0.200		
5	50,001		€0.125		
2) Fixed fee I: (flat rate)					
Monthly fee per ancillary system:			€1,000		
3) Fixed fee II: (based on daily underlying gross value)					
	(EUR millions/day)	Annual fee	Monthly fee		
	0-1,000	€5,000	€417		
	1,001-2,500	€10,000	€833		
	2,501-5,000	€20,000	€1,667		
	5,001-10,000	€30,000	€2,500		
	10,001-50,000	€40,000	€3,333		
	Above 50,000	€50,000	€4,167		

The following pricing scheme applies to the various types of participation in TARGET2, in addition to TARGET2 transaction fees.

In addition, direct participants are charged a one-off registration fee of €20 for each registration of an indirect participant and €5 for each registration of an addressable BIC (including the BICs of branches of direct and indirect participants) in the TARGET2 Directory.

The pricing scheme for ancillary systems interacting with TARGET2 is set out in the table above.

All national central banks, irrespective of their individual migration dates, have applied TARGET2 prices since 19 May 2008, i.e. since the third migration group joined the shared platform.

## 2 CHRONOLOGY OF DEVELOPMENTS IN TARGET

### NOVEMBER 1994

In November 1994 the EMI published a report entitled “The EMI’s intentions with regard to cross-border payments in Stage Three”, which set down the basic principles and objectives as well as the approach to be adopted by NCBs and the EMI in creating a new cross-border payment arrangement for Stage Three of EMU. A system for Stage Three would be established by linking the domestic RTGS facilities. Only the NCBs would hold settlement accounts for banks, although the ECB would also be connected to the NCBs through the interlinking mechanism for the purpose of making payments for its own account or for the account of its customers. To ensure a level playing-field for the banks, and to facilitate the creation of a single money market, some harmonisation of the operating features of the domestic RTGS systems was deemed necessary.

### MAY 1995

Following the decision of the EMI Council to establish the TARGET system, the report entitled “The TARGET system – Trans-European Automated Real-time Gross settlement Express Transfer system, a payment arrangement for Stage Three of EMU” was published in May 1995. In this report the EMI Council defined certain basic principles of the system, and confirmed that linkages would be established between national RTGS systems. These linkages (the interlinking mechanism), together with the national RTGS systems, would form the TARGET system. In addition, the RTGS systems of non-participating countries (which were not identified at that stage) could be connected to TARGET, but only to process euro. Any participant in any RTGS system connected to TARGET would be entitled to send payments via TARGET and would be obliged to accept any such payment processed through TARGET. Domestic RTGS systems would retain their specific features insofar as this was compatible with the single monetary policy of the Eurosystem and a level playing-

field for credit institutions. A certain level of harmonisation was considered necessary, especially in the following three areas: (i) the provision of intraday liquidity; (ii) operating time; and (iii) pricing policies.

With regard to intraday liquidity, in order to provide equal access to central bank credit throughout the euro area, it was necessary to harmonise the definition of assets which can be accepted by the NCBs as collateral and the conditions under which their value is taken into account. With regard to operating hours, it was recognised that the interlinking mechanism and the national RTGS systems would need to be open for a large part of the day. Finally, the pricing policies should satisfy three requirements: (i) to avoid unfair competition with the private sector; (ii) to avoid the subsidisation of payments or certain kinds of payments; and (iii) to avoid undue competition within TARGET.

### AUGUST 1996

In summer 1996 the EMI further defined the features of TARGET, in particular in the following areas: (i) the provision of intraday liquidity; (ii) pricing policies; (iii) operating time; and (iv) relations with other transfer systems, as described in the “First progress report on the TARGET project” and in the “Technical annexes to the first progress report on the TARGET project”.

Intraday liquidity would be provided by NCBs making use of two facilities: fully collateralised intraday overdrafts, and intraday repurchase agreements. If reserve requirements were to be imposed for monetary policy reasons, reserve balances would be available on an intraday basis for payment system purposes. Intraday liquidity would be free of interest and potentially unlimited, provided that it was fully collateralised. The EMI Council also agreed that collateral would, in principle, be the same for intraday credit as for monetary policy operations.

## DECEMBER 1996

With regard to the provision of intraday credit in euro to non-euro area NCBs and to participants in RTGS systems of non-euro area countries, the EMI Council decided in December 1996 to prepare three mechanisms<sup>4</sup> aimed at preventing intraday credit granted to non-euro area NCBs from spilling over to overnight credit. The final decision on which mechanism to implement was left to the Governing Council.<sup>5</sup>

The EMI Council agreed that the TARGET pricing policy should have one major objective, namely cost recovery, and that it should take three main constraints into account: it should not affect monetary policy; it should maintain a level playing-field between participants; and it should contribute to risk-reduction policies in payment systems.

With regard to operating times, it was decided that, in order to meet market and risk management needs, TARGET should have long operating hours and, in order to facilitate the implementation of the single monetary policy and a level playing-field for credit institutions, all TARGET components should have a common closing time. It was therefore decided, as a general rule, that TARGET would open at 7 a.m. and close at 6 p.m. CET.<sup>6</sup>

With regard to relations with other funds transfer systems, it was decided that all large-value net settlement systems (NSSs) would be required to settle in central bank money (i.e. through TARGET).

## SEPTEMBER 1997

A number of TARGET features were defined in more detail, in particular in the following areas: (i) operating days; (ii) pricing policies; (iii) the provision of intraday liquidity to non-euro area countries; (iv) the ECB's role; and (v) the provision of settlement services to cross-border large-value NSSs. These issues were clarified in an EMI report entitled "Second

progress report on the TARGET project", and in the "Technical annexes to the second progress report on the TARGET project".

With regard to operating days, it was decided that, in addition to Saturdays and Sundays, there would be two common holidays for TARGET: Christmas Day and New Year's Day. On other days, the TARGET system would be open, although NCBs would be allowed to close their domestic systems during national holidays if so required by law or by the banking communities. The interlinking mechanism between open RTGS systems would remain open.

In the area of pricing policies, it was decided that a common transaction fee for cross-border TARGET transfers would be charged, based on the principle of full cost recovery and in line with EU competition policy. The pricing of domestic RTGS transfers in euro would continue to be determined at the national level, taking into account that the price of domestic and cross-border transfers in euro should be broadly similar. With regard to the cross-border leg, it was agreed that a single transaction fee would be set within the range of €1.50 to €3.00. In addition, a price differentiation based on volume was envisaged.<sup>7</sup>

4 Namely: (i) non-euro area NCBs would receive, and would provide to participants in their respective RTGS systems, only limited intraday credit, and the size of the limit may be zero. Should a non-euro area NCB incur an overnight overdraft on one of its accounts with a euro area NCB, overnight credit would be granted at a penalty rate; (ii) non-euro area NCBs would be allowed to incur unlimited intraday overdrafts in euro and could, in turn, grant unlimited collateralised intraday credit to participants in their respective RTGS system. The risk of spillover of intraday credit into overnight credit would be contained through a system of penalties and sanctions applied in the event of overnight overdrafts; (iii) participants in RTGS systems in non-euro area countries would be required to complete their operations some time before the closing time of TARGET in order to allow any shortage of funds to become apparent early enough for non-euro area NCBs to be able to offset their RTGS participants' spillover by borrowing euro in the money market while it was still open. (For details, see the report entitled "The single monetary policy in Stage Three – Specification of the operational framework", EMI, January 1997.)

5 EMI Annual Report 1996, April 1997.

6 Ibid.

7 See also the EMI Annual Report 1997, May 1998.

With regard to one of the possible mechanisms for the provision of intraday liquidity to non-euro area NCBs, namely an earlier closing time for non-euro area NCBs connected to TARGET, the EMI Council agreed that the earlier cut-off time should not apply to the processing of payments by the non-euro area NCBs, but rather to their use of intraday credit in euro. The time of this liquidity deadline would be determined by the Governing Council, if it chose to implement this option.

Furthermore, it was agreed that the ECB would perform the following functions in TARGET: (i) provide end-of-day and possibly other control procedures for the TARGET system; (ii) provide settlement services to cross-border large-value NSSs; (iii) process payments for its own account; and (iv) maintain accounts on behalf of its institutional customers (excluding credit institutions).

For the provision of settlement services to cross-border large-value NSSs, the EMI Council agreed on a method for the settlement of the future European Banking Association (EBA) clearing system within the euro area. This envisaged that the EBA would open a central settlement account at the ECB and perhaps also settlement accounts with NCBs.

#### JUNE 1998

All the EMI Council decisions referred to above were adopted by the Governing Council. Furthermore, a price structure for cross-border TARGET payments was agreed, ranging from €0.80 to €1.75 between direct participants, depending on the number of transactions.<sup>8</sup> The way in which banks' customers would be charged for TARGET payments was left to the discretion of the commercial banks.

#### JULY 1998

The Governing Council decided to grant access to TARGET to NCBs and participants

in euro RTGS systems located in Member States outside the euro area. With regard to the availability of intraday liquidity to non-euro area NCBs and their RTGS participants, the ECB decided that at all times non-euro area NCBs would have to maintain an overall credit position vis-à-vis the other NCBs participating in or connected to TARGET taken as a whole. In order to ensure the availability of intraday liquidity in its euro RTGS system, each non-euro area NCB would have to make an intraday deposit with the Eurosystem.

#### NOVEMBER 1998

A number of TARGET features were defined in more detail, in particular in the following areas: (i) access to euro RTGS systems linked to TARGET; (ii) provision of intraday credit; (iii) central bank correspondent banking relations; and (iv) the legal framework for TARGET. These issues were addressed in the "Third progress report on the TARGET project".

Only supervised credit institutions located in the EEA could be admitted as direct participants in a national RTGS system. However, certain other entities could also be admitted as participants in a national RTGS system subject to the approval of the relevant NCB.

Unlimited, but fully collateralised, intraday credit would be provided to RTGS participants fulfilling the general counterparty eligibility criteria of the ESCB.<sup>9</sup> Unlimited intraday credit could also be granted to treasury departments of central or regional governments active in the money markets, as well as to public sector bodies authorised to hold accounts for customers, provided that no spillover to overnight credit was possible. At their own discretion, NCBs

<sup>8</sup> See also the ECB's press release of 10 June 1998.

<sup>9</sup> See "The single monetary policy in Stage Three: General documentation on ESCB monetary policy instruments and procedures", ECB, September 1998, and the latest version entitled "The implementation of monetary policy in the euro area: General documentation on Eurosystem monetary policy instruments and procedures", ECB, September 2006.

could decide to grant intraday credit to investment firms, subject to a formal spillover prevention arrangement. Any arrangement under which an NCB grants intraday credit, in specific circumstances, to organisations providing clearing or settlement services would have to be approved in advance by the Governing Council.

#### 4 JANUARY 1999

On this day TARGET went live,<sup>10</sup> successfully linking 15 national RTGS systems and the EPM.

However, since the banks needed time to adapt to the new payment system environment and to new treasury management practices, the ESCB provided an “extended service window” between 11 January and 29 January 1999 by delaying the closing time of TARGET by one hour from 6 p.m. to 7 p.m. CET. To avoid any abuse of this arrangement, a special fee of €15 was levied for each payment made during the extra hour. Since the banks gradually adjusted to a more efficient way of managing their liquidity, it was not necessary to continue to extend the opening hours.<sup>11</sup>

#### MARCH 1999

With regard to TARGET operating days, in 1999 the system was supposed to remain closed on New Year’s Day and Christmas Day only. However, in order to safeguard the smooth transition to the year 2000, the Governing Council decided that, as an exception, TARGET would also remain closed on 31 December.<sup>12</sup>

#### JULY 1999

Owing to rather low payment traffic on traditional public (or bank) holidays, and at the request of the European banking industry, the Governing Council decided on six closing days in 2000 in addition to Saturdays and Sundays.

These were New Year’s Day, Good Friday, Easter Monday, 1 May (Labour Day), Christmas Day and 26 December. These were de facto non-settlement days for the money market and the financial markets in euro, as well as for foreign exchange transactions involving the euro. However, in euro area countries where one or other of these days was not a public holiday, the national RTGS system would remain open for limited domestic payment activity.<sup>13</sup>

#### MAY 2000

The Governing Council decided on the TARGET operating days for 2001. These were the same as for 2000, with the exception of one additional closing day on 31 December, which was introduced in order to safeguard the smooth transition of retail payment systems and internal bank systems to euro banknotes and coins.<sup>14</sup>

#### OCTOBER 2000

The TARGET Information System (TIS) was introduced, providing TARGET users with information on the status of the system.

#### NOVEMBER 2000

The TARGET 2000 upgrade went live successfully. This was the first common TARGET software release since the system commenced live operations in January 1999. The upgraded software included the new common message format for customer payments, MT103, and the STP version, MT103+.

10 For an overview of TARGET developments in 1999, see the ECB Annual Report 1999, April 2000.

11 See also the ECB’s press release of 11 January 1999 and the March 1999 issue of the ECB Monthly Bulletin.

12 See also the ECB’s press releases of 3 September 1998 and 31 March 1999.

13 See also the ECB’s press release of 15 July 1999.

14 See also the ECB’s press release of 25 May 2000.

## DECEMBER 2000

A long-term calendar was established for TARGET operating days, applicable as from 2002 until further notice. Accordingly, in addition to Saturdays and Sundays, TARGET would be closed on New Year's Day, Good Friday (Catholic/Protestant), Easter Monday (Catholic/Protestant), 1 May (Labour Day), Christmas Day and 26 December. On these closing days, TARGET as a whole, including all the national RTGS systems, would be closed. A long-term calendar was deemed necessary to eliminate uncertainty for financial markets and to avoid problems arising from different national TARGET operating days. On TARGET closing days, no standing facilities would be available at the NCBs. These days would not be settlement days for the euro money market or for foreign exchange transactions involving the euro. Neither would EONIA be published. Furthermore, the CCBM for the cross-border use of collateral would also be closed on TARGET closing days.<sup>15</sup>

## JANUARY 2001

On 1 January 2001 Greece became the twelfth Member State to adopt the single currency. As a result, the Bank of Greece became a member of the Eurosystem and began participating in TARGET, bound by the same rules as the NCBs of the other participating Member States and the ECB.<sup>16</sup>

## APRIL 2001

In accordance with its policy of transparency through the publication of its legal instruments, the ECB published the Guideline of the ECB on TARGET (TARGET Guideline).<sup>17</sup> The TARGET Guideline, which came into force on 1 January 1999, sets out the legal framework for TARGET and lays down the rules governing TARGET and its functions as they apply to the Eurosystem.

## NOVEMBER 2001

As a further step towards the consolidation of large-value payment systems in the euro area, the Deutsche Bundesbank shut down the German hybrid system Euro Access Frankfurt (EAF) on 5 November 2001. On the same day, the Bundesbank launched RTGSplus, the new German TARGET component replacing the former Euro Link System (ELS).

The global TARGET 2001 maintenance release went live successfully on 19 November 2001. The release consisted mainly of the introduction of new SWIFT standards, the validation of negative payment settlement message notifications (PSMNs),<sup>18</sup> and the introduction of a time indication (field 13C, debit stamp) to be transported through the interlinking mechanism and to be made available to credit institutions.

## OCTOBER 2002

The Governing Council of the ECB took a strategic decision on the direction of the second generation of the TARGET system (TARGET2) in order to ensure that TARGET would continue to meet customers' future requirements and to accommodate the EU enlargement process.

On 24 October 2002 the Governing Council decided that acceding country central banks would have the possibility, but not the obligation, to connect to TARGET from the date of their joining the EU. Participation in TARGET would become compulsory only on joining EMU.

<sup>15</sup> See the ECB's press release of 14 December 2000.

<sup>16</sup> See the ECB's press release of 28 February 2002.

<sup>17</sup> Guideline of the European Central Bank of 26 April 2001 on a Trans-European Automated Real-time Gross Settlement Express Transfer system (Target) (ECB/2001/3). OJ L 140, 24.5.2001, p. 72. The Guideline is also available on the ECB's website.

<sup>18</sup> A negative PSMN provides the rejection code (reason for the rejection).

## NOVEMBER 2002

The 2002 TARGET maintenance release went live successfully on 18 November 2002. The release consisted mainly of the introduction of the mandatory validation that MT103+ customer transfers contain a correct IBAN.

The Governing Council decided on the policy framework for the TARGET compensation scheme applicable in the event of a TARGET malfunction.

## DECEMBER 2002

The Eurosystem launched a public consultation on 16 December 2002 to collect the views of the entire community of TARGET users on the approach to be chosen for TARGET2, as well as on its service level.<sup>19</sup>

## JANUARY 2003

On 9 January 2003 the Governing Council of the ECB decided to establish an oversight framework for TARGET. In this respect, two operational objectives for TARGET oversight were identified. First, TARGET oversight would have to verify that the system's existing and envisaged set-up and procedures were compatible with the Core Principles for Systemically Important Payment Systems. Second, any case of non-compliance with the Core Principles would have to be brought to the attention of the decision-making bodies of the ECB so that, if required, measures could be considered and implemented to ensure full compliance with the Core Principles.

## JULY 2003

A summary of all the responses to the public consultation ("TARGET2: Principles and structure"), together with the individual contributions, was published on the ECB's website on 14 July 2003.<sup>20</sup> All respondents

welcomed the Eurosystem's initiative to improve the functionality and performance of TARGET. The banking industry stressed the importance of users being involved in the TARGET2 project. In addition, the contributions received in the public consultation process served as a basis for determining the core features and functions of TARGET2.

The TARGET compensation scheme, which replaced the former reimbursement scheme, came into force on 1 July 2003. It was introduced for the benefit of TARGET participants in the event of a malfunctioning in TARGET. In designing the scheme, existing market practices were taken into account. The conditions for compensation offers and payments are set out in the TARGET Guideline. The scheme applies to all national RTGS systems participating in or connected to TARGET, and covers both intra and inter-Member State TARGET payments. A malfunctioning of the EPM affecting TARGET participants would also be covered by the compensation scheme, however, the scheme does not apply to customers in the EPM. Its procedures are largely standardised in order to keep the administrative burden low.

## NOVEMBER 2003

The 2003 TARGET release went live successfully on 17 November 2003. The main feature of the release was the removal of the customer transfer message type MT100 from the TARGET system. SWIFT stopped supporting this message type and, as TARGET is based on SWIFT messaging standards, TARGET had to follow suit.

## JUNE 2004

The 2004 TARGET release went live successfully on 14 June 2004. This release took into account a change in the SWIFT validation

<sup>19</sup> "TARGET2: Principles and structure".

<sup>20</sup> "Summary of comments received on TARGET2: Principles and structure".

rule for IBAN, which came into force on the same day. The change consisted of adding a further six countries.

#### **DECEMBER 2004**

On 16 December 2004 the Governing Council of the ECB accepted the offer made by three NCBs (Deutsche Bundesbank, Banque de France and Banca d'Italia) and approved the building of a Single Shared Platform (SSP) for the second-generation TARGET system (TARGET2). Further details on the characteristics of TARGET2 were made available in February 2005.

#### **MARCH 2005**

Poland was the first of the ten new Member States to join TARGET. On 7 March 2005 Narodowy Bank Polski's euro RTGS system (SORBNET-EURO) was connected to TARGET via the Banca d'Italia's RTGS system (BIREL).

#### **NOVEMBER 2006**

On 20 November 2006 Estonia was the second of the new Member States to join TARGET. Eesti Pank's euro RTGS system was also connected to TARGET via the Banca d'Italia.

#### **JANUARY 2007**

Slovenia joined the euro area. For efficiency reasons, Banka Slovenije decided not to develop its own euro RTGS system, but to use Deutsche Bundesbank's RTGS system to connect to TARGET. Banka Slovenije commenced operations as a member of the Eurosystem on 2 January 2007.

Following its decision not to join TARGET2, in 2006 Sveriges Riksbank prepared for the

disconnection of its TARGET component, E-RIX, effective on 2 January 2007. The majority of Swedish participants anticipated the disconnection and made alternative arrangements to remain connected to TARGET (e.g. either as a direct participant via another central bank, as an indirect participant or through correspondent banking).

#### **NOVEMBER 2007**

On 19 November 2007 the Eurosystem successfully launched the Single Shared Platform of TARGET2. On the same day the first migration group – composed of the national central banks and the respective TARGET user communities in Austria, Cyprus, Germany, Latvia, Lithuania, Luxembourg, Malta and Slovenia – was connected to TARGET2.

#### **FEBRUARY 2008**

On 18 February 2008 the second migration group – comprising the national central banks and the respective TARGET user communities in Belgium, Finland, France, Ireland, Netherlands, Portugal and Spain – successfully connected to TARGET2.

#### **MAY 2008**

On 19 May 2008 the third and final migration group – comprising the national central banks and the respective TARGET user communities in Denmark, Estonia, Greece, Italy and Poland, as well as the ECB – successfully connected to TARGET2.

#### **DECEMBER 2008**

On 22 December 2008 TARGET reached a peak of 576,324 transactions, which represents an all-time high for the system since its launch in January 1999.

### 3 GENERAL TERMS AND ACRONYMS

#### Countries

AT	Austria
BE	Belgium
CY	Cyprus
DE	Germany
DK	Denmark
EE	Estonia
ES	Spain
FI	Finland
FR	France
GR	Greece
IE	Ireland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
NL	Netherlands
MT	Malta
PL	Poland
PT	Portugal
SI	Slovenia
UK	United Kingdom

#### Others

ASI	Ancillary system interface
BIC	Bank Identifier Code
BIS	Bank for International Settlements
CCBM	Correspondent central banking model
CET	Central European Time
CLS	Continuous Linked Settlement
CM	Contingency module
CPSS	Committee on Payment and Settlement Systems
EAF	Euro Access Frankfurt
EBA	European Banking Association
EC	European Community
ECB	European Central Bank
ECBS	European Committee for Banking Standards
EEA	European Economic Area
ELS	Euro Link System
EMI	European Monetary Institute
EMU	Economic and Monetary Union
EONIA	Euro overnight index average
EPM	ECB payment mechanism
ERM II	Exchange rate mechanism II

ESCB	European System of Central Banks
EU	European Union
EUR, €	Euro
EURO1	EU-wide payment system of the EBA
FIN	Financial application; store and forward messaging service on the SWIFT network
FIN copy	Function of the SWIFT network whereby instructions may be copied and optionally authorised by a third party before being released to the beneficiary
Forex (FX)	Foreign exchange
GFS	General functional specifications
IBAN	International Bank Account Number
ICM	Information and control module
IFFM	Interlinking free format message
IMF	International Monetary Fund
ISIM	Interlinking statistical information message
ISO	International Organization for Standardisation
ITES	Interlinking test environment system
MAC	Message authentication code
MT103	Message types
MT103+	
MT202	
NCB	National central bank
NMP	National migration profile
NSS	Net settlement system
PM	Payment module
PSMN	Payment settlement message notification
PSMR	Payment settlement message request
PSPWG	Payment Systems Policy Working Group
PSSC	Payment and Settlement Systems Committee
PvP	Payment versus payment
Repo	Repurchase operation
RTGS	Real-time gross settlement
SFD	Settlement Finality Directive
SSP	Single Shared Platform
SSS	Securities settlement system

STP	Straight-through processing
SWIFT	Society for Worldwide Interbank Financial Telecommunication
SWIFTNet	Store and forward messaging service
FIN	for financial institutions on the SWIFTNet platform
TARGET	Trans-European Automated Real-time Gross settlement Express Transfer system
TCP/IP	Transmission control protocol/ internet protocol
TIS	TARGET Information System
TMWG	TARGET Management Working Group
UDFS	User detailed functional specifications

## 4 GLOSSARY

**Availability:** Criterion for evaluating a system on the basis of its back-up facilities and the possibility of switching over to them. See **TARGET availability**.

**Ancillary system interface (ASI):** The ancillary system interface is a standardised interface to the TARGET2 payment module which can be used by ancillary systems to perform the cash clearing of their business.

**Bank Identifier Code (BIC):** A universal means of identifying financial institutions in order to facilitate the automated processing of telecommunication messages in financial environments.

**Business continuity:** A payment system or securities settlement system arrangement which aims to ensure that it meets agreed service levels even if one or more components of the system fail or if it is affected by another abnormal event. This includes both preventive measures and arrangements to deal with these events. See **TARGET contingency measures**.

**Central bank credit (liquidity) facility:** A standing credit facility which can be drawn upon by certain designated account holders (e.g. banks) at a central bank. The facility can be used automatically at the initiative of the account holder. The loans typically take the form of either advances or overdrafts on an account holder's current account which may be secured by a pledge of securities or by repurchase agreements. See **daylight credit**, **marginal lending facility**.

**Clearing/clearance:** The process of transmitting, reconciling and, in some cases, confirming payment orders or security transfer instructions prior to settlement, possibly including the netting of instructions and the establishment of final positions for settlement. Sometimes the terms are used (imprecisely) to include settlement.

**CLS Bank:** Continuous Linked Settlement (CLS) Bank. CLS Bank provides global multi-currency settlement services for foreign exchange transactions, using a PvP mechanism, meaning that a foreign exchange operation is settled only if both counterparties simultaneously have a sufficient position in the currency they sell.

**Collateral:** Assets pledged (e.g. by credit institutions with central banks) as a guarantee for the repayment of loans, as well as assets sold (e.g. to central banks by credit institutions) as part of repurchase agreements.

**Correspondent banking:** An arrangement whereby one credit institution provides payment and other services to another credit institution. Payments through correspondents are often executed through reciprocal accounts (nostro and loro accounts), to which standing credit lines may be attached. Correspondent banking services are primarily provided across national borders, but are also provided in some domestic contexts, where they are known as agency relationships. A loro account is the term used by a correspondent to describe an account held on behalf of a foreign credit institution; the foreign credit institution would in turn regard this account as its nostro account.

**Correspondent central banking model (CCBM):** A mechanism established by the ESCB with the aim of enabling counterparties to obtain credit from the central bank of the country in which they are based using collateral held in another country. In the CCBM, an NCB acts as custodian for the other NCBs with regard to the securities held in its domestic SSS.

**Counterparty:** The opposite party in a financial transaction (e.g. any party transacting with a central bank).

**Credit institution:** (i) An undertaking whose business is to receive deposits or other repayable funds from the public and to grant credit for its own account; or (ii) an undertaking or any other legal person, other than those under (i), which issues means of payment in the form of electronic money.

**Credit risk/exposure:** The risk that a counterparty will not settle an obligation in full, either when due or at any time thereafter. Credit risk includes the replacement cost risk and the principal risk. It also includes the risk of settlement bank failure.

**Credit transfer:** A payment order or sometimes a sequence of payment orders made for the purpose of placing funds at the disposal of the beneficiary. Both the payment instructions and the funds described therein move from the bank of the payer/originator to the bank of the beneficiary, possibly via several other banks as intermediaries and/or more than one credit transfer system.

**Credit transfer system:** A funds transfer system through which payment orders move from (the bank of) the originator of the transfer message or payer to (the bank of) the receiver of the message or beneficiary.

**Customer payment:** A payment where the originator or the final beneficiary, or both, are not financial institutions.

**Daily processing:** The complete cycle of processing tasks which needs to be completed in a typical business day, from start-of-day procedures to end-of-day procedures, including the backing-up of data.

**Daily settlement:** The completion of settlement on the day of value of all payments accepted for settlement.

**Daylight credit:** Credit extended for a period of less than one business day. Daylight credit may be extended by central banks to even out mismatches in payment settlements. In a credit transfer system with end-of-day final settlement, daylight credit is, in effect, extended by a receiving institution if it accepts and acts on a payment order even though it will not receive final funds until the end of the business day.

**Deposit facility:** A standing facility of the Eurosystem which counterparties may use to make overnight deposits at an NCB, which are remunerated at a pre-specified interest rate.

**Direct debit:** A pre-authorised debit on the payer's bank account initiated by the payee.

**EEA (European Economic Area) countries:** The EU Member States plus Iceland, Liechtenstein and Norway.

**Economic and Monetary Union (EMU):** The Treaty describes the process of achieving EMU in the EU in three stages. Stage One of EMU started in July 1990 and ended on 31 December 1993; it was mainly characterised by the dismantling of all internal barriers to the free movement of capital within the EU. Stage Two began on 1 January 1994, and provided for, inter alia, the establishment of

the EMI, the prohibition of financing of the public sector by the NCBs, the prohibition of privileged access to financial institutions by the public sector, and the avoidance of excessive government deficits. Stage Three started on 1 January 1999 with the transfer of monetary competence to the ECB and the introduction of the euro. The cash changeover on 1 January 2002 completed the set-up of EMU.

**EONIA (euro overnight index average):** A measure of the effective interest rate prevailing in the euro interbank overnight market. It is calculated as a weighted average of the interest rates on unsecured overnight lending transactions denominated in euro, as reported by a panel of contributing banks.

**ERM II (exchange rate mechanism II):** The exchange rate arrangement that provides the framework for exchange rate policy cooperation between the euro area countries and the EU Member States that are not participating in Stage Three of EMU.

**Exchange-for-value settlement system:** A system which involves the exchange of assets, such as money, foreign exchange, securities or other financial instruments, in order to discharge settlement obligations. These systems may use one or more funds transfer systems in order to satisfy the payment obligations which are generated. The links between the exchange of assets and the payment system(s) may be manual or electronic.

**Final (finality):** Irrevocable and unconditional.

**Final settlement:** Settlement which is irrevocable and unconditional.

**Final transfer:** An irrevocable and unconditional transfer which effects a discharge of the obligation to make the transfer. The terms “delivery” and “payment” are both defined as a final transfer.

**Financial application (FIN):** A SWIFT-offered application enabling financial institutions to exchange structured message-based financial data worldwide in a secure and reliable manner.

**Financial risk:** A term covering a range of risks incurred in financial transactions, e.g. liquidity and credit risks. See also **liquidity risk**, **credit risk/exposure**.

**Foreign exchange settlement risk:** The risk that one party to a foreign exchange transaction will pay in the currency it sold, but not receive the currency it bought. This is also called cross-currency settlement risk or principal risk. (Sometimes it is additionally referred to as Herstatt risk, although this is an inappropriate term given the differing circumstances in which this risk materialised.)

**Gridlock:** A situation which can arise in a fund or securities transfer system, in which the failure of some transfer instructions to be executed (because the necessary funds or securities balances are unavailable), prevents a substantial number of other instructions from other participants from being executed. See also **queuing**, **systemic risk**.

**Gross settlement system:** A transfer system in which the settlement of funds or securities occurs individually (on an instruction-by-instruction basis).

**Herstatt risk:** The risk of loss in foreign exchange trading that one party will deliver foreign exchange but the counterparty financial institution will fail to complete its end of the contract. This is also referred to as settlement risk. See [foreign exchange settlement risk](#).

**Hybrid system:** A payment system which combines characteristics of RTGS systems and netting systems.

**Information and control module:** A mandatory and unique functional interface between the TARGET2 direct participants and the Single Shared Platform.

**Inter-Member State payment:** A payment between counterparties maintaining an account with different central banks.

**International Bank Account Number (IBAN):** The IBAN concept was developed by the European Committee for Banking Standards (ECBS) and by the International Organization for Standardisation (ISO), and is an internationally agreed standard. It was created as an international bank identifier, used uniquely to identify the account of a customer at a financial institution, to assist error-free inter-Member State customer payments, and to improve the potential for STP, with a minimum amount of change within domestic schemes.

**Incident:** A situation which prevents the system from functioning normally or causes substantial delays.

**Interbank payment:** A payment where both the originator and the final beneficiary are financial institutions.

**Interlinking mechanism:** One of the components of the TARGET system. The term is used to designate the infrastructures and procedures which link domestic RTGS systems in order to enable the processing of inter-Member State payments within TARGET.

**Intraday credit:** See [daylight credit](#).

**Intraday liquidity:** Funds which can be accessed during the business day, usually to enable financial institutions to make payments in real time. See also [daylight credit](#).

**Intra-Member State payment:** A payment between counterparties maintaining an account with the same central bank.

**Irrevocable and unconditional transfer:** A transfer which cannot be revoked by the transferor and is unconditional (and therefore final).

**Large-value funds transfer system:** A funds transfer system through which large-value and high-priority funds transfers are made between participants in the system for their own account or on behalf of their customers. Although as a rule no minimum value is set for the payments they carry, the average size of payments passed through such systems is usually relatively large. Large-value funds transfer systems are also known as wholesale funds transfer systems.

**Large-value payments:** Payments, generally of very large amounts, which are mainly exchanged between banks or between participants in the financial markets and usually require urgent and timely settlement.

**Legal risk:** The risk of loss because of the unexpected application of a law or regulation or because a contract cannot be enforced.

**Liquidity risk:** The risk that a counterparty will not settle an obligation at its full value when due, but instead on some unspecified date thereafter.

**MAC (message authentication code):** A hash algorithm parameterised with a key to generate a number which is attached to the message and used to authenticate it and guarantee the integrity of the data transmitted.

**Marginal lending facility:** A standing facility of the Eurosystem which counterparties may use to receive overnight credit from an NCB at a pre-specified interest rate against eligible assets. See also **central bank credit (liquidity) facility**.

**Net settlement system (NSS):** A funds transfer system, the settlement operations of which are completed on a bilateral or multilateral net basis.

**Obligation:** A duty imposed by contract or by law.

**Operational risk:** The risk of human error or a breakdown of some component of the hardware, software or communications system which is crucial to settlement.

**Oversight of payment systems:** A central bank task, principally intended to promote the smooth functioning of payment systems. The objectives of oversight are to protect the financial system from the possible domino effects which may occur when one or more participants in the payment system encounter credit or liquidity problems, and to foster the efficiency and soundness of payment systems. Payment systems oversight is aimed at a given system (e.g. a funds transfer system) rather than at individual participants. It also covers payment instruments.

**Payment:** The payer's transfer of a monetary claim to a party acceptable to the payee. Typically, claims take the form of banknotes or deposit balances held at a financial institution or at a central bank.

**Payment message/instruction/order:** An order or message to transfer funds (in the form of a monetary claim on a party) to the account of the beneficiary. The order may relate either to a credit transfer or to a debit transfer. See also **credit transfer**, **direct debit**, **payment**.

**Payment system:** A payment system consists of a set of instruments, banking procedures and, typically, interbank funds transfer systems which facilitate the circulation of money.

**Payment settlement message notification (PSMN):** A PSMN is the response to a PSMR (see below), which can be either positive or negative. It is normally positive (indicating that the beneficiary's settlement account in the receiving NCB/the ECB's books has been successfully credited), but may also be negative, in which case it is returned to the sending central bank with an error code.

**Payment settlement message request (PSMR):** The settlement of TARGET inter-Member State payments involves the exchange of PSMRs from the sending NCB/the ECB and PSMNs (see above) from the receiving NCB/the ECB. The sender of the PSMR requests the receiver to process a payment; this message requires a positive or negative PSMN from the receiver.

**Payment versus payment (PvP):** A mechanism in a foreign exchange settlement system which ensures that a final transfer of one currency occurs if, and only if, a final transfer of the other currency or currencies takes place.

**Principal risk:** The risk that a party will lose the full value involved in a transaction (credit risk). In the settlement process, this term is typically associated with exchange-for-value transactions when there is a lag between the final settlement of the various legs of a transaction (i.e. the absence of delivery versus payment). The principal risk which arises from the settlement of foreign exchange transactions (foreign exchange settlement risk) is sometimes called cross-currency settlement risk or Herstatt risk. See [credit risk/exposure](#).

**Queuing:** An arrangement whereby transfer orders are held pending by the originator/deliverer or by the system until sufficient cover is available in the originator's/deliverer's clearing account or under the limits set against the payer; in some cases, cover may include unused credit lines or available collateral.

**Real-time processing:** The processing of instructions at the time they are received rather than at some later time.

**Remote participant:** A participant in a system which has neither its head office nor any of its branches located in the country where the system is based.

**Remote access to TARGET:** The possibility for an institution established in one country in the EEA to become a direct participant in the RTGS system of another country and, for this purpose, to have a settlement account in euro in its own name with the NCB of the second country without necessarily having established a branch or subsidiary in that country.

**Repurchase agreement:** An agreement to sell an asset and to repurchase it at a specified price on a predetermined future date or on demand. Such an agreement is similar to collateralised borrowing, although it differs in that the seller does not retain ownership of the assets.

**Repurchase operation (repo):** A liquidity-providing reverse transaction based on a repurchase agreement.

**Reserve requirement:** The minimum amount of reserves a credit institution is required to hold with the Eurosystem. Compliance is determined on the basis of the average of the daily balances over a maintenance period of around one month.

**Retail payments:** This term describes all payments which are not included in the definition of large-value payments. Retail payments are mainly consumer payments of relatively low value and urgency.

**RTGS (real-time gross settlement):** The continuous (real-time) settlement of funds or securities transfers individually on an order-by-order basis with intraday finality (without netting).

**RTGS system:** A settlement system in which processing and settlement take place on an order-by-order basis (without netting) in real time (continuously).

**Settlement:** An act which discharges obligations in respect of funds or securities transfers between two or more parties. Settlement may be final or provisional. See **gross settlement system, net settlement system, final settlement**.

**Settlement risk:** A general term used to designate the risk that settlement in a transfer system will not take place as expected. This risk may comprise both credit and liquidity risk.

**Single Shared Platform:** TARGET2 is based on a single technical platform, known as the Single Shared Platform, which includes payment and accounting processing services and customer-related services.

**Standing facility:** A central bank facility available to counterparties on their own initiative. The Eurosystem offers two overnight standing facilities: the marginal lending facility and the deposit facility.

**Straight-through processing (STP):** The automated end-to-end processing of trades/payment transfers, including the automated completion of generation, confirmation, clearing and settlement of instructions.

**Swap:** An agreement on the exchange of payments between two counterparties at some point(s) in the future in accordance with a specified formula.

**SWIFT (S.W.I.F.T. s.c.r.l.) (Society for Worldwide Interbank Financial Tele-communication):** A cooperative organisation created and owned by banks which operates a network designed to facilitate the exchange of payment and other financial messages between financial institutions (including broker-dealers and securities companies) throughout the world. A SWIFT payment message is an instruction to transfer funds; the exchange of funds (settlement) subsequently takes place through a payment system or through correspondent banking relationships.

**Systemic risk:** The risk that the inability of one institution to meet its obligations when due will cause other institutions to be unable to meet their obligations when due. Such failure may cause significant liquidity or credit problems and, as a result, could threaten the stability of or confidence in markets.

**Systemically important payment system:** A payment system is deemed systemically important if, in the event of being insufficiently protected against risk, disruption within it could trigger or transmit disruption to participants or cause broader systemic disruption in the financial area.

**TCP/IP (transmission control protocol/internet protocol):** A set of commonly used communications and addressing protocols; TCP/IP is the de facto set of communication standards of the internet.

**TARGET availability:** The ratio of time when TARGET is fully operational to TARGET opening time.

**TARGET business continuity:** The ability of each national TARGET component to switch to a remote secondary site in the event of a failure at the primary site, with the goal of enabling normal operations to resume within the shortest time possible.

**TARGET contingency measures:** Arrangements in TARGET which aim to ensure that it meets agreed service levels during abnormal events even when the use of an alternative site is not possible or would require too much time.

**TARGET market share:** The percentage processed by TARGET of the large-value payments in euro exchanged via all euro large-value payment systems. The other systems are EURO1 (EBA) and Pankkien On-line Pikasiirrot ja Sekit-järjestelmä (POPS).

**TARGET2:** The second generation of the TARGET system in which the decentralised technical structure of the original TARGET has been replaced with an SSP offering a harmonised service with a uniform pricing scheme.

**Transfer:** Operationally, the sending (or movement) of funds or securities, or of rights relating to funds or securities, from one party to another party by (i) the conveyance of physical instruments/money; (ii) accounting entries on the books of a financial intermediary; or (iii) accounting entries processed through a funds and/or securities transfer system. The act of transfer affects the legal rights of the transferor, the transferee and possibly third parties with regard to the money, security or other financial instrument being transferred.

**Transfer system:** A generic term covering interbank funds transfer systems and exchange-for-value systems.

## 5 ADDITIONAL TABLES AND CHARTS

Table 5.1 Distribution of payment flows in TARGET – 2007

	Total				Intra-Member State				Inter-Member State			
	Value <sup>1)</sup>	%	Volume	%	Value <sup>1)</sup>	%	Volume	%	Value <sup>1)</sup>	%	Volume	%
AT	8,848	1.4	3,881,580	4.2	4,282	1.1	3,245,797	4.5	4,566	2.1	635,783	3.1
BE	26,639	4.3	2,038,280	2.2	4,953	1.3	895,290	1.2	21,686	9.8	1,142,990	5.5
CY <sup>2)</sup>	1	0.0	1,849	0.0	-	0.0	137	0.0	1	0.0	1,712	0.0
DE <sup>3)</sup>	181,232	29.4	41,867,637	44.8	126,527	32.0	36,198,401	49.9	54,705	24.7	5,669,236	27.3
DK	4,080	0.7	131,401	0.1	54	0.0	8,640	0.0	4,026	1.8	122,761	0.6
EE <sup>4)</sup>	1	0.0	17,677	0.0	0	0.0	22	0.0	1	0.0	17,655	0.1
ES	87,605	14.2	10,656,990	11.4	78,541	19.9	9,428,093	13.0	9,065	4.1	1,228,897	5.9
ECB	7,007	1.1	43,072	0.0	-	0.0	-	0.0	7,007	3.2	43,072	0.2
FI	6,125	1.0	354,050	0.4	2,354	0.6	188,458	0.3	3,771	1.7	165,592	0.8
FR	145,219	23.5	4,894,013	5.2	114,122	28.9	2,141,541	3.0	31,097	14.1	2,752,472	13.2
GB	47,780	7.7	5,711,342	6.1	9,947	2.5	1,455,418	2.0	37,833	17.1	4,255,924	20.5
GR	8,421	1.4	1,615,202	1.7	5,616	1.4	1,253,986	1.7	2,805	1.3	361,216	1.7
IE	7,437	1.2	1,360,234	1.5	4,300	1.1	811,213	1.1	3,138	1.4	549,021	2.6
IT <sup>5)</sup>	42,101	6.8	11,503,291	12.3	27,485	7.0	9,348,063	12.9	4,617	6.6	2,155,228	10.4
LT <sup>2)</sup>	2	0.0	1,150	0.0	-	0.0	118	0.0	2	0.0	1,032	0.0
LU	9,992	1.6	866,852	0.9	3,762	1.0	333,895	0.5	6,230	2.8	532,957	2.6
LV <sup>2)</sup>	4	0.0	9,621	0.0	1	0.0	5,016	0.0	4	0.0	4,605	0.0
MT <sup>2)</sup>	0	0.0	12	0.0	-	0.0	-	0.0	0	0.0	12	0.0
NL	30,761	5.0	7,059,738	7.6	11,601	2.9	6,111,889	8.4	19,160	8.7	947,849	4.6
PL <sup>6)</sup>	52	0.0	31,936	0.0	5	0.0	8,704	0.0	46	0.0	23,232	0.1
PT	3,380	0.5	1,217,390	1.3	1,795	0.5	1,002,369	1.4	1,585	0.7	215,021	1.0
SI <sup>2),7)</sup>	538	0.1	803,735	0.9	458	0.1	731,151	1.0	80	0.0	72,584	0.3
	616,731	100.0	93,375,701	100	395,412	100.0	72,574,446	100	221,319	100.0	20,801,255	100

Source: ECB.

1) € billions.

2) CY, LT, LV, MT and SI commenced operations on the SSP on 19 November 2007.

3) The figures from DE include the figures of SI until 16 November 2007.

4) The figures of EE are included in the figures of IT until 16 May 2008.

5) The figures of IT include the figures of PL and EE until 16 May 2008.

6) The figures of PL are included in the figures of IT until 16 May 2008.

7) The figures of SI are included in the figures of DE until 16 November 2007.

Notes:

Countries, which migrated to TARGET2 as part of the first wave on 19 November 2007: AT, CY, DE, LV, LT, LU, MT and SI.

Countries, which migrated to TARGET2 as part of the second wave on 18 February 2008: BE, FI, FR, IE, NL, PT and ES.

Countries, which migrated to TARGET2 as part of the third wave on 19 May 2008: DK, EE, ECB, GR, IT and PL.

Table 5.2 Distribution of payment flows in TARGET – 2008

	Total				Intra-Member State				Inter-Member State			
	Value <sup>1)</sup>	%	Volume	%	Value <sup>1)</sup>	%	Volume	%	Value <sup>1)</sup>	%	Volume	%
AT	15,128	2.2	3,634,896	3.8	9,836	2.1	2,913,546	4.2	5,292	2.4	721,350	2.8
BE	39,019	5.7	2,530,317	2.7	15,782	3.4	763,606	1.1	23,237	10.7	1,766,711	6.9
CY	250	0.0	100,252	0.1	70	0.0	35,225	0.1	180	0.1	65,027	0.3
DE	248,816	36.4	46,496,052	49.1	184,358	39.5	36,228,562	52.3	64,458	29.8	10,267,490	40.3
DK	5,545	0.8	179,182	0.2	212	0.0	33,691	0.0	5,333	2.5	145,491	0.6
EE	13	0.0	5,787	0.0	0	0.0	717	0.0	13	0.0	5,070	0.0
ES	84,771	12.4	9,258,779	9.8	76,619	16.4	7,802,257	11.3	8,152	3.8	1,456,522	5.7
EU	11,905	1.7	45,228	0.0	849	0.2	209	0.0	11,056	5.1	45,019	0.2
FI	8,366	1.2	406,232	0.4	3,927	0.8	176,697	0.3	4,439	2.1	229,535	0.9
FR	101,931	14.9	6,653,934	7.0	67,783	14.5	3,479,006	5.0	34,148	15.8	3,174,928	12.5
GB <sup>2)</sup>	6,969	1.0	597,987	0.6	756	0.2	219,824	0.3	6,213	2.9	378,163	1.5
GR	7,683	1.1	1,309,918	1.4	5,100	1.1	940,088	1.4	2,583	1.2	369,830	1.5
IE	8,063	1.2	1,315,611	1.4	3,650	0.8	626,432	0.9	4,413	2.0	689,179	2.7
IT	56,680	8.3	9,341,569	9.9	44,211	9.5	7,261,068	10.5	12,469	5.8	2,080,501	8.2
LT	39	0.0	17,077	0.0	1	0.0	3,101	0.0	38	0.0	13,976	0.1
LU	15,388	2.3	777,445	0.8	8,178	1.8	252,183	0.4	7,210	3.3	525,262	2.1
LV	71	0.0	149,803	0.2	9	0.0	60,643	0.1	62	0.0	89,160	0.3
MT	26	0.0	12,826	0.0	-	0.0	833	0.0	26	0.0	11,993	0.0
NL	67,523	9.9	9,662,805	10.2	42,493	9.1	6,629,468	9.6	25,030	11.6	3,033,337	11.9
PL	112	0.0	144,767	0.2	12	0.0	29,363	0.0	100	0.0	115,404	0.5
PT	3,987	0.6	1,298,317	1.4	2,315	0.5	1,096,895	1.6	1,672	0.8	201,422	0.8
SI	495	0.1	772,596	0.8	411	0.1	659,466	1.0	84	0.0	113,130	0.4
	682,780	100.0	94,711,380	100.0	466,572	100.0	69,212,880	100.0	216,208	100.0	25,498,500	100.0

Source: ECB.

1) € billions.

2) UK terminated its connection to TARGET on 16 May 2008.

Notes:

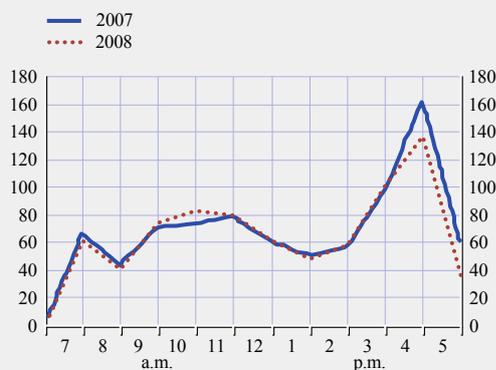
Countries, which migrated to TARGET2 as part of the first wave on 19 November 2007: AT, CY, DE, LV, LT, LU, MT and SI.

Countries, which migrated to TARGET2 as part of the second wave on 18 February 2008: BE, FI, FR, IE, NL, PT and ES.

Countries, which migrated to TARGET2 as part of the third wave on 19 May 2008: DK, EE, GR, IT and PL.

Chart 5.1 Intraday pattern of interbank payments – value (inter-Member State traffic)

(EUR billions)



Source: ECB.

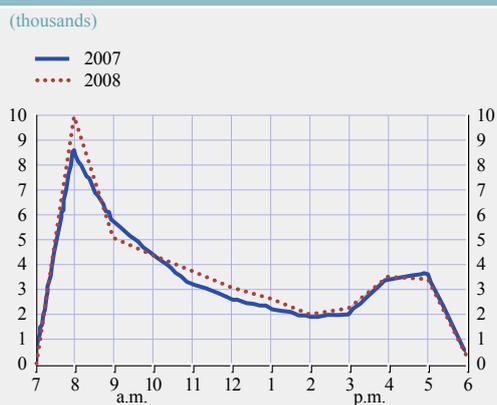
Chart 5.2 Intraday pattern of customer payments – value (inter-Member State traffic)

(EUR billions)



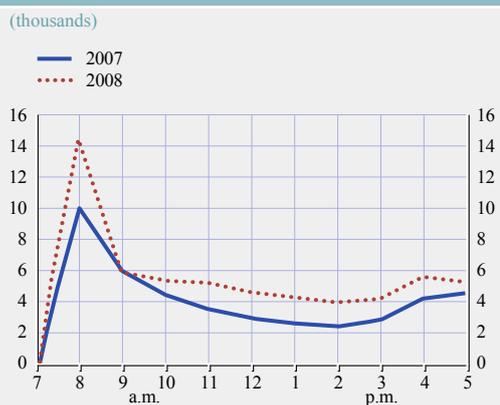
Source: ECB.

**Chart 5.3 Intraday pattern of interbank payments – volume (inter-Member State traffic)**



Source: ECB.

**Chart 5.4 Intraday pattern of customer payments – volume (inter-Member State traffic)**



Source: ECB.

**Table 5.3 Overall system availability**

(percentages)

NCB	2008													Average Ytd
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		
AT	100.00	100.00	100.00	100.00	100.00	99.28	100.00	99.28	100.00	100.00	100.00	100.00	99.88	
BE	100.00	99.53	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.96	
DE	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
DK	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
EE	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
ES	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
EU	100.00	100.00	99.90	100.00	99.50	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.95	
FI	98.48	99.59	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.84	
FR	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
GB	100.00	100.00	100.00	100.00	100.00								100.00	
GR	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
IE	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
IT	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
LU	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
NL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
PL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
PT	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
SSP	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
Overall system availability	99.92	99.95	99.99	100.00	99.97	99.96	100.00	99.96	100.00	100.00	100.00	100.00	99.98	







