

# TEN YEARS OF TARGET AND THE LAUNCH OF TARGET2

## ARTICLES

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TARGET2

*TARGET (Trans-European Automated Real-time Gross settlement Express Transfer system), an interbank payment system for the real-time processing of cross-border transfers in euro throughout the European Union, was made up of 17 national real-time gross settlement (RTGS) systems<sup>1</sup> and the ECB payment mechanism (EPM). Between November 2007 and May 2008, TARGET was replaced by an enhanced and streamlined version of the system, called TARGET2. TARGET, and now TARGET2, is run by the Eurosystem, the central banking system of the euro area. This article recalls the most important events which marked the ten years of TARGET, describes the TARGET2 project, and provides the first statistical data collected after the first weeks of TARGET2 operations.*

## I TEN YEARS OF TARGET

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. In the EU central banks' community, 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.

The need to be ready in time for the introduction of the euro did not grant sufficient time to build a fully-fledged single RTGS system. The most practical and immediate solution was to link the existing RTGS systems and to 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 work 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 the central banks had to undergo to a minimum, which was important at a time when they were already fully engaged with the changeover to the euro and to 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 (hereafter referred to as "TARGET1" for clarity), the RTGS

system for the euro, commenced operation on 4 January 1999 following the launch of the euro.

## FEATURES AND BENEFITS OF TARGET1

TARGET1 had a decentralised technical structure, which 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. TARGET1 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>2</sup> As a result of its wide participation criteria, it was possible to reach almost all credit institutions established in the EU via TARGET1 and, hence, all their account holders.

Liquidity availability in TARGET1 was facilitated by permitting the use of minimum reserve holdings for settlement purposes during the day and, in addition, the Eurosystem provided unlimited (collateralised) intraday credit free of interest to its counterparties. Incoming funds were available for immediate re-use, and the high speed at which payments in TARGET1 were processed facilitated and improved cash management for its participants.

- 1 A real-time gross settlement system is a payment system in which processing and settlement take place in real time (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 TARGET2 are examples of real-time gross settlement systems.
- 2 Sweden was also connected to TARGET1 between January 1999 and December 2006.

There was no upper or lower value limit for TARGET1 payments.

TARGET1 was originally intended for the processing of time-critical large-value payments in euro with the objective to reduce systemic risk throughout the EU. In particular, payments related to monetary policy operations with the Eurosystem, or to final settlement of systemically important payment and settlement systems, had to be made via TARGET1. Besides these operations, TARGET1 users began using the system more and more for other types of transactions, including low-value payments, hence benefiting from all the TARGET1 advantages in terms of speed, liquidity management and security. Due to its attractive pricing scheme, even smaller credit institutions in the EU were able to offer their customers an efficient cross-border payment service.

The use of TARGET1 was supported by a transparent pricing structure, where 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 composing TARGET1 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. TARGET1 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.

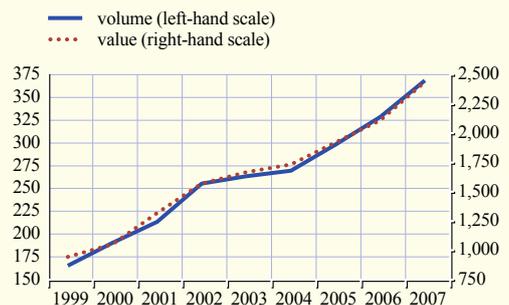
Most of the TARGET1 features explained here are still valid today or have been enhanced in TARGET2.

#### FIGURES FOR TARGET1

In November 2007, at the beginning of the migration to TARGET2, there were 1,072 direct participants connected to TARGET1 and the overall number of banks (including their

Chart 1 TARGET1 traffic

(daily averages in thousands; EUR billions)



Source: ECB.

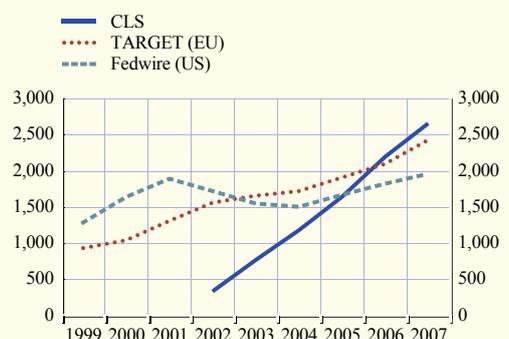
branches and subsidiaries) accessible via TARGET1 was around 52,800, meaning that almost all EU credit institutions were reachable.

Since its launch in January 1999, TARGET1 payment traffic has grown by around 10% every year, both in terms of value and the number of payments. In 2007, TARGET1 processed, on average, more than 360,000 payments per day with a total value of €2.4 trillion (see Chart 1).

TARGET1 accounted for 89% in terms of the value and 61% in terms of the volume of traffic that flows through all the

Chart 2 Traffic comparison in the three biggest systems in the world

(daily average values in EUR billions)<sup>1)</sup>



Source: ECB.

<sup>1)</sup> Continuous Linked Settlement (CLS) is an international system for settling foreign exchange transactions. Fedwire is the RTGS system for the US dollar operated by the Federal Reserve.

**Table 1 Payment value bands in TARGET1 in 2007**

(percentages)

Equal to or less than €50,000	> €50,000 = €1 million	> €1 million = €1 billion	> €1 billion
64	25	11	<0.1

Source: ECB.

large-value payment systems operating in euro. In value terms, TARGET1 was one of the biggest payment systems in the world and the biggest RTGS system (see Chart 2).

The average value of a TARGET1 payment was €6.4 million in 2007. Around 64% of TARGET1 transactions were less than or equal to €50,000 (see Table 1).

## 2 THE TARGET2 PROJECT

For years, TARGET1 operated successfully in a market environment that was rapidly evolving and highly competitive. TARGET1 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 the banks to manage their euro liquidity. Despite these considerable successes, the TARGET1 approach adopted in the mid-1990s revealed some of its weaknesses, which called for a re-design of the system. TARGET1 participants increasingly requested 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 covered too small a proportion of the costs. This was largely attributable to the decentralised structure of TARGET1 with multiple local technical components, which increased the maintenance and running costs. Lastly, in the context of EU enlargement, new Member States were expected to connect to TARGET1, hence increasing the number of TARGET1 components.

In order to overcome these weaknesses, the Eurosystem started to examine the options for the evolution of TARGET1. The Governing Council of the ECB took a strategic step on 24 October 2002 and decided on the principles and structure of the new payment system, TARGET2. The Governing Council decided that TARGET2 would offer harmonised core services. These TARGET2 core services would be provided by a single technical platform and would be priced according to a single price structure. This new approach based on a technical consolidation allowed the Eurosystem to achieve lower costs and, at the same time, to recover a very large part of the total TARGET2 costs. 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. Lastly, the Governing Council acknowledged that, despite the technical consolidation of TARGET2, the decentralisation of the relationships that the national central banks had with the counterparties in their respective countries would be preserved.

### 2.1 PROJECT ORGANISATION AND MAJOR MILESTONES

After the strategic decision of the Governing Council, the Eurosystem developed the concept, design and business rules of TARGET2. The development of TARGET2 was divided into three phases: the pre-project phase, the project phase, and the testing and migration phase.

#### PRE-PROJECT PHASE

The Eurosystem collected the views of the TARGET1 users on the expected features and level of service via a public consultation. The users' input contributed greatly to the definition of core and additional services for TARGET2, which included modern liquidity management tools, liquidity saving features, a standardised interface for ancillary systems and state-of-the-art business continuity concepts.

Although, in 2002, it was planned that TARGET2 would be a multiple-platform system, it soon became clear that a Single Shared Platform (SSP) would better respond to the needs of the industry. Three central banks (the Deutsche Bundesbank, the Banque de France and the Banca d'Italia) made a joint offer to build and operate technically the SSP, which the Governing Council approved on 14 December 2004.

The Eurosystem initiated the discussion on the governance of TARGET2, as well as on the cost of and financing rules for TARGET2. This last issue required the development of a common cost methodology and an investigation of the possible introduction of a public good factor in TARGET2 in order to take due account of the externalities, such as the reduction of systemic risk.

The pre-project phase ended in July 2004 with the consultation of the users on a General Functional Specifications (GFS) document.

#### **PROJECT PHASE**

The Eurosystem elaborated the User Detailed Functional Specifications (UDFS) of the SSP. In this context, some of the features were enhanced, particularly the intraday liquidity pooling. The liquidity pooling feature allows TARGET2 participants to group together some of their RTGS accounts and to pool the available intraday liquidity for the benefit of all members of the group. This concept was largely supported by future TARGET2 users as it avoided the fragmentation of their liquidity within the system and allowed them to centralise their liquidity management even with the decentralised holding of accounts.

The Governing Council of the ECB decided to legally construct TARGET2 as a multiple system, whilst aiming at the highest degree of harmonisation of the legal documentation used by the central banks. The general legal structure and the participation criteria were adopted in 2006.

Due attention was given to the elaboration of the pricing scheme. The pricing had to ensure broad access to the system, including for small banks, and, at the same time, had to be attractive to the major market players. The result was a dual pricing scheme which allows participants to choose between a low periodical fee with a flat transaction fee and a higher periodical fee with a lower degressive transaction fee. Some services, such as the liquidity pooling and the settlement of ancillary systems, were priced separately. The pricing scheme for TARGET2 core services took into account the growth rates in TARGET1 traffic over the last three years.

Operational aspects were worked out in close cooperation with the European banking industry, particularly those related to contingency procedures. Furthermore, to facilitate the night-time settlement of the various ancillary systems in central bank money with immediate finality and to support cross-system delivery versus payment (DvP) settlement, the Governing Council decided that TARGET2 would be operational at night.

#### **TESTING AND MIGRATION PHASE**

As regards the migration from TARGET1 to TARGET2, the Eurosystem opted for a “country window” approach, where TARGET1 users migrated to the SSP in different waves and on predefined dates. Each wave consisted of a group of central banks and their respective national banking communities. Banking communities were split into three waves and a fourth wave was scheduled in case any one community would not be in a position to migrate on schedule (see Table 2). This migration by country wave was preferred to a “big bang” approach, which was seen as too risky for a system of such importance. Within this general framework, individual central banks were responsible for monitoring the preparation of their respective national user community, for assisting these communities during the testing phase and for ensuring a smooth changeover to the new system.

Table 2 Composition of the country waves for the migration to TARGET2

Group 1 19/11/2007	Group 2 18/02/2008	Group 3 19/05/2008	Group 4 15/09/2008
Austria	Belgium	Denmark	
Cyprus	Finland	Estonia	
Germany	France	ECB	
Latvia	Ireland	Greece	Reserved for contingency (not used)
Lithuania	Netherlands	Italy	
Luxembourg	Portugal	Poland	
Malta	Spain		
Slovenia			

Source: ECB.

TARGET2 user testing activities were organised in several phases with a gradual increase in the level of complexity, from basic connectivity tests at participant level up to more complex business scenarios involving the whole user community. Time slots applicable for each testing phase were defined for each country group. In this context, due consideration was given to the multi-country banks, which had branches or subsidiaries in more than one country group. Because of the organisation into waves, the time schedule was particularly tight for the first migration group, which only had six months to complete its user testing activities. As a result of the careful monitoring of the national central banks, all testing activities were completed successfully on time for all the banking communities and the fourth group did not need to be activated. The TARGET2 system went live according to the original migration schedule, with the first operations being settled on the SSP on 19 November 2007.

## 2.2 PROJECT STAKEHOLDERS AND FUTURE DEVELOPMENTS

### CENTRAL BANK PARTICIPATION

As for TARGET1, the connection of a central bank and its banking community was only mandatory when the country in question adopted the euro. For central banks which have not yet adopted the euro, the participation in TARGET2 is optional. In the course of the project, 21 of the 28 central banks comprising the European

System of Central Banks confirmed their connection to TARGET2. In addition to the 15 central banks<sup>3</sup> having adopted the euro and the ECB, five other central banks<sup>4</sup> opted for a connection.

Although it was connected to TARGET1 via its local component CHAPS-Euro, the Bank of England decided to discontinue its connection as from 16 May 2008, which was the last operational day of TARGET1.

### PHASING-OUT OF SETTLEMENT ACTIVITIES ON LOCAL SYSTEMS

In TARGET1, some central banks maintained “home accounts” outside their RTGS systems. These accounts were primarily used to manage minimum reserves, standing facilities or cash withdrawal, but could also be used to settle interbank or ancillary system transactions. In the TARGET2 context, the Eurosystem agreed that transactions between market participants and transactions stemming from the settlement of ancillary systems, as well as payments related to open market operations, should ultimately be settled on the RTGS accounts of the SSP. However, the domestic set-up in some countries

<sup>3</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 EMU in January 2008. On 1 January 2009 Národná banka Slovenska will become the twenty-second central bank connected to TARGET2, at which time Slovakia will adopt the euro.

<sup>4</sup> Denmark, Estonia, Latvia, Lithuania and Poland.

did not allow for an immediate shift of these operations to the SSP at the start of TARGET2. As a result, the Eurosystem agreed on a maximum transition period of four years (from the moment the relevant NCB joins the SSP) for settling these payments on the SSP. The proprietary home accounting systems maintained by some individual central banks are also known as PHAs.

### INTERACTION WITH THE USER COMMUNITY

TARGET2 benefited from fruitful cooperation with TARGET1 users, both at the national level (between the individual central banks and their domestic users) and at the European level (between the Eurosystem and the TARGET Working Group). Relevant information was published regularly on the dedicated TARGET2 websites and joint meetings took place on issues of common interest, e.g. operational procedures, risk management or testing and migration. This cooperation proved to be an important factor in understanding the market requirements. It was also very beneficial for a successful changeover to TARGET2 operations, as evidenced in the smooth migration process and the high levels of acceptance by the users immediately after the go-live.

### FUTURE TARGET2 DEVELOPMENTS

It is foreseen that a new version of the SSP will be made available each year, offering a range of enhancements and new features to TARGET2 users. The content of these yearly releases will be defined after a broad consultation of the user community.

The first yearly release of the SSP will go live on 17 November 2008. Its content is mainly driven by the new SWIFT standard release, which will go live on the same day. Two releases are scheduled exceptionally for 2009. The first one, in May, will enhance the interface with ancillary systems, in particular allowing the settlement across central securities depositories during the night-time phase. The content of the second release in November 2009 is still being discussed with the TARGET2 users.

### 3 THE GO-LIVE OF TARGET2

TARGET2 only completed its migration phase in May 2008. On the basis of the first statistical data for TARGET2, collected after the first weeks of operations, some important facts can already be reported and a number of lessons can be drawn. Further information will be provided in the TARGET2 Annual Report 2008.

### TRAFFIC

In June 2008, which was the first full month of operation of TARGET2, a daily average of 378,000 transactions were settled in TARGET2. The migration from TARGET1 to TARGET2 did not affect significantly the general trend in system traffic observed over the last three years. The first weeks of operation confirm the Eurosystem's volume estimates for TARGET2. The traffic estimate of 93.1 million transactions for the first operating year is therefore likely to be achieved, hence facilitating the recovery of TARGET2 costs.

At the time TARGET2 was launched, two other large-value payment systems closed, namely CHAPS-Euro (following the decision of the Bank of England not to connect to TARGET2) and the French Paris Net Settlement (PNS). The initial assumption was that around 60% of their respective traffic would stay in TARGET2. In the case of CHAPS-Euro, it appears that most of the transactions issued by its participants stayed in TARGET2 and are now settling via their branches/subsidiaries or directly via remote participation in TARGET2. In the case of PNS, only one third of the transaction stayed in TARGET2, whereas approximately two thirds of its transactions were re-routed to other payment systems, in particular EURO1. Nevertheless, these two outcomes somehow offset each other and the overall net effect on TARGET2 traffic has been negligible.

## PARTICIPATION

Two types of participation are worth considering, namely that of credit institutions and that of ancillary systems:

- By June 2008, 784 direct participants had opened an RTGS account on the SSP. This figure is slightly lower than the 1,072 direct participants in TARGET1 at the start of the migration. Two main factors explain this difference. First, a number of credit institutions reconsidered their participation as direct participant at the time of their migration and opted, for instance, to connect indirectly via a direct participant. Second, TARGET2 created strong incentives for the banks to rationalise their euro liquidity management and to centralise it in fewer RTGS accounts. This is particularly true for multi-country banks, whose liquidity used to be fragmented across several accounts in TARGET1. In November 2007 there were still 16 multi-country banks holding five accounts or more in the different TARGET1 components. At the end of the migration, only three of them had kept more than five accounts on the SSP. It is expected that the number of direct participants will increase in the coming years as a result of the progressive phasing-out of PHAs by 2011 (e.g. Portugal in March 2009) and also of the connection of new banking communities (e.g. Slovakia in January 2009).
- Out of the 66 ancillary systems settling in TARGET2, 51 are registered on the SSP; the remaining 15 systems are still connected to one of the PHAs. For ancillary systems as well, the number of connections to the SSP will continue to increase. The phasing-out of PHAs has already been initiated and, in the coming months, systems like Euroclear Belgium (via the Nationale Bank van België/Banque Nationale de Belgique), EUREX Clearing AG (via the Deutsche Bundesbank), and SICOI and SITEME (via the Banco do Portugal) will be settling on the SSP. Moreover, new ancillary systems

will join TARGET2, such as STEP2 and MasterCard Europe (via the ECB) or EURO SIPS, CDCP and First Data Slovakia (via the Národná banka Slovenska).

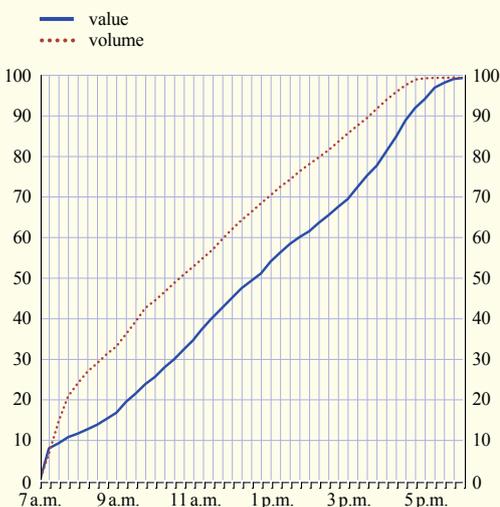
The analysis of the different participation types confirms the Eurosystem's expectations and shows a significant potential for TARGET2 to attract new participants in the coming years.

## PARTICIPANTS' BEHAVIOUR

The analysis of intraday flows in TARGET2 shows that participants continue to make payments early in the day, hence providing the interbank market with sufficient liquidity and ensuring the coverage of subsequent payments. By 1 p.m. around half of the daily turnover is already settled and by 5 p.m. this proportion reaches 90%. These observations are very similar to those made for TARGET1. They show that the liquidity flow in TARGET2 has neither been affected by the recent financial turmoil, nor by the new liquidity saving features available on the SSP, such as the bilateral/multilateral limits or liquidity reservations (see Chart 3).

Chart 3 Intraday pattern of TARGET2 payments, cumulative

(June 2008; percentages)



Source: ECB.

In volume terms, the same observations can be made. More than 50% of the volume is normally processed in the first four hours of operation (between 7 a.m. and 11 a.m.) and by 3 p.m. almost five out of six payments have been processed. The daily peak hour is traditionally between 7 a.m. and 8 a.m., when a daily average of nearly 100,000 transactions are remitted and settled. Most of these are low-value payments which banks submit on the previous day and are released by the system the following morning.

### SYSTEM PERFORMANCE

Since the start of operations, the availability of the SSP reached 99.9%. For 99.8% of the payments processed on the RTGS accounts, the transit time was less than five minutes. Only one incident with a limited business impact was encountered on 30 June 2008. The feedback of TARGET2 users on the system's performance is in general very positive.

On 30 June 2008, TARGET2 reached a historical peak of 566,549 transactions. The SSP alone settled more than 500,000 payments, which is the all-time high for the system since its launch in November 2007. This very high level of traffic, due to end-of-quarter/semester activities, represents an increase of 50% over the average daily volume. Overall, the system's performance has been satisfactory since the start of the migration phase.

### USAGE OF NEW FEATURES

Among the various new features offered by the SSP, it is worth starting with the most elaborate ones, namely the ancillary system interface (ASI) and the liquidity pooling.

- The ASI is the harmonised technical interface offered to ancillary systems for their settlement activities in TARGET2. This optional feature has already been chosen by around half of the systems settling in TARGET2 and has received very positive feedback from both these systems and their settlement banks. The usage of the ASI is

expected to develop further in the years to come when all ancillary system transactions today settling on the local PHAs are shifted to the SSP. This will contribute to the harmonisation of the settlement procedures across the user community.

- By June 2008, 17 groups of accounts combining 66 accounts altogether had been created on the SSP in order to benefit from the liquidity pooling feature. This is less than anticipated by the Eurosystem, which expected up to twice as many. This assumption was made during the project phase on the basis of users' feedback, which clearly indicated that the liquidity pooling feature was indispensable and would be widely subscribed to by participants. As an alternative to this feature, it seems that a majority of banks (especially multi-country banks) opted for the internal consolidation of their payments flow and liquidity management rather than for the sharing of the liquidity across several accounts in TARGET2.

As regards the other features (e.g. payment prioritisation, liquidity reservation, direct debit), the first observations confirm that they have been adopted quickly by a wide range of participants and that their usage contributes to a smoother settlement of TARGET2 transactions. In general, the usage of the new features confirms the adequacy of the TARGET2 specifications with regard to the participants' expectations.

### TRANSITION PHASE

Out of the 21 central banks connected to TARGET2, in practice, only 12 of them chose to keep a local PHA. 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). In June 2008 the volume of TARGET2 transactions settled on the local PHAs was very limited and only accounted for around 3% of the total TARGET2 traffic. This percentage is expected to decrease further in the coming months as two

countries have already taken action to shift all their payment activities to the SSP well before the end of the transition period (Portugal in March 2009 and Belgium in June 2009). The Eurosystem policy on local PHAs had little effect on overall TARGET2 activity and this effect is expected to decrease in the months to come.

#### TARGET2 REVENUES

The new pricing policy for TARGET2 entered into force after the migration of the last country wave on 19 May 2008. While it is premature to draw conclusions about the system's cost recovery, the collection of the first TARGET2 revenues is roughly in line with the Eurosystem's expectations.

The SSP alone is generating more than 96% of the revenues, while the local PHAs bring in the remaining part. This is roughly in line with the distribution of transactions as the SSP contributes to the overall TARGET2 traffic in the same proportion.

85% of the direct participants in the SSP opted for the flat fee option (option A), while 15% opted for the degressive fee option (option B). Still, this last category of participants generates around 90% of the traffic on the SSP, hence confirming the high concentration of activity around the key users. As a result of the contribution of the biggest participants, around one-quarter of the SSP transactions benefited from the lowest pricing band at €0.125.

The transactions exchanged between credit institutions generate around 90% of the TARGET2 volume, the remaining 10% being attributable to ancillary system transactions. When considering the TARGET2 revenues, credit institutions and ancillary systems roughly contribute in the same proportion. This tends to confirm that the Eurosystem has found the right balance in its pricing policy between interbank and ancillary system transactions based on system usage.

If the currently observed trend in TARGET2 traffic is confirmed, the traffic for 2008 should be around 96 million transactions, while a minimum of 93.1 million was required to recover the costs for the core TARGET2 services. Although this forecast should be treated with caution, it is a positive sign for TARGET2 and for its participants.

Overall, the first analysis of TARGET2 revenues tends to confirm that the pricing policy met its objectives to ensure broad access to the system and to be attractive to the major players.

#### 4 CONCLUSION

After the four-year project phase, TARGET2 went live as scheduled on 19 November 2007 and the migration phase was completed on 19 May 2008. The data collected after the first few weeks of TARGET2 operations confirm most of the Eurosystem's forecasts during the project phase in terms of volume, cost and revenues. The Single Shared Platform is operating smoothly with a satisfactory level of performance. Participants are quickly becoming acquainted with TARGET2 and with its liquidity-saving features. The transition phase, at the end of which all eligible TARGET2 payment activities should have been shifted from local systems to the SSP, has already started.