



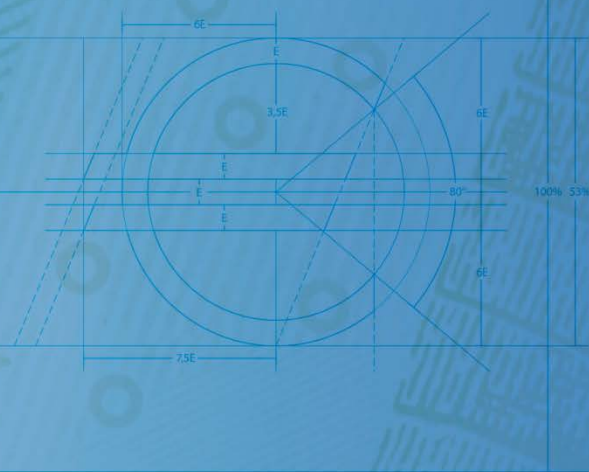
EUROPEAN CENTRAL BANK

EUROSYSTEM

TARGET Annual Report

2015

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Introduction

Market infrastructures constitute one of the three core components of the financial system, together with markets and institutions. The market infrastructure for payments¹ consists of the set of instruments, networks, rules, procedures and institutions that ensure the circulation of money. The principal objective of this segment of the financial system is to facilitate the execution of transactions between economic agents and to support the efficient allocation of resources in the economy.

The Eurosystem has the statutory task of promoting the smooth operation of payment systems. This is crucial for a sound currency, for the conduct of monetary policy, for the functioning of financial markets, and for supporting financial stability. A key instrument which the Eurosystem uses for carrying out this task² is the provision of payment settlement facilities. To this end, the Eurosystem operates the TARGET2 system, the second-generation Trans-European Automated Real-time Gross settlement Express Transfer system³ for the euro.

In May 2008 TARGET2 replaced the first-generation system, TARGET, which was created in 1999 by the Eurosystem for the settlement of large-value payments in euro, offering a central bank payment service across 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 a real-time gross settlement (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.

Similarly to its predecessor, TARGET2 is used for the settlement of payments connected with monetary policy operations, of interbank payments, and of transactions related to other payment and securities settlement systems (i.e. ancillary systems). As TARGET2 provides intraday finality, i.e. settlement is final for

¹ A payment is defined as the process by which cash, deposit claims or other monetary instruments are transferred between economic agents.

² The Eurosystem fulfils this task by:

- providing payment and securities settlement facilities (TARGET2 and T2S) as well as a mechanism for the cross-border use of collateral (the correspondent central banking model (CCBM));
- overseeing the euro payment and settlement systems;
- setting standards for the use of securities clearing and settlement systems;
- acting as a catalyst for change (e.g. promoting the SEPA initiative).

³ A real-time gross settlement (RTGS) 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 successor TARGET2 are examples of RTGS systems.

the receiving participant once the funds have been credited, it is possible to reuse these funds several times a day. Since June 2015 TARGET2 participants have also been able to open dedicated cash accounts on the TARGET2-Securities (T2S) platform⁴, which they can use to settle their securities transactions.

TARGET2 offers harmonised services at the EU level and a single pricing structure. It provides ancillary systems with a harmonised set of cash settlement services and supports its users with enhanced liquidity management tools. In this manner, it contributes to financial integration, financial stability and liquidity efficiency in the euro area.

TARGET2 is accessible to a large number of participants. More than 1,700 credit institutions in Europe use TARGET2 to make payments on their own behalf, on behalf of other (indirect) participants or on their customers' behalf. Taking into account branches and subsidiaries, more than 55,000 banks worldwide (and thus all of the customers of these banks) can be reached via TARGET2.

The report and its structure

This report is the sixteenth edition of the TARGET Annual Report. The first edition was published in 2000, covering TARGET's first year of operation (1999). As in previous years, the report presents the main facts relating to the TARGET system, taking into account the developments which took place in TARGET2 in the course of 2015. The report is mainly addressed to decision-makers, practitioners, lawyers and academics wishing to acquire an in-depth understanding of TARGET2. It will hopefully also appeal to students with an interest in market infrastructure issues and TARGET2 in particular.

The report provides information on TARGET2 traffic, its performance and the main developments that took place in 2015. Annex 1 provides a general overview of the TARGET2 system. The report is complemented by other annexes that present details of the main features of TARGET2, a chronology of developments in TARGET/TARGET2, a list of general terms and abbreviations, and a glossary.

In addition to the core content, the report includes four boxes, providing detailed information on topics of particular relevance in 2015 or an in-depth analysis of a specific TARGET2 feature. The boxes focus, respectively, on the evolution of traffic in TARGET2, the velocity of money circulation in the system, TARGET2 network coverage and cash aspects of TARGET2 and T2S. In the report, 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).

⁴ For further information, see <http://www.ecb.europa.eu/paym/t2s/html/index.en.html>

Note

Please note that liquidity transfers between TARGET2 and T2S dedicated cash accounts are not included when calculating the TARGET2 indicators presented in this report.

Despite the fact that dedicated cash accounts are legally part of TARGET2, these (technical) transactions are excluded from the calculations in order to prevent the system's indicators being artificially inflated and to make the figures more easily comparable from year to year. Nevertheless, as a matter of transparency, some general (cash-based) statistics on dedicated cash accounts are provided in a separate box.

TARGET2 activity in 2015

In 2015 TARGET2 confirmed its leading position in the European landscape, processing 91% of the total value settled by large-value payment systems in euro, and in the world as one of the biggest payment systems. Compared with the previous year, the total turnover processed decreased by 4.6% and amounted to almost €470 trillion. The total volume of payments decreased by a similar amount as in the previous year: by 2.6% to 87,994,541 transactions. Both decreases observed in 2015 can be largely attributed to the launch of T2S in June 2015 (see Box 1).

The availability of TARGET2's "Single Shared Platform" (SSP) stood at 99.98% in 2015, marginally lower than in the previous year, when 100% availability was achieved. Finally, the highest daily turnover during the year was registered on 27 February, with a total value of €2,635 billion, and the highest daily payments volume was recorded on 7 April 2015, when 512,422 transactions were processed.

1 Evolution of TARGET2 traffic

Table 1
Evolution of TARGET2 traffic

	Value (EUR billions)			Volume (number of transactions)		
	2014	2015	Change (%)	2014	2015	Change (%)
TARGET2 overall						
Total	492,432	469,796	-4.6%	90,337,036	87,994,541	-2.6%
Daily average	1,931	1,835		354,263	343,729	

Source: ECB

Note: There were 255 operating days in 2014 and 256 in 2015.

1.1 TARGET2 turnover

TARGET2 turnover in 2015 amounted to a total value of €469.8 trillion, corresponding to a daily average of €1.8 trillion. Chart 1 shows the evolution of TARGET2 traffic over the last seven years. In the period between 2009 and 2012, TARGET2 settlement volumes steadily recovered after the decrease caused by the financial crisis, with an annual growth rate ranging from 7% to 3%. The observed sudden drop in 2013, by 22%, was mainly due to a change in the statistical methodology. This change involved some transactions ceasing to be included in the aggregate representing the turnover.⁵ In 2015, after two years of stable figures, TARGET2 turnover decreased by 4.6% in relation to the previous year, reaching its lowest historical levels.

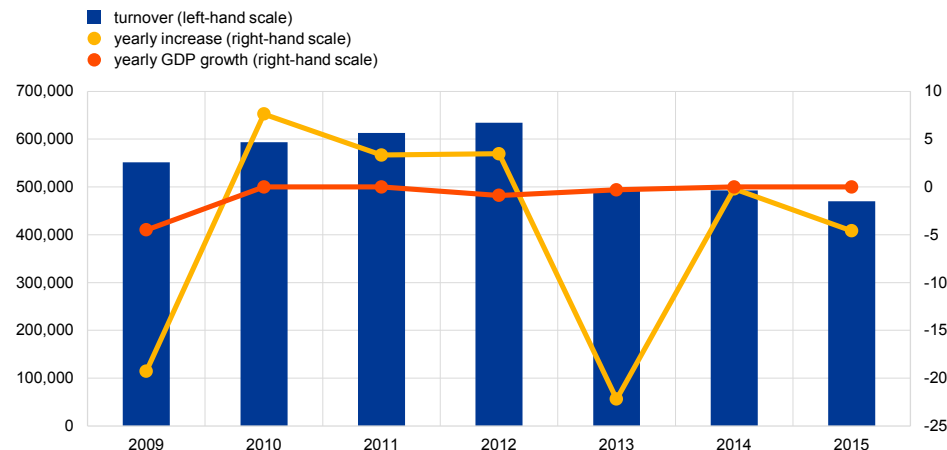
⁵ See the box entitled "Changes to the statistical framework of TARGET2", *TARGET Annual Report 2013*, ECB, May 2014.

The drop in total TARGET2 turnover observed in 2015 was related to the launch of T2S, and more specifically to the first wave of central securities depositories (CSDs)⁶ migrating to the new platform. As a consequence of this migration, final settlement of transactions relating to CSDs is no longer carried out on the RTGS accounts of their participants in TARGET2. Instead, it takes place via the dedicated cash accounts held in T2S. The magnitude of the drop largely corresponds to the turnover that the migrated CSDs used to generate in TARGET2.⁷ This means that, without the launch of T2S, the turnover of TARGET2 in 2015 would have remained around the levels observed in 2014. In terms of geographical distribution, it is worth noting that turnover mainly decreased in the Italian and French component of TARGET2. These drops were predominantly driven by the shift of the Italian securities business to T2S. In terms of categories of transactions, it is therefore no surprise that the decrease mainly affects the settlement of ancillary system payments (see Section 1.6).

The negative trend in turnover registered in 2015 was further exacerbated by low growth in euro area GDP over the last year. Since the values settled in TARGET2 broadly mirror the developments in euro area economic activity, the performance of the European economy was not sufficient to offset the decrease stemming from the launch of T2S.

Chart 1
TARGET2 turnover

(primary axis: EUR billions, secondary axis: percentage)



Interbank transactions (transactions exclusively involving credit institutions) accounted for 92% of the total value generated by payments between market participants in 2015, whereas the remaining share was composed of customer transactions (i.e. transactions processed on behalf of a non-bank party, be it an

⁶ The first wave was made up of the following five CSDs: Bank of Greece Securities Settlement System (BOGS), Depozitarul Central (Romania), Malta Stock Exchange, Monte Titoli (Italy) and SIX SIS (Switzerland).

⁷ Out of the five CSDs in the first migration wave, three previously settled their participants' cash obligations in TARGET2: Bank of Greece Securities Settlement System (BOGS), Malta Stock Exchange and Monte Titoli (Italy).

individual or a corporate). This distribution is largely similar to the one recorded in 2014.

A comparison of the TARGET2 turnover and the euro area's annual GDP (€10,396 billion) shows that TARGET2 settles the equivalent of the annual GDP in around five days of operations. This indicates the role and efficiency of TARGET2, 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 by several TARGET2 participants within the same day. For more information, please read box 2 on page 25.

Chart 2 depicts the average daily turnover generated in TARGET2 for each month in 2014 and 2015. While the general pattern for both years is relatively similar, recorded values are significantly lower during the second quarter and from September onwards. The difference observed during the second quarter is mainly attributable to the relative decrease in the value of the operations with central banks, compared with the year before. Thus, it is not the result of negative changes in 2015, but of higher values for these transactions recorded until mid-2014. More specifically, the changes in the Eurosystem's monetary operations⁸ initiated in the middle of 2014 led to the sudden drop in the values of transactions with central banks.

The second deviation, observed as of September 2015, is linked to the launch of the T2S platform (see above) and in particular to the migration of the Italian market (the largest of the five) which took place on 31 August 2015.

Chart 2
Average daily TARGET2 turnover

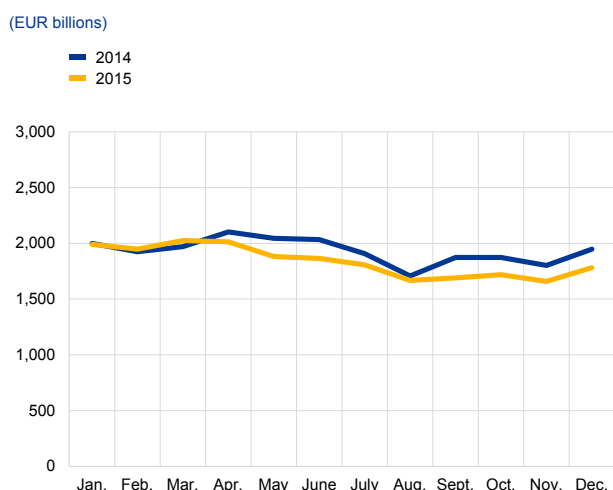
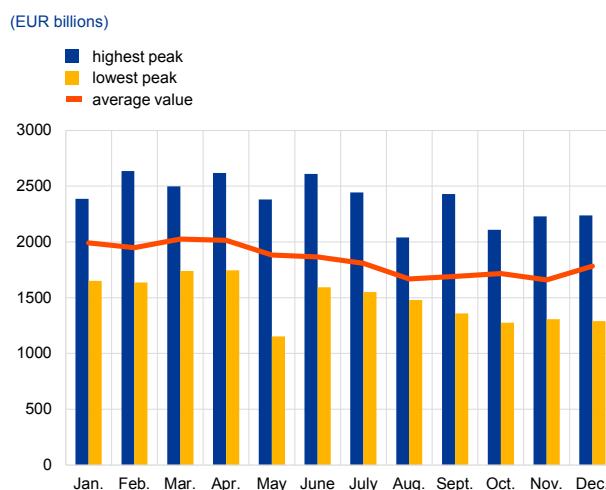


Chart 3
Monthly peaks, troughs and averages of TARGET2 daily values in 2015



⁸ The extended maturity of refinancing operations and asset purchase programmes played a role in limiting TARGET2 turnover because the frequency with which these amounts were settled decreased.

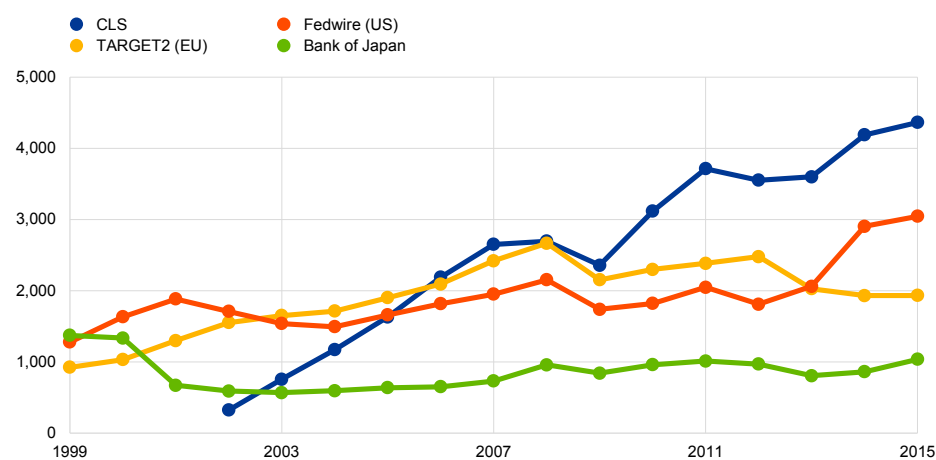
Chart 3 displays the highest and lowest daily TARGET2 values for each month of 2015, as well as the average daily values for each month. Usually, the days with the highest peaks are at quarter ends, typically on the last day of the month, owing to reimbursements and due dates in various financial markets. Finally, in 2015, the day with the largest turnover of the year, with a total value of €2,635 billion, was the last working day of February (27 February).

Throughout 2015, the seasonality of TARGET2 turnover, expressed by the difference between the highest and the lowest value, was 56%, in line with the 57% recorded the year before. Interestingly, despite the fact that average values decreased towards the end of the year, both the highest and lowest values were recorded in the first half of 2015.

Peaks and troughs in the system's values can also be influenced by other factors, such as TARGET2 holidays or the end of reserve maintenance periods. For example, the lowest values are typically observed on days that are national holidays in some Member States, such as Ascension Day in May, or during the summer holidays.

Chart 4

Average daily turnover settled by the major large-value payment systems around the globe (EUR billions)



Finally, Chart 4 provides a comparison of traffic developments in the major payment systems in the world. In particular, it depicts the daily average turnover in euro equivalents for the last 17 years of TARGET2, Continuous Linked Settlement (CLS), Fedwire Funds (the USD-denominated RTGS system operated by the Federal Reserve System) and the Bank of Japan Financial Network System (BOJ NET). Some common patterns can be identified up to 2011. The comparison becomes more difficult in the years thereafter. TARGET2 was the only system whose traffic grew in 2012, but comparability for 2013 is hampered by the change in the TARGET2 statistical methodology. In 2015, while TARGET2 values decreased, in all the other payment systems they continued to increase. In particular, a sharp increase was registered in BOJ NET traffic. It should, however, be taken into account

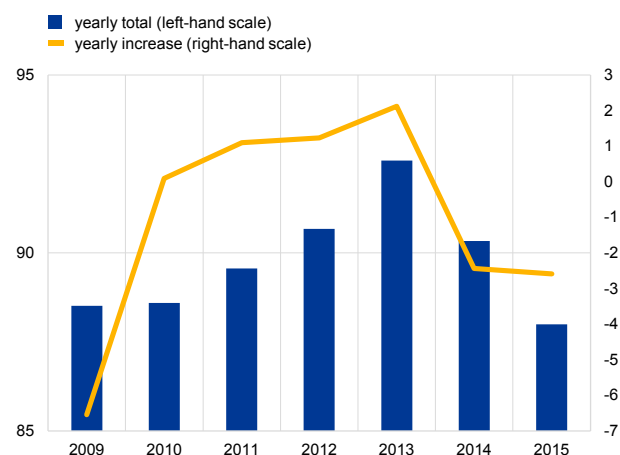
that the trends observed are also affected by fluctuations in the euro's exchange rate vis-à-vis the US dollar and Japanese yen, which distort the figures reported in Chart 4.⁹

1.2 Volume of transactions in TARGET2

The volume settled in TARGET2 in 2015 amounted to 87,994,541 transactions, corresponding to a daily average of 343,729 payments. Compared with the previous year, the overall volume decreased by 2.6%. The traffic reduction was mainly driven by two factors. The first was the further slowdown in the customer payments segment, particularly at the beginning of the year (-2% in 2015 overall). As analysed in more detail in Box 1, this factor is linked to the SEPA migration end date, the impact of which was already observed to an even greater extent in 2014. The second factor was the drop in ancillary system settlement, which was (as already explained above) linked to the migration of some CSDs to T2S. The only payment category not affected by the decrease was that of interbank payments, which grew by almost 4%. Nevertheless, this increase was not sufficient to offset the loss of volume over the same period in ancillary system and customer payments, which together represent more than 70% of TARGET2 traffic.

Chart 5
TARGET2 traffic

(primary axis: millions, secondary axis: percentages)



After having being severely hit by the financial crisis, TARGET2 traffic had been slowly recovering with a positive trend between 2010 and 2013. Although the number of transactions never reached pre-crisis levels, the system attracted around 4 million transactions more over that period. However, the decrease observed in both 2014 and 2015 reversed this trend and the traffic recorded in 2015 was the lowest ever recorded in TARGET2 since the launch of the platform in November 2007.

The Eurosystem is monitoring these developments as they may put the overall cost recovery of TARGET2 at stake. A new pricing scheme was already introduced in 2013 in order to improve cost recovery since traffic levels were well below the objectives set during the project phase. While no further action has been taken since 2013, a further decrease in TARGET2 volumes

may lead to additional adjustments to the TARGET2 cost recovery strategy. More information on the financial performance of TARGET2 is available in section 4 of this report.

⁹ Both Fedwire Funds and CLS publish their turnover in US dollars and the Bank of Japan in Japanese yen. The turnover in euro is calculated on the basis of the exchange rate of the ECB for the last business day of the year in question.

Box 1

Traffic evolution in TARGET2

In 2015 total TARGET2 traffic continued to decrease at a pace of 2.6%, similar to the rate registered in 2014. However, while the negative trend in 2014 was associated primarily with a sharp decline in customer payments, the analysis shows that in 2015 the drop in TARGET2 volumes was driven mainly by the slowdown in the number of ancillary system payments.

In total, in terms of volume, customer payments represented around 55% of all TARGET2 payments in 2015, interbank payments made up around 30% and ancillary system payments around 15%.

Chart A

TARGET2 traffic – growth rate – all payments in 2015

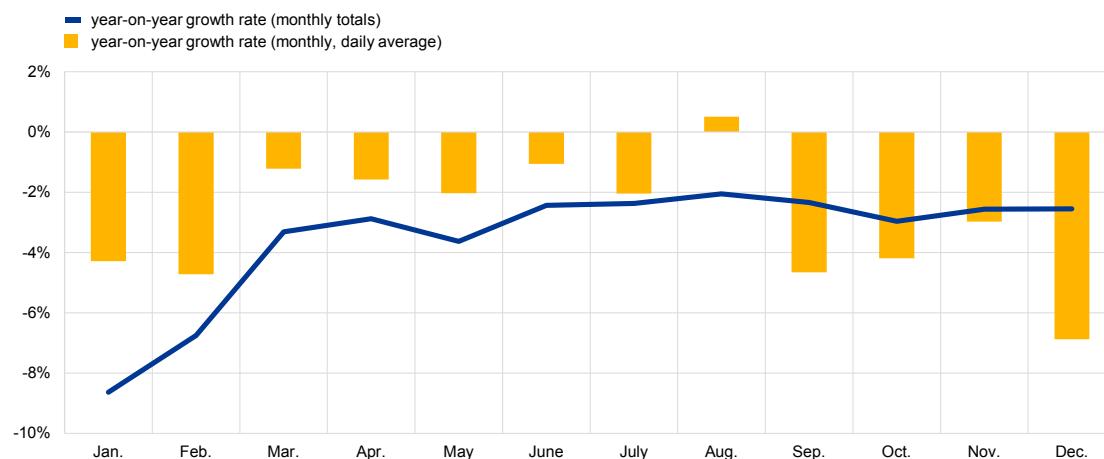


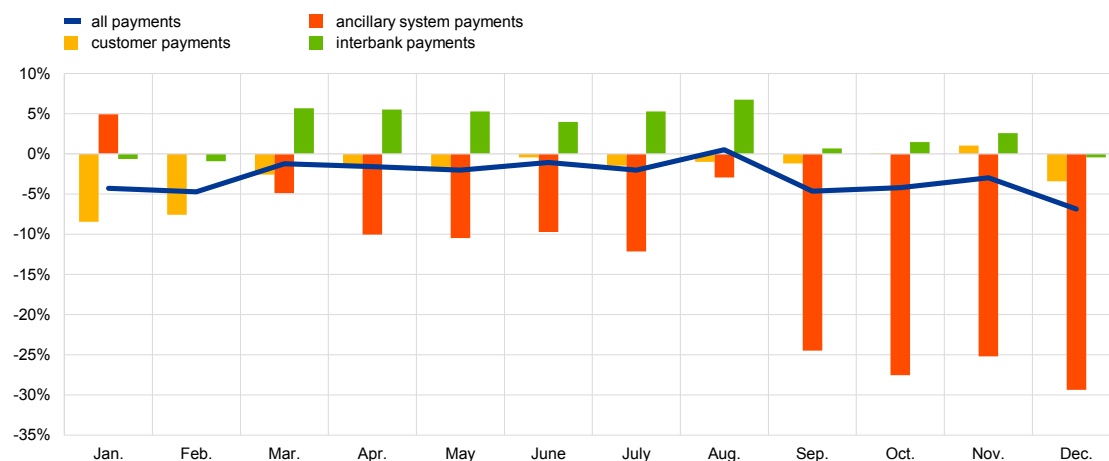
Chart A illustrates the monthly year-on-year growth rates in 2015 for overall TARGET2 volumes, both for the total monthly volumes and based on daily averages. It shows that, compared with the previous year, the traffic decrease was not homogenous throughout the year. It continued to decrease considerably during the first two months of 2015, after which negative growth rates started to reduce, until they gained momentum towards the end of the summer, with a sharp decrease in volume in September.

In total, in 2015 the average daily volumes of customer payments declined by 2% and those of ancillary system payments by more than 12%. Interbank traffic, after decreasing in 2014, increased in 2015 by almost 4%, recording significant growth between March and August.

The reasons for this trend are explained in Chart B. The first factor, mainly affecting the first half of the year, reflects the changes in the customer payment segment. The second, mainly determining the changes in the second half, is related to ancillary system transactions.

Chart B**TARGET2 traffic growth rate per payment category**

(percentage-difference compared with 2014)



- The decrease in TARGET2 volumes at the beginning of 2015 can be attributed to the customer payments segment, which registered a drop of around 8% both in January and February as a continued effect of the migration to SEPA. This could not be offset by the increased volumes attributable to other payment types during this period. As explained in the [TARGET Annual Report 2014](#), this development is considered to be the indirect consequence of the completion of banks' migration to SEPA. A large number of TARGET2 participants seem to have revised their rules which decide whether a payment is sent via TARGET2 or elsewhere. However, growth rates started to stabilise at the end of the first quarter and even turned positive after the summer. The drop in December is mainly attributable to seasonal factors. This tends to confirm that the decrease in the customer payment segments was a one-off (downward) adjustment of TARGET2 traffic rather than an ongoing negative trend. Compared with the level of traffic recorded in 2013, it can be estimated that TARGET2 processed around 5.7 million fewer customer transactions as a result of this adjustment.
- As of September 2015, ancillary system traffic started to decrease at considerable rates owing to the migration to T2S. This effect is mostly attributable to Monte Titoli, the Italian securities settlement system, whose migration led to a decrease of around 25% in the volumes settled by ancillary systems. That translates into a loss of 13,500 transactions per day vis-à-vis September 2014. Solely in Italy, the number of transactions decreased by 84.5%, which equates to 10,000 fewer transactions per day compared with the previous September. Owing to the fact that the migrated securities settlement system also offers its services to French market participants, as of September, the volume of ancillary system payments in France fell by 73% compared to year before (the loss, on average, of 3,500 transactions per day). Overall, for the whole of 2015, out of the four biggest contributors to the volume of payments settled in this category, only in Germany and Spain did traffic remain stable at the levels registered in 2014, while in both Italy and France it dropped dramatically, by more than 30%.

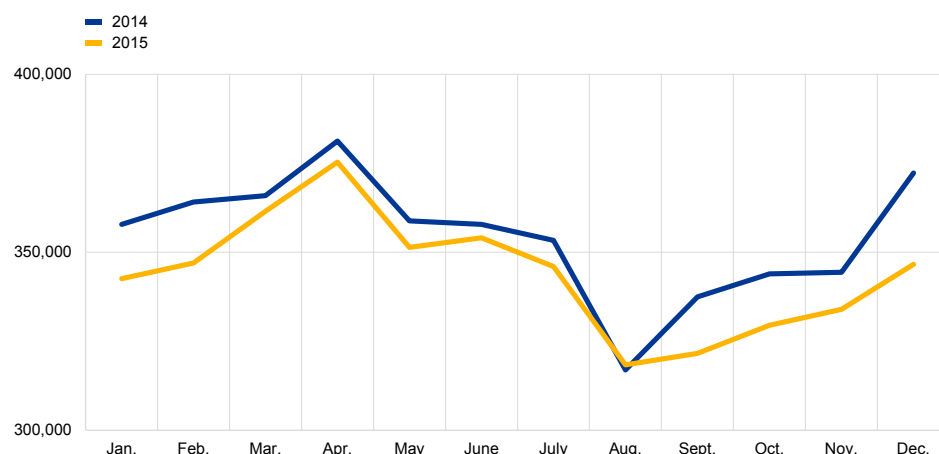
It is expected that, in the absence of significant growth in other payment categories, completion of the migration to T2S will further decrease the number of ancillary system payments, ultimately leading to an overall decrease of around 8% in TARGET2 traffic between 2015 and 2017. As

explained in Section 4, the Eurosystem has already accounted for this decrease in volume (and corresponding revenues) in full in its cost recovery projections for TARGET2.

In 2015 the average daily volumes in TARGET2 calculated on a monthly basis were largely below the levels registered in 2014 (Chart 6). Only in August was the daily average volume close to the 2014 figures. In December the difference between 2014 and 2015 levels increased to 7%. As explained in Box 1, this development was driven by a sharp decrease in ancillary system transactions as well as in the lower number of customer payments at the beginning of 2015. Overall, the seasonal pattern remained rather similar to the previous year and was again more pronounced than for TARGET2 values. However, seasonal peaks in average volumes recorded in September and December were significantly less pronounced in 2015 than in previous years.

Chart 6

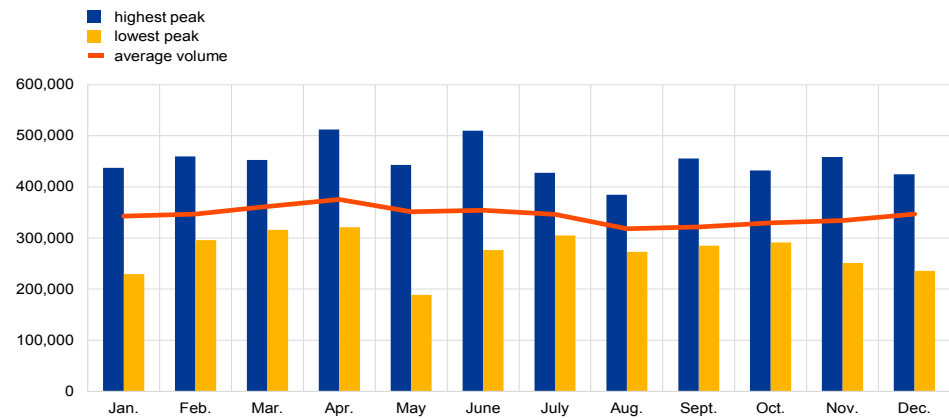
Average daily TARGET2 volumes per month



Similarly to last year, the highest average daily volume was in April. In 2015 this did not coincide with highest daily average value, which was registered in March.

Chart 7

Monthly peaks, troughs and averages of TARGET2 daily volumes in 2015



Source: ECB

Chart 7 depicts the peaks and troughs in terms of daily volume on the SSP in 2015 and the average daily volume for each month. As already observed in the value-based figures, the peaks typically fall on the last day of the month, and are especially pronounced at the end of the quarter for the same reasons (i.e. deadlines in financial markets or for corporate business). In 2015 the highest daily volume was registered on 7 April (first working day after the Easter holidays), when 512,422 transactions were processed. The lowest daily volume was recorded on 28 May (188,540 transaction), which was a public holiday in many European countries (Whit Monday).

Chart 8

TARGET2 volumes

(primary axis: in million transactions, secondary axis: percentages)

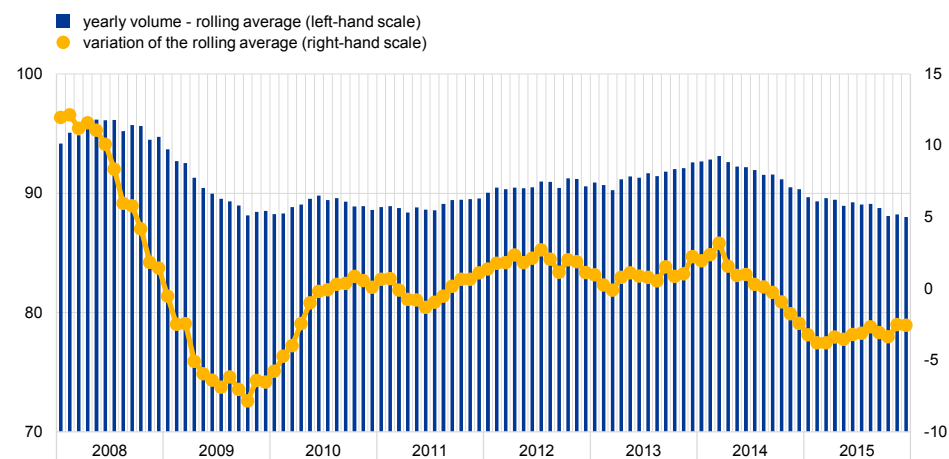


Chart 8 shows the yearly moving average of TARGET2 volumes (i.e. the cumulative volume processed in the preceding 12 months) for each month. This indicator helps to eliminate the strong seasonal pattern observed in TARGET2 traffic. The variation of this cumulative volume from one year to the next is also shown as a percentage. The chart shows that, after a year of continuous growth, the cumulative volume

started to decline in the second half of 2008 at the time when the financial crisis erupted. The number of transactions continued to drop sharply almost until the end of 2009. After that, TARGET2 volumes were roughly stable until the end of 2011. They then started to register a constant moderate growth rate until the end of the first quarter of 2014, when they reached their highest point since the crisis. Thereafter, the cumulated volume started dropping for the reasons already explained above and, in October 2014, the cumulated growth rate on a yearly basis turned negative and further decreased over 2015. At the end of the year volumes reached their lowest historical levels, even below the figures recorded directly following the financial crisis.

Chart 9

Comparison of the changes in traffic in some major large-value payment systems and SWIFT – 2014-2015

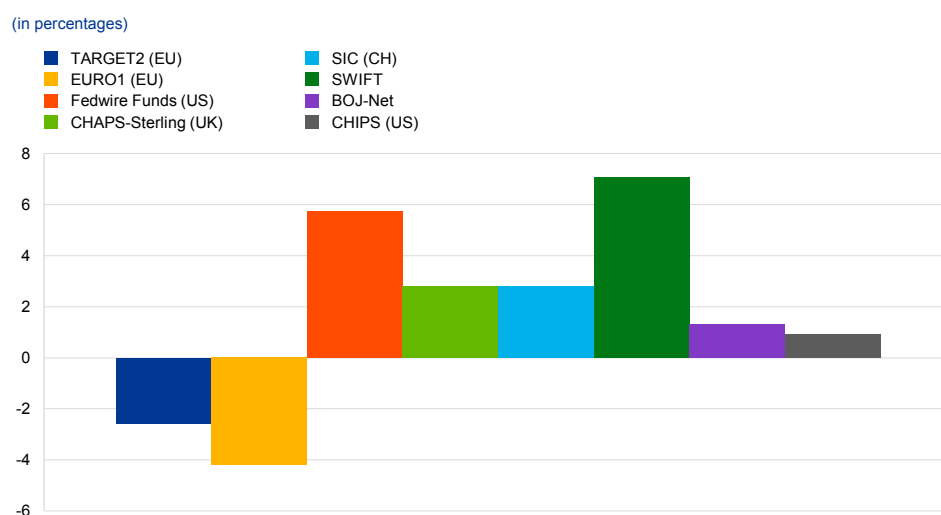


Chart 9 compares the growth rate (between 2014 and 2015) of traffic in TARGET2 with the growth rates of the major payment systems worldwide. The chart reveals that, while most of the other systems registered positive growth rates, both TARGET2 and EURO1 traffic declined over the period. The factors leading to the decrease in TARGET2 volumes have been analysed in Box 1. The decline observed for EURO1, similarly to 2014, may be attributable to the ongoing shift of traffic from large-value payment systems to automated clearing houses following the migration to SEPA. As in previous years, the most considerable increase – of more than 7% – was recorded by SWIFT. SWIFT's payment-related traffic increased in all regions, but its highest growth rate was recorded in the Asian market.

1.3 Comparison with EURO1

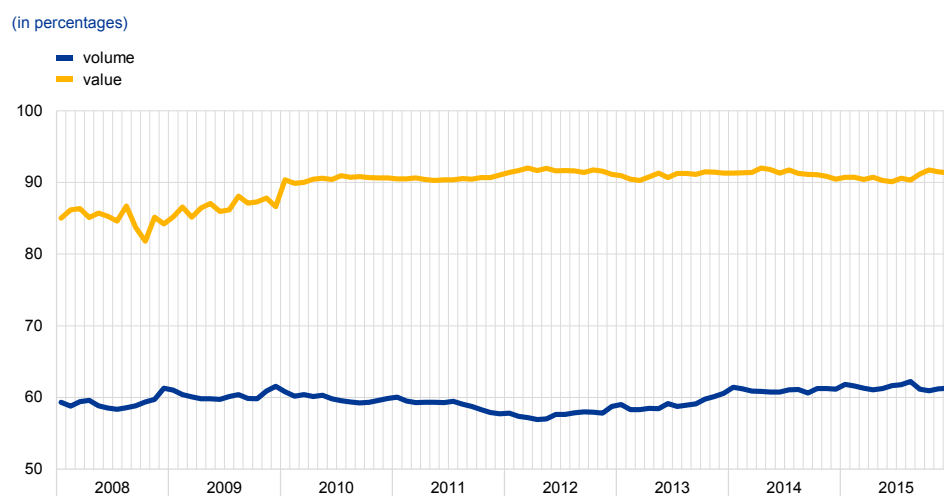
EURO1 is the only direct competitor of TARGET2 in the landscape of large-value payment systems denominated in euro. The position of TARGET2 in this landscape is therefore defined as its relative share vis-à-vis EURO1, and this is depicted in

Chart 10. The two systems are different by design, since EURO1 operates on a net settlement basis and only achieves final settlement in central bank money at the end of the day. Furthermore, they respond in part to different business cases, since only TARGET2 settles ancillary system transactions and payments related to monetary policy operations. However, the actual composition of the traffic in the two systems is largely made up of interbank and commercial payments. This helps to explain, in part, the relative share of TARGET2 vis-à-vis EURO1, as shown in Chart 10, which only takes into account these two payment categories. In 2015 TARGET2 processed 90% of the value settled by large-value payment systems in euro, slightly less than in the previous year. In terms of volume, the relative share of TARGET2 in 2015 was 61%, remaining at the same level as the year before.

When reading Chart 10, it should in any case be kept in mind that it does not provide a full picture of the banks' routing preferences vis-à-vis all systems, but only a partial picture of the market's preferences related to the settlement of large-value euro-denominated transactions. In particular, the extent to which payments are channelled through automated clearing houses or correspondent banking arrangements is not reflected in this chart.

Chart 10

Market share of volumes and values settled in TARGET2 vis-à-vis EURO1



Source: ECB.

Note: This chart is not affected by the change in the statistical methodology implemented in 2013 since the calculations are based on interbank and customer payments only, and do not include transactions with the central banks, which were the ones most affected by the methodological change.

1.4 Value of TARGET/TARGET2 payments

Chart 11 shows the evolution of the average value of a TARGET payment from 1999 until 2015. In 2015 the average value of a payment stood at €5.3 million, representing a decrease of 2% compared with the previous year. This change is partly due to the decrease in ancillary system traffic, typically characterised by high-value transactions.

Chart 11

Average value of a TARGET payment

(in EUR)

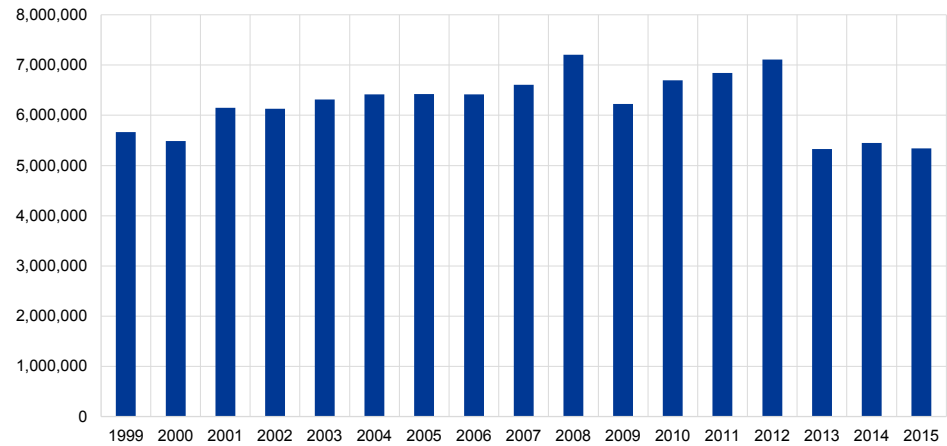
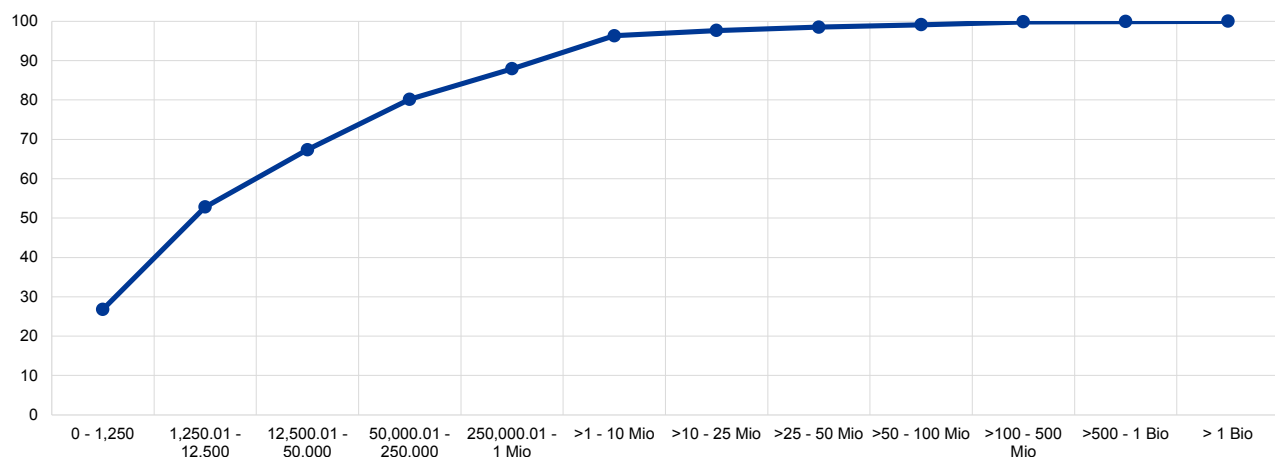


Chart 12 illustrates the distribution of TARGET2 transactions per value band, indicating the volume shares that fall below a certain threshold. The picture remained largely unchanged compared with the previous year, with only a minor decrease of 1% in the higher value band, most likely attributable to the overall decrease in ancillary system payments. Generally, more than two-thirds of all TARGET2 transactions were for values lower than €50,000 and payments in excess of €1 million accounted for 12% of traffic, 1 percentage point lower than the year before.

Chart 12

Distribution of TARGET2 transactions across value bands in 2015

(in percentages)



Source: ECB

On average, there were 195 payments per day with a value above €1 billion, which accounted for 0.1% of payment flows. From the wide distribution of transaction values, the median payment in TARGET2 is calculated as roughly €12,000, indicating that half of the transactions processed in TARGET2 every day have a

value lower than this amount. This figure, which has remained stable over recent years, confirms that TARGET2 offers a range of features attracting a high number of low-value transactions, especially of a commercial nature. Although the picture has changed slightly since the completion of the migration to SEPA, particularly as regards commercial payments, TARGET2 is still widely used for low-value payments, especially urgent customer transactions. This is also typical of other large-value payments systems worldwide.

Chart 13

Intraday pattern: Average value of a TARGET2 payment

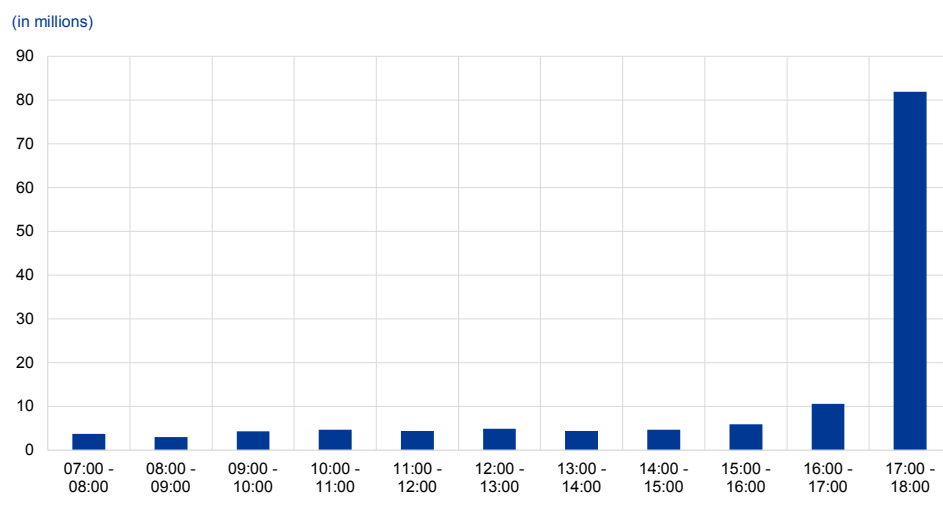


Chart 13 depicts the average value of TARGET2 payments executed at different times of the day. The chart indicates that in 2015, as in previous years, TARGET2 settlement was marked by a strong intraday pattern. After the opening of the system at 07:00 CET, the hourly average value of transactions fluctuates minimally throughout the day. Between 09:00 and 13:00 the average value slightly increases owing to the settlement of CLS transactions and other ancillary system transactions around this time. A more visible increase is registered between 16:00 and 17:00, when ancillary systems such as EURO1 settle their cash balances in TARGET2. The last hour of operations, between 17:00 and 18:00, is reserved for interbank transactions, while the cut-off time for other payment types is 17:00. The average size of payments increases dramatically over this time owing to banks squaring their balances and refinancing themselves on the money market. Compared with the previous year, the average payment value in this period increased by almost 18%, reversing the trend observed in 2014, when these values were 40% lower than in 2013.

The chart does not take into account the payments that take place before the start and after the end of the business day, since these transactions fall under night-time settlement (see Section 1.5) and relate to pure accounting, e.g. liquidity transfers from the local accounting systems of central banks and fuelling of sub-accounts, among other things.

Box 2

Velocity of money circulation in TARGET2

The velocity of money circulation in TARGET2¹⁰ is a measure of the number of times central bank money is used to settle payments within the system. In other words, it measures the number of times each euro within the system “changes hands” within a day to conduct payments. Thus, it indicates:

1. the efficiency of the system’s liquidity management functionalities;
2. the use of central bank liquidity by participants;
3. the payments pattern and possibly changing behaviour of TARGET2 participants over time.

Previous studies have already been conducted on CHAPS, the Bank of England’s RTGS system¹¹, and Fedwire Funds, the Federal Reserve System’s RTGS system¹². In both cases it was found that the recent financial and economic crises had an impact on their respective measures of the turnover ratio (referred to as velocity here).

Definition of velocity of money circulation

In the context of TARGET2, the velocity of money circulation measures the use of liquidity in TARGET2, calculated as the number of times each euro is used for conducting payments each day. Following Benos, Garratt and Zimmerman’s definition of turnover¹³, the daily measure of velocity can be defined as a ratio
$$\text{turnover}_{cs} = \frac{\sum_n \sum_t P_{nst}^{\text{out}}}{\sum_n \max\{0, \max_t \{\sum_{t \in T} (P_{nst}^{\text{out}} - P_{ncst}^{\text{in}})\}\}} \quad (1)$$
 of the sum of outgoing payments for all participants and the sum of the maximum difference between available liquidity and outgoing payments for each participant.¹⁴ The daily ratio for TARGET2 direct participants is calculated based on all payments between 07:00 and 18:00.

Chart A shows the development of velocity. The yearly average velocity in 2015 was 2.8 overall. This means that each available euro was used approximately 2.8 times per day to make payments in 2015. By contrast, the overall average velocity was 3.9 in 2011. The reduction should be seen in connection with the high level of excess liquidity within the financial system in 2015. A breakdown of the velocity by national banking community would, however, show some significant differences, which indicates that the velocity is also influenced by more local factors, such as the structure of the banking sector or market practices.

¹⁰ Note that the standard notion of the “velocity of money” as understood in monetary economics is not the meaning of velocity in this box. Rather, here velocity corresponds to the turnover ratio as defined by Benos, Garratt and Zimmerman (2012).

¹¹ Benos, Garratt and Zimmerman (2012).

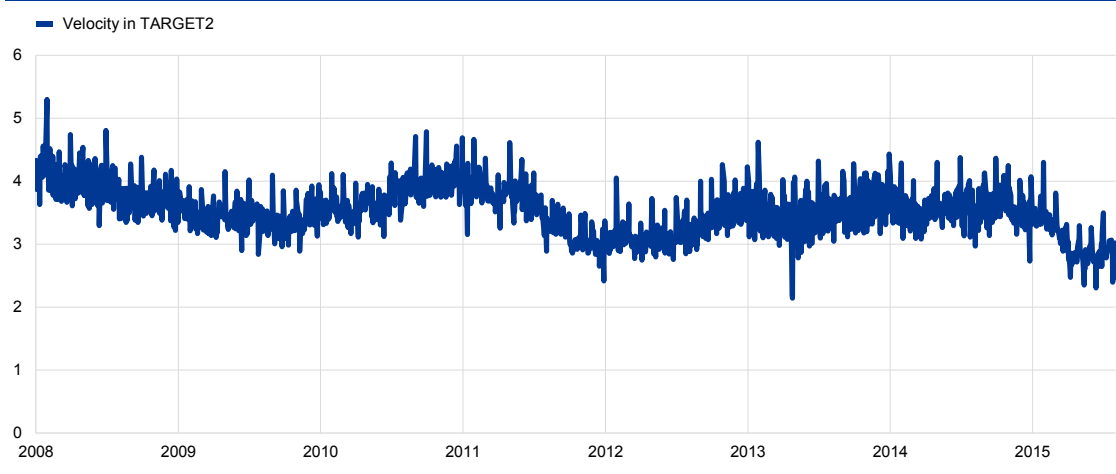
¹² Garratt, Martin, and McAndrews (2014)

¹³ op. cit.

¹⁴ Note that only payments data are used, not intraday credit lines.

Chart A

Velocity of money circulation in TARGET2, 2008-2015



The velocity measure helps to assess the overall liquidity situation and use of liquidity for payment purposes. The Eurosystem will therefore carefully monitor future developments in this indicator.

1.5 Night-time settlement in TARGET2¹⁵

TARGET2 operates during the day from 07:00 to 18:00, and also offers the possibility to settle payments during the night. While in the day trade phase the system is open to regular payments business, the night-time settlement is only for ancillary systems that connect via the Ancillary System Interface (ASI). Other operations, such as bank-to-bank transactions or customer payments, are allowed during the day only.

There are two night-time settlement windows: 19:30 to 22:00 and 01:00 to 07:00. The two windows are separated by a technical maintenance window, during which no settlement operations are allowed.

Since the system is closed during the night to any other form of payments processing, ancillary systems can take advantage of banks' stable and predictable liquidity situations, thereby settling their transactions efficiently and safely. On average, in 2015 around 16,700 payments, representing a value of €182 billion, were settled every night in TARGET2. The night-time windows are mainly used by securities settlement systems and by retail payment systems, which have shown an increasing interest in the service, as it helps the participating banks to comply with various provisions of the Payment Services Directive¹⁶.

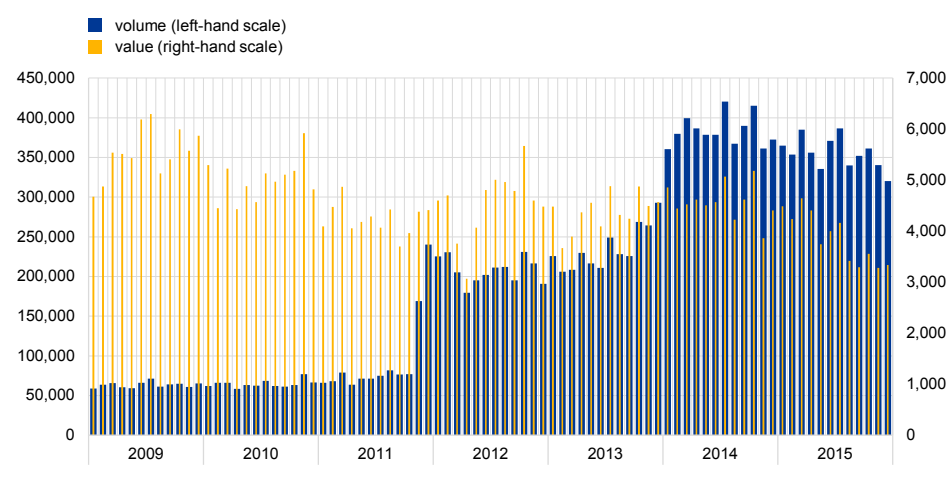
¹⁵ As explained in the disclaimer at the beginning of the chapter, the figures for night-time settlement do not include liquidity transfers with between TARGET2 and TARGET2-Securities.

¹⁶ Directive 2007/64/EC on payment services in the internal market.

Chart 14 shows how the volume and value settled in TARGET2 during the night have evolved since 2009. The increase in volume in November 2011 relates to a retail payment system in Germany starting to make use of the night-time settlement services in TARGET2. Since then, the number of payments settled during the night-time has increased steadily, notably in 2014, whereas values have remained rather stable. The trend reversed in 2015 when both night-time settlement values and volumes decreased by 15% and 7% respectively. These changes in the night-time settlement pattern can be primarily attributed to securities settlement systems migrating their operations to T2S in June 2015.

Chart 14
Night-time settlement in TARGET2

(primary axis: number in transactions; secondary axis: EUR billions)



1.6 Payment types in TARGET2

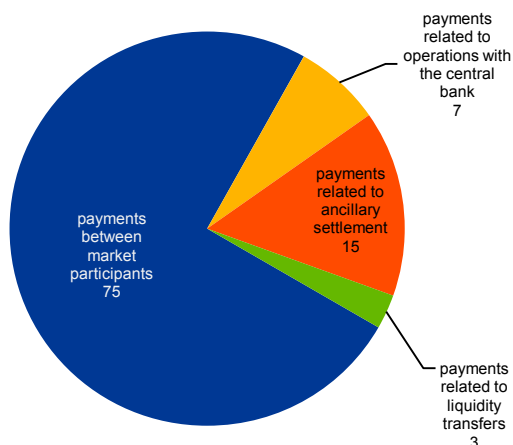
Charts 15 and 16 present the breakdown of TARGET2 volumes and turnover by type of transaction. Traffic is divided into four categories: payments to third parties (e.g. interbank transactions and customer transactions), payments related to operations with the central bank (e.g. monetary operations and cash transactions), ancillary system settlement, and liquidity transfers among participants belonging to the same group.

Three-quarters of the TARGET2 volume is made up of payments to third parties, namely interbank traffic and customer payments. This share has slightly increased compared with last year owing mainly to the drop in volume attributable to ancillary system settlement. The volume of ancillary system settlement represents 15% of the total volume, 2 percentage points lower than in 2014. 7% of the volume is generated through operations with the central bank, and the remaining share of 3% is linked to liquidity transfers. The latter two figures are both unchanged compared with the previous year.

Chart 15

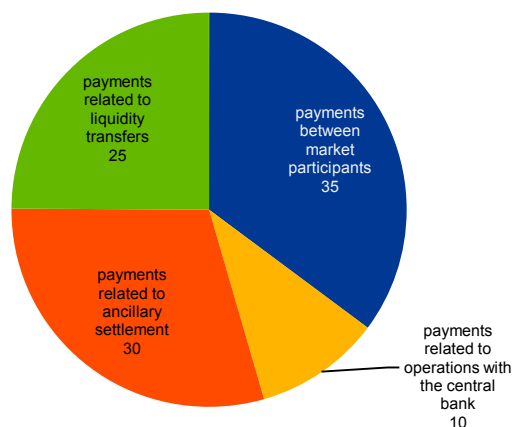
Breakdown of TARGET2 volumes in 2015

(in percentages)

**Chart 16**

Breakdown of TARGET2 turnover in 2015

(in percentages)



As regards turnover, the composition is visibly different, as payments between participants represent only one-third of the total value. The second highest share is represented by payments related to ancillary system settlement, which decreased by 2 percentage points, compared with the previous year as a consequence of the lower volumes and values settled by securities settlement systems. The payments related to liquidity transfers (25%) and to operations with central banks (10%) remained largely unchanged in 2015.

The difference between the volume-based and value-based indicators across payment categories stems from the fact that the average sums involved in monetary policy transactions, ancillary system instructions and liquidity transfers are much larger than payments to third parties.

1.7

The use of prioritisation

Among the features of TARGET2 that help participants optimise their use of liquidity are the priority options. These allow participants to reserve a certain amount of liquidity for specific payment categories. When submitting payments in TARGET2, participants can assign them a certain priority: “normal”, “urgent” or “highly urgent”. In general, payments are settled immediately on a “first in, first out” (FIFO) basis, as long as sufficient liquidity is available in the participant’s RTGS account. However, if this is not the case, payments which cannot be settled immediately are queued according to their priority. Participants can reserve a determined amount of their liquidity for each priority class, and less urgent payments are made when the excess liquidity is sufficient. This is a way of securing liquidity for more urgent payments. The priorities for pending transactions can be changed at any time via the information and control module.

Chart 17**Use of priorities in TARGET2 in 2015**

(in percentages)

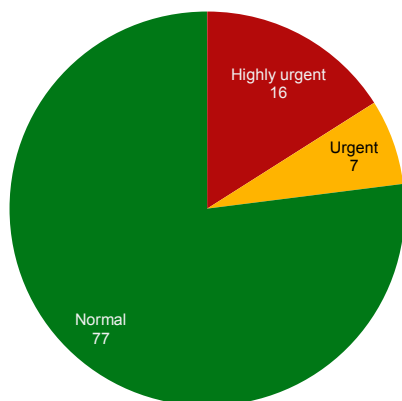


Chart 17 gives an overview of the use of priorities in TARGET2 in 2015 in terms of the overall TARGET2 volume. It shows that more than three-quarters of transactions were assigned normal priority, while only 7% and 16% were urgent and highly urgent, respectively. The distribution of the use of the priorities when submitting payments to TARGET2 has remained stable over the years and participants acknowledge the benefits of this feature, which helps them to manage their liquidity.

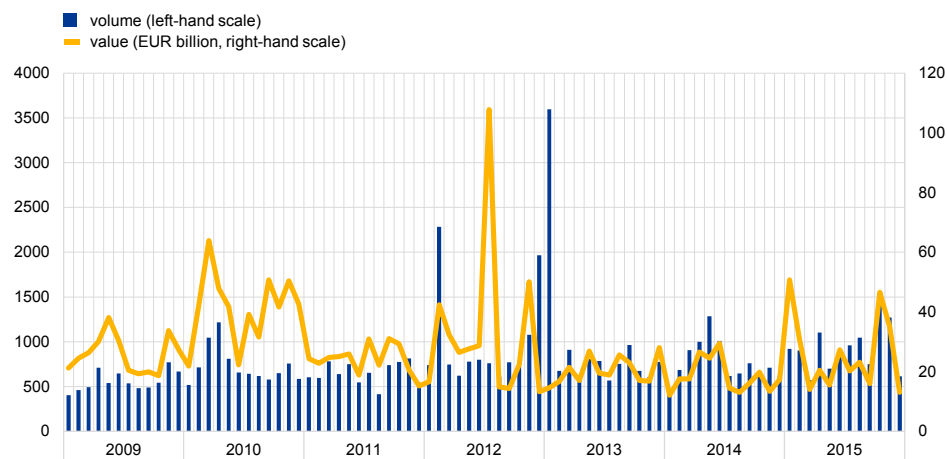
1.8 Non-settled payments

Non-settled payments in TARGET2 are transactions that are not processed by the end of the business day owing to a lack of funds in the account to be debited or as a result of the sender's limit being breached, and are

ultimately rejected. Chart 18 shows the evolution of the daily average of non-settled payments on a monthly basis between 2009 and 2015 in terms of both volume and value. The average daily number of non-settled transactions in 2015 was 932, 20% higher than the figure registered for the previous year, which was mainly driven by a peak in October. The average daily value of non-settled payments, owing to sharp increases in January and October 2015, was up by 44% and amounted to €26 billion. In both cases the rejections were caused by an error on the side of the ancillary system settling its transactions in TARGET2. Overall, non-settled payments in 2015 represented 2% of the total daily volume and 1.45% of the total daily turnover in TARGET2. The levels can be considered low and confirm that the distribution of liquidity across participants was appropriate throughout that period.

Chart 18**Non-settled payments in TARGET2**

(primary axis: number in transactions; secondary axis: EUR billions)



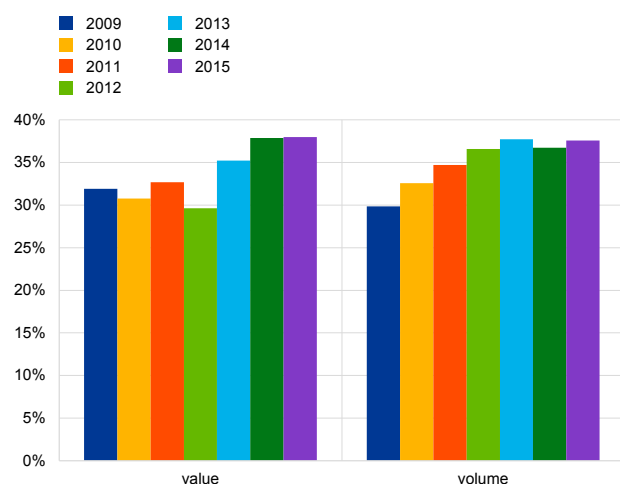
Further studies conducted on the use of credit lines in TARGET2 revealed that participants do indeed rely mainly on the liquidity available on the account to settle payments, while less than 20% of turnover on average is settled through recourse to credit lines. This explains why the level of non-settled payments in TARGET2 is so low.

1.9 Share of inter-Member State traffic

The share of inter-Member State traffic in TARGET2 indicates the percentage of traffic that is exchanged between participants belonging to different banking communities. Chart 19 shows that, in 2015, this share amounted to 38% both in value and in volume, remaining at almost the same levels as in the previous year. Since 2009 though, there has been a positive trend in both volume and value-based indicators, reflecting the increasing level of financial integration in the large-value payment segment, largely supported by TARGET2.

When analysing this data, it should be kept in mind that whether a payment is sent or received by a given banking community may have more to do with the bank's internal organisation than the real geographical anchorage. For example, a subsidiary of a French bank, located in Italy, owing to its internal organisation, may send TARGET2 payments to another bank, also located in Italy, via its headquarters established in France. In such a case, despite the fact the payment is taking place between two entities located in the same country, the payment flow will be considered to be a cross-border one.

Chart 19
Share of inter-Member State traffic in TARGET2



The inter-Member State payments shown in Chart 19 were identified based on the national banking communities of the sending and receiving direct participants on the platform. Since it is also possible to connect remotely to TARGET2, e.g. as an indirect participant or addressable BIC, the evolution of the cross-border share in volume terms was also computed on the basis of the originator and beneficiary of the payment, taking into account the full payment chain information (i.e. originator, sending settlement bank, receiving settlement bank, beneficiary). When calculating the inter-Member State shares based on the originator and beneficiary of the payment, the share of cross-border payments in 2015 amounted to 22% in value terms and 49% in volume terms. Therefore, taking into account the full payment chain leads to a higher cross-border share in volume and a lower share in value, indicating that the average value of a cross-

border payment when taking the originator and beneficiary into account is lower than the one taking only the sending and receiving direct participants into account.

1.10 Tiering in TARGET2

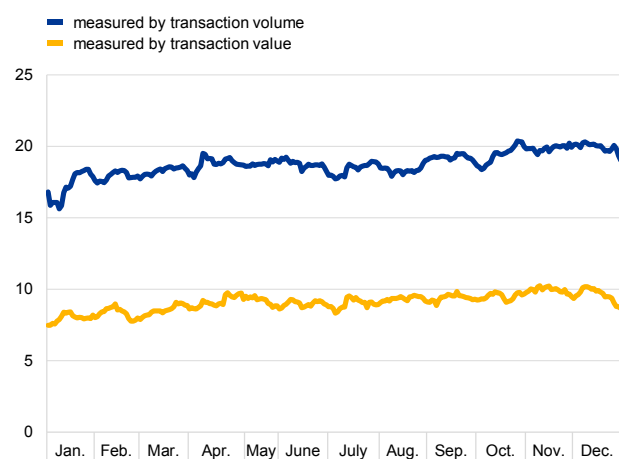
Tiered participation arrangements occur in a payment system when a direct participant of that system provides services that allow other participants to access the system indirectly. The indirectly connected participants in turn benefit from the clearing and settlement services offered by direct participants.

While indirect participants benefit from the settlement facility that would be otherwise costly to access directly, these types of arrangement also entail risks. Tiered participation arrangements can create dependencies that may lead to overall credit, liquidity or operational risks for the payment system, its participants or the stability of the banking system. Close monitoring of the tiering level in TARGET2 is thus of paramount importance. It is also an oversight requirement of Article 17 of the SIPS Regulation.¹⁷

Chart 20

Tiering by sender in TARGET2 in 2015

(in percentages; 10-day moving average)



During 2015 the aggregate level of tiering on the sending side in TARGET2 remained fairly stable at around 9% and 19% in value and volume terms respectively (see Chart 20). This meant that, on average, out of every euro sent or received by direct participants in TARGET2 during the year, only 9 cents were settled on behalf of indirect participants outside their banking group perimeter.

The largest indirect participant in terms of value sent (consolidated at banking group level) was ranked around 40th place out of all TARGET2 participants in 2015.

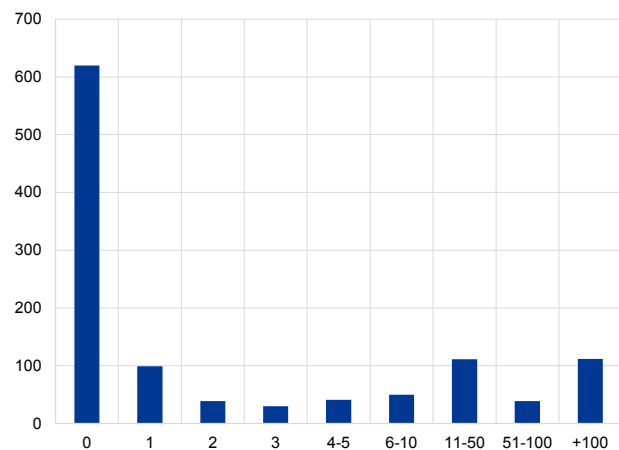
Further analysis reveals that 55% of all direct participants in TARGET2 (consolidated at banking group level) did not conduct any business during the year on behalf of indirect parties. Overall, these

statistics for 2015 point to a relatively contained level of tiered participation in TARGET2.

¹⁷ Regulation of the European Central Bank (EU) No 795/2014 of 3 July 2014 on oversight requirements for systemically important payment systems (ECB/2014/28)

Chart 21**Tiered Groups per Direct Participant Group**

(x-axis: tiered participants, y-axis: direct participants)



In more detail, Chart 21 shows that more than 600 direct participants do not send or receive any tiered payments. Around 100 send or receive payments on behalf of only one tiered banking group and, at the other end of the spectrum, more than 100 direct participants act as a settlement bank for more than 100 tiered banking groups.

The latter figure, which has increased over recent years, indicates a certain level of dependency of several tiered participants on one single direct participant, which may lead to an increased concentration of risks. In other words, many tiered participants would not be able to send or receive payments if their corresponding direct participant were to encounter technical problems or default.

1.11**Money market transactions in TARGET2**

Market participants use TARGET2 for settling unsecured money market transactions in central bank money. By applying the Furfine algorithm it is possible to identify which TARGET2 transactions are related to money market loans, or, more precisely, to the unsecured overnight money market.¹⁸ This unique dataset is updated regularly to obtain the latest information about the money market. Overall, TARGET2 transaction data provide a rich source of information for both the analysis of monetary policy implementation and TARGET2 operations. The importance of the money market is thus twofold: i) it is an important vehicle for the redistribution of liquidity among TARGET2 participants; and ii) it is a large-value and time-critical area of business that the operator needs to be aware of, in particular when dealing with abnormal situations.

The dataset is developed using the TARGET2 simulator environment and comprises data from June 2008 onwards.¹⁹ In 2015 around 58,000 money market loans with a total value of about €4.3 trillion were identified. Overall, the amount of unsecured funds traded in the overnight market during 2015 continued to fall (see Chart 22). This fall can be attributed to the increase in overall excess liquidity within the Eurosystem.

¹⁸ For further information, see the box entitled “[The usefulness of TARGET2 transaction data for the analysis of the unsecured overnight money market](#)”, *Economic Bulletin*, Issue 6, ECB, 2015

¹⁹ See Box 2 in the [TARGET Annual Report 2013](#)

Chart 22

Unsecured overnight money market in TARGET2

(daily totals; primary axis: EUR billions; secondary axis: number in transactions)

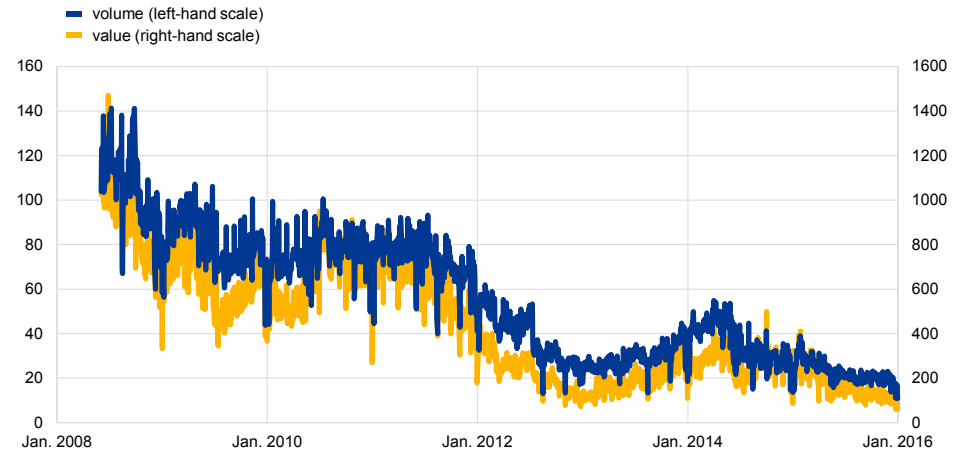
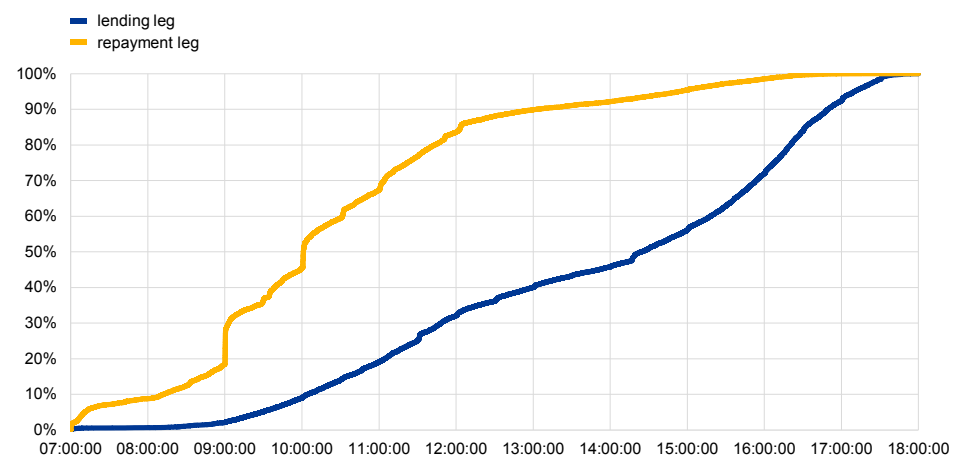


Chart 23 complements this analysis by showing the cumulative distribution in value of all money market transactions across the day in 2015. Regarding the lending leg, 50% of the total value is settled by 14:30, while 90% is settled by 17:00. This confirms the assumption that the last hours of TARGET2 operations are particularly important for the interbank market. In terms of repayment, 70% of the loans are repaid by 11:00 and 90% by 13:00. These patterns ensure that the repaid liquidity can be reused for payment purposes later that day.

Chart 23

Cumulative distribution of money market transactions during the day in 2015 in value terms



1.12 Shares of national banking communities

The following two charts break down TARGET2 volumes and turnover according to the share of the national banking communities contributing to its traffic. For the sake of readability, only those countries representing more than 3% of overall TARGET2 turnover are shown.

Chart 24

Country contribution to TARGET2 volume

(in percentages)

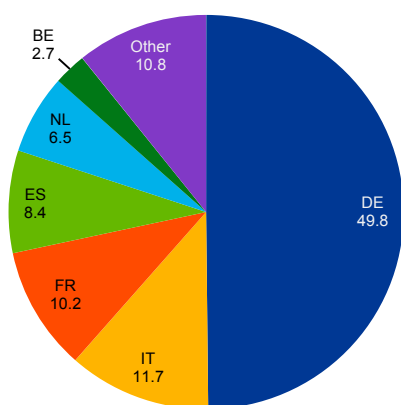
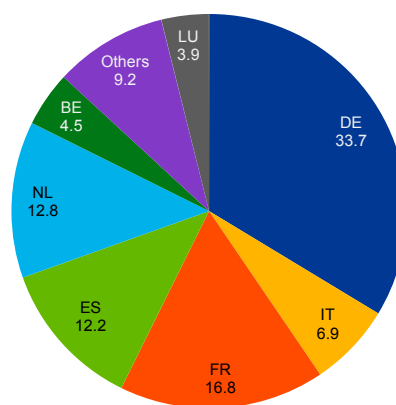


Chart 25

Country contribution to TARGET2 value

(in percentages)



In terms of volume, in 2015, similarly to previous years, the largest contributor to TARGET2 traffic was Germany, which accounted for almost half of the transactions settled in the system. Adding Italy, France, Spain and the Netherlands, this figure increases to 86.6%, also on a par with previous years. The German share increased slightly compared with 2014 (+1.1 percentage point), whereas the Italian decreased (by the same amount). The contribution of the other largest communities remained at levels similar to 2014. As regards turnover, the picture is again largely similar to the year before, with Germany accounting for one-third of the overall value, followed by France, the Netherlands, Spain and Italy. The top five countries by turnover generated 82.4% of the total value settled in TARGET2 in 2015. The concentration of turnover has remained stable over the years, with only a significant change in the German share, which increased by 1.8 percentage point compared with the previous year.

It should be noted that the high concentration of both TARGET2 values and volumes in certain countries is not only the result of the size of particular markets. It can also be attributed to the fact that, since November 2007, the TARGET2 system has allowed the activities of banking groups to be consolidated around a single RTGS account held by the group's head office, thereby increasing the concentration in countries where a large number of these groups are incorporated.

1.13 Pattern of intraday flows

Chart 26

Intraday distribution of TARGET2 traffic in 2015

(x-axis: time of the day, y-axis: percentage of daily volumes and values)

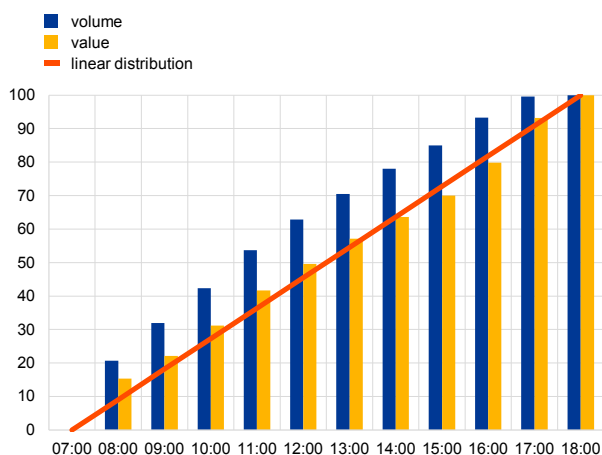


Chart 26 shows the intraday distribution of TARGET2 traffic, i.e. the percentage of daily volumes and values processed at different times of the day in 2015. This indicator is an important one for the operator of TARGET2 as it represents the extent to which settlement is evenly spread throughout the day or concentrated at certain peak times. Ideally, the value/volume distribution should be as close as possible to a linear distribution to avoid liquidity and operational risk.

In value terms, the path is typically very close to a linear distribution, indicating an even spread throughout the day, which in turn ensures the smooth settlement of TARGET2 transactions.

In volume terms, the curve is well above the linear distribution, with more than 21% of transactions being

submitted to the system by one hour after the start of operations – which includes transactions sent during the night by participants and warehouse payments – and 42% by three hours after the start. By one hour before the system closes, 99.6% of the TARGET2 volume has already been processed. A comparison with previous years shows no significant deviations.

2 TARGET2 service level and availability

In 2015 99.94% of the payments settled on the payment module of TARGET2 were processed in less than five minutes (99.99% in 2014). The remaining transactions needed a processing time of between five and fifteen minutes (0.03%) or above fifteen minutes (also 0.03%).

Compared with previous years, the figures remained high as regards delivery of the service and processing times of payments, confirming the high performance level of the SSP of TARGET2. It should be noted that this good performance is very beneficial for the banking community, in particular when taking into account their real-time liquidity management.

The processing times of payments are measured for all the payments settled in TARGET2, with the exception of ancillary system settlement transactions using the Ancillary System Interface, payments settled in the first hour of operations (see below on the “morning queue effect”) and payments that were not settled because of a lack of funds or breach of the limits. In practice, around 30% of all TARGET2 payments fall into these three categories of exceptions, meaning that the statistics on processing times apply to around 70% of the system’s traffic.

With regard to other requests or enquiries,²⁰ 99.98% (99.96% in 2014) were processed in less than one minute and only 0.02% (0.04% in 2014) in one to three minutes.

Chart 27

Processing times on 7 April 2015, excluding first hour

(x-axis: seconds, y-axis: percentage)

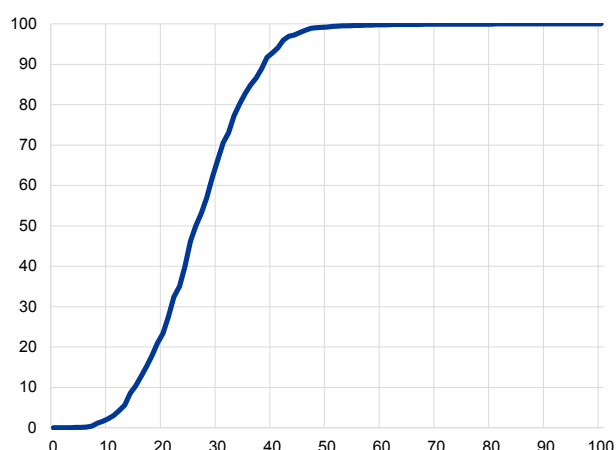


Chart 27 helps to better quantify the system's performance by providing the distribution of processing times on the SSP, i.e. the percentage of traffic with a processing time below a certain number of seconds. The reference point taken is the peak day of the year recorded by the SSP, 7 April 2015, when 512,422 payments were settled. The chart shows that, on this day, 50% of the transactions were settled within 26 seconds and 90% within 38 seconds, thereby confirming the system's high performance level.

A specific phenomenon is worth reporting in the context of TARGET2 performance: the "morning queue effect". When TARGET2 starts daylight operations at 07:00 CET, a very high number of transactions (about 20% of the daily volume on peak days) are already waiting for settlement, corresponding 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 processed in the first hour, which affects the average settlement time during this period. This huge volume of transactions normally takes around 30 to 45 minutes to be processed. In order to neutralise this effect, the first hour of operations is excluded when the TARGET2 processing times are calculated.

Specifically in the first hour, the use of urgency flags ("urgent" and "highly urgent") is still highly recommended for payments considered as time-critical transactions (such as CLS). Using urgency flags circumvents settlement delays by using different queues (one queue for each type of priority). In addition, attention should be drawn to the possibilities offered in TARGET2 to reserve funds for highly urgent and urgent payments (see Section 1.7 on the use of prioritisation).

2.1 Technical availability

In the light of the importance of TARGET2 for the functioning of the financial system and the knock-on effects that any potential malfunctioning could have on other market infrastructures, the Eurosystem pays particular attention to ensuring the smooth operation of the system. This is clearly underlined by the fact that the SSP of TARGET2 achieved 99.98% technical availability over the last reporting period and 100% in recent years. This slightly lower degree of availability of TARGET2 in 2015 was the result of an incident on 27 November (see below).

²⁰ This figure covers the InterAct messages received by the SSP, both in U2A and A2A mode.

Technical availability is measured on TARGET2 business days during the day trade phase (including end-of-day processing), from Monday to Friday between 07:00 and 18:45 CET (19:00 on the last day of the minimum reserve period), including extensions required to complete the operational day (e.g. delayed closing owing to a technical problem in TARGET2 or to major problems in ancillary systems settling in TARGET2). The availability measurement does not include systems or networks not directly managed by TARGET2 (in particular, the availability of the SWIFTNet services). Incidents occurring during night-time settlement are not included either.

Technical availability is not intended to measure the impact of partial outages involving the SSP of TARGET2. For example, incidents only affecting the processing of ancillary system transactions without any effect on other payment processing activities cannot be measured within this figure, although they have an overall impact on and are taken into account when assessing the system's performance. However, such incidents are, where applicable, considered for the measurement of processing times and, in addition, reported transparently and followed up accordingly. .

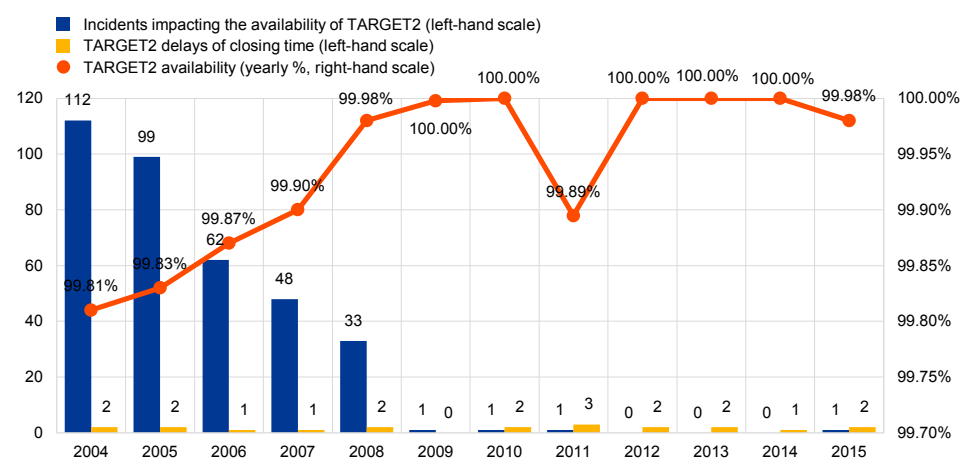
2.2 Incidents in TARGET2

The ECB publishes up-to-date information about the availability of TARGET2 via the TARGET2 Information System (T2IS), which is accessible via the financial information provider Reuters (page ECB46), as well as under the “Payments & Markets” section of the ECB’s website (www.ecb.int/paym/t2/html/index.en.html) and on the website www.target2.eu. All incidents relating to TARGET2 are followed up with a detailed incident report and risk management process. The aim of this approach is to learn from these events in order to avoid a reoccurrence of the incidents or incidents of a similar nature and to improve monitoring capabilities.

Chart 28

TARGET2 incidents and delays in closing

(primary axis: number of incidents/delays, secondary axis: yearly data in percentages)



In 2015 TARGET2 was briefly unavailable on 27 November, when a software problem led to a temporary disruption in the processing of incoming payments.

In addition to this event, there were some incidents which, thanks to the technical set-up of the SSP, only partly affected the processing of transactions, without making the system totally unavailable. For that reason, they did not have any impact on the TARGET2 availability indicator. In 2015 the following incidents fitted into this category.

- On 5 June around noon, sending out of the payment confirmation messages was interrupted for around half an hour, although the payments were still correctly settled.
- On 26 November the message transfer process between the payment module and home accounting module was blocked for around one hour towards the end of the day.

Although not included in the performance indicators, incidents during night-time settlement are also reported transparently and followed up accordingly. In 2015 the following related incidents occurred.

- On 27 January, owing to a software failure, the settlement of ancillary system files started at 21:05 instead of at 19:30.
- On 2 July, during the night-time phase, a bug in a Payment Module program led to interruptions in the liquidity transfer from TARGET2 to T2S.
- On 29 December, owing to the failure of the loading of new static data during the end-of-day period, the new business day was delayed by 20 minutes.

For all of these incidents, the root causes were identified and corrective measures were implemented with the aim of preventing such interruptions from reoccurring.

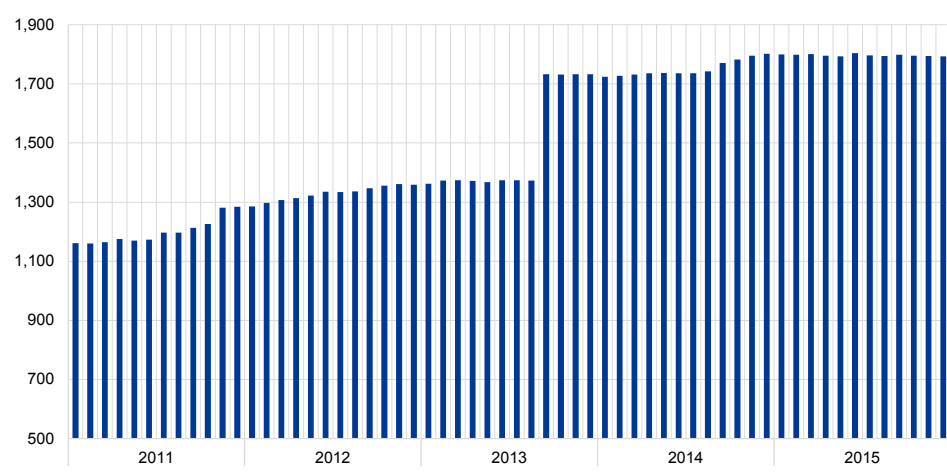
In addition to the above incidents, owing to problems related to the functioning of T2S, the closing of TARGET2 was delayed twice in 2015: on 1 September by 30 minutes and on 2 December by 60 minutes.

3 TARGET2 participants

3.1 RTGS accounts

Chart 29

Number of RTGS accounts in TARGET2

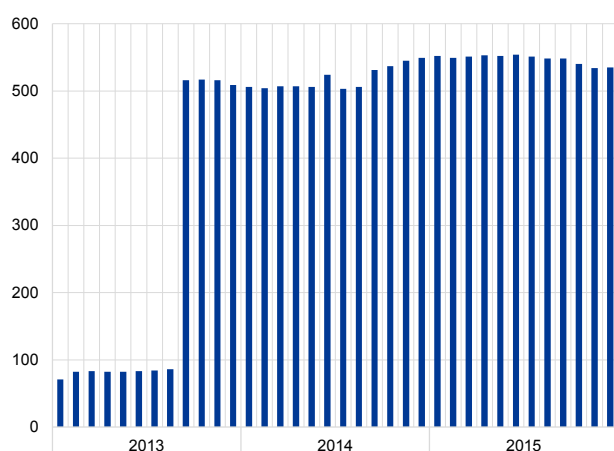


The number of RTGS accounts opened in TARGET2 (encompassing the direct participants, the technical accounts, the ancillary system accounts and the special-purpose accounts) was at a similar level as registered at the end of 2014. In December 2015 the total number of RTGS accounts in TARGET2 was 1,793.

Internet-based participation

Chart 30

Internet-based participants



In November 2010 internet-based participation was introduced to allow small banks to obtain a direct connection to TARGET2 without necessarily being connected to the SWIFT network. The service, which is subject to a monthly fee of €70, is mainly designed for low-volume participants that are interested in holding an account directly with their central bank; either an RTGS account or a home accounting module (HAM) account (provided the respective central bank opted for this module). While the initial number of internet-based participants was relatively modest (68 at the end of 2012), it increased significantly in 2013 (reaching 509 participants at the end of 2013) with the phasing out of the last proprietary home accounts still offering payment settlement services. In December 2015 the overall number of internet-based participants reached

535, which was in line with the figures recorded at the end of 2014.

Box 3

TARGET2 network coverage: a preliminary analysis of the topology of TARGET2

As a result of the recent financial crisis, an increased emphasis has been put on the endogenous effect relating to a network's topology. The dilemma of "too connected to fail" has been the subject of much investigation. This box provides preliminary insights into the topology of the TARGET2 network. It may serve as a starting point for future, more thorough analyses.

TARGET2 nodes

A *directed graph* consists of a set of nodes and arrows. An arrow from one node to the other indicates a connection or a transfer from node to node. In a payment system like TARGET2, it typically represents the transferred euro value from one node to the other.

In TARGET2 several types of nodes could be considered. At the most aggregated level are country nodes. At a more granular level, one could also consider the set of direct participants in TARGET2. At a more detailed level, one could consider banks as final originators and beneficiaries of transfers. Taking the latter approach, in 2015 there were approximately 12,000 nodes worldwide (based on the BIC8).

Geographical connections in TARGET2

There are many ways to display a network, each emphasising different facts. For example, the physical location of participants in the TARGET2 payment system has been mapped. For each node in the network, the geographical coordinates were determined and plotted on a map. Arrows above a certain threshold were added. This gives a sense of the extent to which TARGET2 is used for making payments by participants worldwide. All types of cross-border payments were considered. For the purpose of simplifying the graphical representation, the diagram is an undirected graph in which the value between two nodes is denoted by the sum of the arrows connecting the nodes.

Chart A shows payments in TARGET2 aggregated to the country level (based on the country where direct participants are established). The capital city is chosen as the physical anchorage for the node representing each Member State, while the node for the ECB component of TARGET2 is mapped in Frankfurt. The first observation that can be made is that all potential links, or "edges", are utilised. In other words, there is a payment transfer between all pairs of TARGET2 countries. The largest edges measured by value are between the countries Italy, Germany, France and Spain as well as the Benelux countries. This is in line with the findings in Section 1.12 on the top five banking communities contributing to the turnover of TARGET2. The large edge between Italy and the ECB is due to T2S liquidity transfers, which systematically transit through an account at the ECB.

Chart A

The topology of payments based on country. Countries are physically denoted by their capitals. Frankfurt am Main, Germany represents the ECB.



Chart B

The topology of payments based on direct participants



Chart B displays the location and connections between TARGET2 direct participants, i.e. participants who hold an RTGS account in the payment module of the SSP with access to real-time information and control features.²¹ The geographical location of a direct participant is determined based on the BIC, using the SWIFT BIC directory. Based on this location, it is possible to determine the corresponding geographical coordinates. In some countries, the number of nodes are relatively limited (e.g. France), reflecting a centralisation of TARGET2 flows in the head offices of banking groups, typically located in the country's capital. In other countries (e.g. Germany and, to a lesser extent, Italy and Spain), nodes are more evenly spread over the national territory, which reflects a more decentralised organisation of the banking groups and access to TARGET2.

²¹ For more information, see Annex 2: Features and functionalities of TARGET2.

Chart C

The topology of payments based on originator and beneficiary



Chart C shows edges between originator banks and beneficiary banks in TARGET2 worldwide. It is not surprising that the majority of TARGET2 payments are connected to a participant in the TARGET2 countries. What is perhaps slightly more surprising is the extent to which TARGET2 is used to settle payments outside the EU. Note that, as a matter of readability, only payments above €5 million are included. If payments from €1 million upwards were included, many more connections would be visible where both nodes are outside the EU.

3.2 Participation types

At the end of December 2015, 1,004²² direct participants held an account on the SSP of TARGET2 and were registered as such in the TARGET2 directory. Through these direct participants, 735 indirect participants from the European Economic Area (EEA) could settle their transactions in TARGET2, as well as 5,292 correspondents worldwide.

²² This figure represents the number of direct participants with at least one account in TARGET2. Direct participants may have more than one account, which is why the figure is lower than the number of RTGS accounts as reported under Section 3.1.

Table 2
Participation types

Direct participation	1004
Indirect participation	735
Multi-addressee – credit institution	31
Multi-addressee – branch of direct participant	1,222
Addressable BIC – correspondent (including central bank customers)	5,292
Addressable BIC – branch of direct participant or entity that is part of the same group	32,791
Addressable BIC – branch of indirect participant or entity that is part of the same group	3,326
Addressable BIC – branch of correspondent or entity that is part of the same group	10,893

Including the branches of direct and indirect participants, a total of 55,294 credit institutions around the world were accessible via TARGET2 at the end of 2015. This figure remained stable compared with the number of reachable institutions registered at the end of 2014.

Participants and institutions addressable via TARGET2 are listed in the TARGET2 directory, which is available to all direct participants for information and routing purposes. Besides the direct participants that hold an RTGS account for sending payments to and receiving payments from all other direct participants, a number of banks have opted for the opening of special-purpose RTGS accounts, which are not reported as direct participants in the TARGET2 directory. These special-purpose accounts are used, for instance, to fulfil reserve obligations in countries where reserves are computed on RTGS accounts. There were 591 of these accounts, also called “unpublished BICs”, at the end of 2015 (641 in 2014).

3.3 Ancillary systems

At the end of 2015 a total of 79 ancillary systems were settling on the TARGET2 SSP, including 34 retail payment systems/clearing houses, 31 securities settlement systems and 5 central counterparties. This is a small decrease compared with 2014 (when there were 84 ancillary systems in total).

Table 3
Ancillary System Interface settlement model (ASI)

Ancillary System Interface settlement model (ASI)	Usage ¹
Model 1 – Liquidity transfer	4
Model 2 – Real-time settlement	19
Model 3 – Bilateral settlement	21
Model 4 – Standard multilateral settlement	20
Model 5 – Simultaneous multilateral settlement	13
Model 6 – Dedicated liquidity	22

¹) The total number of times the models were used is higher than the total number of ancillary systems that opted for the Ancillary System Interface because an ancillary system may make use of more than one model.

Of the 79 ancillary systems settling on the SSP, 62 made use of the Ancillary System Interface, a feature which was developed to facilitate and harmonise the cash

settlement of these systems in TARGET2. The number of times each of the six available ancillary system interface models was used is shown in Table 3.

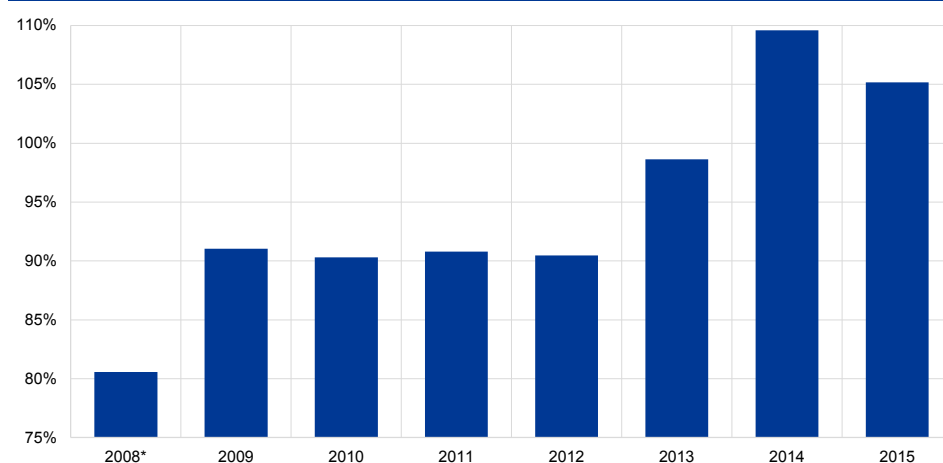
4 TARGET2 revenues

4.1 Cost recovery objectives

The objective initially set by the Governing Council of the ECB in 2007 was that TARGET2 should recover all of its costs (with the exception of the “public good factor”) over the six-year amortisation period, i.e. between May 2008 and April 2014. This covers the development costs, running costs, overhead costs and capital costs.

The evolution of the cost recovery rate of TARGET2 since its launch in 2008 is shown in Chart 31 below.

Chart 31
TARGET2 Annual Cost Recovery



* 2008: only July - December

- At the time of 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. from May 2008 to April 2009), TARGET2 would have to settle a total of 93.05 million transactions and that this figure would then have to increase by an average of 6% per year. While the objective was met in the year the system was launched, the overall economic slowdown and exceptional market conditions in the following years made it impossible to meet the targeted 6% increase. Indeed, since the launch of TARGET2, the system has even seen an average annual decrease in traffic of 1.5%. This largely explains why the cost recovery of TARGET2, for its first few years of operation, was around 90% of what was expected.

- In July 2012, acknowledging this underperformance, the Eurosystem decided to amend the single pricing scheme of TARGET2 as of January 2013. The changes made to the pricing scheme increased the fixed users' periodic fee, while transaction fees remained unchanged. The new pricing scheme represents an acceptable compromise, with a limited increase in the participants' fees and a reasonable extension of the system's payback period. In 2013 the amendment of the TARGET2 pricing scheme helped bring cost recovery close to 100%.
- In 2014 the largest part²³ of the investment costs was amortised, which mechanically and substantially decreased the costs to be recovered. This brought the cost recovery of TARGET2 to over 100%. Since then TARGET2 has generated annual profits. These annual profits are used to offset the losses accumulated over the first few years of operation.

4.2 Financial performance of TARGET2 in 2015

In 2015 the cost recovery rate of TARGET2 remained significantly above 100%. The slight decrease compared with 2014 is largely attributable to the adaptations that the system had to undergo in view of the launch of T2S, the costs of which began being recuperated from 2015 onwards. While these adaptation costs will be passed to the participants making use of these services in the form of a specific fee²⁴, the revenues generated by this new fee are still relatively low as only the first wave of CSDs completed their migration to T2S in 2015. This effect will nevertheless be progressively eliminated as new markets migrate to T2S and the cost recovery rate will eventually return to the level it had reached in 2014.

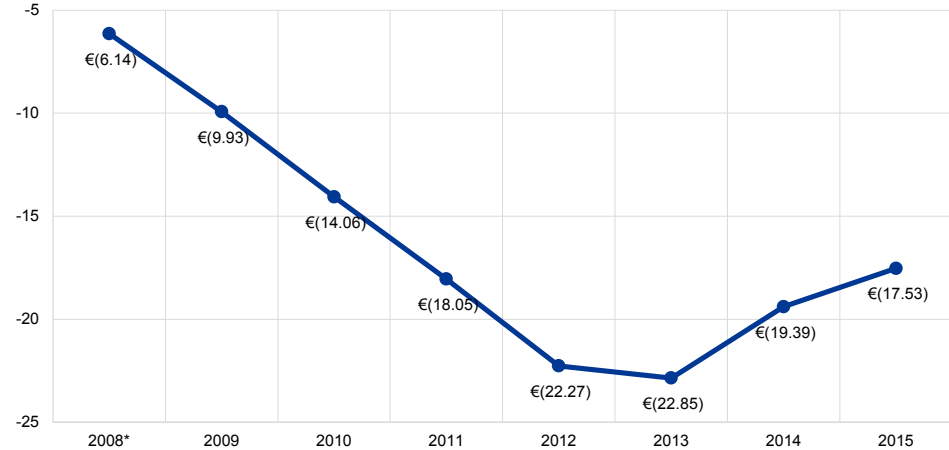
In 2015 the total annual costs to be recovered for the provision of the core services of TARGET2 amounted to €39.7 million. On the revenue side, TARGET2 participants were billed for 85.1 million transactions, which together with the fixed monthly fees, generated revenues of €41.6 million. This resulted in a cost recovery rate of 104.68% and an annual profit of €1.9 million. At the end of 2015 the loss accumulated since the launch of TARGET2 had therefore decreased by the same amount and stood at € 17.5 million.

²³ This part corresponds to the initial development costs (i.e. Release 1.0). Only the costs corresponding to the development of annual releases, which had not yet been fully amortised (i.e. Release 2.0 and beyond) are still to be recovered.

²⁴ In 2015 a new fee was introduced for the dedicated cash accounts linked to the TARGET2 accounts (€250 per link) and for the use of the value-added services.

Chart 32
Accumulated profit/loss

(In EUR millions)



* 2008: only July - December

4.3 Analysis of the revenues collected in 2015

Based on 2015 figures, the following observations can be made.

- 93% of the direct participants in the SSP opted for the flat fee option (i.e. option A), while 7% opted for the digressive fee option (i.e. option B).²⁵ This illustrates that TARGET2 is still capable of attracting both the major players in the euro area as well as a large number of small and medium-sized institutions.
- The participants opting for pricing option B generate, in total, around 88% of the traffic on the SSP and almost 80% of TARGET2 revenues.²⁶ As a result of this concentration effect, 30% of all SSP transactions were priced at the lowest pricing band, i.e. €0.125. This demonstrates that key participants, particularly multi-country banks, benefited from the attractive digressive fee option offered by TARGET2 and from the competitive group pricing offers.²⁷
- Transactions exchanged between credit institutions generate around 85% of TARGET2 volumes, with the remaining 15% attributable to ancillary system transactions.
- 77% of TARGET2 revenues were variable, i.e. came from transaction fees, while fixed subscription fees accounted for 23%.

²⁵ Option A (i.e. a monthly fee of €150 and a flat transaction fee of €0.80) is intended for small and medium-sized institutions submitting less than 8,625 TARGET2 transactions per month. For institutions making greater use of TARGET2, option B (i.e. a monthly fee of €1,875 and a digressive transaction fee of between €0.60 and €0.125) is proposed.

²⁶ These are accounted for by core pricing participants, central banks using the ancillary system interface for "other purposes", ancillary systems and liquidity pooling.

²⁷ Some specific features of TARGET2 (e.g. liquidity pooling or multi-addressee access) offer the possibility of applying the digressive transaction fee to all payments initiated from accounts belonging to the same group.

5 TARGET2 risk management and oversight activities

5.1 TARGET2 risk management

Managing information security risks is a key element of the TARGET2 governance structure. To meet this responsibility, the Eurosystem has established a comprehensive risk management²⁸ framework comprising, among other things, a fact-finding analytical part, as well as dynamic elements, to ensure that information security is continuously monitored and maintained throughout the lifecycle of TARGET2.

In particular, TARGET2's risk management processes aim to: (i) monitor developments to ensure that progress on the implementation of security controls in response to issues resulting from risk assessments is satisfactory; (ii) enable those involved to learn from operational experience and thereby ensure that appropriate measures are taken to prevent an incident from reoccurring; and (iii) proactively identify new threats and vulnerabilities that could occasionally emerge from the changing environment in which the TARGET2 system operates and, if needed, initiate deliberations regarding the implementation of additional security controls to prevent these threats from materialising.

To create awareness of any potential security problems, updated information obtained from the risk management processes is reported on a regular basis. Furthermore, the progress made on the implementation of mitigating measures listed in the action plans is monitored to ensure that satisfactory progress is being made.

During 2015 the Eurosystem's TARGET2 information security experts started work on an update of the TARGET2 information security framework taking into account the new ISO 27002:2013 standard (replacing ISO 27002:2005).

The consistent use of the TARGET2 risk management framework reassures the Eurosystem, as well as TARGET2 users, that overall security in TARGET2 is sufficient. In this context, it is worth mentioning that incidents which occurred in 2015 were reported and resolved, their root causes were addressed, and they did not affect the security and operational reliability of TARGET2.

5.2 Oversight activities

In 2015 the regular oversight activities of TARGET2 included the monitoring of the system's operational performance as well as relevant business developments, the follow-up to incidents, and the assessment of changes in the system.

A major part of the oversight activities in 2015 related to assessing the impact of the connection between T2S and TARGET2 on the compliance level with CPMI-IOSCO

²⁸ 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).

Principles for Financial Market Infrastructures (PFMIs) and the comprehensive assessment of the TARGET2 system against the SIPS Regulation²⁹.

The connection of TARGET2 with T2S was the most significant change in TARGET2 since the inception of the system. The TARGET2 overseers assessed the change against PMFI numbers 5 (collateral), 9 (money settlement), 16 (custody and investment risk), 18 (access and participation requirements) and 22 (communication procedures and standards) and concluded that there would be no impact on the previous observance levels of TARGET2, i.e. the observance levels achieved in the context of the comprehensive assessment against the CPSS-IOSCO PFMIs in January 2014. Some recommendations were given to the TARGET2 operator, such as the need to include the connection with T2S in the comprehensive risk management framework of TARGET2.

As regards the comprehensive assessment of TARGET2, the SIPS Regulation entered into force in August 2014, requiring the SIPS operators to be compliant with the requirements laid down in the Regulation within one year from the date on which the decision of the Governing Council, in accordance with Article 1(2) of the Regulation, was notified to them. The Regulation implemented, in a legally binding way, the PFMIs, which require SIPS to be subject to effective oversight, against clearly defined and publicly disclosed criteria, owing to their potential to trigger systemic risks. It applies to all payment systems which meet the criteria laid down in Article 1(3) of the SIPS Regulation, i.e. both large-value payment systems and retail payment systems of systemic importance, operated both by central banks and private operators.

TARGET2 was identified as one of the key payment systems that fall under the Regulation. The comprehensive assessment was conducted by the ECB as lead overseer of TARGET2, together with the national central banks connected to TARGET2. The final report will be presented to the TARGET2 operator in the course of the first half of 2016.

6 System evolution

Connection to TARGET2-Securities

With the launch of T2S on 22 June, the TARGET2 connection to T2S, implemented in November 2013 in release 7.0, was activated. SSP release 7.0, mainly dedicated to the preparation of the SSP for T2S, was rolled out in two steps: first, the new interface for T2S was set-up in November 2013; second the interface became functional in June 2015.

In addition to release 7.0, the content of release 8.0, issued in November 2014, was also mainly devoted to adaptations to T2S. It contained a new functionality allowing

²⁹ See footnote 17 above.

for partial execution of liquidity transfers from TARGET2 to T2S, instructed by T2S actors.

Release 9.0

The yearly release in 2015 (version 9.0) was implemented on the same weekend in November as the SWIFT Standard Release. In this release, only changes stemming from the SWIFT Standard MT Release 2015 were implemented.

ISO 20022 strategy

In March 2015 the central banks informed TARGET2 participants of their intention to adopt a converter-based approach for migrating TARGET2 to ISO 20022 standards. The converter-based approach was seen as a short-term solution to bridge the time gap until the completion of the Eurosystem's upcoming strategic review of its market infrastructure. This announcement raised concerns on the part of some banking communities, which called for the migration of TARGET2 to ISO 20022 to be postponed until the main findings of this review were known.

In August 2015 the central banks again consulted the T2S Community, seeking their views on the effect that such a postponement could have. The replies received revealed the following.

- A majority of banks felt there was no need to rush TARGET2's migration to ISO 20022 while a new strategy on the platform's medium-term evolution was being worked on.
- ISO 20022 should be implemented at the same time as all the relevant technical changes, which would maximise the benefits of the new standards, in particular the ability to transmit richer information.

Owing to the clear feedback received from the TARGET2 user community, the Eurosystem agreed to reconsider its plans to migrate TARGET2 to ISO 20022 by November 2017. The migration of TARGET2 to ISO 20022 will now be reassessed in the context of the strategic review, which was initiated in October 2015.

Review of the Eurosystem market infrastructures

The launch of T2S as a new platform for securities settlement provided an ideal opportunity for the Eurosystem to consider how its market infrastructure services could evolve in the future, including the RTGS service offered by TARGET2. This strategic thinking is taking place in the context of the capital markets union, which the European Commission is pursuing in parallel.

While the Eurosystem's market infrastructure strategy includes support for the development of a pan-European instant payments solution and the possibility of

harmonising Eurosystem collateral management arrangements, its key elements are based on the exploration of synergies between TARGET2 and T2S.

In this context, a consultative report was published on 15 February 2016 with the aim of collecting the market's feedback by 4 April 2016. The report will be used not only to focus on the synergies between TARGET2 and T2S, but also as a general review of the RTGS services currently offered from both a functional and a business perspective.

Bringing together the two platforms would allow TARGET2 to benefit from the state-of-the-art features available in T2S. These include its multi-currency capability, the possibility to access the platform via different network service providers and the extensive and systematic use of ISO 20022 standards.

Moreover, part of the strategy is to consider developing new services for market participants or adapting existing ones to the changing needs of the large-value payments business. Examples here are liquidity management functionalities, opening hours of the RTGS service, account structures, supporting regulatory requirements with which banks need to comply and analytical services based on liquidity and payments data.

In developing its strategy, the Eurosystem fully acknowledges and appreciates that the success of its two existing infrastructures, TARGET2 and T2S, owes a lot to the considerable involvement of the market and its valuable contribution to the design and roll-out process. For this reason, the Eurosystem intends to closely involve market participants in its ongoing strategic reflections and resulting action.

Box 4

TARGET2 and T2S: cash aspects

TARGET2-Securities (T2S) is the pan-European platform for securities settlement in central bank money, which went live on 22 June 2015. It brings together both securities and cash accounts in a single technical platform, the T2S platform.

Although the accounts are centralised on a single platform, the legal and business relationships between the holders of the securities and cash accounts remains with the central securities depositories and national central banks joining T2S.

The cash accounts, called dedicated cash accounts (DCAs), are used exclusively for the settlement of securities in T2S. As regards the euro denominated DCAs, although they are technically held on the T2S platform, they are legally part of TARGET2. Each DCA is linked to one RTGS account held in TARGET2. At the end of 2015 there were 123 euro-denominated DCAs on the T2S platform.

With the start of T2S operations on 22 June 2015, seven national central banks (Bank of Greece, Banca Națională a României, Central Bank of Malta, Banque centrale du Luxembourg, Banque de France, Deutsche Bundesbank and De Nederlandsche Bank) also started providing DCAs to the participants in the first migration wave.

The Italian central securities depository Monte Titoli and its national user community migrated to the platform on 31 August 2015. Together with Monte Titoli, the Banca d'Italia and the Banco de España also began live operations on the platform.

Charts A and B below present daily average volumes and values of the transfers from the accounts in the RTGS system to DCAs. At the start of each T2S business day, liquidity is sent from TARGET2 to T2S, enabling T2S to trigger securities settlement on corporate actions and delivery-versus-payment transactions. At the end of the T2S day, all the liquidity on the T2S platform is swept back to the RTGS accounts in TARGET2. In addition, the T2S parties may also send liquidity transfers to and from T2S to TARGET2 during the day.

Chart A

Daily average volumes of transfers from the accounts in the RTGS system to dedicated cash accounts

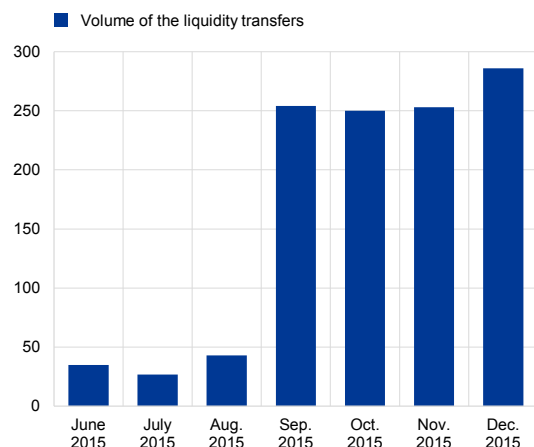
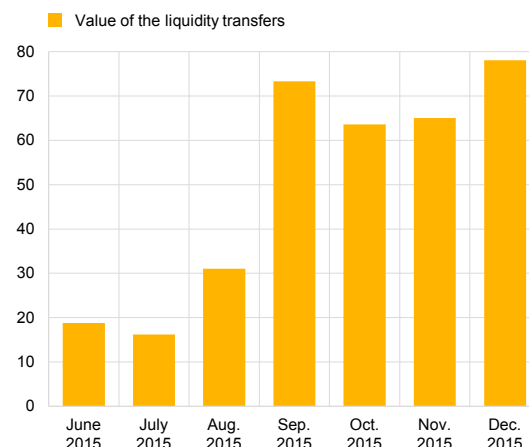


Chart B

Daily average values of the transfers from the accounts in the RTGS system to dedicated cash accounts

(in EUR billions)



Owing to the fact that these transfers are conducted only for technical reasons, in order not to artificially inflate the system's indicators, they are not included in the overall calculations of TARGET2 traffic and turnover.³⁰

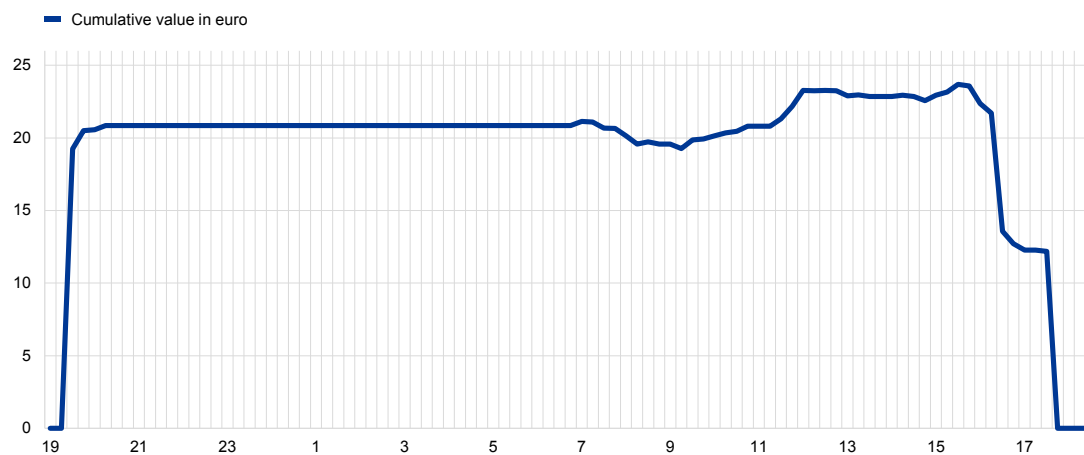
As depicted in Chart B, after the migration of Monte Titoli in September, the average daily value of both inbound and outbound liquidity transfers to and from T2S reached €70 billion. If included in the overall TARGET2 turnover during this period, the average daily value of TARGET2 payments would increase by more than 3%. Given the limited number of liquidity transfer transactions, this difference in volume terms would be marginal – less than 0.1%.

³⁰ If transfers from/to T2S accounts were included, the impact would be particularly significant for the value-based indicators, but less so for the volume-based indicators, owing to the fact that these transactions are limited in number but tend to be for very high amounts.

Chart C

Time distribution of liquidity in dedicated cash accounts: September to December 2015

(in EUR billions)



The time distribution of the liquidity in DCAs shows that after the injection of the liquidity to T2S at the beginning of the TARGET2 night-time phase (19:30), its level remains stable overnight and only starts to fluctuate during the day-time phase (from 07:00 onwards). This is a result of the activities conducted by payment banks and reflects their business models and cash needs across the two platforms. At 16:30 the liquidity in T2S sharply decreases by around one-quarter owing to the optional cash sweep. The next drop, to zero, is observed at the end of the operating day and is related to the execution of the automated cash sweep from T2S to TARGET2 at 17:45, when all the remaining liquidity is pushed from T2S back to TARGET2.

Chart D

Total value of auto-collateralisation transactions in T2S

(in EUR billions)

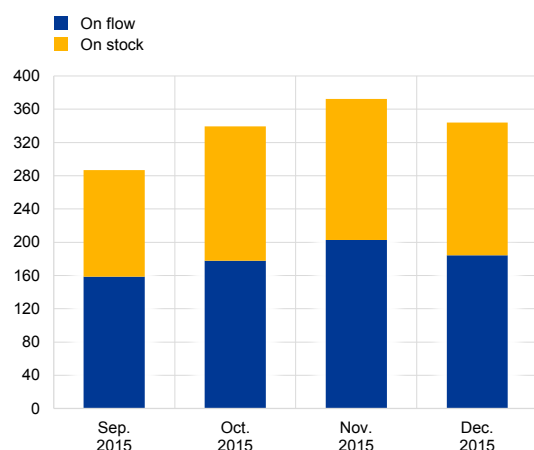


Chart D presents monthly values of auto-collateralisation transactions in T2S. Typically, just over half of these transactions are related to auto-collateralisation on flow, i.e. settlement transactions that are financed via credit received from a central bank and collateralised by securities that are about to be purchased. The remaining share relates to auto-collateralisation on stock, i.e. where the credit received from a central bank is collateralised by securities already held by the buyer. Overall, the auto-collateralisation levels reflect liquidity gains for T2S participants and are expected to reach much higher levels over time with new migration waves and the inclusion of new eligible collateral in T2S. The availability of auto-collateralisation also means that the participants' need for liquidity from TARGET2 is

lower as they can get intraday credit directly in T2S and at the same time use the excess liquidity in TARGET2 for other business needs.

While TARGET2 and T2S form two independent systems, there are significant interdependencies between them, which may have an impact on the performance of each other. Since the launch of T2S, there have not been any major issues and the connection between TARGET2 and T2S works as envisaged, allowing banks to provide euro-denominated liquidity for their business in T2S. There have only been two T2S-related incidents that caused a delay in TARGET2 closing. Both incidents were related to a failed cash sweep from T2S to TARGET2 during the end-of-day procedures. Based on the TARGET2 and T2S operational procedures, if this happens TARGET2 closing must be delayed in order to successfully repatriate the funds from T2S before closing both systems.

Notwithstanding these two minor incidents, the two platforms have proven to work well together. As part of its vision for the future of Europe's financial market infrastructure, the Eurosystem is considering how to draw on the synergies between TARGET2 and T2S and possibly consolidating the two platforms (see Section 6).

Annex 1

The TARGET2 system

1 Origin of TARGET2

The first-generation TARGET system

With the establishment of the monetary union in 1999, it became crucial to develop a payment service for the purposes of the future single monetary policy and which would facilitate the circulation of the new currency between the Member States in a fast and reliable manner. At that time, the majority of Member States already had their own RTGS systems, which were, however, limited to the settlement of transactions in their national currencies. Given the need to be ready in time for the introduction of the new currency, the TARGET system was originally built by linking together the different RTGS structures that existed nationally and defining a minimum set of harmonised features, allowing for the sending and receiving of payments across national borders (i.e. inter-Member State payments).

TARGET, the first-generation RTGS system for the euro, commenced operations on 4 January 1999 following the launch of the euro. It had a decentralised technical structure, consisting of 17 national RTGS systems and the ECB payment mechanism, and was available for credit transfers in the countries that had adopted the euro as their currency.

Similarly to TARGET2, TARGET offered such features as unlimited (collateralised) intraday credit free of interest, immediate finality, and high-speed processing of transactions, thus facilitating participants' cash management. In principle, TARGET was originally intended for the processing of large-value payments in euro, especially payments related to monetary policy operations involving the Eurosystem or the settlement of systemically important payment and settlement systems. However, it soon became widely used for other types of transaction, including commercial payments.

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. Moreover, the establishment of TARGET supported the rapid integration of the euro area money markets by providing its users with a common payment and settlement infrastructure.

From TARGET to TARGET2

Over its years of operation, TARGET successfully met its main objectives: it supported the implementation of the single monetary policy, contributed to reducing

systemic risk and helped banks to manage their euro liquidity at national and cross-border level. However, TARGET also presented some shortcomings, which were largely attributable to its decentralised structure and which called for a redesign of the system. Market participants increasingly indicated a need for an enhanced, harmonised service, which could be offered at the same price across the EU.³¹ Furthermore, the cost-efficiency of the system was problematic for the Eurosystem, as the revenues generated by TARGET did not cover a sufficient proportion of its costs. Finally, in the context of anticipated EU enlargement, the new Member States that were expected to connect to the system would considerably increase the number of TARGET components.

In order to meet these challenges, in October 2002 the Governing Council of the ECB defined the principles and structure of TARGET2 – the next-generation TARGET system, which would offer harmonised core services on a single technical platform and which would be priced according to a single price structure. As a result of the new approach, the Eurosystem envisaged lower costs, which, together with the investment costs, would be recovered via the system's fees.³² 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 those relating to monetary policy functions.

TARGET2 was successfully launched in November 2007 and the decentralised structure of the first-generation TARGET system was progressively replaced by a single technical platform, the SSP. Three Eurosystem central banks – the Banca d'Italia, the Banque de France and the Deutsche Bundesbank – jointly provided the SSP for TARGET2, and they operate it on behalf of the Eurosystem. The migration to the new platform took place in three waves. The first group of countries (Austria, Cyprus, Germany, Latvia, Lithuania, Luxembourg, Malta and Slovenia) migrated in November 2007, followed by the second migration group (Belgium, Finland, France, Ireland, the Netherlands, Portugal and Spain) in February 2008, and the third in May 2008 (Denmark, Estonia, Greece, Italy, Poland and the ECB component).

Harmonised services

As a result of the move from a decentralised multi-platform system to a technically integrated platform, TARGET2 can offer harmonised services at EU level, 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

³¹ While inter-Member State payments were subject to degressive transaction fees (from €1.75 down to €0.80), intra-Member State transaction fees were not harmonised and were fixed by individual central banks.

³² In this context, owing to the special role of TARGET2, a “public good” factor corresponding to the positive externalities generated by TARGET2 (e.g. in terms of the reduction of systemic risk) was defined, for which costs would not have to be recovered.

houses and securities settlement systems. Currently there are 83 ancillary systems settling in TARGET2. All of them are able to access any account in TARGET2 via a standardised interface. While before the launch of TARGET2 each ancillary system had its own procedure for settlement, now the system offers six generic procedures designed for ancillary systems (two real-time and four batch procedures), thereby allowing the substantial harmonisation of business practices.

For its participants TARGET2 offers specific liquidity management features that allow 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. In addition, for a group of accounts it is possible to benefit from a special TARGET2 group pricing scheme, i.e. a degressive transaction fee, which applies to all of the group's payments as if they were sent from one account. TARGET2 participants can also make use of liquidity-saving features to optimise the liquidity requirements of the system, such as payment queues, gridlock resolution mechanisms and priorities and reservation.

The TARGET2 system also provides its participants with further tools to 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, as well as appropriate tools to monitor their activities and facilitate accurate funding decisions, preferably with the possibility of managing all of their central bank money flows from a single location.

More details on the features and functionalities of TARGET2 can be found in Annex 2 ("Features and functionalities of TARGET2").

2 System rules

Specifications

The TARGET2 General Functional Specifications (GFS), made available to the user community in June 2007, provide a high-level overview of the SSP for TARGET2 and a description of its functions. While the GFS is provided for informational purposes for users, a more detailed and updated explanation of the SSP is available in the User Detailed Functional Specifications (UDFS). The UDFS provides information on the core services (Book 1) and the optional services (Book 2) offered by the SSP, as well as on XML messages (Book 4). The latest version of books 1, 2 and 4 of the UDFS (i.e. version 9.1) was made available to the user community in November 2015.

The User Handbook for the information and control module of the SSP describes the module'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 9.0) was made available to the user community in September 2015.

TARGET2 Guideline

In June 2007 the Eurosystem adopted the Guideline on TARGET2, which repealed the guideline governing the operation of the first-generation TARGET system. Since 2007 the TARGET2 Guideline has been regularly updated to take into account technical changes in TARGET2 and changes in EU legislation, as well as to ensure clarity. In 2012 the decision was taken to “recast” the Guideline, i.e. to produce a consolidated version incorporating all the changes made since 2007. In addition to this consolidation, it was decided, in the interests of transparency, to incorporate articles which had previously been viewed as solely internal to the Eurosystem, and which had been included in a “non-public Guideline on TARGET2”. These articles include, among other things, the legal basis for the balances between national central banks in TARGET2. With the inclusion of these articles in the public Guideline, the non-public Guideline has been repealed and not replaced. The new Guideline on TARGET2 was adopted on 5 December 2012.

TARGET2 is legally structured as a multiplicity of payment systems and is governed by the Guideline on TARGET2, which spells out, among other things, the TARGET2 governance arrangements and audit rules. Annexes to the TARGET2 Guideline form the basis on which the ECB and the central banks set the terms and conditions for their individual TARGET2 component systems, according to the legislation applicable to them. The annexes set out the basis for participation in TARGET2 (Annex II) and for access to intraday credit (Annex III), including the rights and obligations of the participants. In particular, Article 39(1) of Annex II requires that TARGET2 participants comply with the legislation applicable to them on – among other things – prevention of money laundering. Material breach by a participant of the conditions for participation in TARGET2 may lead to suspension or termination of their participation in the system.

Participation of non-euro area central banks

On 24 October 2002 the Governing Council of the ECB decided that, after joining the EU, the national central banks of the new Member States would be given the same rights and obligations with regard to TARGET connection as the non-euro area central banks already participating in the system.³³ Different technical options for such connections, including variants avoiding the need for separate euro RTGS platforms, were developed and presented to the central banks of the new Member States on a “no compulsion, no prohibition” basis. Only when new Member States join the euro area does connection to TARGET become mandatory, as its use is mandatory for the settlement of any euro operations involving the Eurosystem.

³³ At the time, the Bank of England, Danmarks Nationalbank and Sveriges Riksbank.

For national central banks which have not yet adopted the euro, participation in TARGET2 is optional and facilitates 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.

The system now encompasses Croatia, which connected in February 2016, following the necessary preparations and testing activities. Thus, currently 25 EU central banks and their respective user communities are connected to TARGET2: the 20 euro area central banks (including the ECB)³⁴, and five central banks from non-euro area countries.³⁵

3 Cooperation with users and information guides

User cooperation

The development of TARGET2 benefited greatly from the close interaction between the Eurosystem and future users of the system. This cooperation on issues related to the system's operation and further development still continues. It is particularly visible in the yearly release management process. Among other things, the involvement of users has greatly improved the understanding of market requirements and is instrumental in ensuring the smooth implementation of changes to the system and high levels of acceptance by the users.

The Eurosystem maintains close relations with TARGET2 participants through regular meetings held between the central banks connected to the system and the respective national user groups. In addition to the cooperation within national communities, at the European level semi-annual meetings are organised bringing together the Eurosystem, the Working Group on TARGET2 (WGT2) and the TARGET Working Group (TWG), the two working groups comprising representatives of the European banking industry. Two such joint meetings took place in 2015, focusing on operational issues, in particular regarding the management of new system releases.

Relevant information of interest to the user community is published regularly on the dedicated [TARGET2 website](#), which also features regular updates on the TARGET2 performance indicators (traffic volumes and values, and system availability). As a further method of providing information, the Eurosystem also publishes on the ECB website a TARGET newsletter.

³⁴ The ECB and 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, Slovakia (January 2009), Estonia (January 2011), Latvia (January 2014) and Lithuania (January 2015).

³⁵ Bulgaria, Croatia, Denmark, Poland and Romania.

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 which gives their operators a better understanding of the overall functioning of the system and enables them to make use of TARGET2 as efficiently as possible. In addition to information on operational procedures under normal circumstances, the information guide also provides information for abnormal and contingency situations and answers the most frequently asked questions relating to TARGET2.

The latest version of the information guide ([version 9.0](#)) was made available to the user community on 24 November 2015.³⁶

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, ancillary system services, entities to be invoiced) and describes the billing principles for the various types of transaction. This information guide serves as a reference document for pricing and billing issues, but does not confer any legal rights on operations or entities.

³⁶ The information guide is intended solely to provide information on the TARGET2 system and should not be seen as a legal or contractual document.

Annex 2

Features and functionalities of TARGET2

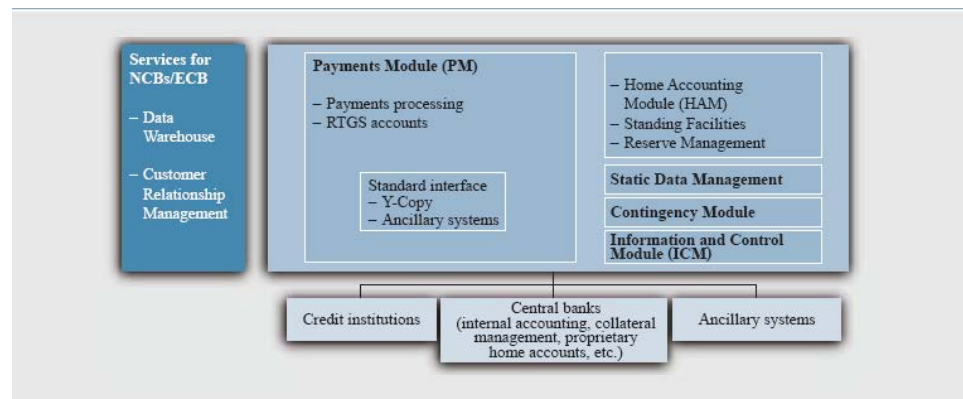
System structure

A modular approach was adopted for the development of TARGET2's single technical infrastructure, the SSP (see the chart below). Every module in the SSP is closely related to a specific service (e.g. the payment module 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 (FIN, InterAct, FileAct and Browse) are used to enable standardised communication between the TARGET2 system and its participants. Since November 2010 a secured connection via the internet has been available for TARGET2 participants in addition to the SWIFT connection.

Chart A1

Structure of the SSP



Business continuity

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

TARGET2 offers the highest 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 payment module of the SSP with access to real-time information and control features. Therefore, they can:

1. submit/receive payments directly to/from the system; and
2. 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.

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 payment module 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. Additionally, 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 a status. It is the responsibility of the direct participant to forward the relevant information to the appropriate central bank for inclusion in the TARGET2 directory.³⁷ 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 payment module of the SSP.

Although there is no difference between an indirect participant and an addressable BIC³⁸ in functional terms, only indirect participants are recognised by the TARGET2 system and, as such, benefit from the protection of the Settlement Finality Directive (in the countries where such protection is granted).

³⁷ For routing purposes, an indirect participant/addressable BIC can only be linked to one direct participant.

³⁸ The TARGET2 directory distinguishes between indirect participants and addressable BICs.

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 in 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. It supports the SWIFTNet FIN payment types MT103/103- STP, MT202/202COV and MT204. Each payment order can be assigned a specific payment priority ("normal", "urgent" or "highly urgent"). In addition, ancillary systems connected via the ancillary system interface 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 business days in advance.

Unless participants have indicated a settlement time, payment orders are settled immediately or at the latest by the end of the business day, provided that sufficient funds are available and no liquidity limits and/or reservations are imposed. 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 if 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 bypassing 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 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 the offsetting of payment flows (i.e. the use of algorithms to settle a number of queued payments). As with the original TARGET system, intraday credit is granted to participants by the respective central bank against eligible collateral.

A direct participant in the payment module 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 ancillary system settlement. 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 account 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 account 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 time. This information is also provided in the aggregated liquidity option. However, in the consolidated account 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 account 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 account 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 payment module and the static data (management) module. Depending on the decision of the respective central bank about usage 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 a wide variety of ancillary systems, 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 ancillary system settlement (two real-time procedures and four batch procedures), which represents a substantial harmonisation of current practices.

Operating dates and times

The TARGET2 system is closed on Saturdays and Sundays and on the following days:

- New Year's Day
- Good Friday
- Easter Monday
- 1 May (Labour Day)
- Christmas Day
- 26 December

TARGET2 is open from 07:00 to 18:00 CET on each of its working days, with a cut-off time of 17:00 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 19:30 to 07:00 CET the next day, with a technical maintenance period of three hours between 22:00 and 01:00 CET. The night-time window³⁹ 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 it. The night-time window generally increases the efficiency of night-time settlement and favours initiatives such as cross-system delivery versus payment for securities systems.

³⁹ Only procedure 6 (settlement on dedicated liquidity accounts) of the generic settlement procedures of the SSP's ancillary system interface is offered during the night-time window.

Pricing

The pricing scheme for TARGET2 core services valid as of 1 January 2013 is shown in the box below.

Table A1

The pricing scheme for TARGET2 core services applicable as of 1 January 2013

Core pricing scheme for direct participants:

	Monthly fee (€)	Flat transaction fee (€)	Digressive transaction fee:
Option A	150	0.8	-
Option B	1875	-	

Band	Volume	Price €
1	1-10000	0.6
2	10001-25000	0.5
3	25001-50000	0.4
4	50001-100000	0.2
5	above 100,000	0.125

The liquidity pooling service (aggregated liquidity option and consolidated account information option) is an optional and separately priced core service. The liquidity pooling service is charged at €100 per account per month for the consolidated account information option and €200 per account per month for the aggregated liquidity option (which includes the consolidated account information option). Furthermore, within a group of accounts (with either the consolidated account information option or the aggregated liquidity option), group pricing applies, which means that the digressive transaction fee is applied to all payments of the group as if they had been sent from one account.

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

Table A2

Pricing scheme

Type of participation	Fee	Frequency	Description
Direct participation	€150 or €1,875	monthly	Depending on the chosen scheme
Multi-addressee access	€80	monthly	Per BIC address in addition to the BIC of the account of the direct participant
Indirect participation	€20	monthly	Direct participant is charged for each indirect participant
Addressable BICs - correspondents	€5	monthly	Direct participant is charged for each addressable BIC
Addressable BICs - branches of direct and indirect participants, branches of correspondents and addressable BIC holders that are members of the same group*	€5	one-off	Direct participant is charged for each registration of addressable BIC
Unpublished BIC	€30	monthly	Direct participants (SWIFT-based or Internet-based) which do not wish their BIC to be published in TARGET2 Directory

* As defined in Article 1 of Harmonised conditions for participation in TARGET2

The pricing for internet-based participants consists of a monthly fixed fee of €70 (regardless of whether the account is held in the payment module or the home

accounting module) together with additional fees as shown in the table below (similar to the core pricing scheme above).

Table A3

Core pricing scheme for internet-based participants

Fixed monthly fee (€)	70
Monthly fee for RTGS account (€)	150
Flat transaction fee (€)	0.8

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

Table A4

Core pricing scheme for ancillary systems

1) Fixed fee I

(monthly flat rate per ancillary system)

€1,000

2) 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

3) Transaction fee

	Monthly fee	Flat transaction fee
Option A	€150	€0.8
Option B	€1,875	

Band	Volume	Price (€)
1	1 – 5,000	0.6
2	5001 – 12,500	0.5
3	12501 – 25,000	0.4
4	25001 – 50,000	0.2
5	above 50,000	0.125

Annex 3

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 national central banks 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 national central banks would hold settlement accounts for banks, although the ECB would also be connected to the central banks 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 links would be established between national RTGS systems. These links (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 with maintaining 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, to provide equal access to central bank credit throughout the euro area, it was necessary to harmonise the definition of assets that can be accepted by the national central banks 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 payment; and (iii) to avoid undue competition within TARGET.

August 1996

In the summer of 1996 the EMI further defined the features of TARGET, in particular with regard to 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 national central banks 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 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 national central banks and to participants in RTGS systems of non-euro area countries, the EMI Council decided in December 1996 to prepare three mechanisms⁴⁰ aimed at preventing intraday credit granted to non-euro area national central banks from spilling over to overnight credit. The final decision on which mechanism to implement was left to the Governing Council.⁴¹

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: (i) it should not affect monetary policy; (ii) it should maintain a level playing field for all participants; and (iii) it should contribute to risk-reduction policies in payment systems.

With regard to operating times, it was decided that, to meet market and risk management needs, TARGET should have long operating hours and, to facilitate the implementation of the single monetary policy and maintain a level playing field for credit institutions, all TARGET components should have a common closing time. Therefore, it was decided, as a general rule, that TARGET would open at 07:00 and close at 18:00 CET.⁴² With regard to relations with other funds transfer systems, it was decided that all large-value net settlement systems would be required to settle in central bank money (i.e. through TARGET).

⁴⁰ First, non-euro area national central banks would receive from and provide to participants in their respective RTGS systems only limited intraday credit, or none at all. Should a non-euro area national central bank incur an overnight overdraft on one of its accounts with a euro area national central bank, overnight credit would be granted at a penalty rate. Second, non-euro area national central banks 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. Third, 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 national central banks 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.)

⁴¹ EMI Annual Report 1996, April 1997.

⁴² *ibid.*

September 1997

A number of TARGET features were defined in more detail, in particular with regard to 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 net settlement systems. 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 all other days, the TARGET system would be open, although national central banks would be allowed to close their domestic systems during national holidays if 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.⁴³

With regard to one of the possible mechanisms for the provision of intraday liquidity to non-euro area national central banks, namely an earlier closing time for non-euro area national central banks 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 national central banks, 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 net settlement systems; (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 net settlement systems, 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 national central banks.

June 1998

All the EMI Council decisions referred to above were adopted by the Governing

⁴³ See also EMI Annual Report, May 1998.

Council. Furthermore, a price structure for cross-border TARGET payments was agreed, ranging from €0.80 to €1.75 for direct participants, depending on the number of transactions.⁴⁴ 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 national central banks 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 national central banks and their RTGS participants, the ECB decided that, at all times, non-euro area national central banks would have to maintain an overall credit position vis-à-vis the other national central banks participating in or connected to TARGET taken as a whole. To ensure the availability of intraday liquidity in its euro RTGS system, each non-euro area national central bank would have to make an intraday deposit with the Eurosystem.

November 1998

A number of TARGET features were defined in more detail, in particular with regard to 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 national central bank.

Unlimited, but fully collateralised, intraday credit would be provided to RTGS participants fulfilling the general counterparty eligibility criteria of the ESCB.⁴⁵ 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, national central banks could decide to grant intraday credit to investment firms, subject to a formal spillover prevention arrangement. Any arrangement under which an national central bank 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

TARGET went live,⁴⁶ successfully linking 15 national RTGS systems and the ECB payment mechanism.

⁴⁴ See also the ECB's press release of 10 June 1998.

⁴⁵ 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.

⁴⁶ For an overview of TARGET developments in 1999, see the ECB's 1999 Annual Report, April 2000.

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 18:00 to 19:00 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.⁴⁷

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, 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.⁴⁸

July 1999

As a result of 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.⁴⁹

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 to safeguard the smooth transition of retail payment systems and internal bank systems to euro banknotes and coins.⁵⁰

October 2000

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

November 2000

The TARGET 2000 upgrade successfully went live. 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+.

December 2000

A long-term calendar was established for TARGET operating days, applicable as

⁴⁷ See also the ECB’s press release of 11 January 1999 and the March 1999 issue of the ECB’s Monthly Bulletin.

⁴⁸ See also the ECB’s press releases of 3 September 1998 and 31 March 1999.

⁴⁹ See also the ECB’s press release of 15 July 1999.

⁵⁰ See also the ECB’s press release of 25 May 2000.

from 2002 until further notice. Accordingly, in addition to Saturdays and Sundays, TARGET would be closed on New Year's Day, Good Friday, Easter Monday, 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 national central banks. 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.⁵¹

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 national central banks of the other participating Member States and the ECB.⁵²

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), which came into force on 1 January 1999.⁵³ The TARGET Guideline 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 RTGS^{plus}, the new German TARGET component replacing the former Euro Link System (ELS).

The global TARGET 2001 maintenance release successfully went live on 19 November 2001. The release consisted mainly of the introduction of new SWIFT standards, the validation of negative payment settlement message notifications (PSMNs),⁵⁴ 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) to ensure that TARGET

⁵¹ See also the ECB's press release of 14 December 2000.

⁵² See also the ECB's press release of 28 February 2002.

⁵³ 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), Official Journal L 140, 24 May 2001, p. 72. The Guideline is also available on the ECB's website.

⁵⁴ A negative PSMN provides the rejection code (reason for the rejection).

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.

November 2002

The 2002 TARGET maintenance release successfully went live 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.⁵⁵

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 2003.⁵⁶ 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 TARGET malfunctioning. 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

⁵⁵ "TARGET2: Principles and structure".

⁵⁶ "Summary of comments received on TARGET2: Principles and structure".

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 ECB payment mechanism affecting TARGET participants would also be covered by the compensation scheme. However, the scheme does not apply to customers in the ECB payment mechanism. Its procedures are largely standardised to keep the administrative burden low.

November 2003

The 2003 TARGET release successfully went live 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 do the same.

June 2004

The 2004 TARGET release successfully went live on 14 June 2004. This release took into account a change in the SWIFT validation rule for IBANs, 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 national central banks (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 the 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 SSP 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, the 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.

November 2008

After having successfully carried out the necessary acceptance and user tests, SSP release 2.0 went live on 17 November 2008. The elements constituting release 2.0 were the adaptations to the SWIFT standards 2008, the implementation of SWIFT Cash Management Standard CAMT 4.0, and a number of bug fixes.

December 2008

On 22 December 2008 TARGET2 reached a peak of 576,324 transactions, which represented an all-time high for the system (including the original TARGET) since its launch in January 1999.

January 2009

Slovakia adopted the euro on 1 January 2009. On the next day, Národná banka Slovenska and its national user community started sending and receiving euro payments via TARGET2.

May 2009

Exceptionally, two new system releases were scheduled for 2009. The first one (release version 2.1) was an intermediate release that went live on 11 May to enable the cross-CSD settlement functionality in the ancillary system interface. The second one is explained in the next paragraph.

November 2009

The second release in 2009 (release version 3.0) was implemented on 23 November, enhancing the system's real-time online monitoring tool and implementing the new message standard MT202COV, among other new features.

February 2010

After completing all the preparatory work, Българска народна банка (Bulgarian National Bank) and its national user community connected to TARGET2. This connection brought 18 new participants to TARGET2 (16 commercial banks, one ancillary system and Българска народна банка (Bulgarian National Bank)).

November 2010

The yearly release in 2010 (release version 4.0) went live on 22 November. Since then, TARGET2 users have been able to access the SSP through the internet and not solely through the SWIFT network. This feature improves access to TARGET2 primarily for smaller banks. In addition, SSP release 4.0 brought some minor changes to fine-tune the services for the banking community as well as some services for the central banks.

July 2011

On 4 July the Banca Națională a României (Romanian National Bank) and its national user community connected to TARGET2 after having completed all the preparatory work. As a result, 23 new participants joined TARGET2 (22 commercial banks and the national central bank).

November 2011

The yearly release in 2011 (release version 5.0) was implemented, as always, during the third weekend of November to coincide with the SWIFT Standard Release. The most important change to TARGET2 in 2011 was the technical implementation of an alternative network for central banks in case of a SWIFT outage, which allows for the timely execution of (very) critical payments on behalf of the participants in a more efficient way.

September 2012

On 19 September 2012 the Eurosystem approved, for the first time since TARGET2 began operations, amendments to the TARGET2 pricing policy which entered into force in January 2013.

October 2012

The strategy for the migration of TARGET2 to ISO 20022 was approved. According to the strategy, in the future TARGET2 will use a new set of ISO 20022-compliant payment messages. The migration will follow the “like-for-like approach”, which ensures full compatibility with the legacy standards. There will be no overlap between the old and new standards, and the date for the migration is November 2017.

January 2013

In the context of the introduction of the new pricing scheme, a new participation type was introduced: “addressable BIC – branch of correspondent”. This new category allows a more precise differentiation among the various categories of participants in the SSP.

November 2013

The yearly release in 2013 (version 7.0) was implemented, on the same weekend of November as the SWIFT Standard Release. The most important change to TARGET2 in 2013 was the connection of TARGET2 to T2S. The new software for this was implemented on the SSP, but only activated on the T2S launch date.

November 2014

The yearly release in 2014 (version 8.0) was implemented, again on the same

weekend as the SWIFT MT Standards release. Only one T2S-related change request (Partial execution Lt T2S-Actor) was implemented in this release.

June 2015

The TARGET2 connection to T2S (implemented in November 2013 in release 7.0) was activated in June when T2S went live.

November 2015

The yearly release in 2015 (version 9.0) was implemented on the same weekend of November as the SWIFT Standard release. In this release only changes stemming from the SWIFT Standard MT Release 2015 changes were implemented.

Annex 4

Additional tables and charts

Table A5

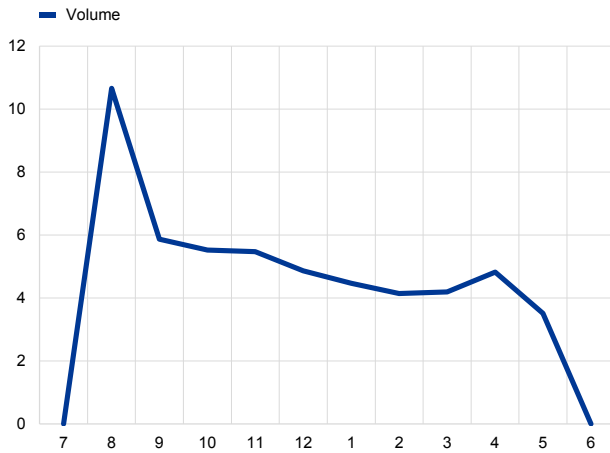
Distribution of payments flows in TARGET2

Country	2014				2015			
	Value (EUR billions)	%	Volume	%	Value (EUR billions)	%	Volume	%
AT	6,766.45	1%	1,195,791.00	1%	7,271.11	1%	1,153,840.00	1%
BE	21,181.64	5%	2,341,338.00	3%	21,998.26	4%	2,593,066.00	3%
BG	391.84	0%	240,486.00	0%	327.57	0%	223,528.00	0%
CY	81.85	0%	124,470.00	0%	131.14	0%	138,692.00	0%
DE	158,177.31	34%	43,860,544.00	50%	156,907.55	32%	44,002,798.00	49%
DK	2,827.19	1%	154,930.00	0%	2,906.87	1%	165,123.00	0%
EE	155.21	0%	421,571.00	0%	246.26	0%	157,026.00	0%
ES	57,424.08	12%	7,400,524.00	8%	62,310.67	13%	7,247,100.00	8%
EU	10,526.29	2%	174,491.00	0%	9,977.12	2%	173,187.00	0%
FI	9,708.43	2%	410,981.00	0%	10,045.62	2%	413,086.00	0%
FR	78,858.27	17%	8,938,105.00	10%	86,777.47	18%	9,381,795.00	10%
GR	5,161.65	1%	777,336.00	1%	6,599.88	1%	847,207.00	1%
IE	3,013.37	1%	886,473.00	1%	3,901.02	1%	915,414.00	1%
IT	32,188.25	7%	10,250,177.00	12%	41,417.98	8%	11,512,599.00	13%
LT	263.74	0%	81,541.00	0%	73.68	0%	108,244.00	0%
LU	18,301.76	4%	1,433,340.00	2%	17,273.61	4%	1,244,505.00	1%
LV	263.82	0%	359,076.00	0%	342.26	0%	356,274.00	0%
MT	150.02	0%	66,523.00	0%	87.18	0%	76,333.00	0%
NL	60,281.90	13%	5,740,906.00	7%	59,187.95	12%	6,385,111.00	7%
PL	447.77	0%	795,459.00	1%	410.80	0%	816,214.00	1%
PT	2,280.53	0%	1,120,009.00	1%	2,791.45	1%	1,211,548.00	1%
RO	79.20	0%	298,372.00	0%	94.55	0%	249,404.00	0%
SI	678.42	0%	688,417.00	1%	684.01	0%	709,016.00	1%
SK	587.21	0%	233,681.00	0%	667.60	0%	255,926.00	0%
Total	469,796.18	100%	87,994,541.00	100%	492,431.60	100%	90,337,036.00	100%

Chart A2

Intra-day pattern of customer payments in 2015 (aggregated yearly volume and value)

(in millions)



(in EUR trillions)

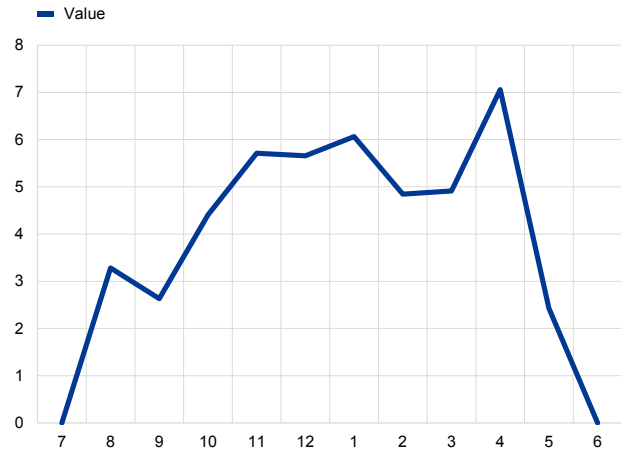
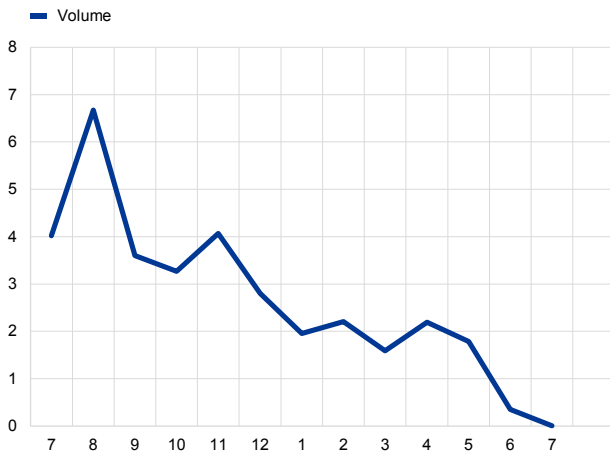


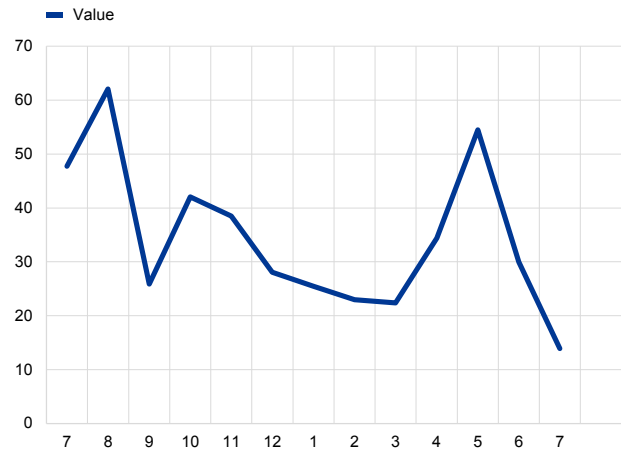
Chart A3

Intra-day pattern of interbank payments in 2015 (aggregated yearly volume and value)

(in millions)



(in EUR trillions)



Glossary

Ancillary system interface (ASI)

A standardised interface to the TARGET2 payment module that can be used by ancillary systems to perform the cash clearing of their business.

Availability

A criterion for evaluating a system on the basis of its back-up facilities and the possibility of switching over to them. See TARGET availability.

Business 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 that aims to ensure that the system meets agreed service levels even if one or more components 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.

Continuous Linked Settlement (CLS) Bank

CLS Bank provides global multi-currency settlement services for foreign exchange transactions, using a payment-versus-payment (PvP) mechanism, meaning that a foreign exchange operation is settled only if both counterparties simultaneously have an adequate position in the currency they are selling.

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 within the TARGET system to enable 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, a national central bank acts as custodian for the other national central banks with regard to the securities held in its domestic securities settlement system.

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 that 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 (also referred to as intraday 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 national central banks, 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.

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 national central banks, 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.

European Economic Area (EEA) countries

The EU Member States plus Iceland, Liechtenstein and Norway.

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 transfer the currency it has sold, but not receive the currency it has 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 materialises. See Herstatt risk.)

Gridlock

A situation which can arise in a funds or securities transfer system, in which a failure to execute one or more transfer instructions (because the necessary funds or securities balances are unavailable) prevents the execution of a substantial number of other instructions from other participants. 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 as a result of one party delivering foreign exchange, while the counterparty financial institution fails 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 TARGET2 direct participants and the Single Shared Platform (SSP).

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 to uniquely identify the account of a customer at a financial institution, to assist error-free customer payments between Member States, and to improve the potential for straight-through processing (STP), with a minimum amount of change within domestic schemes.

Incident

A situation that 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.

Internet-based access

A connection mode to the Single Shared Platform (SSP) that offers direct access to the main TARGET2 services. It is an alternative to connecting via the SWIFT network.

Internet-based participant

A direct participant that connects to TARGET2 via the internet. See also internet-based access.

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 that cannot be revoked by the transferor and is unconditional (and therefore final).

ISO 20022

International standard for developing financial message standards, the methodology of which features the representation of business processes and related transactions in a formal but syntax-independent notation.

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 owing to 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.

Message authentication code (MAC)

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 a national central bank at a pre-specified interest rate against eligible assets. See also central bank credit (liquidity) facility.

MT202COV

The MT202COV is a general-use message, which means that registration in a Message User Group is not necessary in order to send and receive this message. The message contains a mandatory sequence to include information on an underlying customer credit transfer and has a maximum message length of 10,000 characters.

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 addresses a given system as a whole (e.g. a funds transfer system) rather than individual participants. It also covers payment instruments.

Pan-European automated clearing house (PE-ACH)

A business platform for the processing of euro payment instruments which is made up of governance rules and payment practices and supported by the necessary technical platform(s).

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)

The response to a payment settlement message request (PSMR) (see below), which can be either positive or negative. It is normally positive (indicating that the beneficiary's settlement account in the receiving national central bank's/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 payments between Member States involves the exchange of PSMRs from the sending national central bank/the ECB and payment settlement message notifications (PSMNs) (see above) from the receiving national central bank/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 settlements 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 European Economic Area (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 national central bank 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.

Real-time gross settlement (RTGS)

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 (SSP)

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 Telecommunication)

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.

transmission control protocol/ internet protocol (TCP/IP)

A set of commonly used communications and addressing protocols; TCP/IP is the de facto set of internet communication standards.

TARGET availability

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

TARGET

Trans-European Automated Real-time Gross settlement Express Transfer system: the Eurosystem's real-time gross settlement system for the euro. The first-generation TARGET system was replaced by TARGET2 in May 2008.

TARGET2

The second-generation TARGET system. It settles payments in euro in central bank money and functions on the basis of a single shared IT platform, to which all payment orders are submitted for processing.

TARGET2-Securities

The Eurosystem's single technical platform enabling central securities depositories and national central banks to provide core, borderless and neutral securities settlement services in central bank money in Europe.

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).

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.

Abbreviations

Countries

BE	Belgium	MT	Malta
BG	Bulgaria	NL	Netherlands
CZ	Czech Republic	AT	Austria
DK	Denmark	PL	Poland
DE	Germany	PT	Portugal
EE	Estonia	RO	Romania
IE	Ireland	SI	Slovenia
GR	Greece	SK	Slovakia
ES	Spain	FI	Finland
FR	France	SE	Sweden
IT	Italy	UK	United Kingdom
CY	Cyprus		
LV	Latvia		
LT	Lithuania		
LU	Luxembourg		
HU	Hungary		

Others

ASI	ancillary system interface	PSMR	payment settlement message request
BIC	Business Identifier Code	RTGS	real-time gross settlement
BIS	Bank for International Settlements	SSP	Single Shared Platform
CCBM	correspondent central banking model	STP	straight-through processing
CET	Central European Time	SWIFT	Society for Worldwide Interbank Financial Telecommunication
CLS	Continuous Linked Settlement	SWIFTNet	store and forward messaging service for financial institutions on the SWIFTNet platform
CPSS	Committee on Payment and Settlement Systems	FIN	
EAF	Euro Access Frankfurt	T2IS	TARGET2 Information System
EBA	European Banking Association	T2S	TARGET2-Securities
ECB	European Central Bank	TARGET	Trans-European Automated Real-time Gross settlement Express Transfer system
ECBS	European Committee for Banking Standards	TARGET2	second-generation TARGET system
EEA	European Economic Area	TWG	TARGET Working Group
ELS	Euro Link System	UDFS	User Detailed Functional Specifications
EMI	European Monetary Institute	WGT2	Working Group on TARGET2
EMU	Economic and Monetary Union		
EONIA	euro overnight index average		
ESCB	European System of Central Banks		
EU	European Union		
EURO1	EU-wide payment system of the EBA		
GFS	general functional specifications		
IBAN	International Bank Account Number		
ICM	information and control module		
ISO	International Organization for Standardization		
MT103	message type		
MT103STP	message type		
MT202	message type		
MT202COV	message type		
PM	payment module		
PSMN	payment settlement message notification		

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