



EUROPEAN CENTRAL BANK

EUROSYSTEM

TARGET Annual Report

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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 the receiving participant once the funds have been credited, it is possible to reuse

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.

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 the cash leg of their securities transactions.

Building on the synergies between the two market infrastructures, the Eurosystem is investigating the possibility of consolidating the technical and functional components of TARGET2 and T2S. This will provide an opportunity to enhance the RTGS services offered to users, to further strengthen cyber resilience and to establish a single access point to a range of market infrastructure services.

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. Almost 1,800 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 52,000 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 17th 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 2016. 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 2016. 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 2016 and an in-depth analysis of a specific TARGET2 feature. The boxes focus, respectively, on the evolution of traffic in TARGET2, TARGET2 interdependencies, transaction level data and the SIPS regulation and TARGET2 cyber resilience. In the report, the references made to the first-generation TARGET system (which was in operation from January 1999 to May

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

2008) are also applicable to its second generation, TARGET2 (which has been in operation since November 2007).

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 on the ECB website.

TARGET2 activity in 2016

In 2016 TARGET2 maintained its leading position in the European landscape, processing 90% 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 5% and amounted to almost €446 trillion. The total volume of payments remained at almost the same level as in the previous year at approximately 88 million transactions.

The highest daily turnover during the year was registered on 29 June, with a total value of €2,621 billion, and the highest daily payments volume was recorded on 30 June 2016, when 533,100 transactions were processed.

The availability of TARGET2's Single Shared Platform (SSP) in 2016 stood at 100%.

1 Evolution of TARGET2 traffic

Table 1
Evolution of TARGET2 traffic

	Value (EUR billions)			Volume (number of transactions)		
	2015	2016	Change (%)	2015	2016	Change (%)
Total	469,796	445,879	-5,1%	87,994,541	87,896,006	-0.1%
Daily average	1,835	1,735		343,729	342,008	

Note: There were 256 operating days in 2015 and 257 in 2016.

1.1 TARGET2 turnover

TARGET2 turnover in 2016 amounted to a total value of €445.9 trillion, corresponding to a daily average of €1.7 trillion. Chart 1 shows the evolution of TARGET2 traffic over the last seven years. In the period between 2010 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 After two years of stable figures, following the launch of T2S in 2015, TARGET2 turnover decreased by 4.6% in relation to the previous year and by a further 5.1% in 2016.

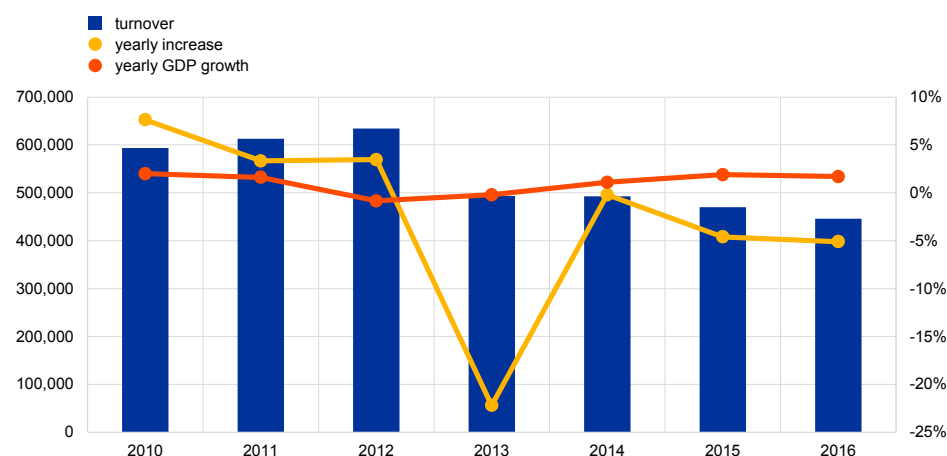
Similarly to 2015, the drop in the total TARGET2 turnover observed in 2016 was largely related to the launch of T2S and more specifically the migration of the central

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

securities depositories (CSDs) in waves 2 and 3. As a consequence of their migration to T2S, final securities settlement of the cash leg of securities transactions 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. In terms of geographical distribution, it is worth noting that in 2016 turnover decreased significantly in the Italian, French and Spanish component system of TARGET2. These drops were predominantly driven by the shift of the Italian and French securities business to T2S as well as by the changes to the Banco de España's collateral policy. In the latter case, the Banco de España updated the pledge technique (from a manual to an electronic procedure) for the mobilisation of collateral for intraday credit purposes. Thus, the repo transactions were reduced.

Chart 1
TARGET2 turnover

(left-hand scale: EUR billions, right-hand scale: percentage)



In terms of the activities involving market participants (i.e. excluding central bank and ancillary system transactions), interbank transactions (transactions exclusively involving credit institutions) accounted for 77% of the total value of the payments in 2016, whereas the remaining share was composed of customer transactions (i.e. transactions processed on behalf of a non-bank party, be it an individual or a corporate). Compared with the previous year, the value of both types of payment increased, by 2% in the case of customer payments and by 4% for interbank payments.

A comparison of the TARGET2 turnover and the euro area's annual GDP (around €10.7 trillion) shows that TARGET2 settles the equivalent of the annual GDP in approximately six 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.

Chart 2 depicts the average daily turnover generated in TARGET2 for each month in 2015 and 2016. While the general pattern for both years is relatively similar, values

recorded in 2016 are significantly lower during the first half of the year than in the same period of 2015. The difference observed during the second quarter is mainly attributable to the launch of T2S in June 2015, which caused an overall decrease in the values processed in TARGET2, in the second half of the year and across 2016 overall.

Chart 2

Average daily TARGET2 turnover

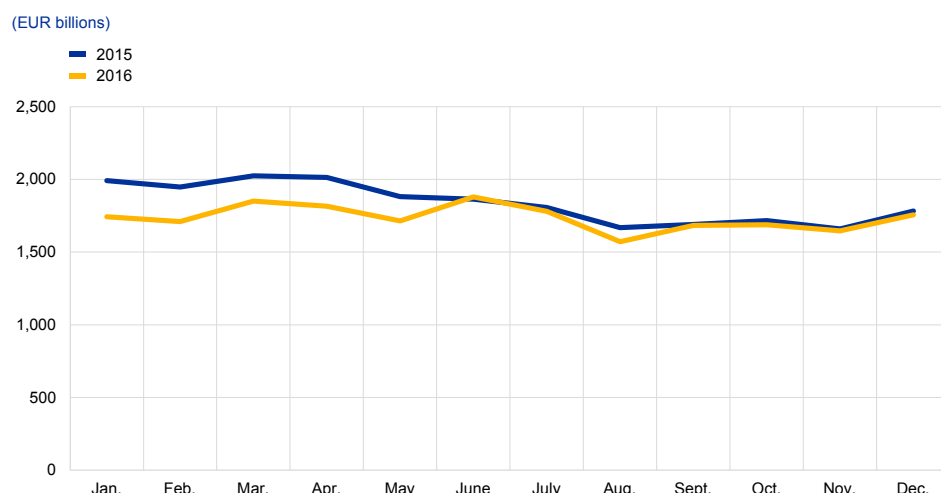


Chart 3

Monthly maxima and minima, troughs and averages of TARGET2 daily values in 2016

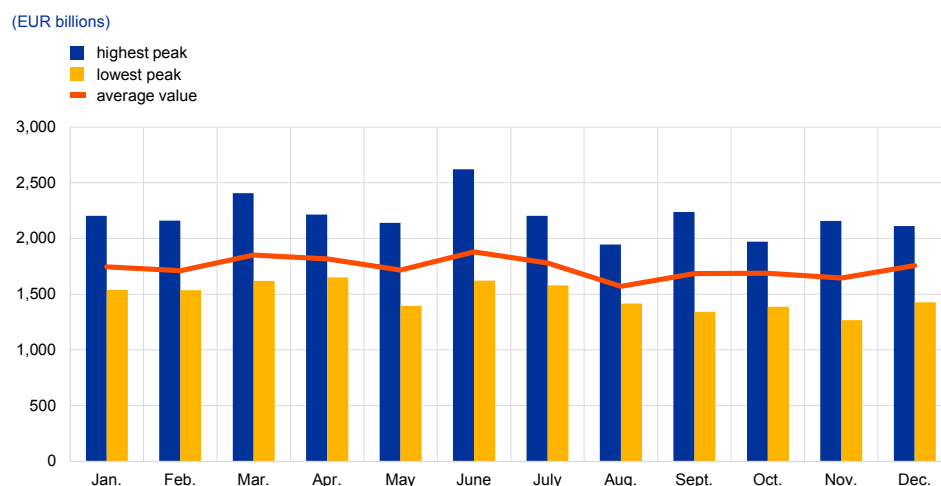


Chart 3 displays the highest and lowest daily TARGET2 values for each month of 2016, as well as the average daily values for each month. Usually, the days with the highest peaks are at quarter ends, typically on the last days of the month, owing to reimbursements and due dates in various financial markets. In line with this in 2016 the day with the largest turnover of the year, with a total value of €2,621 billion, was 29 June.

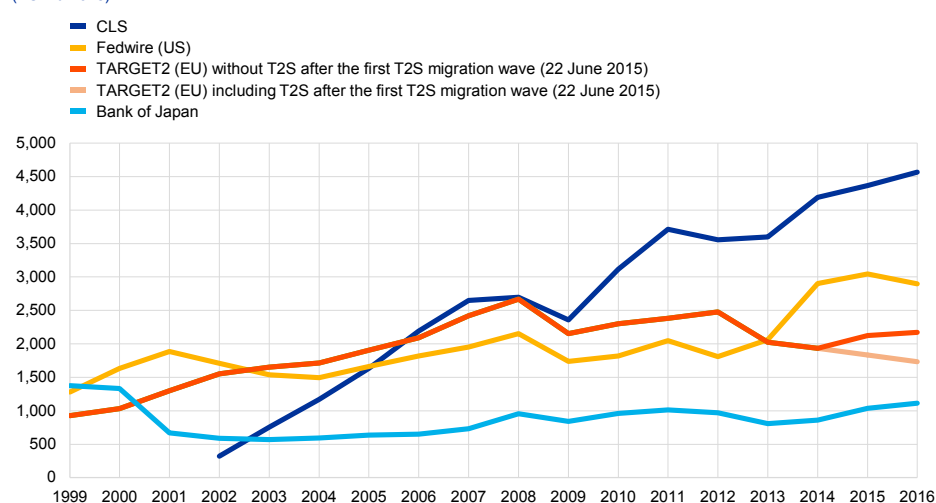
Throughout 2016, the seasonality of TARGET2 turnover, expressed by the difference between the highest and the lowest value, was 52%⁶, compared with 56% recorded the year before. Overall, the average values decreased towards the end of the year, when the lowest values were observed.

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

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 18 years of TARGET(2), 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. As of 2015, the daily average turnover for both TARGET2 and Fedwire decreased, while for CLS and BOJ NET it continued to rise. However, if the average daily volume in TARGET2 were considered together with the average daily turnover on dedicated cash accounts, which are technically held in T2S, total traffic would have increased by 10% in 2015 and by 2% in 2016.

⁶ The difference between the highest and the lowest value recorded during the year consisted of the 52% of the highest recorded value.

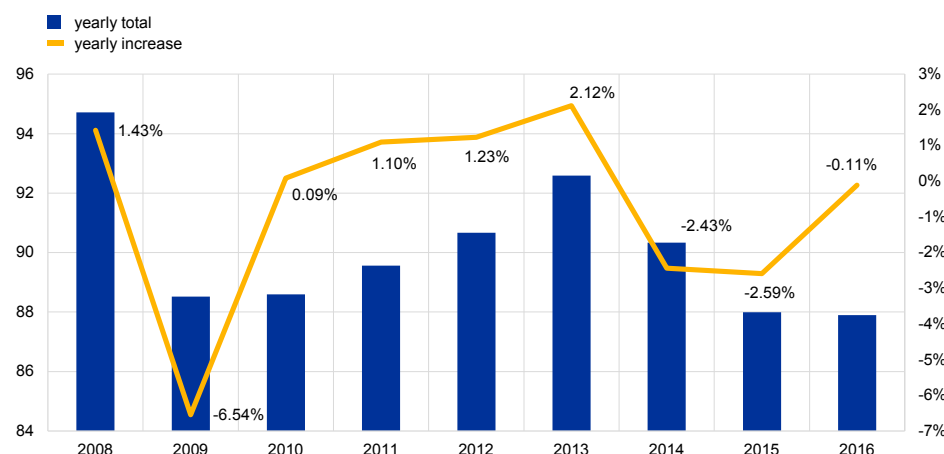
It should, however, be taken into account that while the illustrated trends present an overall pattern, they are also affected by fluctuations in the euro's exchange rate vis-à-vis the US dollar and Japanese yen, which distort the figures reported in Chart 4.⁷

1.2 Volume of transactions in TARGET2

After having being severely hit by the financial crisis, TARGET2 traffic had been slowly recovering with a positive trend between 2010 and 2013 (Chart 5). Although the number of transactions never reached pre-crisis levels, the system attracted around 4 million transactions more over that period. However, this trend was reversed in 2014 and 2015. In this period, owing to the finalisation of the migration to SEPA instruments⁸, there was a significant reduction in the customer payment segment leading to lower overall TARGET2 volumes. Following the completion of the migration to SEPA, TARGET2 traffic stabilised at around 88 million transactions yearly.

Chart 5
TARGET traffic

(left-hand scale: EUR millions, right-hand axis: percentages)



The exact volume settled in TARGET2 in 2016 amounted to 87,896,006 transactions, corresponding to a daily average of 342,008 payments. Compared with the previous year, the overall volume remained at almost the same level, decreasing by only 0.1%. This figure remained stable owing to the fact that the decrease in the volume of ancillary system transactions was compensated by a slight increase in the two largest categories, namely customer and interbank payments. More detailed information on the evolution of the different traffic segments is provided in Box 1.

⁷ 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.

⁸ With this major change for the industry, some participants reconsidered the routing policies for their customer payments and ultimately chose in favour of channels other than TARGET2, mainly SEPA-compliant automated clearing houses, with some banks' customers (mainly large corporates) specifically requesting this.

Since the current traffic levels have been well below the objectives set during the project phase, a new pricing scheme was already introduced in 2013 in order to improve the prospects of cost recovery. 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.

Box 1

Traffic evolution in TARGET2

In 2016, the composition of total TARGET2 traffic in volume terms was as follows: customer payments accounted for 56%, interbank payments for 29% and ancillary system payments for 15%. Furthermore, the decreasing trend came to an end and volumes remained at the same level as in 2015.

This was somewhat unexpected, especially given the two migration waves to T2S on 29 March and 12 September, which reduced ancillary system traffic. This is because other developments counteracted this reduction, resulting overall in a similar volume overall as the one registered in the previous year. This provides an in-depth review of the evolution of TARGET2 volumes in 2016.

Chart A

TARGET2 traffic – growth rate – all payments in 2016

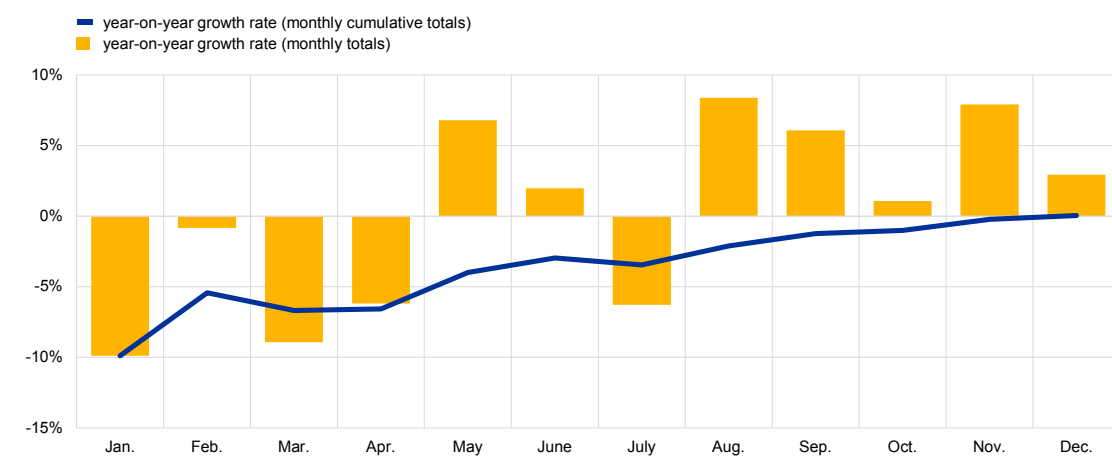


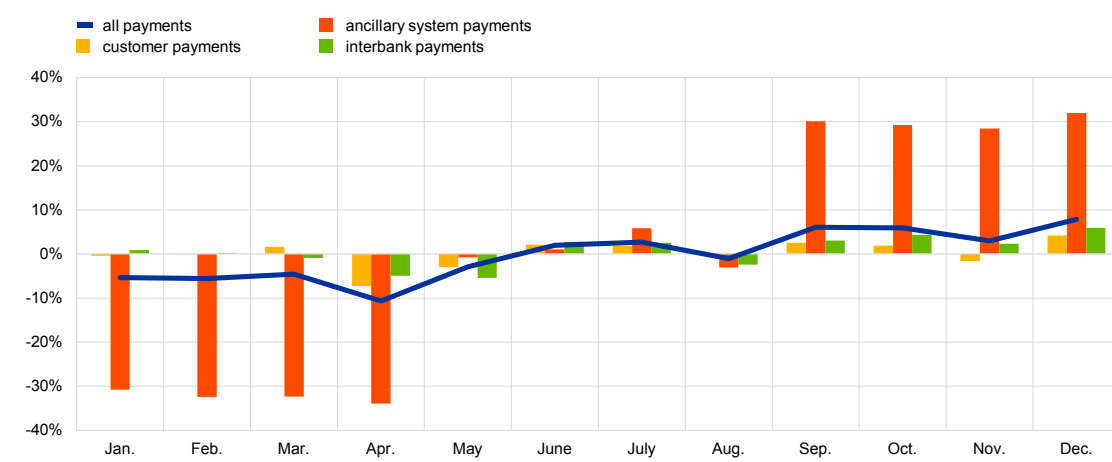
Chart A illustrates the monthly year-on-year growth rates in 2016 based on all TARGET2 payments: for each month the yellow bar indicates the rate of growth in total volume with respect to the same month of the previous year and the blue line represents the rate of growth in volume since the beginning of the year until the reported month, compared with the same period of the previous year. It shows that, compared with 2015, TARGET2 traffic saw the biggest decrease in January, after which it progressively recovered, reaching an overall quasi-zero change in December with respect to the entire previous year, as captured by the blue line. The recovery was mainly driven by a number of months in the second half of 2016 that registered higher volumes than the same period in the previous year.

In total, in 2016 the daily average number of customer payments increased by 0.17% and the number of interbank payments by 0.68%. However, the most surprising change related to ancillary systems, whose daily average volumes decreased by only 0.56% with respect to 2015, while in 2015 they had decreased by more than 12% with respect to 2014. The reasons for this result are explained in Chart B.

Chart B

TARGET2 volumes – year-on-year growth rate of daily average volume per month by payment category

(percentage-difference compared with 2015)



The category of transactions with the highest volatility in volumes settled in TARGET2 during 2016 was that of ancillary systems. In this category we can distinguish three main phases, related to two main events:

In the first four months of 2016, the daily average volume of ancillary system transactions was 30% lower than the volume in the same month of the previous year. This effect is mostly attributable to the migration of Monte Titoli, the Italian CSD, to T2S at the end of August 2015, and then slightly exacerbated by the migration of Interbolsa and NBB-SSS (the Portuguese CSD and a Belgian CSD) in March 2016.

In May this negative trend stopped, owing to a change in the settlement procedure of an ancillary system not yet migrated to T2S, namely Iberclear. This change completely counteracted the decrease in volumes resulting from Monte Titoli's migration the previous year and therefore, for the following four months, the volumes were back to 2015 levels.

Finally, in September there was another turning point: given Monte Titoli's migration to T2S at the end of August 2015, the year-on-year comparison from September to the end of the year includes the effect of this migration (i.e. lower annual volumes in 2015) and the observed volumes in this period, which are in absolute terms close to those registered between May and August, were 30% higher each month than in the same period in the previous year.

All in all, the change in the settlement procedure of a single ancillary system was sufficient to counteract the reduced traffic resulting from the migrations to T2S that took place over the year, meaning that overall volumes remained almost the same as in the previous year, when there was

only one migration. It should be noted however, that this counterbalancing effect will no longer be enough to maintain volumes after the migration of Iberclear in September 2017.

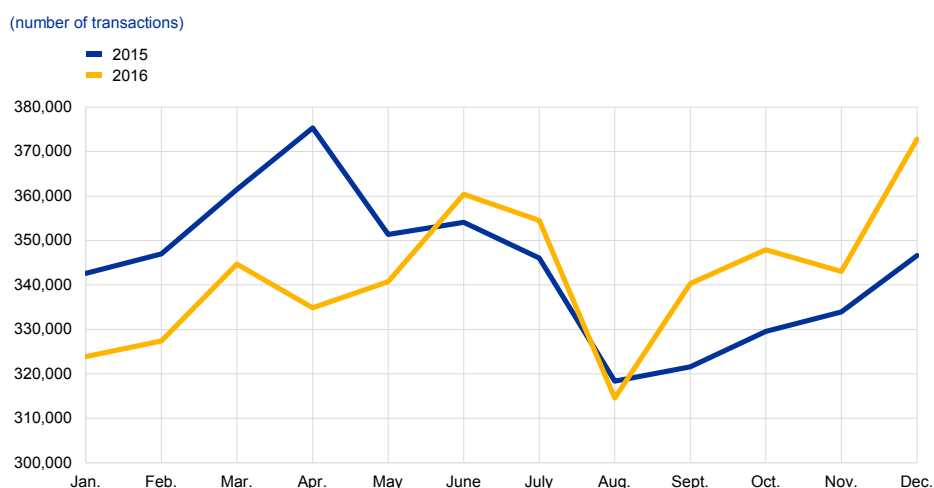
As regards customer and interbank payments, volumes were close to or below zero in the first half of 2016, but gained momentum from June onwards.

The overall result is almost stable volumes with respect to 2015.

In 2016 the average daily volumes in TARGET2 calculated on a monthly basis were below the levels registered for the corresponding month in the first half of 2015 (Chart 6). From June onwards, the daily average volumes mostly equalled or significantly exceeded the 2015 figures. In December the difference between 2015 and 2016 levels increased to almost 8%. Overall, the seasonal pattern remained rather similar to the previous year.

Chart 6

Average daily TARGET2 volumes per month



The highest average daily volume was recorded in December, when it reached more than 372,000 transactions.

Chart 7 depicts the peaks and troughs in terms of daily volume on the SSP in 2016 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 2016 the highest daily volume was registered at the same time as the peak value, i.e. at the end of June (30 June), when 533,100 transactions were processed. The lowest daily volume was recorded on 6 January (222,330 transactions), which was a public holiday in most European countries (Epiphany).

Chart 7

Monthly peaks, troughs and averages of TARGET2 daily volumes in 2016

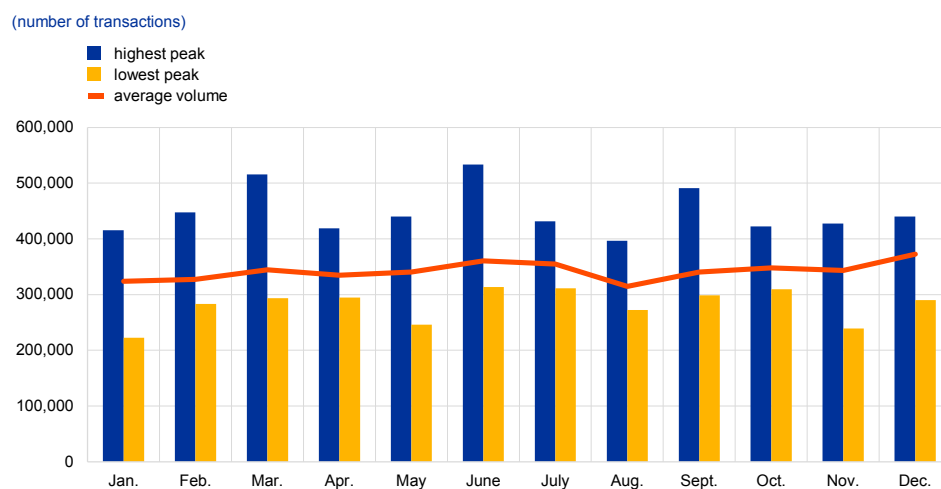


Chart 8

TARGET volumes

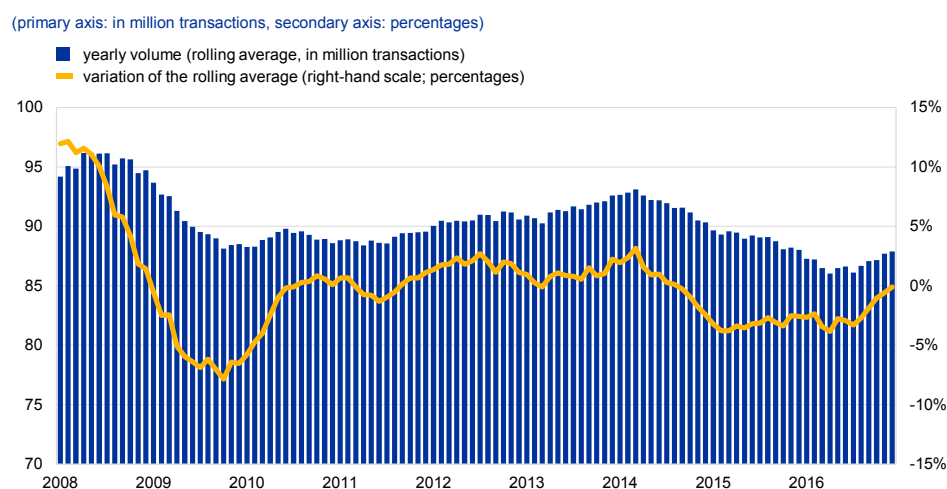


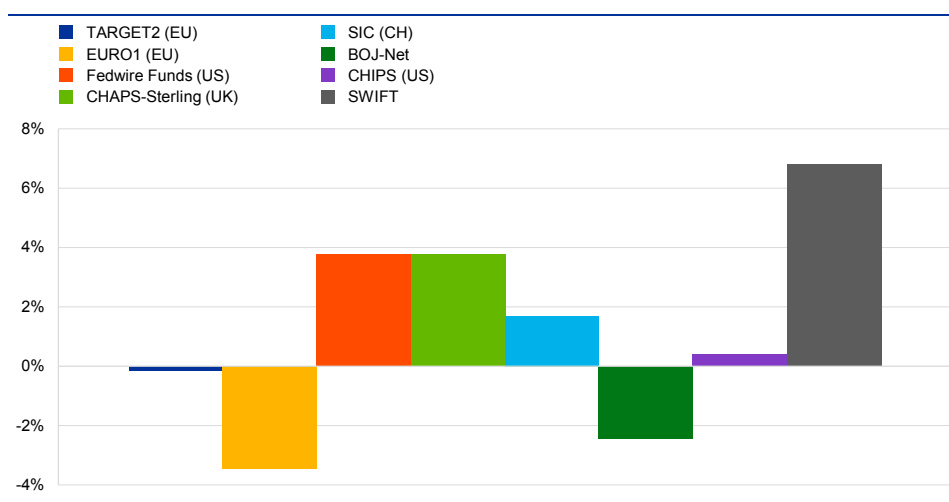
Chart 8 shows the yearly moving average of TARGET2 volumes (i.e. the cumulative volume processed in the preceding 12 months) for each month. This indicator helps to eliminate the strong seasonal pattern observed in TARGET2 traffic. The variation of this cumulative volume from one year to the next is 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 at the beginning of the section (SEPA migration) and, in October 2014, the cumulated

growth rate on a yearly basis turned negative and further decreased until mid-2016. However, in the second half of 2016, the negative trend was however reversed and TARGET2 monthly volumes began to grow steadily again.

Chart 9 compares the growth rate (between 2015 and 2016) of traffic in TARGET2 with the growth rates of the major payment systems worldwide as well as with the growth rate of the SWIFT payment-related traffic (FIN traffic – payments). The chart reveals that, unlike TARGET2 whose traffic remained at the same level as in the previous year, many systems registered positive growth rates, with only EURO1 and BOJ-Net recording lower volumes⁹. The decline observed for EURO1 may be attributable, similarly to previous years, to the ongoing shift of traffic from large-value payment systems to automated clearing houses. As in previous years, the most considerable increase – of around 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.

Chart 9

Comparison of the changes in traffic in some major large-value payment systems and SWIFT 2015-16



1.3 TARGET2 and T2S

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

Although the accounts are centralised on a single platform, the legal and business relationships of the holders of the securities and cash accounts remain with the central securities depositories (CSDs) and national central banks respectively.

Dedicated cash accounts (DCAs) are opened with the national central banks and used exclusively for the securities settlement business in T2S. These euro-

⁹ A detailed comparison of TARGET2 with EURO1 is provided in Section 1.4.

denominated accounts, although technically held on the T2S platform, are legally part of TARGET2. At the end of 2016 there were 428 active DCAs on the T2S platform.

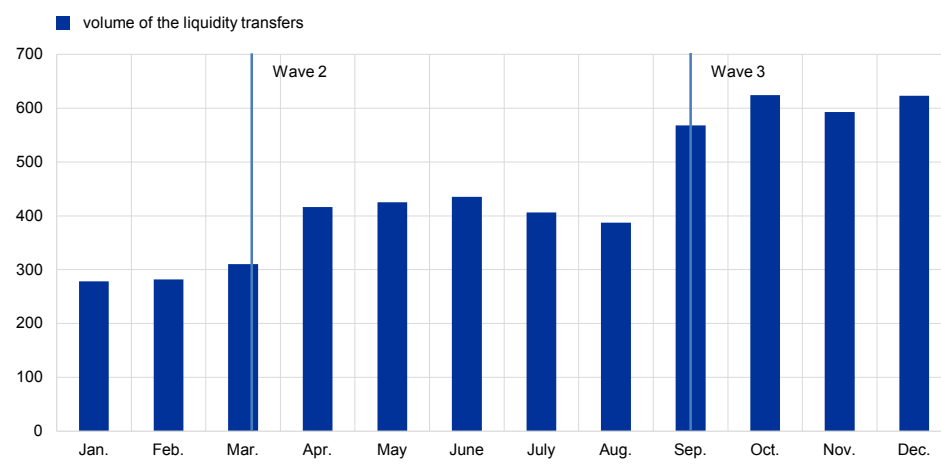
In 2016, there were two T2S migration waves (wave 2 and wave 3) which brought processing volumes first to 15%, and then to 45% of the total T2S estimated volume expected once full migration is complete. The wave 2 saw migration took place on 29 March 2016 and included the CSDs Interbolsa (Portugal) and NBB-SSS (Belgium). Wave 3 took place on 12 September 2016 and included Euroclear Belgium, Euroclear France, Euroclear Nederland, VP Lux (Luxembourg) and VP Securities (Denmark). They joined BOGS (Greece), Depozitarul Central (Romania), Malta Stock Exchange, Monte Titoli (Italy) and SIX SIS (Switzerland), which had migrated the previous year.

Charts 10 and 11 below present the daily average volumes and values of liquidity transfers from TARGET2 RTGS accounts to the DCAs. At the start of each T2S business day, liquidity is sent from TARGET2 to T2S, while, towards the end of the T2S day, any liquidity on DCAs is swept back to the RTGS accounts in TARGET2.¹⁰ During the day, liquidity can be freely transferred from TARGET2 to T2S and vice versa.

Chart 10

Daily average volumes of transfers from the TARGET2 RTGS accounts to dedicated cash accounts in 2016

(number of transactions)

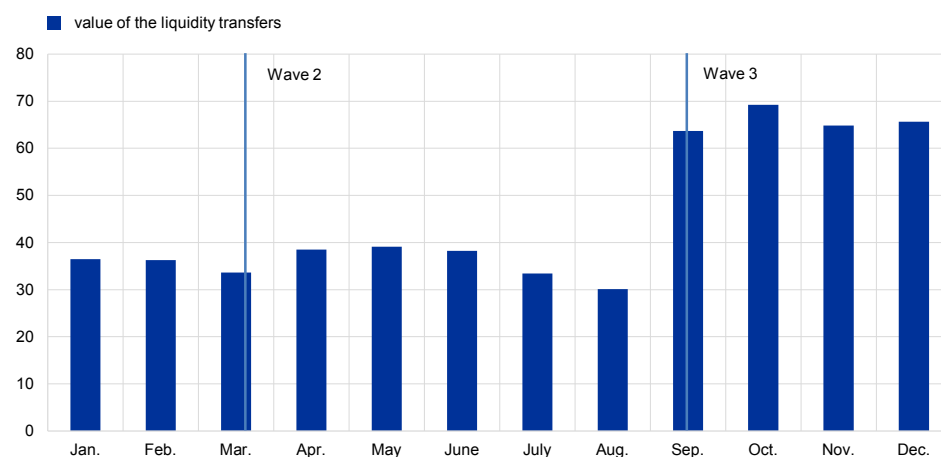


¹⁰ T2S provides for two cash sweeps to transfer liquidity back to TARGET2 at the end of the business day:
- the optional cash sweep at 16:30;
- the automated cash sweep at 17:45.

Chart 11

Daily average values of transfers from the TARGET2 RTGS accounts to dedicated cash accounts in 2016

(EUR billions)



As depicted in Chart 10, after migration wave 2 (at the end of March), the number of daily transfers from TARGET2 to T2S increased by around one third, while a smaller increase was seen in the value of these transfers (see Chart 11). After migration wave 3 (in mid-September) the daily volume of transfers increased by around 50% and their value almost doubled. By the end of 2016, liquidity transfers from TARGET2 to T2S were, in terms of both volume and value, 100% higher compared with the beginning of the year. July and August registered lower volumes and values probably owing to seasonal effects in the summer months.

The chart above compares the average cumulated central bank liquidity held in T2S after each T2S migration wave until December 2016.¹¹

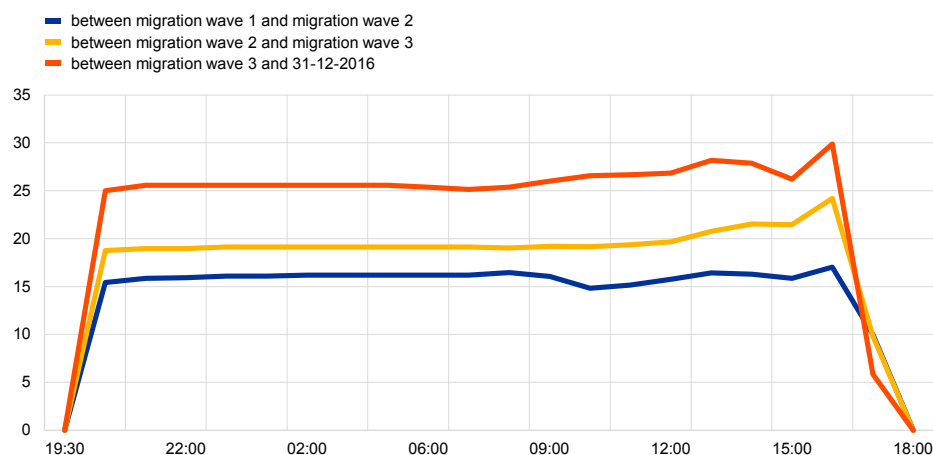
It can be seen that, with every migration wave, the overall intraday liquidity held in T2S shifted upwards. The largest shift in 2016 happened with migration wave 3 (Euroclear Belgium, Euroclear France, Euroclear Nederland), VP Lux (Luxembourg) and VP Securities (Denmark)), after which the average intraday central bank liquidity held in T2S rose from approximately € 20 billion to approximately €35 billion. A smaller upward shift, from approximately €16 billion to approximately €20 billion, followed migration wave 2 (Interbolsa (Portugal) and NBB-SSS (Belgium)).

¹¹ The overall liquidity is computed by each hour. If there is no activity between TARGET2 and T2S during a given hour, then no data point is recorded. The data therefore illustrate the actual phases of activity during the business day.

Chart 12

Time distribution of liquidity in dedicated cash accounts: daily averages between each migration wave (from the launch of T2S until December 2016)

(EUR billions)



Despite the increase in liquidity held in T2S, its intraday pattern remained largely unchanged across migration waves. The liquidity is injected in T2S at the beginning of the TARGET2 night-time phase (19:30) and then its level remains rather constant until the start of the daytime phase (from 05:00 onwards). During the day, only small fluctuations occur. Around 16:00, there is a rise in the liquidity held in T2S, probably owing to participants sending liquidity to T2S to reimburse auto-collateralisation and ensure the settlement of remaining transactions. At 16:30 the liquidity in T2S sharply decreases owing to the optional cash sweep that brings liquidity back from T2S to TARGET2. The next drop, to zero, is observed towards the end of the business day and is related to the execution of the automated cash sweep from T2S to TARGET2 at 17:45, when all the remaining liquidity on DCAs is pushed from T2S back to TARGET2. It should be noted that, despite the additional migration waves in 2016 having almost doubled the overall volume of intraday liquidity held in T2S, the optional cash-sweep at 16:30 is still preferred to the automated cash-sweep at 17:45.

The highest daily average value of the processed T2S transactions was recorded in December 2016, when it reached €578.07 billion. As it could be expected, the lowest average values occurred in the summer period, reaching €278.18 billion in August and €315 billion in July 2016.

Chart 13

Daily average value of settled transactions in 2016

(EUR billions)

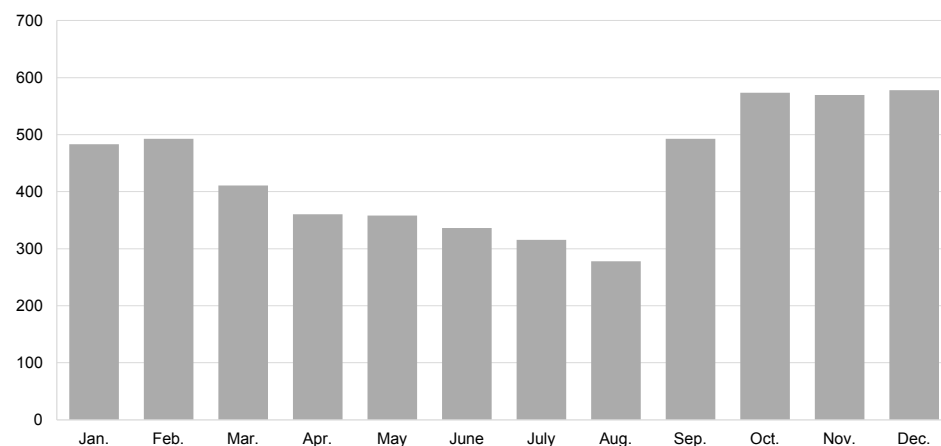
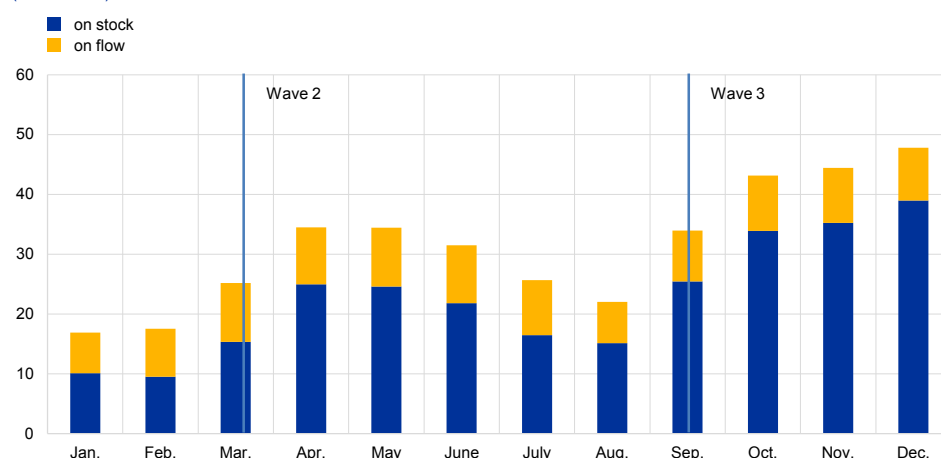


Chart 14 represents the daily average of auto-collateralisation transactions in T2S per month. Although there were two migration waves in 2016, the use of auto-collateralisation on flow (in yellow), - i.e. settlement transactions that are financed via credit received from a central bank and collateralised by securities that are about to be purchased – remained relatively stable throughout the year. On the contrary, auto-collateralisation on stock - i.e. where the credit received from a central bank is collateralised by securities already held by the buyer - increased significantly with both migrations (especially if considering the drops in July and August to be due to seasonal effects). Overall, the use of auto-collateralisation reflects the efficiency of T2S; as this feature reduces participants' funding needs for their own securities activities.

Chart 14

Daily average value of auto-collateralisation transactions in T2S in 2016

(EUR billions)



As illustrated by these charts, the connection between TARGET2 and T2S, which allows banks to exchange liquidity smoothly between TARGET2 RTGS accounts and DCAs, gives rise to an interdependency between the two platforms. Box 2 presents a more detailed discussion on interdependencies in TARGET2.

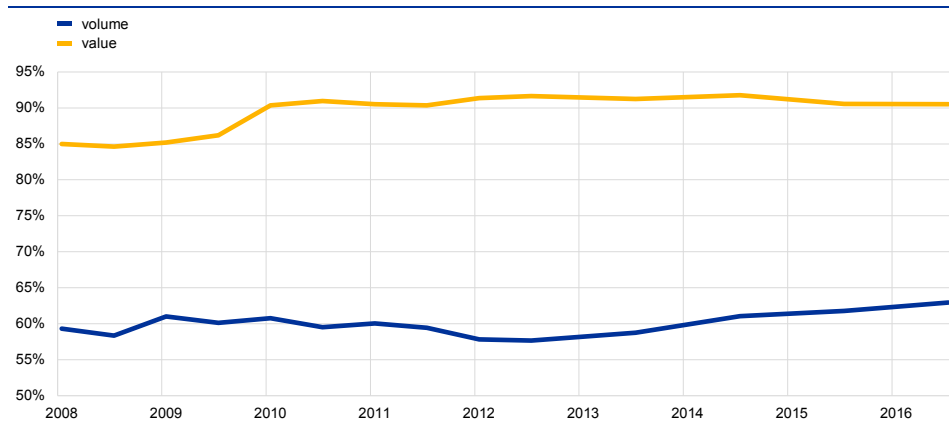
1.4 Comparison with EURO1

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 15. 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 14, which only takes into account these two payment categories. In 2016 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, in 2016 TARGET2 increased its relative share by two percentage points in comparison with the previous year and reached a record 63% of the market share.

When reading Chart 15, 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 15

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



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.

1.5 Value of TARGET/TARGET2 payments

Chart 16 shows the evolution of the average value of a TARGET payment from 1999 until 2016¹². In 2016 the average value of a payment stood at €5 million, representing a decrease of 5% compared with the previous year. This change is partly due to the decrease in ancillary system traffic, typically characterised by high-value transactions.

Chart 16

Average value of a TARGET(2) payment

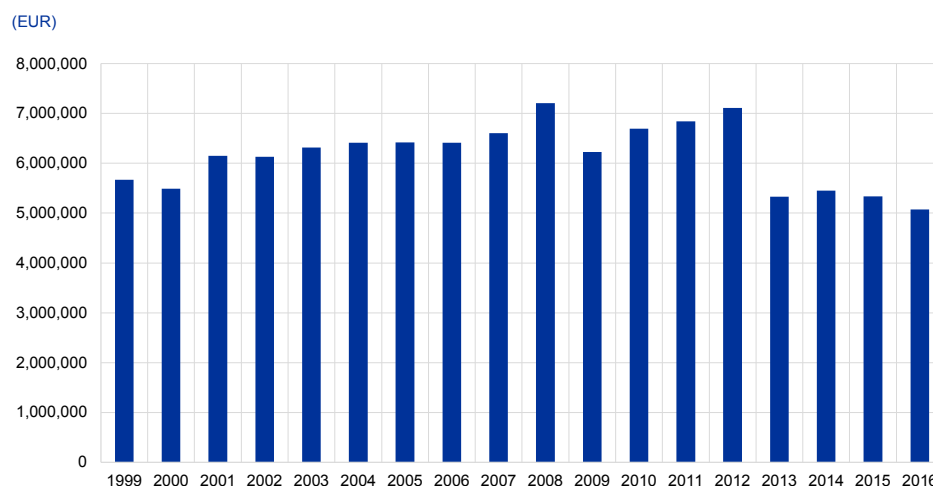
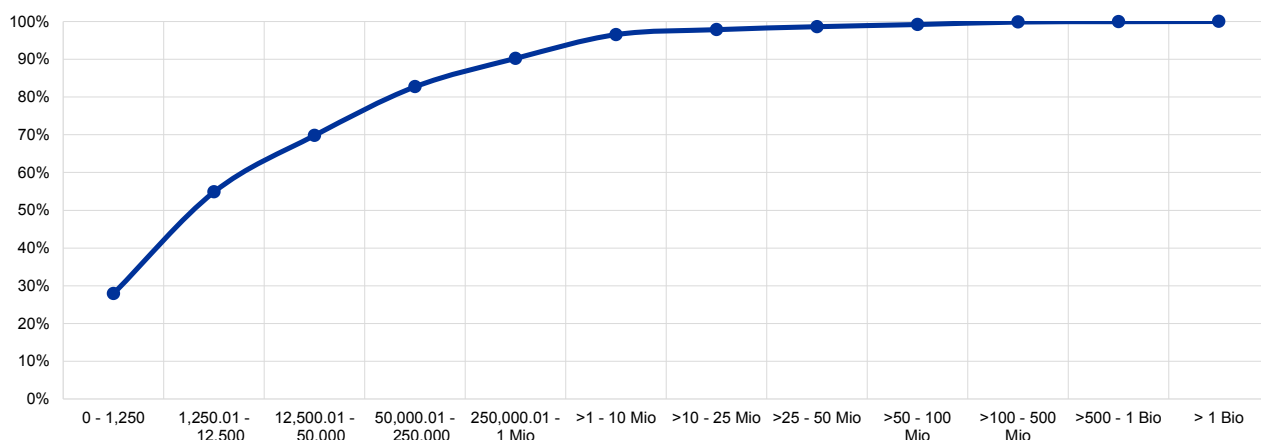


Chart 17 illustrates the distribution of TARGET2 transactions per value band, indicating the volume shares that fall below a certain threshold. The picture remained largely unchanged compared with the previous year, with only a minor decrease of 1% in the higher value band, most likely attributable to the overall decrease in ancillary system payments. Generally, almost 70% of all TARGET2 transactions were for values lower than €50,000. Payments above €1 million only accounted for 10% of traffic, compared with 12% the year before.

¹² As explained in the section 1.1, the sudden drop in the average value in 2013 is attributable to the change in the statistical methodology.

Chart 17

Distribution of TARGET2 transactions across value bands in 2016



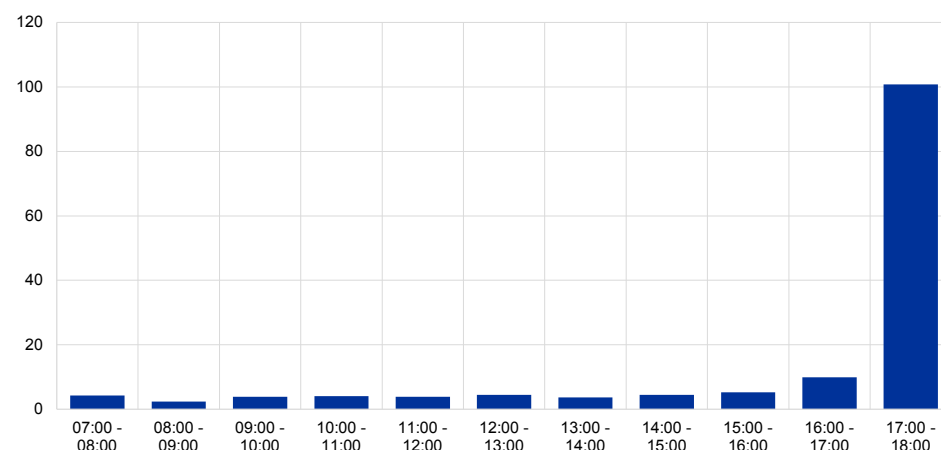
On average, there were 179 payments per day with a value above €1 billion, which accounted for 0.1% of payment flows. From the wide distribution of transaction values, the median payment in TARGET2 is calculated as roughly €12,000, indicating that half of the transactions processed in TARGET2 every day 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 payment systems worldwide.

Chart 18 depicts the average value of TARGET2 payments executed at different times of the day. The chart indicates that in 2016, 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 customer 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 rose by almost 23%.

Chart 18

Intraday pattern: Average value of a TARGET2 payment

(EUR millions)



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 category (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

The identification of interdependencies in TARGET2

Financial market infrastructures (FMIs) are, by nature, widely interconnected. This is particular true for TARGET2 with its dense network of direct and indirect relationships with manifold other FMIs and with its numerous participants, which are all furthermore interconnected with other participants and FMIs too. Given these interdependencies the malfunctioning of one actor can affect not only the direct counterparty, but other counterparties indirectly as well, and possibly lead to long chains of contagion, thus creating systemic risk.

As interdependencies lead to increased interconnectedness among institutions, this has both positive and negative consequences. On the one hand, interdependencies reflect an open, broad and interrelated financial market and thus contribute to efficiency and support standardisation, automation and integration of different payment and settlement processes. Since the main purpose of FMIs is to link market participants, one could even consider interdependencies as being an integral part of them. On the other hand, greater interconnectedness translates to greater, and possibly faster, transmission of disruptions and creation of systemic risk, and the risks should therefore be properly managed and monitored. Some participants tend to emerge as critical in a network, leading to a higher concentration of activity and connected risks within a few nodes. Finally, interdependencies lead to an increased need for coordination and cooperation among all participants and at both the domestic and international levels. It is therefore of the utmost importance that FMIs identify and manage the risks related to interdependencies.

For FMI classified as systemically important payment systems (SIPS) in the euro area, the ultimate responsibility to manage these risks lies with the SIPS operator, as established in the Article 5 (3) of the SIPS Regulation¹³. Therefore, as TARGET2 is classified as systematically important, its operator has developed a methodology for periodically identifying and monitoring the interdependencies and the associated risks in the system.

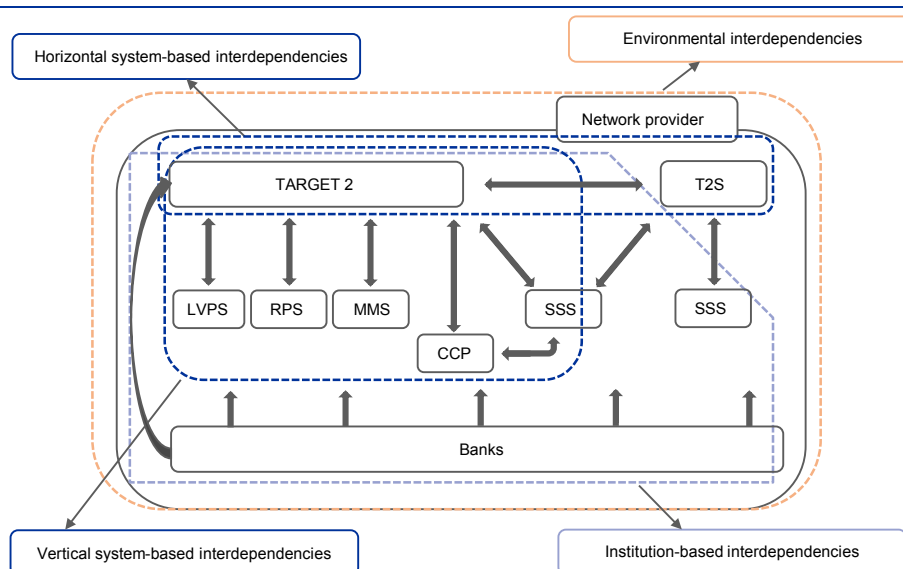
The framework adopted to analyse and assess interdependencies in TARGET2 follows the one proposed in by the Committee on Payments and Market Infrastructures and the International Organization of Securities Commissions (CPMI-IOSCO).¹⁴ In particular, three types of interdependencies are identified: (i) system-based, (ii) institution-based and (iii) environmental. These relationships can affect the clearing and settlement process, risk management and general operations.

This classification of interdependencies is broad and can potentially include many different types of relationship. Nevertheless, for the TARGET2 operator, it is important to identify which ones are the most relevant, and thus for which the monitoring and management should be prioritised. Therefore, the focus has been given to the identification of those interdependencies where TARGET2 is directly affected, either as possible source of malfunctioning or as being directly impacted by the malfunctioning of another entity. This approach is intended to be a dynamic one, as the relevance and criticality of identified interdependencies may vary over time.

For each type of interdependency identified by the CPMI-IOSCO, the general framework has been defined and then transposed to the TARGET2 context. Figure 1 below illustrates the interdependencies identified and monitored in TARGET2. The different interdependencies have been assessed accordingly.

Figure 1

TARGET2 interdependencies framework



¹³ Regulation of the European Central Bank (EU) No 795/2014

¹⁴ CPMI-IOSCO, *The interdependencies of payment and settlement systems*, 2008.

System-based interdependencies arise “(...) from relationships among two or more systems where one system’s performance relies upon the performance of another system.”¹⁵ They can be further classified into vertical and horizontal interdependencies, depending on whether they arise along the clearing and settlement chain or at the same level. In TARGET2, **vertical system-based interdependencies** arise between TARGET2 and the ancillary systems participating in it. In fact, TARGET2 provides settlement services in central bank money to 80 FMIs, including central counter parties (CCP), securities settlement systems (SSS), money market systems (MMS), large-value payment systems (LVPS) and retail payment systems (RPS). Vertical system-based interdependencies are assessed and monitored at both the aggregate and individual level, for instance, via indicators of the share of ancillary system traffic, the geographical location of ancillary systems, the share of cross-border activity, the share in value and volume of participating institutions per ancillary system or the flows of dedicated liquidity to ancillary systems which are making use of it.

Horizontal system-based interdependencies arise between TARGET2 and T2S. The two platforms are naturally interconnected, as the dedicated cash accounts (DCAs) used for T2S are technically on the T2S platform, while they legally belong to TARGET2. The relationship can be further articulated in particular into an operational and a liquidity-based dependency. The operational dependency between TARGET2 and T2S stems from the fact that events in the T2S settlement day can have an impact on TARGET2 and vice versa. They therefore need to be addressed, reassessed and monitored in a transversal manner. The liquidity dependency between TARGET2 and T2S originates from the fact that T2S receives central bank liquidity injected from TARGET2. Moreover, by the end of day, all DCAs in T2S must have been cleared and show a zero balance, meaning that all auto-collateralisation credit must have been repaid and all liquidity transferred to TARGET2. In order to assess horizontal system-based interdependencies, the value and volume of liquidity transfers to and from T2S, overall and by hour throughout the business day, and the inbound liquidity usage in T2S, among others, have been analysed over time.

Institution-based interdependencies are “(...) indirect relationships between two or more systems through a common financial institution”¹⁶, which can act both as a provider and as a user of different types of services. Given the large participation of banks in TARGET2, institution-based interdependencies are quite extensive and arise between ancillary systems and the financial institutions (both credit institutions and other ancillary systems) participating simultaneously in many of them. In 2016, almost half of ancillary systems in TARGET2 displayed on average ten or more direct relationships (the so-called bilateral “links” in network analysis) to other TARGET2 participants.¹⁷ This creates a complex network of both direct and indirect connections, which are monitored by the operator on both the sender and the receiver side. The sum of all bilateral links gives a quantitative measure of an FMI’s interconnection and serves as a proxy of the overall size of the network (see the chart below). FMI relationships in TARGET2 are quite extensive and have grown over time. However, they have been on a steadily decreasing path since August 2015, owing to the migration waves to T2S. The network is particularly responsive to major infrastructure changes affecting TARGET2. For instance, this was the case when the number of relationships spiked between the second half of 2008 and the beginning of 2009 (as a consequence of the

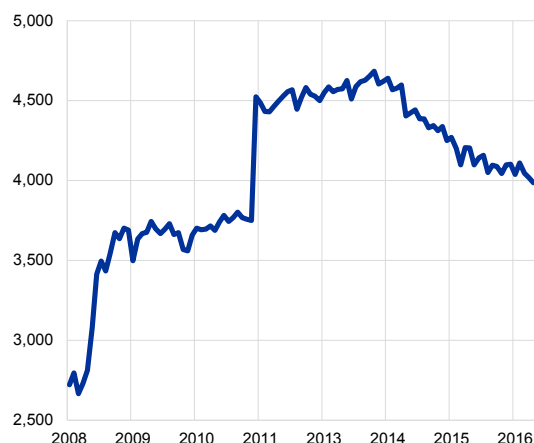
¹⁵ *ibid.*

¹⁶ *ibid.*

¹⁷ The range of observed values is very large, as the number of linkages is affected by each ancillary system’s characteristics and business model.

migration to TARGET2 being completed). Another example was in November 2011, when new FMIs, such as EMZ and SEPA Clearer, joined TARGET2 as a part of the TARGET2 transition period.

Chart A
Bilateral links over time



Finally, environmental interdependencies are “(...) indirect relationships between two or more systems that arise from broader factors, including a common reliance on a service provider or financial market”¹⁸. In TARGET2, they arise due to the common service provided by SWIFT. This type of interdependency is rather stable and managed with specific oversight and operational arrangements.

The tools that TARGET2 and its participants currently have in place in order to deal with interdependencies can be classified into two categories: (i) monitoring and (ii) risk management. Monitoring tools are transversal to the types of interdependencies and refer to all those activities carried out by the TARGET2

operator in order to ensure the smooth functioning of the platform at a technical, functional and operational level. On top of this, participants carry out their own monitoring, which is facilitated by numerous features offered in TARGET2 for these purposes. Risk management tools can be classified based on the risk they help manage. Operational risk is, for instance, mitigated through business continuity and contingency tools. Liquidity risk can be managed using all the TARGET2 liquidity-saving features available to participants, such as offsetting, bilateral and multilateral limits, reservations for certain priorities of payment queue management and intraday credit. Finally, systemically important participants, or “critical participants”, are subject to additional requirements and are subject to more extensive monitoring, including via the banking group monitoring tool.

1.6 Night-time settlement in TARGET2¹⁹

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 of financial institutions and ancillary systems, the night-time settlement is only for ancillary systems that connect via the Ancillary System Interface (ASI) as well as liquidity transfers from/to T2S. Other operations, such as bank-to-bank transactions or customer payments, are allowed during the day only.

¹⁸ *ibid.*

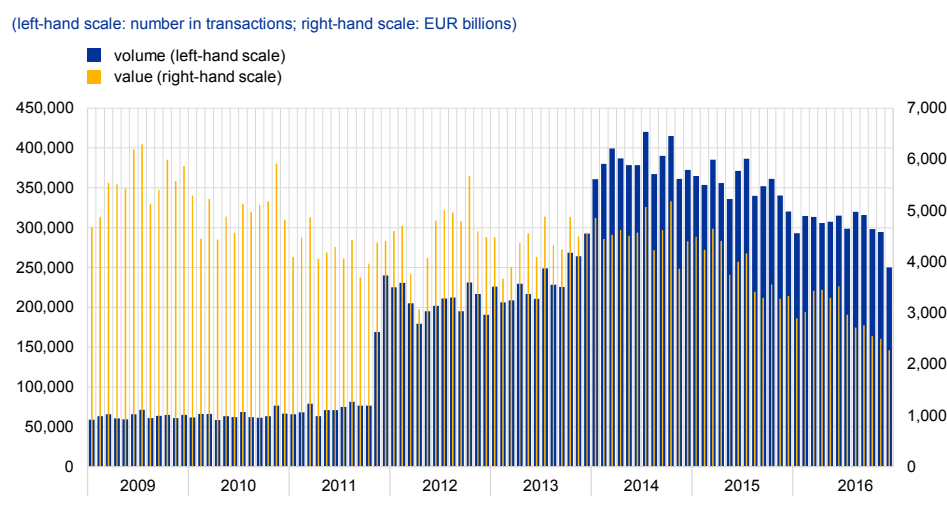
¹⁹ As explained in the disclaimer at the beginning of the chapter, the figures for night-time settlement do not include liquidity transfers with between TARGET2 and TARGET2-Securities.

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 2016 around 14,000 payments, representing a value of €138 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 Directive²⁰.

Chart 19 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 and in 2016 both night-time settlement values and volumes decreased by 24% and 15% respectively. These changes in the night-time settlement pattern can be primarily attributed to securities settlement systems which have migrated their operations to T2S.

Chart 19
Night-time settlement in TARGET2



²⁰ Directive 2007/64/EC on payment services in the internal market.

1.7 Payment types in TARGET2

Charts 20 and 21 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 policy 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. The volume of ancillary system settlement represents 15% of the total volume, 7% of the volume is generated through operations with the central bank, and the remaining share of 3% is linked to liquidity transfers. Overall, all these figures remained unchanged compared with the previous year.

Chart 20

Breakdown of TARGET2 volumes in 2016

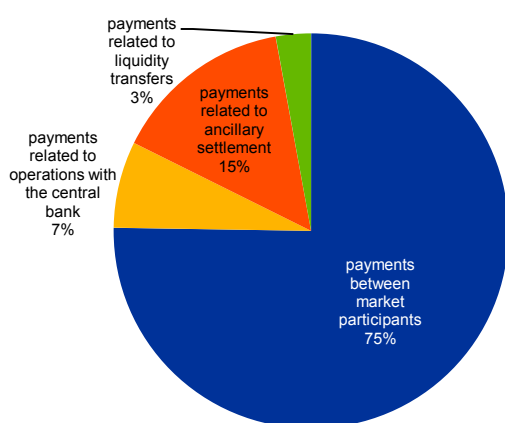
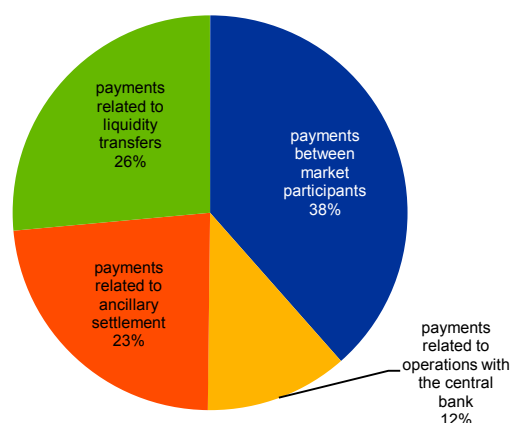


Chart 21

Breakdown of TARGET2 turnover in 2016



With regard to turnover, the composition is visibly different, as payments between participants represent only 38% of the total value. As a consequence of the lower values settled by securities settlement systems, in 2016 the second highest category of payments was represented by payments related to liquidity transfers (26%), replacing ancillary system settlement, which decreased by 7 percentage points. It should be noted that the decrease in the turnover of ancillary system payments, together with the turnover of other categories of payments remaining similar to in the previous year, meant an automatic increase not only in the proportion of liquidity transfers but also in the proportion of the payments related to operations with central banks (12% in 2016).

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.

1.8 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 the priority classes “urgent” and “highly urgent”, 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 22
Use of priorities in TARGET2 in 2016

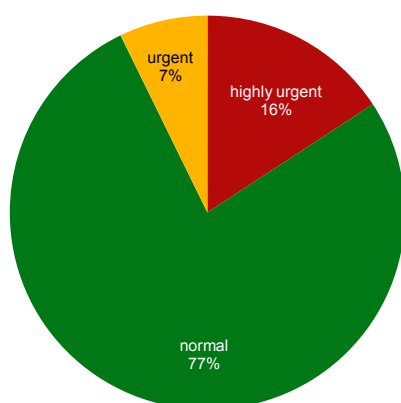


Chart 22 gives an overview of the use of priorities in TARGET2 in 2016 in terms of the overall TARGET2 volume. It shows that more than three-quarters of transactions were assigned normal priority, while only 7% and 16% were urgent and highly urgent, respectively. The distribution of the use of the priorities 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.

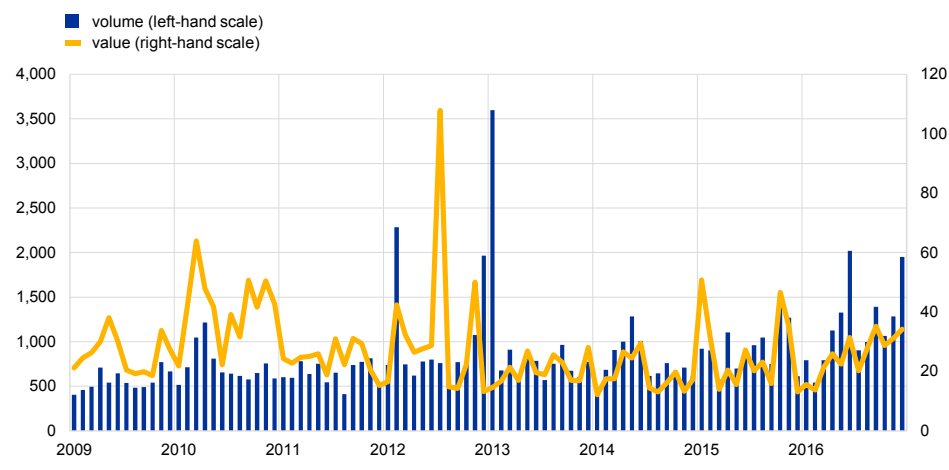
1.9 Non-settled payments

Non-settled payments in TARGET2 are transactions that are not processed by the end of the business day due to, for example, participants’ erroneous transactions, a lack of funds in the account to be debited or the sender’s limit being breached, and are ultimately rejected. Chart 23 shows the evolution of the daily average of non-settled payments on a monthly basis between 2009 and 2016 in terms of both volume and value. Despite having increased by 25% compared with 2015, the average daily number of non-settled transactions in 2016 remained at a very low level of just 1,182 transactions. The increase was mainly driven by peaks in June and December, which were related to one credit institution and an ancillary system. The average daily value of non-settled payments amounted to €26 billion, which was at the same level as in 2015. Overall, non-settled payments in 2016 represented 0.3% of the total daily volume and 1.4% 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 23

Non-settled payments in TARGET2

(left-hand scale: number in transactions; right-hand scale: 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.

1.10 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 24 shows that, in 2016, this share reached 40% in value terms, representing a 2% increase compared with 2015, and 38% in volume terms, which was around the same share 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.

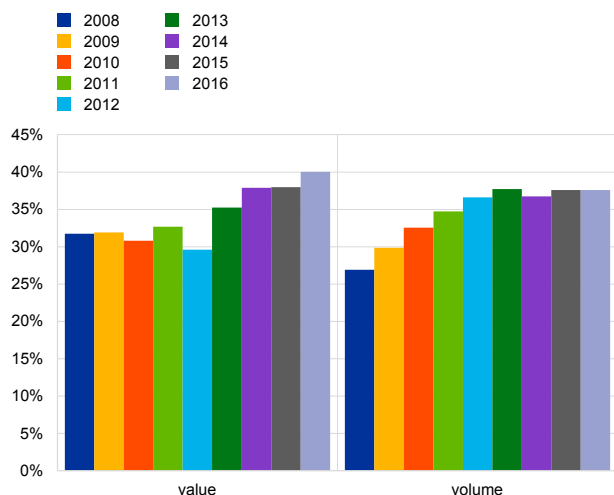
When analysing this data, it should be kept in mind that whether a payment is sent or received by a given banking community may have more to do with the bank's internal organisation than the real geographical anchorage. For example, a subsidiary of a French bank, located in Italy, owing to its internal 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. On the contrary, banks located in the EEA countries whose central banks do not provide TARGET2 services, e.g. UK or Sweden, can participate in TARGET2 component systems provided by other central banks. For example, if a UK bank participating in TARGET2-Bundesbank sends TARGET2 payments to banks in Germany which also participate in TARGET2-

Bundesbank, the payment flows will be considered as domestic, despite the fact that they are taking place between entities located in different countries.

Chart 24

Share of inter-Member State traffic in TARGET2

(in percentages)



The inter-Member State payments shown in Chart 24 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 to TARGET2 from a non EEA country, 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 2016 amounted to 39% 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.

1.11

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 facilities 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 Regulation²¹ (see for more details Box 3).

During 2016 the aggregate level of tiering on the sending side in TARGET2 remained fairly stable at around 5% and 18% in value and volume terms respectively (see Chart 25). This meant that, on average, out of every euro sent or received by direct

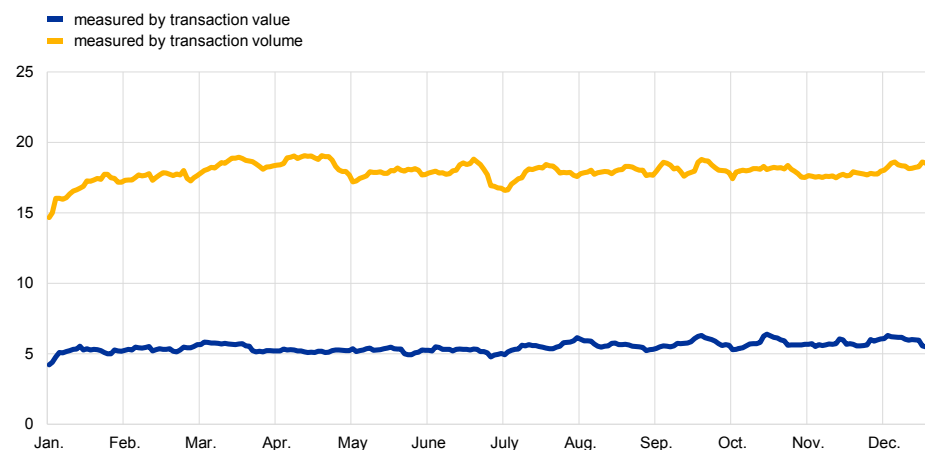
²¹ Regulation of the European Central Bank (EU) No 795/2014 of 3 July 2014 on oversight requirements for systemically important payment systems (ECB/2014/28)

participants in TARGET2 during the year, only 5 cents were settled on behalf of indirect participants outside their banking group perimeter.

Chart 25

Tiering by sender in TARGET2 in 2016

(in percentages; 10-day moving average)



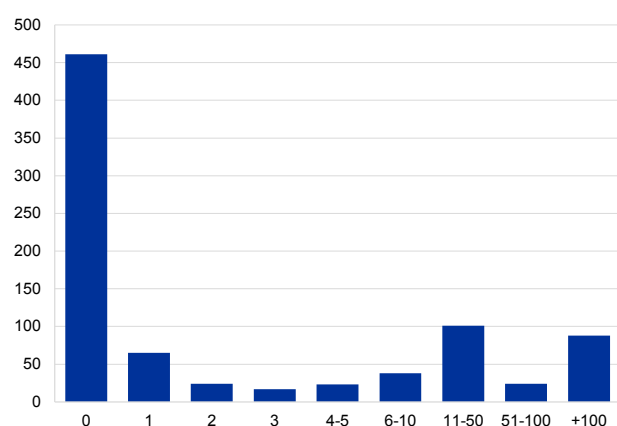
The largest indirect participant in terms of value sent (consolidated at banking group level) was ranked around 55th place out of all TARGET2 participants in 2016.

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 2016 point to a relatively contained level of tiered participation in TARGET2.

Chart 26

Tiered groups per direct participant group

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



In more detail, Chart 26 shows that more than 450 direct participants do not send or receive any tiered payments. Around 60 send or receive payments on behalf of only one tiered banking group and, at the other end of the spectrum, around 90 direct participants act as a settlement bank for more than 100 tiered banking groups.

The latter figure, which decreased slightly compared with the previous last year, 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.

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.²² 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.²³ In 2016 around 46,000 money market loans with a total value of about €2.5 trillion were identified. Overall, the amount of unsecured funds traded in the overnight market during 2016 continued to fall (see Chart 27). This fall can be attributed to the increase in overall excess liquidity within the Eurosystem.

Chart 27

Unsecured overnight money market in TARGET2

(daily totals; left-hand scale: EUR billions; right-hand scale: number in transactions)

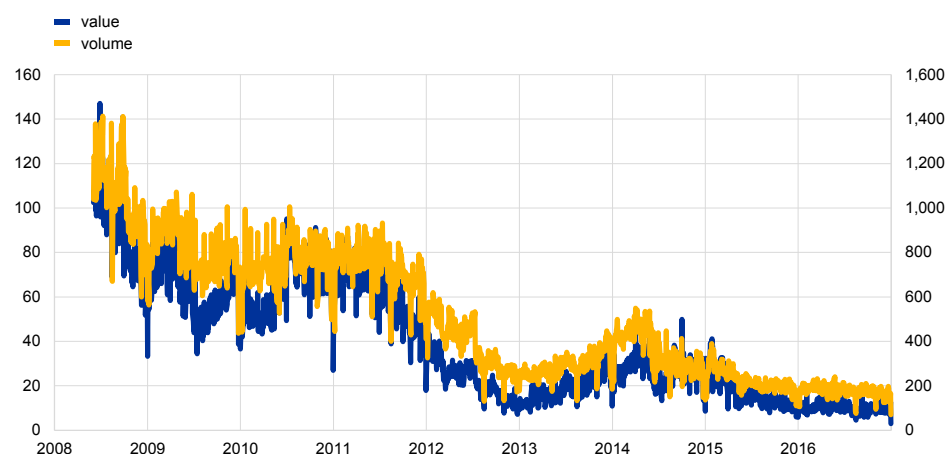


Chart 28 complements this analysis by showing the cumulative distribution in value of all money market transactions across the day in 2016. Regarding the lending leg, 50% of the total value is settled by 14:30, while 98% is settled by 17:00. This confirms the assumption that the last hours of TARGET2 operations are particularly important for the interbank market. In terms of repayment, three quarters of the loans

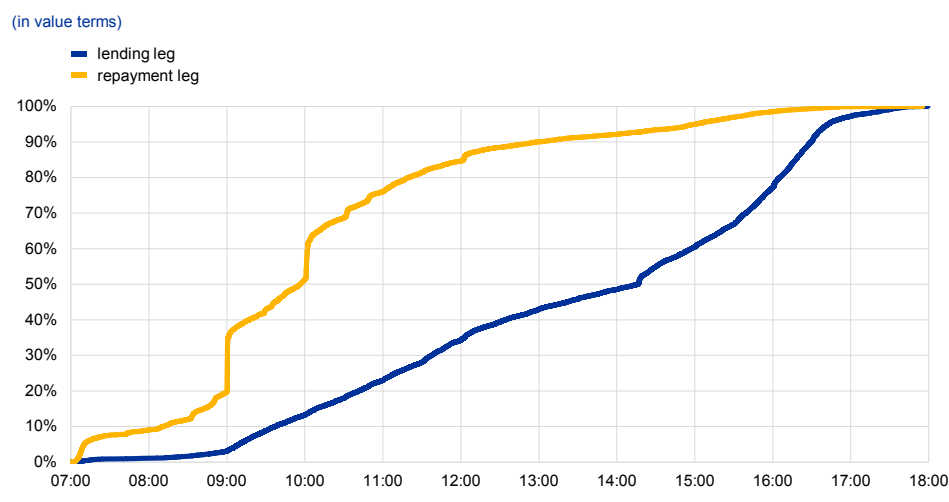
²² For further information, see the box entitled “[The usefulness of TARGET2 transaction data for the analysis of the unsecured overnight money market](#)”, *Economic Bulletin*, Issue 6, ECB, 2015

²³ See Box 2 in the [TARGET Annual Report 2013](#)

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 28

Cumulative distribution of money market transactions during the day in 2016



1.13

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 4 % of overall TARGET2 turnover are shown.

Chart 29

Country contribution to TARGET2 volume

(in percentages)

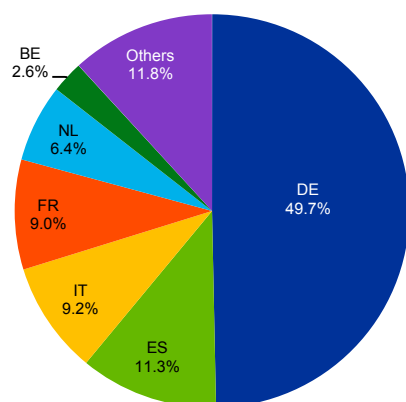
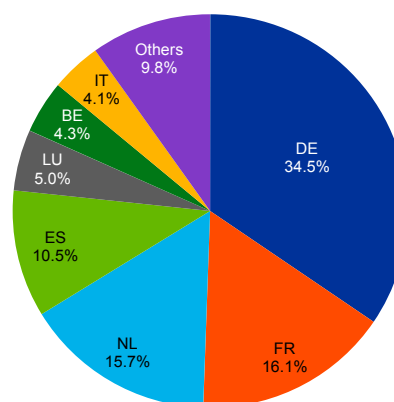


Chart 30

Country contribution to TARGET2 value

(in percentages)



In terms of volume, in 2016, 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 Spain, Italy, France and the Netherlands, the share of transactions increases to 86%, also on a par with previous years. The German share remained the same as in 2015, whereas the Spanish share increased by three percentage points to 11.3%, becoming the second largest. As regards turnover, the picture is again similar to the year before, with Germany accounting for one third of the overall value, followed by France, the Netherlands and Spain. The top four countries by turnover generated more than three quarters of the total value settled in TARGET2 in 2016. The concentration of turnover has slightly changed compared with the year before, owing to the increase in the German share by 1.3 percentage point and the Dutch share by 3 percentage points.

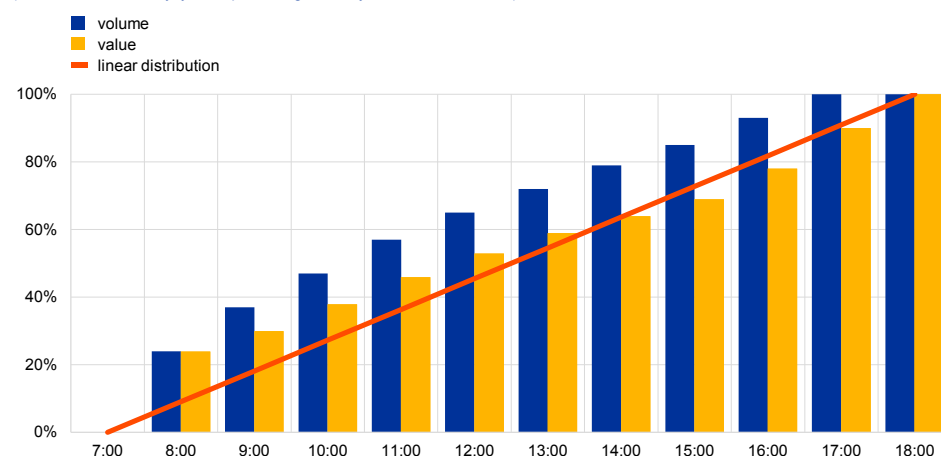
It should be noted that the high concentration of both TARGET2 values and volumes in certain countries is not only the result of the size of particular markets. It can also be attributed to the fact that, since November 2007, the TARGET2 system has allowed the activities of banking groups to be consolidated 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.

1.14 Pattern of intraday flows

Chart 31 shows the intraday distribution of TARGET2 traffic, i.e. the percentage of daily volumes and values processed at different times of the day in 2016. 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.

Chart 31
Intraday distribution of TARGET2 traffic in 2016

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



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 around one quarter 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 almost half by three hours after the start. By one hour before the system closes, almost 100% of the TARGET2 volume has already been processed. A comparison with previous years shows no significant deviations.

2 TARGET2 service level and availability

In 2016 99.8% of the payments settled on the payments module (PM) of TARGET2 were processed in less than five minutes (99.4% in 2015). The remaining transactions needed a processing time of between five and fifteen minutes (0.2%).

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 requests or enquiries,²⁴ 99.98% were processed in less than one minute and only 0.02 in one to three minutes, thus remaining on the same levels as in 2015.

²⁴ This figure covers the InterAct messages received by the SSP, both in U2A and A2A mode.

Chart 32

Processing times on 30 June 2016, excluding first hour

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

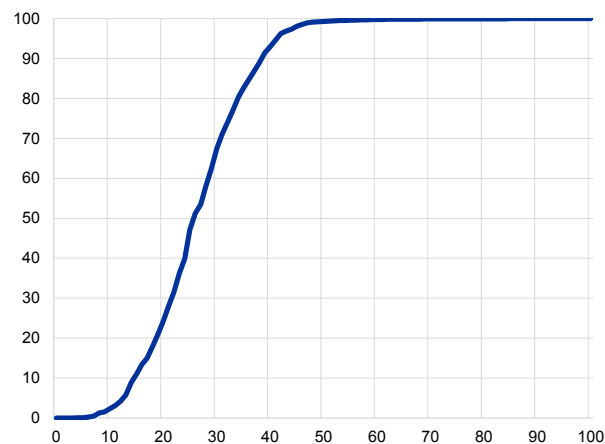


Chart 32 helps to better quantify the system's performance by providing the distribution of processing times on the SSP, i.e. the percentage of traffic with a processing time below a certain number of seconds. The reference point taken is the peak day of the year recorded by the SSP, 30 June 2016, when 533,100 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 submitted 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 100% technical availability over the last reporting period.

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 in TARGET2-Securities, which has an effect on TARGET2, or to major problems in ancillary systems settling in TARGET2). The availability measurement does not include systems or networks not directly managed

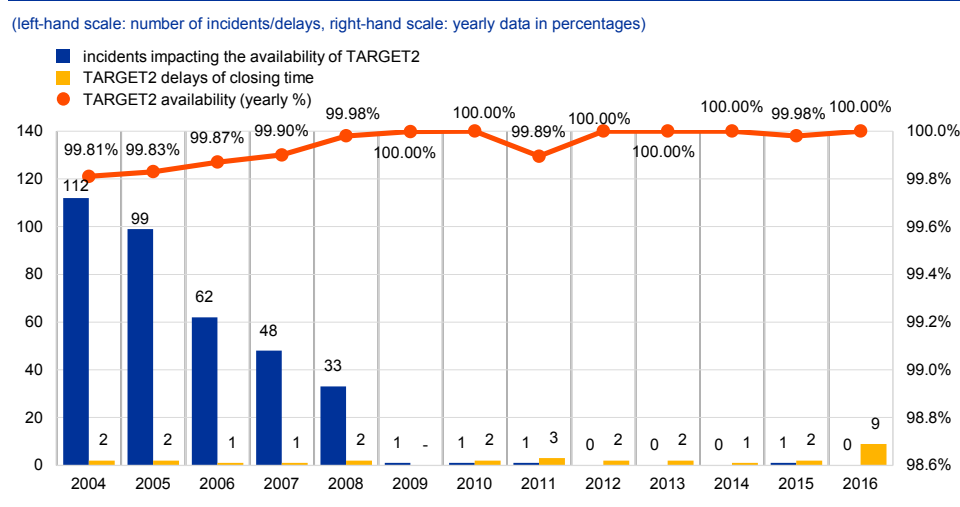
by TARGET2 (in particular, the availability of the SWIFTNet services). Incidents occurring during night-time settlement are not included either.

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 Market Information Dissemination (MID) tool. 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.

Chart 33
TARGET2 incidents and delays in closing



In 2016 TARGET2 experienced some issues 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 overall TARGET2 availability indicator. In particular, on 1 June in the late afternoon, the SSP was affected by a technical problem adversely affecting the processing services of ancillary systems messages, which ultimately led to a two and a half hour delay in the closing time of TARGET2. No other traffic (e.g. MT 202) was affected.

Although not included in the performance indicators, incidents during night-time settlement are also reported transparently and followed up accordingly. In 2016 the following incident occurred.

- On 10 November due to a technical error in TARGET2 FIN messages were not forwarded from the SWIFT entry point to the TARGET2 application. This affected the settlement of ancillary systems and related payments were only processed after 05:06 when the issue was resolved. Moreover, as some messages sent between 01:00 and 05:06 were not processed, the affected participants were asked to resend unprocessed messages during the day trade phase.

The root causes of this incident were identified and corrective measures were implemented in order to prevent 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 eight times in 2016.²⁵

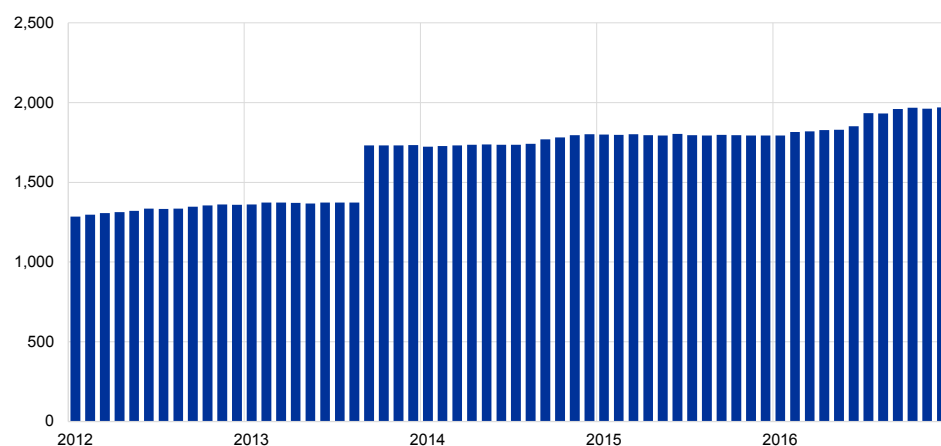
3 TARGET2 participants

3.1 RTGS accounts

In December 2016 the total number of RTGS accounts opened in TARGET2 (encompassing the direct participants, the technical accounts, the ancillary system accounts and the special-purpose accounts) was 1,969, almost 10% higher than at the end of 2015. This increase is driven primarily by the opening of new accounts by financial institutions willing to participate in non-standard Eurosystem market operations.

Chart 34

Number of RTGS accounts in TARGET2

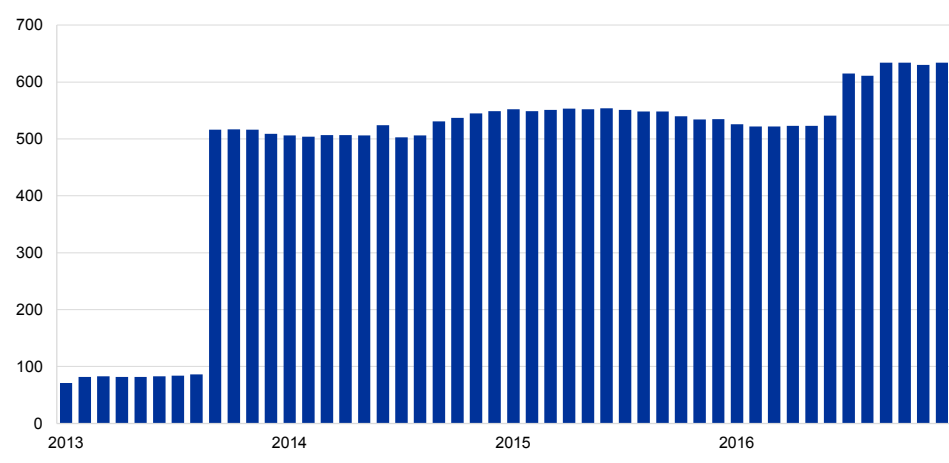


²⁵ On 4 and 20 January, 23 February, 30 September 13 and 14 October, 1 and 30 December.

Internet-based participation

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 2016 the overall number of internet-based participants reached 634, which was almost 20% more than the number recorded at the end of 2015. The largest share of internet-based participants is registered in Germany, followed by France and Italy.

Chart 35
Internet-based participants



3.2 Participation types

At the end of December 2016, 1,076²⁶ direct participants held an account on the SSP of TARGET2 and were registered as such in the TARGET2 directory. Through these direct participants, 701 indirect participants from the European Economic Area (EEA) could settle their transactions in TARGET2, as well as 5,072 correspondents worldwide.

²⁶ 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 participant	1,076
Indirect participant	701
Multi-addressee (CI)	31
Multi-addressee (Branch of direct)	1,524
Addressable BIC (correspondent)	5,072
Addressable BIC (Branch of direct)	31,062
Addressable BIC (Branch of indirect)	2,790
Addressable BIC (Branch of correspondent)	10,202

Including the branches of direct and indirect participants, a total of 52,458 credit institutions around the world (80% of which are located in the EEA) were accessible via TARGET2 at the end of 2016. Compared with the number of reachable institutions registered at the end of 2015, this figure represents a drop of around 5%, driven mainly by the decrease in the number of addressable BICs associated with branches of direct and indirect participants.

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, for the settlement of a certain business, e. g. securities settlement, or to fulfil reserve obligations in countries where reserves are computed on RTGS accounts. There were 587 of these accounts, also called “unpublished BICs”, at the end of 2016 (591 in 2015).

3.3 Ancillary systems

At the end of 2016 a total of 80 ancillary systems were settling on the TARGET2 SSP, including 24 retail payment systems/clearing houses, 30 securities settlement systems and 4 central counterparties. Despite the migration of many securities settlement systems to T2S, these figures are in line with 2015 (when there were 79 ancillary systems in total), mainly due to the fact that the systems, which migrated to T2S left a portion of their activities still in TARGET2 (e.g. non-settlement related activity, such as processing of corporate actions, issuance services, repo transactions or transactions specific for the local market).

Table 3**Ancillary System Interface settlement model (ASI)**

Ancillary System Interface settlement model (ASI)	Usage ¹
Model 1 – Liquidity transfer	0
Model 2 – Real-time settlement	20
Model 3 – Bilateral settlement	15
Model 4 – Standard multilateral settlement	17
Model 5 – Simultaneous multilateral settlement	14
Model 6 – Dedicated liquidity	18

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 80 ancillary systems settling on the SSP, 58 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 other ancillary system use the Participant Interface which was mainly developed for the participants, i. e. financial institutions). The number of times each of the six available ancillary system interface models was used is shown in Table 3. The data indicate that as a result of the migration to T2S model 1 (which supports the integrated model) is no longer used at all, and use of model 6 (which supports both the interfaced and the integrated model) has decreased by almost 20%.

4 TARGET2 revenues

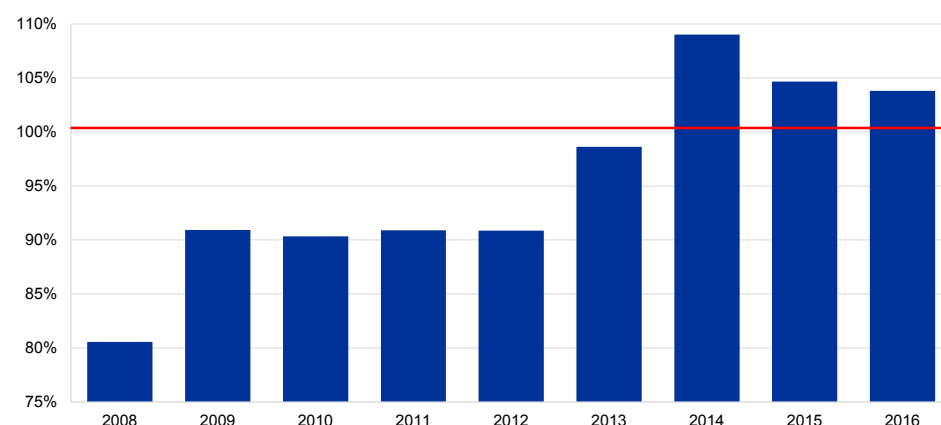
4.1 Cost recovery objectives

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 the finalisation of its migration phase in 2008 is shown in Chart 36 below.

Chart 36

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 1.3%. 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 bringing cost recovery close to 100%.
- In 2014 the largest part²⁷ 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%. These annual profits are used to offset the losses accumulated over the first few years of operation.

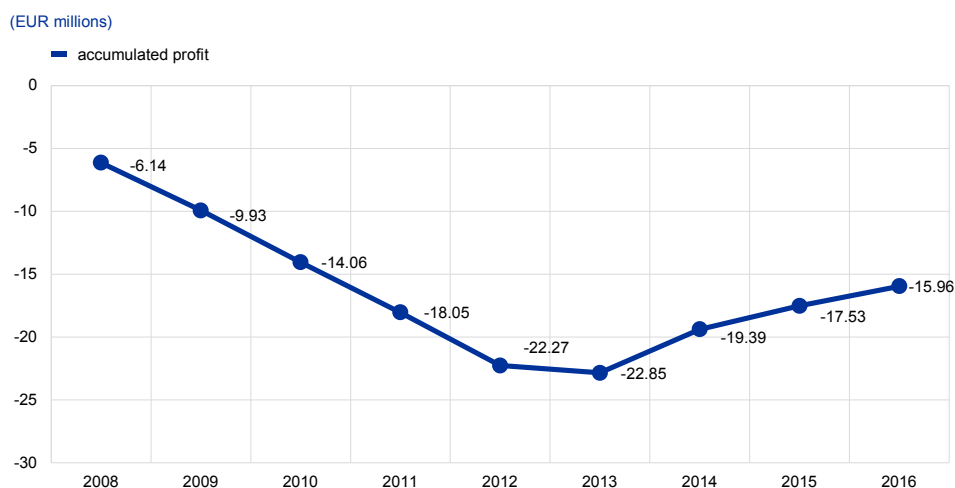
²⁷ This part corresponds to the initial development costs (i.e. Release 1.0). Only the costs corresponding to the development of annual releases that have not yet been fully amortised (i.e. Release 2.0 and beyond) are still to be recovered.

- While TARGET2 has generated annual profits since 2014 the level of cost recovery has since decreased. The reasons behind this decrease are twofold. First, the SEPA migration end date resulted in a one-off drop in the total amount of customer payments settled in TARGET2. Second, TARGET2 underwent some adaptations in preparation for the launch of T2S, the costs of which began being recuperated from 2015 onwards. While these adaptation costs will be passed on to the participants making use of these services in the form of a specific fee²⁸, the overall level of revenues generated by this new fee was expected to reach the targeted level only after the full migration of all CSDs.

4.2 Financial performance of TARGET2 in 2016

In 2016 the total annual costs to be recovered for the provision of the core services of TARGET2 amounted to €41.1 million. On the revenue side, TARGET2 participants were billed for 85.3 million transactions, which together with the fixed monthly fees, generated revenues of €42.7 million. This resulted in a cost recovery rate of 103.8% and an annual profit of €1.6 million. At the end of 2016 the loss accumulated since the launch of TARGET2 had therefore decreased by the same amount and stood at €16.0 million.

Chart 37
Accumulated profit/loss



* 2008: only July - December

²⁸ 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.

4.3 Analysis of the revenues collected in 2016

Based on 2016 figures, the following observations can be made.

- 94% of the direct participants in the SSP opted for the flat fee option (i.e. option A), while 6% opted for the digressive fee option (i.e. option B).²⁹ This illustrates that TARGET2 is 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 generated, in total, around 88% of the traffic on the SSP and almost 75% of TARGET2 revenues.³⁰ 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.³¹
- Transactions exchanged between credit institutions generate around 87% of TARGET2 volumes, with the remaining 13% attributable to ancillary system transactions.
- 76% of TARGET2 revenues were variable, i.e. came from transaction fees, while fixed subscription fees accounted for 24%.

5 TARGET2 risk management and oversight activities

5.1 TARGET2 risk management

Managing information security risks is a key element of the governance structure of TARGET2. In order to meet this responsibility, the Eurosystem has established a comprehensive risk management 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

²⁹ 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.

³⁰ These are accounted for by core pricing participants, central banks using the ancillary system interface for "other purposes", ancillary systems and liquidity pooling.

³¹ 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.

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 in order 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 with regard to the implementation of mitigating measures listed in the action plans is monitored to ensure that satisfactory progress is being made.

During 2016 the Eurosystem updated the information security framework integrating recommendations from the new Standard ISO 27002:2013. Approval by the relevant governance bodies is expected in the first half of 2017.

In order to address new risks arising from the evolution of the threat environment, the Eurosystem also worked on improving cyber resilience in line with the CPMI/IOSCO's "Guidance on Cyber Resilience for Financial Market Infrastructures," published on 29 July 2016.

In conclusion, the consistent use of the TARGET2 risk management framework reassures the Eurosystem, as well as TARGET2 users, that the overall security situation in TARGET2 is kept at a satisfactory level. In this context, it is worth mentioning that incidents which occurred in 2016 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

Oversight activities for TARGET2 are conducted on the basis of the legal framework defined in the ECB Regulation on oversight requirements for systemically important payment systems (SIPS), which entered into force in August 2014. The Governing Council designated the ECB as the competent authority for TARGET2, and all central banks connected to TARGET2 are involved in the oversight activities on a "no compulsion no prohibition" basis.

During 2016 the ECB concluded a comprehensive assessment exercise to verify TARGET2's compliance with the requirements of the Regulation. The assessment was conducted on the basis of the methodology developed by the Eurosystem and published on the ECB's website³². The methodology ensures a consistent and harmonised application of the SIPS Regulation and the CPMI/IOSCO Principles for the Financial Market Infrastructures. The result of the assessment was brought to the attention of the operator. It confirmed the compliance of TARGET2 with most of the articles of the Regulation. For the few articles for which TARGET2 is only broadly

³² [Assessment methodology for payment systems](#).

compliant a detailed action plan for implementing changes to address the oversight findings has been prepared. The oversight function will monitor its implementation during 2017.

Regarding regular activities, in 2016 the TARGET2 oversight function assessed the major incidents that occurred during the year and the implementation of the new TARGET2 releases ranging from version 9.1 to 10.0. It also participated in the TARGET2 stress-testing activity conducted jointly with the TARGET2 operator.

Regarding the assessment of TARGET2 releases, release 9.1 was significant from the oversight perspective owing, to the introduction of two new functionalities: one for the liquidity monitoring in case of crisis situations and one for banking groups (CR-686: Consolidated view for a banking group as a whole and CR-687: Overview of a selected number of group of accounts). The assessment produced positive results, especially, since one of the new functionalities clearly addressed the recommendations provided on Principle 7 on liquidity risk in the oversight assessment of TARGET2 against the CPMI/IOSCO principles that was conducted in 2013.

With regards to TARGET2 stress tests, these were performed by both overseers and operators. A report on the outcome was finalised in 2016 and approved by the Governing Council.

The stress tests focused on two main scenarios: (i) a system-wide shock in which the collateral used by TARGET2 participants experienced a drop in value and (ii) shocks in selected countries, in which the value of the collateral issued in a specific country experienced a fall in its mark-to-market value.

On the whole, the report highlighted the resilience of the system as a whole and that liquidity levels seem appropriate and sustained by the efficient liquidity management features in TARGET2.

Box 3

The importance of transaction-level data for SIPS regulatory compliance

TARGET2 is essential for the implementation of the Eurosystem single monetary policy and provides a safe, efficient and reliable mechanism for the settlement of euro payments on an RTGS basis. TARGET2 is classified as a systemically important payment system (SIPS) and is subject to the Regulation of the European Central Bank on oversight requirements for systemically important payment systems – commonly referred to as the SIPS Regulation.³³ This Regulation disciplines and assigns responsibilities to SIPS operators in Europe. The SIPS Regulation effectively transposes the CPMI-IOSCO's Principles for Financial Market Infrastructures (PFMIs)³⁴ as the minimum requirements for SIPS. It thus provides a common framework for defining and assessing the robustness of market infrastructures in terms of risks and efficiency. The operator is required to

³³ Regulation of the European Central Bank (EU) No 795/2014 of 3 July 2014 on oversight requirements for systemically important payment systems.

³⁴ CPMI and IOSCO (2012), Principles for Financial Market Infrastructures, 2012.

adopt specific measures and to periodically assess the resilience of TARGET2 to different types of risks.

To comply with the SIPS Regulation, the operator needs to have access to payment system information. For TARGET2, both aggregate and transaction-level data are available. However, fulfilment of the SIPS Regulation requires a deep analysis at the highest level of granularity possible. In most cases, the operator would not be able to assess compliance with several parts of the Regulation without referring to transaction-level data. For instance, this is particularly the case for Article 5 on interdependencies, Article 8 on liquidity risk, Article 15 on the identification of critical participants and Article 17 on tiered participation arrangements. This box describes the tools the operator has at hand for analysing TARGET2 transaction-level data for regulatory purposes.

In the Eurosystem, only a small number of users can access transaction-level data for TARGET2 (and subject to strict confidentiality and secrecy agreements). TARGET2's compliance with the SIPS Regulation is a top priority for the Eurosystem TARGET Analytics Group.³⁵

The periodic identification of **interdependencies** in TARGET2 and of the associated risks is in line with Article 5 of the SIPS Regulation. In order to identify and assess interdependencies, the operator regularly computes and analyses a set of indicators based on transaction-level data. Box 2 provides a comprehensive overview of this analysis.

Article 8 of the SIPS Regulation covers **liquidity risk**. This article requires the operator to have analytical measures in place to quantify risks posed by agents to the system. In addition, the operator needs to have readily available tools for monitoring liquidity (both at aggregate and intraday level). This is because the smooth functioning of a payment system depends on adequate levels of liquidity and liquidity turnover at all times.

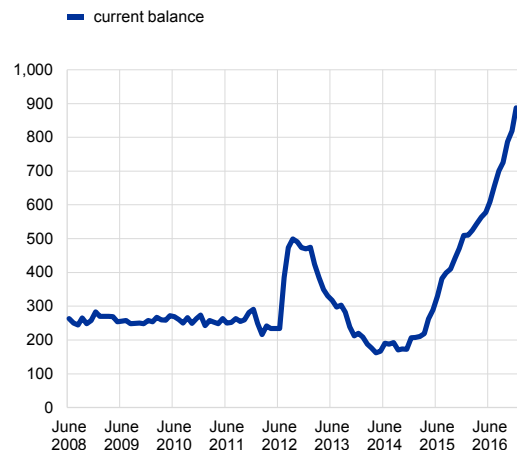
The Eurosystem TARGET Analytics Group was recently successful in building a Eurosystem-wide, almost real-time database to be able to monitor liquidity and intraday credit levels at an hourly frequency for all direct participants. This means, the operator has readily at hand information on how much liquidity sits on the accounts held in the payments module (PM) at more or less any time during the day. Chart A shows, for comparison purposes, the evolution of liquidity in TARGET2 over time. Liquidity refers to the amount of funds available in the PM accounts of all direct participants in TARGET2 at the end of the business day.³⁶ As of the end of 2016, direct participants had accumulated close to €900 billion of daily liquidity. This compares to a liquidity level of slightly over €200 billion during 2008. The steep increase in liquidity stems from the Eurosystem's accommodative monetary policy stance at the Eurosystem since the start of the public sector purchase programme (PSPP) in March 2015.

³⁵ See Decision of the European Central Bank of 29 July 2010 on access to and use of certain TARGET2 data (ECB/2010/9).

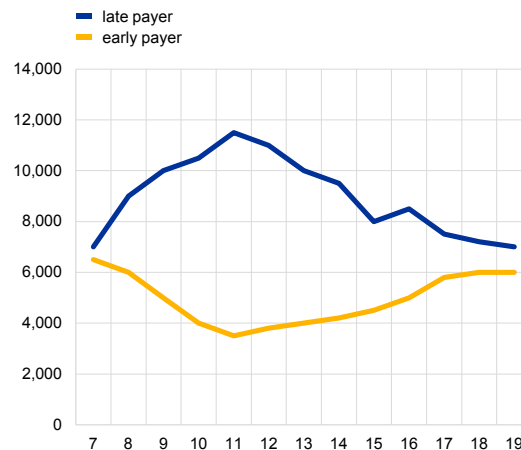
³⁶ This includes all direct participants, which may or may not have access to Eurosystem monetary policy operations.

Chart A**Total liquidity in TARGET2**

(EUR millions)

**Chart B****Intraday liquidity management in TARGET2**

(EUR millions)



Moreover, with the new database, the operator will in future be able to further break down liquidity at the intraday level for each direct participant. This analysis would make it possible, for instance, to compare aggregate liquidity levels or to cluster direct participants (e.g. early vs. late payers). Chart B shows a fictitious example of the potential heterogeneity of direct participants' intraday liquidity management. It shows how some direct participants may utilise their liquidity earlier in the day, whereas others may wait until the late hours. With this transaction-level database available, the operator can monitor available liquidity at each point in time during the day. This information could prove invaluable for the operator, especially during a crisis situation, and could also represent a possible future service enhancement for users.

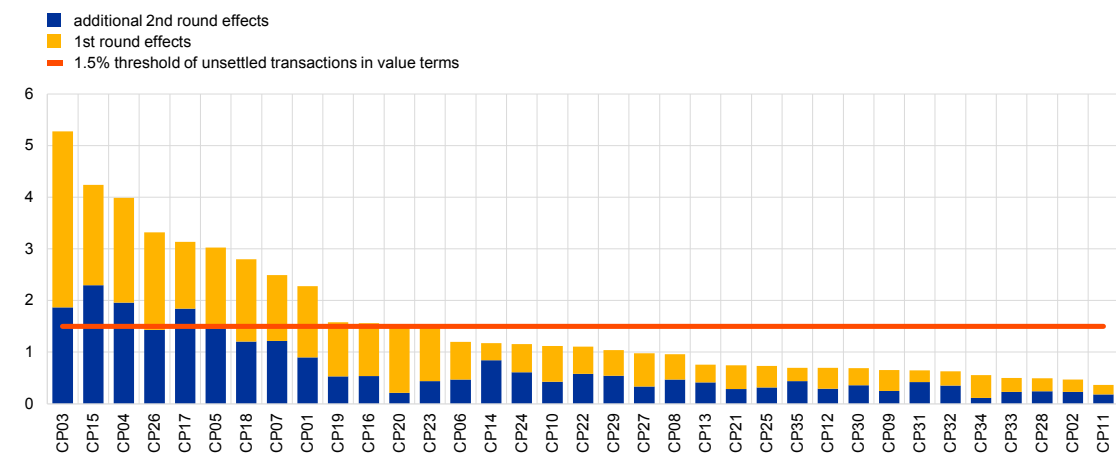
Article 15 of the SIPS Regulation relates to critical participants and the operator identifies them using a combination of two criteria. The first criterion looks at the turnover generated in TARGET2. If institutions generate a minimum share (currently set at 1% of the total TARGET2 turnover of the first quarter of the year), then they are classified as critical. The second criterion relates to the simulation of the technical failure of these institutions plus further institutions with a turnover of slightly below the above mentioned 1%. This simulation is possible thanks to the Bank of Finland Payment and Settlement System Simulator (BoF-PSS2) which can be used to replicate the functioning of TARGET2. The aim of the simulation is to quantify the impact of a participant's failure on TARGET2's overall settlement capacity. The participants which generate at least a certain fraction of unsettled transactions in value terms (currently set at 1.5%), but that did not originally classify as critical (according to the first criterion) qualify for reclassification as critical.

Chart C reports the results of the simulations run for the largest participants. The operator distinguishes between first- and second-round effects. First-round effects indicate transactions that could not be sent owing to the technical failure of that participant. Second-round effects indicate the additional transactions which were sent by other participants, but unsettled in the scenarios (owing to the missing incoming liquidity from the failed participant). This second-round effect is particularly important for the operator, as it provides a measure of systemic risk and contagion. Keeping an eye on both first- and second-round-effects is thus essential for the operator.

Chart C

Critical participants

(in percentages)



Tiered participation arrangements (or tiering) are covered in Article 17 of the SIPS Regulation. This article requires the operator to closely monitor possible risks arising from indirect participants' access to TARGET2.³⁷ Indirect participants are institutions which do not have an RTGS account with a national central bank connected to TARGET2. These entities need to rely on institutions with direct access in order to settle transactions in TARGET2. In monitoring the risks posed by these arrangements, the SIPS Regulation specifically requires the operator to measure the exact size (and importance) of these specific business relationships. Monitoring tiering risks requires both a sound methodology and high-quality transaction-level data.

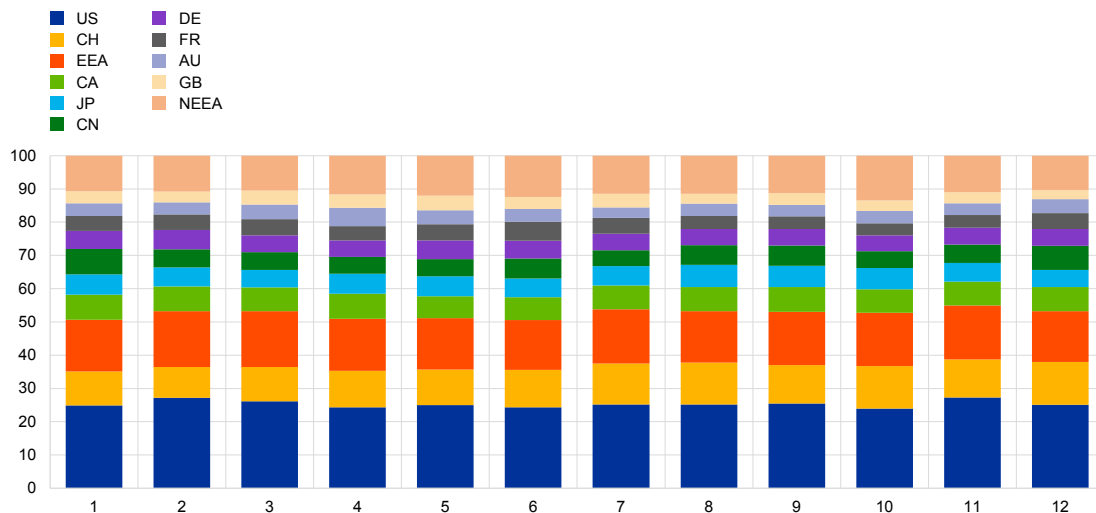
The operator defines a tiered relationship as one between a direct and an indirect agent belonging to different banking groups. To analyse these relationships, the operator augments transaction-level data in TARGET2 with up-to-date banking group information. With this, the operator can accurately quantify the level of tiering (or indirect participation, including addressable BIC holders) inside the system. As disclosed in the chart 24 (Section 1.11), for each euro that a direct participant group sent in TARGET2, only 5 cents belonged to indirect parties on average. Risks arising from tiered participation thus remained contained during the year. Deeper analysis by the operator revealed that, in fact, most indirect business comes from outside the EEA (see Chart D). Tiering thus represents more an opportunity than a risk, as TARGET2 makes it possible for institutions around the world to access the euro area market.

³⁷ For more detailed information, please see: http://www.ecb.europa.eu/paym/intro/news/newsletter/html/mip_qr_1_article_5_target2_global_hub.en.html

Chart D

Top tiering countries in 2016

(in percentages)



In conclusion, this box shows the usefulness of transaction-level data for payment system operators in the analysis of compliance with the SIPS Regulation. Without access to granular data, the operator could not carry out such sound and detailed assessments. In view of future developments and challenges in the payment system landscape, the implementation of analytical tools that rely on transaction-level information will remain indispensable. This will be particularly the case for regulatory compliance, but also for analytical purposes more generally.

6 System evolution

Release 10.0

The yearly release in 2016 (version 10.0) was implemented on the same weekend in November as the SWIFT Standards Release. As the work for this release largely coincided with the migration of some banking communities to T2S, the content of this release was limited and mainly included the adaptations to the SWIFT Standard Release and adjustments to TARGET2's interface with.

Release 11.0 – ASI 6 Real Time

To support the emergence of a pan European solution for instant payments, the Eurosystem entered into discussions with the automated clearing houses (ACHs) planning to process this new instrument in order to identify how TARGET2 could ease interoperability, credit risk mitigation and final settlement. After having collected the

ACHs' requirements and assessed their technical feasibility, the TARGET2 central banks decided to enhance the Ancillary System Interface (ASI) and more specifically to provide a new settlement procedure called ASI 6 Real-Time. With this new procedure, ACHs' participants will be in a position to flexibly manage their pre-funded positions during the daytime and night-time settlement phases. The ASI 6 Real-Time procedure also provides cross-system settlement capabilities to support the interoperability among ACHs. TARGET2 Release 11.0 will be deployed in November 2017.

In addition, it is envisaged to increase the compatibility of the TARGET2 system with the SWIFT global payments innovation initiative (gpi). While participants, who have joined the initiative can already exchange payment messages via TARGET2, from the Release 11.0 onwards, they will have the possibility to view the additional information transported in the gpi messages on their TARGET2 ICM. For more information on the gpi initiative, please refer to SWIFT global payments innovation (gpi)³⁸.

Release 12.0 – TARGET2 adaptation to TIPS

The Eurosystem is currently investigating the possibility of providing a new service for settling instant payments denominated in euro on an individual basis, in central bank money and around the clock. This service is called TARGET Instant Payment Settlement, or TIPS, and is currently being discussed with all relevant stakeholders.

TIPS is part of the strategic review initiated in 2015 by the Eurosystem on the future of its financial market infrastructures (See Box 4). The decision as to whether or not TIPS will be developed will be taken by the Governing Council towards mid-2017. If the development of TIPS is confirmed, its launch is planned for November 2018 and, by that time, the necessary adaptations to TARGET2 would have to be completed.

The adaptations would then be delivered as part of TARGET2 Release 12.0. They would mainly aim to ensure the smooth processing of liquidity transfers between participants' PM accounts and TIPS accounts and to properly take into account the remuneration rules applicable to funds staying overnight in TIPS.

Box 4

The future of RTGS services

In a constantly evolving financial ecosystem, the needs of the market change over time. Hence, while maintaining safety at the highest possible level, the Eurosystem is always on the lookout for ways to make its market infrastructure services more efficient and innovative, while moving towards greater integration of financial markets in Europe.

In this vein, the Eurosystem is investigating the possibility of consolidating the two market infrastructures it owns and operates – TARGET2 and T2S. Building on the synergies between the two platforms, the consolidation will ensure that TARGET2 participants benefit from the state-of-the-art features offered by T2S; in addition that access is done via a single gateway; and that cyber

³⁸ [SWIFT global payments innovation \(gpi\)](#)

resilience is enhanced. Moreover, the Eurosystem is evaluating what new RTGS services should be offered in response to the changing market demands.



Consolidation of TARGET2 and T2S

- Improve **efficiency**
- Easier access to services via **harmonised interface**
- Enhance **RTGS services**
- Align the use of **messaging standards**
- Cut down **operational costs**
- Increase **cyber resilience**



In this context, a consultative report³⁹ on the future of RTGS services was published on 15 February 2016 with the aim of collecting the market's feedback by 4 April 2016. 123 institutions and associations representing 22 European countries responded⁴⁰ to the consultation.

Most of the respondents acknowledged that the technical consolidation of TARGET2 and T2S will bring clear benefits in terms of service efficiency and cost savings. However, some emphasised that they are satisfied with the current high quality of the TARGET2 services and would only support innovation if it does not hamper the stability of the system.

80% of the respondents welcome the proposal for a single gateway to payments and securities settlement via a harmonised user interface, while 60% support the further investigation of multi-currency RTGS services. Migrating to ISO 20022 message standards and extending TARGET2 operating hours received mixed feedback. The strongest support for these two points came from participants planning to use TARGET2 to process commercial payments. Last but not least, the market also supported the investigation of new technologies in the financial sector, such as “blockchain” and distributed ledger technology, as a means to achieving higher cyber resilience.

Following up on the consultation, a task force on future RTGS services⁴¹ has been set up to discuss the impact on TARGET2 participants, and to define and specify the user requirements for the possible new services. The newly-launched Advisory Group on Market Infrastructures for Payments (AMI-Pay)⁴² will also be consulted on the relevant matters with regard to the consolidation. The outcome of the investigation is expected by the end of 2017.

³⁹ [Eurosystem's vision for the future of Europe's financial market infrastructure.](#)

⁴⁰ [Consultation on the future of RTGS services – summary of feedback received.](#)

⁴¹ [Mandate of the Task Force on Future RTGS Services.](#)

⁴² [Advisory Group on Market Infrastructures for Securities and Collateral](#)

Annex

Distribution of payments flows in TARGET2

	2016				2015			
	Value (EUR billions)	%	Volume	%	Value (EUR billions)	%	Volume	%
AT	5,320	1%	1,423,378	2%	6,766	1.4	1,195,791	1%
BE	19,329	4%	2,297,752	3%	21,182	4.5	2,341,338	3%
BG	345	0%	231,260	0%	392	0.1	240,486	0%
CY	58	0%	162,440	0%	82	0.0	124,470	0%
DE	153,858	35%	43,667,639	50%	158,177	33.7	43,860,544	50%
DK	4,731	1%	155,048	0%	2,827	0.6	154,930	0%
EE	96	0%	912,534	1%	155	0.0	421,571	0%
ES	46,606	10%	9,945,788	11%	57,424	12.2	7,400,524	8%
EU	12,283	3%	179,381	0%	10,526	2.2	174,491	0%
FI	11,080	2%	412,661	0%	9,708	2.1	410,981	0%
FR	71,584	16%	7,942,137	9%	78,858	16.8	8,938,105	10%
GR	2,991	1%	716,446	1%	5,162	1.1	777,336	1%
HR	66	0%	58,451	0%		0.0		
IE	3,351	1%	859,732	1%	3,013	0.6	886,473	1%
IT	18,399	4%	8,079,418	9%	32,188	6.9	10,250,177	12%
LT	120	0%	59,741	0%	264	0.1	81,541	0%
LU	22,383	5%	1,510,353	2%	18,302	3.9	1,433,340	2%
LV	235	0%	429,209	0%	264	0.1	359,076	0%
MT	380	0%	92,396	0%	150	0.0	66,523	0%
NL	69,823	16%	5,599,158	6%	60,282	12.8	5,740,906	7%
PL	486	0%	821,931	1%	448	0.1	795,459	1%
PT	1,388	0%	1,025,079	1%	2,281	0.5	1,120,009	1%
RO	75	0%	381,626	0%	79	0.0	298,372	0%
SI	353	0%	682,004	1%	678	0.1	688,417	1%
SK	540	0%	250,444	0%	587	0.1	233,681	0%
Total	445,879	100%	87,896,006	100%	469,796	100.0	87,994,541	100%

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

Others

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

Conventions used in the tables

“-” data do not exist/data are not applicable

“.” data are not yet available

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