

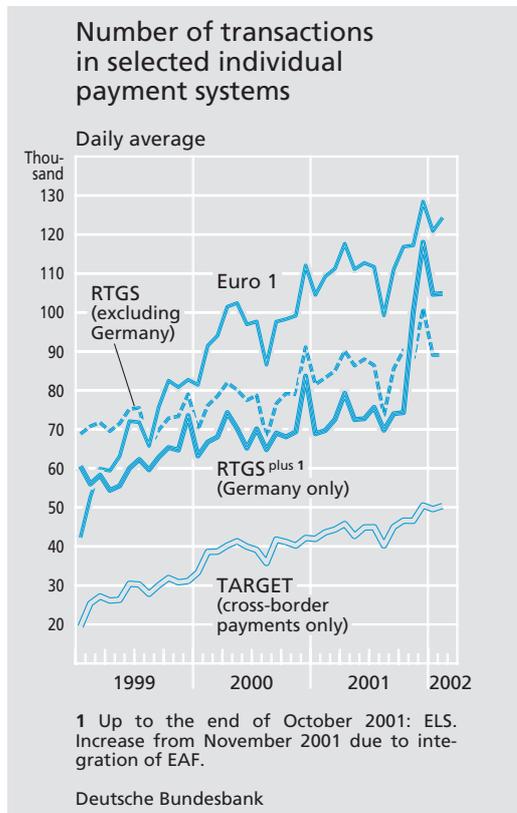
## RTGS<sup>plus</sup> – successfully established

On 5 November 2001 the Bundesbank successfully launched its new liquidity-saving real-time gross settlement system, RTGS<sup>plus</sup>. Handling some 120,000 payments each working day, it is one of the largest clearing systems in the European Union. In terms of volume, it accounts for nearly 50% of all transactions in the EU central banks' TARGET system. Alongside its strict gearing to the needs of the market and of its customers, its high degree of acceptance and the speed with which it has become established are primarily attributable to its innovative design, which combines liquidity-saving features with rapid, secure payment processing and offers banks a number of different ways of individually managing liquidity. This article gives an overview of initial experience since the system was put into operation. In addition, it takes a look at the current situation in respect of individual payment transactions in euro and the challenges which lie ahead.

### Developments in euro clearing since the start of monetary union

RTGS<sup>plus</sup>, the Deutsche Bundesbank's new liquidity-saving real-time gross settlement system, began operation on 5 November 2001. Having taken only two years to develop, it succeeds Euro Link System (ELS) and Euro Access Frankfurt (EAF). The main performance features of these earlier settlement systems

*Why RTGS<sup>plus</sup>  
was developed*



have been incorporated into RTGS<sup>plus</sup> and improved. One of the key factors behind the new development was the new competitive environment engendered by the introduction of the euro. This appeared to signal the need to combine the separate procedures of EAF and ELS to exploit synergies in terms of cost and efficiency. Apart from the Bundesbank as the system operator, the main beneficiaries are the credit institutions participating in RTGS<sup>plus</sup>. In addition, RTGS<sup>plus</sup> has enabled the Bundesbank to respond to the more stringent demands of the market, especially in the field of liquidity management, as well as to more recent technological developments. Since its launch, RTGS<sup>plus</sup> has shown itself to be a highly efficient and reliable system – from the technical perspective, too. The thorough preparation and test activities and the close

cooperation with the banking sector have clearly paid off.

RTGS<sup>plus</sup> is an individual payment system. Individual payments – as opposed to retail payments – are typified by same-day forwarding and single-transaction processing, ie the credit transfers are processed individually rather than in bulk. These systems are used to process both interbank payments and customer payments. On no account do the amounts transferred have to be large. Rather, the need for speed is one of the deciding factors.

*Characteristics of individual payment processing*

RTGS<sup>plus</sup> also operates as the national TARGET component. The EU central banks' TARGET (Trans-European Automated Real-time Gross settlement Express Transfer) system consists of the 15 national RTGS systems and the payment mechanism of the European Central Bank (ECB), which are interconnected by means of the Interlinking component. This enables the exchange of cross-border credit transfers between the RTGS systems in the countries of the sender and receiver. In the broader sense, however, TARGET covers both domestic and cross-border payments. In addition, the Euro1 clearing system operated by the private Euro Banking Association (EBA) and the more nationally oriented PNS (Paris Net Settlement) and SEPI (Servicio Español de Pagos Interbancarios) provide additional efficient processing facilities for individual payments in the euro area.

*Other individual payment processing systems*

Altogether, the European individual payment systems increased their volume in the past three years by nearly 15% per annum. How-

*Development of volume and value*

ever, at only just over 8%, the increase in the overall value of transactions was somewhat weaker. Greater use was clearly being made of these systems to process customer payments for smaller average amounts, these having previously been handled through reciprocal banking arrangements (correspondent banking). In line with expectations, the individual payment systems' growth slowed down somewhat over time.

*TARGET system – both cross-border and domestic transactions*

The operational volume of the TARGET system has increased strongly. This is particularly true of cross-border transactions, where an average volume growth of 30% per annum was achieved in recent years. However, at just over 10%, value growth was far weaker.

By comparison with the cross-border TARGET segment, growth in the volume of domestic payments processed in the TARGET system (RTGS<sup>plus</sup> and other RTGS systems) is comparatively moderate (+15% per annum). The change in the structure of cross-border payment settlement brought about by the dismantling of correspondent banking relations had a far smaller impact on payments processed within the national RTGS systems. At nearly 20% per annum, the value of transactions has, however, shown quite a marked increase.

*Development of RTGS<sup>plus</sup> turnover*

The German TARGET component, RTGS<sup>plus</sup>, processes more than 105,000 domestic payments each working day. In addition, 16,000 of the more than 45,000 cross-border TARGET transactions in the EU are submitted via RTGS<sup>plus</sup>. With the introduction of RTGS<sup>plus</sup>, the volume of business of some 50,000 pay-

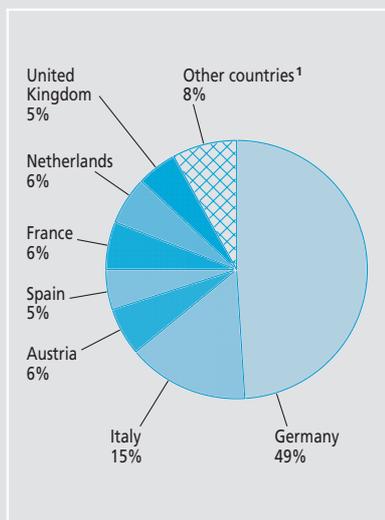


ments per day that were previously processed via EAF was transferred to the German TARGET component. The relatively sharp increase evident in the two charts on pages 58 and 59 is due to this statistical base effect. Measured on the basis of the volume of all domestic and cross-border payments, RTGS<sup>plus</sup> has a share in the TARGET system of virtually 50%.

Particularly strong growth has also been experienced by EBA's Euro1 system; however, the expectations of around 200,000 payments per working day entertained before its launch have not yet been met. Euro1 is a secured net settlement system which operates in such a way as to save liquidity but does not offer final settlement in central bank money until the end of the day. The volume of transactions in Euro1 has increased at an annual

*EBA's Euro1 system*

### Shares\* of the countries in the TARGET system



\* Based on number of payments in January and February 2002. — 1 Belgium, Denmark, Finland, Greece, Ireland, Luxembourg, Portugal, Sweden and ECB payments.

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rate of nearly 40%. However, by contrast, the increase in overall value was small. Euro1 has thus progressed towards its primary goal of being used particularly for commercial payments.

### The main performance features of RTGS<sup>plus</sup>

*Growing  
importance  
of liquidity  
management*

In view of the speed at which financial markets are merging, managing liquidity risk and trying to save liquidity are becoming increasingly important. The following aspects can be highlighted.

*Importance of  
central bank  
money*

- As a secure payment settlement medium with a maximum degree of liquidity, central bank money is assuming an increas-

ingly important role in securities settlement, foreign exchange trading and other payment transactions.

- An increasing number of payments need to be made at specific times of the day. Liquidity therefore needs to be managed actively throughout the day and not just at close of business. It therefore takes on a vital role as an “operating resource”, the provision of which carries opportunity costs (eg tying up collateral, which would earn higher rates of interest elsewhere). Some banks have already gone over to pricing intraday liquidity internally (at around 15 to 20 basis points).

*What is  
required of  
intraday  
liquidity  
management*

- As a result of the ongoing concentration in the banking industry, the globalisation of business activities and high competitive dynamism, liquidity management is becoming increasingly complex. In the future, processing activities may well be outsourced to larger banks which then assume the task of providing “third party” services for other banks.

*Complexity of  
liquidity  
management*

RTGS<sup>plus</sup> takes particular account of these developments.

RTGS<sup>plus</sup> is a liquidity-saving real-time gross settlement system. All credit transfers submitted are executed with immediate finality, provided that the payment is adequately covered; there is therefore no initial “batching” followed by collective settlement. Uncovered payments are placed in queues. A particular feature of RTGS<sup>plus</sup> is that, like its predecessor, EAF, it permits the extensive use

*Liquidity-saving  
elements built  
into an RTGS  
system*

of reciprocal payments as an additional cover fund.

- When payments are submitted, RTGS<sup>plus</sup> tries to use as cover the credit balances in RTGS<sup>plus</sup> as well as reciprocal payments which are made by other participants and specifically intended for the submitter.
- Queued payments are moved forward for processing as quickly as possible by continuously implementing mathematically based optimisation processes (algorithms); the offsetting individual payments in the queues are posted to accounts at the same time.

Payments are debited and credited to a separate RTGS<sup>plus</sup> intraday account in central bank money. This intraday account is linked via a “liquidity bridge” to a “home account” at any one of the euro-area central banks. Liquidity can be transferred flexibly between the home account and the intraday RTGS<sup>plus</sup> account both at the start and in the course of the day. TARGET is used for foreign “home accounts”. At the end of the day, the remaining credit is automatically transferred back to the relevant home account.

*Flexible means  
of managing  
liquidity*

RTGS<sup>plus</sup> participants have convenient ways of specifically managing their liquidity flow. Payments for which the total amount of the participant’s liquidity may be used are submitted by participants as express payments. However, if the amount of liquidity which may be paid out is to be limited, the participant submits a limit payment. This means that account can be taken of additional limits

defined by the participant when payments are executed. Participants can be flexible in their use of bilateral and multilateral limits as well as of a total limit. Limit payments are only executed immediately if there is enough liquidity and the limits have not been exhausted.

Compared with other mechanisms, the sender limits used in RTGS<sup>plus</sup> present many advantages in terms of liquidity management.

*Advantages of  
sender limits*

- The submitter makes the execution of payments which exceed the limit dependent on the receiver making payments in his favour (payment-versus-payment philosophy). This facility is backed by the extensive transparency of the queues of incoming payments.<sup>1</sup> Consistent use of offsetting payment flows reduces the amount of liquidity needed.
- The multiple limit options, together with the opportunity to use the information and control system (ICS) described on page 62 to make adjustments at any time, allow an individually tailored approach that is invariably appropriate to the situation. Optimal liquidity management is guaranteed even if the participant structure is less homogenous or if exceptional situations occur in the course of the day. A flexible use of limits, which lies fully within the hands of the participant concerned, is certainly preferable to rigid system regulations.

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<sup>1</sup> The receiver is able to view payments which are intended for him and have been made by other participants but have not yet been executed owing to lack of cover.

### An example of how limits work

A bank has €200 million on its RTGS<sup>plus</sup> intraday account. However, it plans to use only €50 million of this liquidity for limit payments. If it submits limit payments totalling €200 million, only €50 million worth of credit transfers will be made in the first instance. The €150 million worth of payments which exceed the limit are initially "parked". They are executed only as the bank receives payments from other participants. This enables the bank to submit payments at the earliest opportunity. It does not, however, run the risk of executing its payments promptly while only receiving the expected incoming payments at the end of the day. The risk of unlimited unilateral outflows of liquidity can therefore be held in check.

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- In addition, limits are a user-friendly "tool" which is easy to implement. Participants therefore do not need to develop any particular mechanisms in their own systems. Smaller banks, in particular, are likely to benefit.
- Limits support a pattern of early submission.

The innovative information and control system (ICS) is pivotal for liquidity management in RTGS<sup>plus</sup>. ICS gives participants easy and extensive real-time access to all relevant data. Participants can themselves keep track of the current state of their accounts. Moreover, they can obtain information on the queues of incoming and outgoing payments as well as details of individual payments that have al-

ready been executed or are pending. Participants can also use ICS to change the status (eg order in the queue) of payments that have not yet been executed. Limits can also be increased or reduced and liquidity transfers initiated between the RTGS<sup>plus</sup> intraday account and the home account.

While SWIFT's tried and tested Y-Copy service<sup>2</sup> is used to process payments, state-of-the-art IP (Internet Protocol) technology is used for information and control. The information and control system is available either as a browser version or as a business-to-business version. In the former case, a participant's employee can access data on the ICS computer direct from a PC terminal. In the business-to-business version, the participant's IT system communicates electronically with the ICS computer on the basis of predefined XML (Extensible Markup Language) standards. This enables the participant to integrate the flow of data into his own internal systems, where they can be processed further. At the network level, the Bundesbank is one of the first users of the new SWIFTNet services (SWIFTNet InterAct and SWIFTNet InterAct Browse).<sup>3</sup> As an alternative, the Bundesbank also offers browser access via a virtual private network (VPN).

*Use of  
state-of-the-art  
internet  
technology*

*Interactive  
information  
and control*

<sup>2</sup> SWIFT's Y-Copy service was especially developed by SWIFT (Society for Worldwide Interbank Financial Telecommunication) for the exchange of payments between real-time gross settlement systems and their participants.

<sup>3</sup> These are new IP-based communication services which operate on SWIFT's high-security and high-availability Secure IP Network infrastructure.

## Initial experience of RTGS<sup>plus</sup>

### *RTGS<sup>plus</sup> participants*

There are at present 59 direct participants in RTGS<sup>plus</sup>, including the most important names in the euro clearing business. Four institutions are participating directly from abroad by means of remote access. The consistent use of SWIFT standards and separate intraday accounts make RTGS<sup>plus</sup> very attractive in terms of remote access. In addition, around 8,500 credit institutions (including branches) can be reached indirectly in RTGS<sup>plus</sup> – via a direct participant or the Deutsche Bundesbank. The participation of large institutions and increasing concentration in euro clearing are evident in the structure of business in RTGS<sup>plus</sup>. The five largest submitters account for more than half of all payments and the ten largest participants for around 70%. However, in terms of its design and business policy, RTGS<sup>plus</sup> is not a system for large banks only. Rather, it has been conceived as an open system for small and large banks alike; there are no size-related access criteria. The Bundesbank therefore offers an efficient payment infrastructure which is intended to enable every bank to offer its own payment products on a competitive basis. Two further “accession phases” are planned for July and December this year; some 35 institutions will probably be added to the list of participants.

### *Major importance of customer payments*

Participants use RTGS<sup>plus</sup> to a large extent to forward customer payments arising from their commercial transactions. More than 60% of all RTGS<sup>plus</sup> transactions are customer payments, with interbank payments accounting for the remainder. RTGS<sup>plus</sup> is also likely to

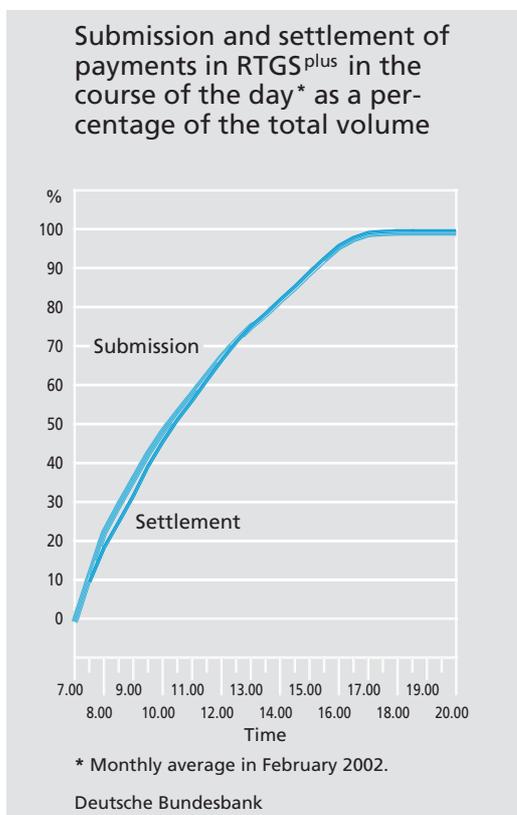
## Average transaction amounts in RTGS<sup>plus</sup> and TARGET

As of February 2002

Item	€ m
RTGS <sup>plus</sup> (national)	2.0
Customer payments	
SWIFT message format MT 100/MT 103	0.8
Interbank payments	
SWIFT message format MT 202	4.5
Other RTGS systems (national)	8.0
TARGET overall (cross-border)	9.0
By comparison	
EBA's Euro1 clearing system	1.5
Bundesbank's RPS (2001)	0.001
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be used to a considerable extent to forward payments coming from abroad, as these can be forwarded to the receiver via RTGS<sup>plus</sup> in the SWIFT format, in other words without their having to be converted into the German DTA format.<sup>4</sup> By contrast, in the TARGET system the share of customer payments in the total cross-border volume of transactions amounts to no more than around 40%. The high proportion of customer payments in RTGS<sup>plus</sup> therefore results in a noticeably lower average payment amount than in other RTGS systems in TARGET. RTGS<sup>plus</sup> is nonetheless still clearly different from retail payment systems. While the average payment in the Bundesbank's retail payment system (RPS)

<sup>4</sup> DTA: exchange of data media.



is €1,000, an average RTGS<sup>plus</sup> payment is €2 million.

*Broad acceptance of the liquidity management mechanisms*

RTGS<sup>plus</sup> participants are taking full advantage of the opportunities offered by RTGS<sup>plus</sup> to manage liquidity. This is evident, first, from the intensive use made of ICS. Every day 450 users at the 59 participating banks each access ICS some 30 times to obtain information or to carry out control operations. Second, the preference for liquidity management can be seen from the large proportion of limit payments. Nearly 90% of all payments are submitted by participants as limit payments and only 10% as express payments. This applies, moreover, to both domestic RTGS<sup>plus</sup> transactions and cross-border TARGET transfers. Overall, more than 500 limits are set in the system each working day.

- As one might expect, bilateral limits (450 cases) predominate in terms of number. These enable payment outflows to a specific partner to be controlled very precisely.
- In addition, a multilateral limit can be defined for all the relations to which no bilateral limit applies. It is used in 28 cases.
- A total limit is also used by 38 banks. This enables the use of liquidity to be controlled for limit payments as a whole.<sup>5</sup>

The positive effect of the limits on the volume of payments processed can also be seen, for example, from the (early reciprocal) submission and settlement process in RTGS<sup>plus</sup>.

*Submission process ...*

In February 2002, for instance, more than 20% of all transfers – when calculated by volume – were submitted in the first hour; for the first two hours the figure was more than one-third, and by 10 am, ie three hours after the system had begun operation, almost half. The payments tended to be for smaller amounts. Correspondingly, when calculated in terms of payment values, the curve is flatter.

Incoming payments can very frequently be settled immediately (88% of volume, 70% of value). However, counterflows of payments

*... and settlement process in RTGS<sup>plus</sup>*

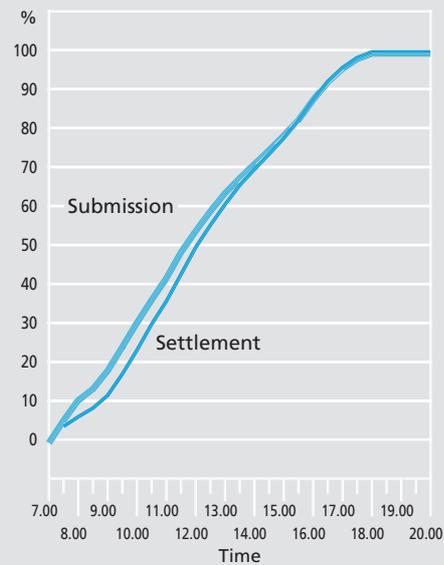
<sup>5</sup> This limit can also be used in addition to bilateral and multilateral limits. For example, if Bank A sets a bilateral limit of 20 vis-à-vis Bank B and Bank C and a multilateral limit of 40 for all other participants, it could use a total limit of 60. Thus, Bank A can decide that all its outgoing limit payments less the incoming payments intended for it may at no time exceed this limit of 60. The difference between the total credit balance in RTGS<sup>plus</sup> and the total limit is reserved for express payments.

are also taken into account. Queues of any noteworthy size build up only in the mornings. At around 9 am, the peak time, just under 6,000 payments worth an equivalent of €30 billion are held in queues. The mechanisms for reducing the queues are implemented continuously at intervals of no more than a few minutes. While rapid processing is the prime concern with regard to express payments, liquidity saving is more important for limit payments. This is evident from the different average time that payments remain in the RTGS<sup>plus</sup> system (53 seconds for express payments and just over 14 minutes for limit payments).

*ELS to continue operating until 2004*

In order to ensure a smooth transition to RTGS<sup>plus</sup> throughout the banking industry, the Bundesbank will continue to provide access to large-value payment transactions via ELS (Euro Link System) until the end of 2004. Each working day, some 25,000 transactions submitted in ELS are transmitted to RTGS<sup>plus</sup>. In addition, around 13,000 payment orders are submitted by ELS participants for other ELS participants. With the introduction of RTGS<sup>plus</sup>, the Bundesbank stopped offering the particularly low-priced, batch-oriented ELS Prior2 segment, its level of performance having drawn increasingly closer to the ELS Prior1 segment over time. However, it has not yet been possible to match the full volume of Prior2 payments; consequently the Bundesbank's overall volume of large-value payment transactions has gone down by around 5,000 transactions a day since the introduction of RTGS<sup>plus</sup>.

Submission and settlement of payments in RTGS<sup>plus</sup> in the course of the day\* as a percentage of the total value



\* Monthly average in February 2002.

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### Impact of future developments on RTGS<sup>plus</sup>

In particular, the launch of the CLS system – announced for this year – is expected to have a major effect on individual payment systems (see the Box on page 66). In the future a large share of the payments which originate in foreign exchange transactions and are currently settled in individual payment systems such as RTGS<sup>plus</sup>, TARGET or Euro1 may well be transferred to CLS. The likely impact can be roughly calculated from what we already know about the decline in volume and turnover on US public holidays. No US dollar/euro exchange transactions are processed in the European clearing systems on US public holidays. On 21 January 2002 (Martin Luther King Day), for example, RTGS<sup>plus</sup> recorded a

*Impact of CLS*

## Continuous Linked Settlement (CLS)

Continuous Linked Settlement (CLS) is the result of an initiative launched by large international banks to develop a worldwide foreign exchange settlement system which largely eliminates settlement risk. CLS currently has the backing of 69 shareholder banks. The initiative came about because the two payments arising from a foreign exchange transaction are processed at present in different clearing systems and often in different time zones. There is hardly any possibility of synchronising the flow of payments, thus reducing risk. In the future CLS will process the payments in accordance with the principle of payment versus payment (PVP) so that no trading partner runs the risk of carrying out his part (currency) of the transaction on the value day without actually having received the expected equivalent in the other currency. The system will be operated by New York-based CLS Bank, which has been established specifically for this purpose. Despite some delays, this new procedure is now scheduled to be introduced in mid-2002. At its launch, CLS will handle seven currencies (US dollar, euro, yen, pound sterling, Swiss franc, Australian dollar and Canadian dollar), the subsequent intention being to expand the number of currencies in which it can operate.

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decline in the volume of transactions of just over 10% and a decline of around 20% in value. The impact was even more evident in the other systems. However, it should be borne in mind that the decline would only carry through in full if all foreign exchange transactions were processed fully in CLS. This is, however, unlikely to be the case in the short or the medium term.

CLS carries out settlement on the basis of central bank liquidity which has been made available in advance. For this reason the participants need to provide the system with liquidity according to a fixed pay-in schedule. CLS imposes very strict standards on the banks' intraday liquidity management. With regard to euro transactions, this means that participants with net payment obligations must transfer the net amounts they have to pay in five equal instalments at specific times between 8 am and 12 noon. The payments must be made via TARGET to CLS Bank's account at the ECB. In terms of fulfilling inpayment obligations, RTGS<sup>plus</sup> is particularly attractive as a point of access to TARGET as it offers a range of support functionalities specially geared to CLS payments. These include

*RTGS<sup>plus</sup> gives special support to CLS payments*

- the possibility of reserving liquidity by setting a total limit, thereby ensuring that enough money is available to execute the CLS payment;
- submitting the CLS payment as an "until" payment. This new instrument enables participants to monitor the payment constantly. In future RTGS<sup>plus</sup> will issue a warning 15 minutes before the payment

deadline if the payment has not been made;

- generating CLS payments via ICS. Participants themselves can submit the payments on time to CLS Bank if their internal applications are out of operation;
- RTGS<sup>plus</sup> will also offer a particular contingency plan for CLS payments. Even in the unlikely case of RTGS<sup>plus</sup> breaking down, payments can still be transferred to CLS.

*Contractionary effects to be expected as a result of the EU pricing regulation*

While CLS will reduce the volume of inter-bank payments in the payment systems, contractionary effects are also to be expected in the field of customer payments as a result of the EU pricing regulation of December 2001. For instance, this regulation requires that, under certain conditions, from 1 July 2003 the same charges be levied on cross-border payment transactions up to €12,500 as on corresponding domestic credit transfers. Although the pricing regulation is concerned primarily with low-value cross-border payment transactions and, in the European Commission's view, it does not apply to interbank payment systems, secondary effects are likely. If, for instance, the banks are unable to pass on the costs of using interbank clearing systems to their customers or can pass on only some of those costs, price sensitivity will increase in individual payment transactions. This may also result in customer payments being shifted.

*Share of payments of up to €12,500 in RTGS<sup>plus</sup>*

The potential impact of the EU pricing regulation on RTGS<sup>plus</sup> can be seen by the fact that, in terms of volume, the share of payments of

### Volume of transactions in RTGS<sup>plus</sup> by amount of payment

As a percentage

Amount (in € thousand)	Customer payments	Inter-bank payments	Total
<= 12.5	60.19	39.13	53.49
> 12.5 and <= 50	16.07	12.22	14.84
> 50 and <= 250	12.97	11.34	12.45
> 250 and <= 1,000	5.50	17.27	9.25
> 1,000 and <= 10,000	4.02	15.30	7.61
> 10,000 and <= 25,000	0.66	1.92	1.06
> 25,000 and <= 50,000	0.29	1.11	0.55
> 50,000 and <= 100,000	0.16	0.77	0.35
> 100,000 and <= 500,000	0.14	0.86	0.37
> 500,000 and <= 1,000,000	0.00	0.07	0.02
> 1,000,000	0.00	0.02	0.01
Total	100.00	100.00	100.00

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up to €12,500 is just over 50%. Furthermore, with effect from 1 January 2006, the amount to which the EU pricing regulation will apply will go up to €50,000 (these payments currently having a share of 68% in RTGS<sup>plus</sup>). Owing to the high proportion of customer payments, the issue of fees in RTGS<sup>plus</sup> is probably more important than for the other systems in TARGET. The EU pricing regulation could, however, also lead to a reduced turnover in the entire TARGET system (the share of payments of up to €50,000 is 63%).

Depending on volume, a fee of between €0.17 and €0.24 is charged for processing domestic payments in RTGS<sup>plus</sup>. The rather moderately differentiated, degressive price structure in RTGS<sup>plus</sup> is intended to reflect the economic advantages associated with the

*RTGS<sup>plus</sup> prices*

participation of larger banks, while also offering attractive participation opportunities to small banks, with no initial entry fee or fixed periodical fees being charged. By contrast, at between €0.80 and €1.75, the fees for cross-border TARGET transactions are significantly higher.

### RTGS<sup>plus</sup> in European payment transactions

*RTGS<sup>plus</sup> successfully established on the European market*

In RTGS<sup>plus</sup>, the Deutsche Bundesbank has succeeded in establishing an innovative product on the European market. Together with state-of-the-art technology and competitive pricing, the highly efficient, comprehensive RTGS<sup>plus</sup> service with multiple options for individual use plays an important role. These factors will also have a significant influence on the debate on the future of European individual payment transactions.

*Future structures of individual payment systems in Europe*

The individual payment systems in the EU have contributed to the smooth transition to monetary union. Their structures, however, also reveal weaknesses which had to be accepted in the run-up to monetary union because of the intense time pressure and the complexity of the tasks that had to be accomplished. The introduction of the euro banknotes and coins at the start of 2002 marked the completion of monetary union, and the question is now how the EU individual payment system environment should be shaped over the long term. It also needs to be borne in mind that eastward enlargement of the EU means that a new challenge is just around the corner. If the situation is compared with

that in the United States, it might be assumed that, in the longer run, market needs in the euro area will be met by a single RTGS system and a liquidity-saving hybrid system. However, RTGS<sup>plus</sup> has shown that, on balance, it is possible to combine the two philosophies.

For the central banks the main question is how to improve the TARGET system. There is, first of all, no doubt that, owing to the many cross-references to monetary policy and given the mandate in Article 3 of the Statute of the ESCB,<sup>6</sup> putting that kind of infrastructure in place should be viewed as central to the tasks of the Eurosystem. However, it is questionable whether TARGET's present interlinked structure will be appropriate over the long term to meet market requirements for efficiency and soundness. It is precisely in payment transactions that economies of scale play a crucial role in terms of output covering costs. In the TARGET system as it is at present, the volume of business is concentrated on a small number of systems. This means that, taken together, the three largest RTGS systems in the TARGET system account for some 70% of the total (domestic and cross-border) volume and the six largest RTGS systems for nearly 90%. Ultimately, this is also likely to reflect the fact that banks which operate internationally have been increasingly centralising their liquidity management in euro since its introduction.

*Debate on further development of TARGET*

<sup>6</sup> "In accordance with Article 105(2) of this Treaty [Treaty establishing the European Community], [one of] the basic tasks to be carried out through the ESCB shall be (...) to promote the smooth operation of payment systems."

*Market makes  
greater  
demands of  
TARGET*

Furthermore, from a pan-European perspective, the TARGET system as it is at the moment does not meet all the requirements of the market. For instance, transparency in TARGET does not cover the whole of Europe (eg by offering the means to monitor queues of incoming payments across all RTGS systems). It is also difficult to imagine more complicated mechanisms for liquidity management and saving being implemented across all 15 RTGS systems. However, given the upcoming challenges, improvements are urgently required. For example, market participants in the euro area could be offered completely new opportunities for liquidity management if, say, all participants' accounts were managed from a central technical platform. It should also be noted that, in the current TARGET system, the interposition of the Interlinking component causes delays between the time at which the amount is debited in the submitting RTGS system and the time at which it is credited in the receiving RTGS system. Although cross-border payments are generally processed within five minutes, the interlinking structure does not do sufficient justice to the reality of the single currency area and the need for less complexity.

*Consolidation  
needed in the  
TARGET system*

From business perspectives, consolidation cannot be avoided in the medium term. However, as things look at the moment, a technically uniform TARGET system throughout the euro area is not on the horizon. Rather, it can be assumed that consolidation will first be progressive, with only a limited number of central banks being involved. It is likely to hinge on the RTGS systems in common use being designed in such a way as to be

"client-friendly", the clients in this context being the national central banks. The individual central banks would, for example, each have sole access to their participants' data and accounts. On the one hand, this would enable a common technical processing platform to be used and, on the other, the central banks concerned would retain the responsibility for conducting the business. In some countries, such client-based concepts have already been made public. RTGS<sup>plus</sup>, too, could be expanded to implement this kind of concept within a reasonable period of time. Owing to its decided decentralised structure, the Bundesbank has accumulated extensive internal experience of technical centralisation over the past ten years. Despite the concentration of technical resources, which was necessary for economic reasons, it succeeded in leaving the branches' decentralised responsibility for conducting the business largely intact.

From the Bundesbank's point of view, the following aspects would need to be taken into account in relation to actual cooperation on a common platform.

*Joint use of  
RTGS systems*

- The common platform should present a broad business orientation and include commercial payments as a target segment. Only this kind of approach would make it possible to achieve the economies of scale that are economically necessary. The price is still the factor which distinguishes individual from retail payments.
- From the perspective of performance and service, the level achieved with RTGS<sup>plus</sup>

should be the minimum. The liquidity-saving real-time gross settlement approach with extensive information transparency is likely to hold the key to the future. This is borne out by a brief glance at the situation in other European countries. Italy, for instance, has recently announced that it will be modernising its RTGS system and implementing liquidity-saving and liquidity-managing elements. In France, too, market participants are being offered both real-time gross settlement via the RTGS system TBF and a liquidity-saving settlement alternative in the hybrid system PNS.

- It is possible to respect the principle of subsidiarity in the Eurosystem and cultural diversity in the euro area only if the actual conduct of business and customer care remain in the hands of the national central banks. This also applies to the business areas with points of contact for payment transactions (eg responsibility for processing refinancing transactions).
- In other words, only technical operations should be centralised. In order to achieve a certain degree of neutrality, it might be considered appropriate, for example, to

establish an independent operating company owned by the participating central banks. However, the range of services on offer should be designed strictly in accordance with market and customer needs.

Payment transactions will continue to evolve rapidly in the period ahead. The introduction of new technologies will further enhance the performance of the systems and further relax the spatial ties between participants and system operators, which are already loose. Against a backdrop of globalisation and further concentration in the banking industry, an even tighter interweaving of what were once national market segments is to be expected. The emergence of new service providers and increased price awareness will further stimulate competitive pressure – for the central banks, too. At the same time, the eastward enlargement of the EU presents fresh political challenges to be overcome. In view of these factors, a common technical TARGET platform would appear to be the only sensible long-term solution for the Eurosystem. Owing to its high level of acceptance, its innovative design and its low prices, RTGS<sup>plus</sup> may well be the model to be followed and set the standard.

*RTGS<sup>plus</sup> sets  
the standard*