

## Cashless payments in Germany and the role of the Deutsche Bundesbank

Developments and key trends  
over the past 50 years

Cashless payment and securities settlement systems are a transaction-related infrastructure within the financial sector and as such make a major contribution to financial stability. They have demonstrated their reliability and robustness even in the current crisis. Advances in information technology and the banking industry's willingness to invest are the primary factors that have made payments<sup>1</sup> at once faster, cheaper and safer. Paper-based payments have been unerringly replaced by the use of electronic data records, thus providing a major pillar for the stability and efficiency of payments in Germany. This development has also been driven by a highly competitive environment, in which providers are willing to undergo extensive standardisation. In the last two decades, the increasing use of the gross settlement principle and "immediate reciprocity" settlement have further reduced the risks in payments and in foreign exchange and securities settlement. Efforts to create a Single Euro Payments Area (SEPA) show that the challenges raised by the EU Single Market and the euro have not been completely surmounted. However, SEPA is bringing Europe closer to the goal of an integrated financial market.

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<sup>1</sup> In this article, payments are understood to mean those of the cashless variety.

## Economic importance of payments

Non-stop exchange between market participants is a key element of a specialised economy. Nowadays, it would be inconceivable without a functioning cashless payment system. Although banknotes and coins still play a major role in face-to-face retail transactions, significant economic transactions are conducted without cash, either by means of transfers from deposits or from approved credit lines on current accounts. The direct debit (6.9 billion in 2007) and credit transfer (5.2 billion in 2007) are, in terms of number, the dominant payment instruments which account holders can use to move their funds. In terms of value, however, credit transfers make up more than 80%. Payment systems, which enable various banks to exchange payments, serve as the primary infrastructure for the settlement of cashless payments. In many countries, different systems are used for retail and individual payments. Whereas retail payments comprise small-value, low-priority payments, individual payments are characterised by urgent large-value payments.

*Functioning payment systems: a key element of financial stability*

Efficient and safe payment and settlement systems are of major importance for the economy and the financial sector. In highly advanced economies, the stability of payment systems is a public good that benefits all its users. Disruptions to the flow of payments can impair economic agents' confidence and thus also adversely affect the real and financial sectors of the economy. The importance of stable payment and settlement systems is underscored by the current upheaval that has gripped the financial markets in many coun-

tries. For instance, malfunctioning technology can trigger or exacerbate a crisis if market participants falsely assume that their borrowers are having a liquidity problem because an expected payment has not arrived. This is particularly true of individual payments, in which large-value interbank payments are settled in real time, but also applies to retail payments; this may serve to explain why there are so many ways in which payments are exceedingly important to central banks.

There are considerable economic advantages to payment and settlement systems being not just stable but also efficient. The more efficiently these systems operate, the lower the charges needed to cover the costs of monetary or securities transactions can be set. Passing on these lower costs makes the users of these systems more competitive. Keeping the costs of transactions low is thus a key factor in making a financial centre attractive. This ultimately also has a positive impact on the real economic framework of the business location. Payment systems, as well as securities settlement systems, have a dual business policy role for banks. One is to minimise costs through standardisation and automation; the other is that account management, and thus payment services, are also strategically important to credit institutions as a means of "opening the door" to many other types of business. Revenue from payment services (eg card payments) and in securities trading for third parties (purchase, sale, custody and asset management) also makes reliable contributions to the bottom line.

*Efficient systems create competitive advantages*

## The role of the Bundesbank in payments

*Statutory  
mandate  
fulfilled by  
systems  
oversight,  
involvement in  
payment policy  
and operation  
of own systems*

Responsibility for cashless payments – along with monetary policy, banking supervision, financial stability and currency supply – is one of the Deutsche Bundesbank's core tasks.<sup>2</sup> The Bundesbank engages in various activities to fulfil this public mandate. Firstly, it monitors payment systems, procedures and instruments in order to observe and analyse the risks of payment systems and help market participants mitigate these risks. On this basis, and given that stable payment systems are a public good, the Bundesbank, secondly, catalytically coordinates and shapes payment policy and thus also the framework for the development of cashless payments. Thirdly, the Bundesbank also operates its own systems. Because of the close relationship between payment policy and the operative implementation of monetary policy, and in the light of the attendant risks to financial stability, the Bundesbank is more deeply involved in individual payments than in retail payments.

### Oversight of payments

*Oversight  
according to  
specific  
standards*

Payment systems oversight is a central bank task that has become visibly more important over the past few years. Oversight is focused on payment systems that are of particular – and thus systemic – importance. Oversight standards for these systems were developed at international level by the G10 central bank governors: they are called the Core Principles for Systemically Important Payment Systems (BIS, January 2001). The responsible oversight agencies review the systems for compliance

with the oversight standards and, if necessary, act to effect changes. However, oversight can also be expanded to cover less important payment systems, individual payment instruments, the operators of systemically important payment infrastructures and other payment service providers. On the basis of a national legal foundation and the Eurosystem oversight policy framework, as well as in cooperation with the G10 central banks, the Bundesbank oversees a number of payment systems and instruments, infrastructure operators and other payment service providers. These activities also include the monitoring of all payment operations in Germany.

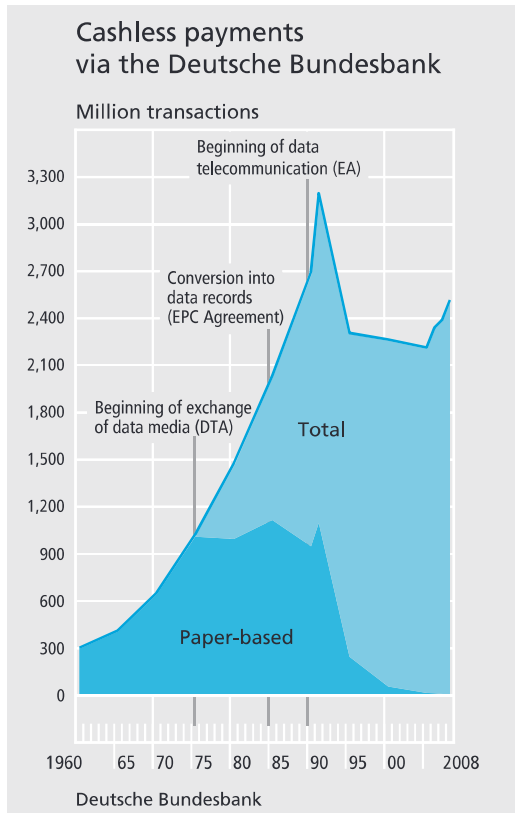
### Payment systems policy

#### Automation and information technology

Today's payments environment is the product of a forward-looking and sustainable payment systems policy which – beginning in the 1960s – sought to maintain state-of-the-art efficiency and safety of payment systems. The two principles of stability and efficiency are mutually reinforcing: only an efficient system will remain stable and safe in the long run, by being able to generate the funds needed for continuous evolution and the safeguarding of its integrity. Conversely, only a safe system is also an efficient system: only safe systems can enjoy a continuously high level of accept-

*Safety and  
efficiency not  
opposites*

<sup>2</sup> By law, the Deutsche Bundesbank has a statutory mandate for payments: "It ... shall arrange for the execution of domestic and cross-border payments and shall contribute to the stability of payment and clearing systems." (Section 3 of the Act concerning the Deutsche Bundesbank). This mandate has a European counterpart (Article 105 (2) of the EU Treaty and Article 22 of the ESCB/ECB Statute).



ance among users, whose numbers make economies of scale and reduced marginal costs possible in the first place. Within this framework, however, individual interbank payments, with their urgent large values, are more strongly oriented towards safety and rapid finality (ie payments are deemed to have been completed) than retail payments, for which efficiency plays a more important role because of the large volume.

*Paper-based  
payments  
unerringly  
replaced*

The main reason why payment systems in Germany are so highly efficient today is that institutional providers of payment services, especially the credit institutions and their central associations, have been willing to cooperate with each other and the Bundesbank as well as to invest heavily in new systems. This has resulted in an unerring replacement of

paper-based payments by paperless, automated electronic payment settlement. The Bundesbank was an active participant in this process. It is seeking, in a cooperative approach, to coordinate the interests and decisions of all parties involved in payments and to nudge them towards the aims of shorter processing times, lower settlement costs, greater safety and stability.

In the awareness that common standards and procedures are the only way to efficiently manage retail payments,<sup>3</sup> the central associations of the banking industry deal with payment issues in the "Business Management Committee" of the Central Credit Committee, which was established in 1953. The Committee's main focus is on developing interbank standards which do not interfere with the client-bank relationship. The "Automation" working group, in existence since 1959 and operating under the aegis of the Bundesbank, is responsible for discussing the policy aspects of automation in payments and for coordinating decisions. At the same time, competition in the German financial system – on this joint basis – is intense. This benefits the users of payment services by keeping the transactions and account management costs at a level below that of many other countries. In the meantime, numerous credit institutions in Germany have begun to offer free current accounts again.

*Agreeing on  
standards  
promotes  
automation  
and ...*

*... intense  
competition*

<sup>3</sup> The cashless payment of wages and salaries, which grew increasingly popular beginning in the mid-1960s, and the resultant introduction of current accounts that were initially carried free of charge may be regarded as having triggered retail business and the subsequent pressure for rationalisation in the payment industry.

## Milestones in the advancement of paperless payments

Year	Event
1975	The paperless exchange of data media (DTA) for credit transfers and direct debits was launched.
1985	The paperless cheque collection procedure (BSE) was launched. It was initially adopted for cheques for less than DM1,000; this limit was raised to less than DM2,000 from 1989, to less than DM5,000 from 1993 (and the procedure made mandatory beginning in 1998). From 1999, the limit was less than €3,000; this limit was raised to less than €6,000 from 2004.
1990	The Bundesbank launched its Electronic Access (EA) for processing submissions and deliveries via data telecommunication. 1990: for individual payments in the Euro Access Frankfurt (EAF) net system 1992: for individual payments in the Euro Link System (ELS) real-time gross system 2000: for retail payments in the electronic Retail Payment System (RPS)
1991	Transaction fees were introduced by the Bundesbank. Paper-based payments: DM0.05 per credit transfer and DM0.10 per collection item Paperless payments: DM0.01 per data record
1992	Credit institutions were required to convert paper-based credit transfers into data records; initially from DM10,000 and for intercity credit transfers only; from 1994, this limit was lowered to DM1,000 and extended to local credit transfers; this requirement was extended to all credit transfers from 1997.
1993	Credit institutions were required to convert direct debits to data records.
1994	The large-value cheque collection procedure (GSE procedure) was introduced.
2007	The image-based cheque collection procedure (ISE procedure) was launched.
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*Payment  
agreements  
of major  
importance*

The agreements on uniform formats, standards and procedures were drafted as multilateral treaties and adopted by mutual consent. Credit institutions belonging to one of the banking associations were governed by these agreements through their membership; non-banking association members signed individual agreements. These agreements are binding on all participants in payment operations. Examples include the agreements on credit transfers, the collection of cheques, direct debit transactions or paperless data exchange. This does not obstruct innovation since the introduction of new technical and operational features can be accommodated by flexible adaptation of the agreements.

The automation of payments was achieved by way of numerous decisions and meas-

ures.<sup>4</sup> A distinction is usually made between the "first stage of automation", in which voucher processing was streamlined (this period saw the introduction of standardised forms, the coding line, machine-readable printing and the bank sort code),<sup>5</sup> and the "second stage of automation". The idea of this stage was to avoid paper altogether or to make the conversion of payment data into electronic data records mandatory at the earliest possible stage of processing. In bypassing the expensive and error-prone process of handling vouchers manually, the order is automatically routed directly to the recipi-

*First and  
second stages  
of automation*

<sup>4</sup> For detailed information on automation, see Deutsche Bundesbank, Monthly Report, February 1971, pp 55-60; January 1973, pp 17-20; and August 1978, pp 19-20.

<sup>5</sup> By 1975, nearly two-thirds of all collections of cheques and direct debits and around half of all credit transfers had been streamlined.

### Payments via the Deutsche Bundesbank's interbank payment systems \*

Year	Retail payments		Individual payments <sup>1</sup>	
	Number of payments (in millions)	Value in € billion	Number of payments (in millions)	Value in € billion
1999	2,180.9	2,243	30.2	86,101
2000	2,231.5	2,247	33.6	93,789
2001	2,201.9	2,204	34.2	103,730
2002	2,161.3	2,114	34.1	128,719
2003	2,193.1	2,104	34.9	131,564
2004	2,234.1	2,124	35.8	128,358
2005	2,178.3	2,103	36.8	140,440
2006	2,301.3	2,196	38.8	162,629
2007	2,346.4	2,263	42.6	185,089
2008	2,468.9	2,359	47.1	250,446

\* Active retail and individual payment systems in operation at each respective point in time. — <sup>1</sup> Until 2 November 2001: EAF + ELS + incoming TARGET payments from abroad; from 5 November 2001, RTGS<sup>plus</sup> + ELS + incoming TARGET payments from abroad, with payments between RTGS<sup>plus</sup> and ELS counted once; from 5 December 2005 RTGS<sup>plus</sup> + CAM + incoming TARGET payments from abroad, with payments between RTGS<sup>plus</sup> and CAM counted once; from 19 November 2007 TARGET 2-Bundesbank + CAM + incoming TARGET2 payments from abroad, with payments between TARGET2-Bundesbank and CAM counted once.

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ent ("straight-through processing") at very low marginal costs. Without rigorous standardisation, this would not have been feasible.

Home banking reducing number of vouchers further

The growth of home banking and of the use of payment cards by individuals is causing the volume of vouchers to fall further, thus reducing the costs to the banking industry. There were around 88 million bank accounts in Germany at the end of 2007, of which around 30 million were already being operated online. The high acceptance of online banking underscores the fact that modern payment instruments will only receive sustainable acceptance in the market once users believe that they are sufficiently safe and reliable.

The Bundesbank has always expressly supported and encouraged efforts to make automation as extensive as possible by opening itself up for electronic data exchange with the banking industry – alongside its coordinating and catalytic role.<sup>6</sup> It has introduced a logical and consistent price scale for the services it offers in order to replace paper-based or antiquated procedures. Even in the operation of its own procedures, the Bundesbank has streamlined data transfer as far as possible. At the end of 2008, the percentage of data records transmitted by data telecommunication – ie without data media (diskettes, tapes) – directly to computer systems was in excess of 99%. In addition, the Bundesbank recently also improved and modernised access and communication standards for the computer systems open to its customers by using the Electronic Banking Interface Communication Standard (EBICS) and the Financial Transaction Services (FinTS).<sup>7</sup>

Measures by the Bundesbank to promote automation

Another example of the measures to eliminate paper is the "Image-Based Cheque Collection Procedure" (*Imagegestützter Scheckeinzug* or ISE), in which even cheques of €6,000 or more no longer need to be physically presented in paper form at the drawee bank. However, the role of the cheque in modern-day retail payments, in terms of vol-

Cheque collection now also paperless

<sup>6</sup> Examples include the paperless exchange of data media, the use of the communication facilities provided by the Society for Worldwide Interbank Financial Telecommunication (SWIFT), a cooperative enterprise supported by the international banking industry, as well as offering specific entry points for customers using the Bundesbank's own computer systems, known as "Electronic Access" (EA).

<sup>7</sup> EBICS is a multibank-enabled standard for the transmission of payment data. FinTS is a new standard that will supersede the "Home Banking Computer Interface" (HBCI) standard.



ume, is virtually negligible (81.9 million in 2007).<sup>8</sup> The average values transacted via cheques, however, are still relatively high. Direct debits are particularly better suited to fully automated electronic straight-through processing than cheques.

*IT enables  
secure  
settlement of  
numerous and  
large-value  
transactions*

The immense advances in information technology (IT) have enabled data processing and data access at increasing speeds and made it possible for more and more data to be stored. They are at once the foundation and the engine of the modernisation of the payment infrastructure. A comparison of the volume and value of payments settled by the Bundesbank in the 1960s with today's figures shows clearly that many more payments, of increasing value overall, are being settled, while the workforce needed has simultaneously shrunk drastically. This is also shown by the adjacent table. In individual payments, it is the transacted values that have tended to rise sharply. The transacted values in individual payments nearly tripled from 1999 to 2008 (from €86 trillion in 1999 to as much as €250 trillion in 2008; both figures per annum). Over the same period, the volume of transactions per year rose from around 30 million payments to 47 million payments. By contrast, that part of retail payments settled via the Bundesbank remained largely unchanged, at a range of between 2.16 billion and 2.47 billion transactions per year with a transacted value of between €2.1 trillion and €2.3 trillion; however, at the same time retail payments in Germany rose overall. Retail payments settled via the Bundesbank represent less than 1% of the transacted value in individual payments, or

#### Value and number of credits and debits in the Deutsche Bundesbank's cashless payment transactions

Year	Total value in € bn	Change from previous year listed in table
1960	800	.
1980	14,153	17.7 times
1991	73,882	5.2 times
2000	96,979	1.3 times
2008	252,805	2.6 times
		<i>Memo item</i> Change from 1960 316 times
	Number of transactions (in millions)	Change from previous year listed in table
1960	304	.
1980	1,477	4.9 times
1991	3,197	2.2 times
2000	2,266	0.7 times
2008	2,516	1.1 times
		<i>Memo item</i> Change from 1960 8.3 times

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roughly the turnover achieved in two individual payment working days.

Because of the growing size in individual payments, the total value of transactions settled via the Bundesbank in 2008 stood at about 18 times its figure in 1980 and a mighty 316 times its figure in 1960. By contrast, the volume of transactions rose by only 70% (from 1.48 billion to 2.52 billion) between 1980 and 2008, as the dominant volume from retail payments relative to the transacted values rose much more moderately.

*Value of  
transactions  
up by more  
than 300 times  
from 1960*

<sup>8</sup> This was significantly influenced by the expiry of the Eurocheque Agreement in 2002 and by retailers' willingness to accept bank customer cards, which also serve as guarantee cards, as "debit cards" with authorisation by PIN or signature and subsequent direct debit.

*Payment systems as a network product*

As a “network product”, cashless payment systems are particularly suited to converting improvements in IT performance directly into increasingly efficient and effective payment products. Payment systems that transport and process payment messages that have been converted into electronic data records are subject to the specific economic parameters that govern digital goods. These include high overhead costs in development and low marginal costs of ongoing production and, given the existing network externalities, the need to reach a “critical mass” of market share.<sup>9</sup> In addition, the speed of innovation is high, which means that existing applications are characterised by shorter and shorter product life-cycles. However, the growing demands on data and application security are driving costs up.

Liberalisation, European integration and risk mitigation for transactions

In tandem with the ever-increasing automation, other factors have also been affecting domestic and cross-border payments to a growing extent.

*Liberalisation as a driving force*

The onset of financial market deregulation and liberalisation caused foreign exchange and securities trading to swell sharply. Financial innovations, derivatives and financial market competition took on increasing importance. The rapidly rising need to mitigate the risks of financial transactions has also had an impact on the payment landscape.

As early as 1974, the Herstatt bank’s insolvency heightened financial market partici-

pants’ awareness of, not least, foreign exchange settlement risk. Here, for contracts for which the parties are located in different time zones, performance by one party is due before that of the other party. If the counterparty defaults, he may well no longer be able to render performance. However, “immediate reciprocity” causes the risk to decrease accordingly. Therefore, foreign currency trading increasingly saw the introduction of “payment versus payment”, and securities trading “delivery versus payment”. The institutionalisation of the delivery versus payment principle is embodied by CLS Bank (Continuous Linked Settlement), domiciled in New York City and active since September 2002, where banks in various time zones can settle foreign exchange transactions with various currencies securely on the basis of previously provided central bank liquidity.

*Risk mitigation in foreign exchange trading through gross settlement principle and “immediate reciprocity” transactions*

Given the growing recognition of the need for gross settlement systems which permit real-time settlement in central bank money in order to effectively mitigate risks in payments, the “Lamfalussy Recommendations” were adopted by a group of international experts in November 1990, thereby representing a paradigm shift. In the systems that were dominant up until well into the 1990s, which operated under the net settlement principle (offsetting mutual claims but offsetting the resultant balances on the accounts only at certain times in the future), liquidity difficulties or insolvency of one participant could

*Gross settlement increases security...*

<sup>9</sup> A positive network externality would mean that the benefit of a product for an individual user rises in line with the total number of users (examples: fax and phone connections; number of bank accounts; e-mail addresses; number of participants in a current account network etc).



... but also  
demand for  
liquidity

Single Market  
and euro  
required new  
procedures

cause domino effects preventing settlement and, in an extreme case, leading to illiquidity of other participants ("systemic risk"). In "gross settlement systems", each single payment is predicated on sufficient cover. The rapid finality thus enabled is purchased at the cost of tighter liquidity, which can be compensated for with interest-free intraday credit, a sophisticated queuing procedure and, in some cases, through countervailing payments.

Developments in the European Union – including incremental enlargement, the Single Market and the introduction in 1999 of the single currency – also had far-reaching implications for payment systems. In individual payments, cross-border payments acquired far greater importance. To further harmonise payments in the EU, as early as in 1993 an analysis was made of similarities and differences between the various payment systems in all EU countries and joint minimum standards defined (in the report of the Working Group on EC Payment Systems of the EC central bank governors entitled "Minimum common features for domestic payment systems").<sup>10</sup> And it was precisely the introduction of the euro, which as a shared currency requires a unified money market in all euro-area countries, that necessitated the development of completely new procedures and systems for interbank payments. By contrast, the number of transactions and values transacted in cross-border retail payments initially remained limited – and with it the pressure to economise and to harmonise.

The TARGET<sup>11</sup> system, which was introduced in January 1999 in the Eurosystem and provides automated real-time settlement with immediate finality in highly liquid and insolvency-proof central bank money and is operated by central banks, is what made the euro possible from a payments perspective in the first place. In principle, TARGET enables all banks in the EU to exchange payments with all other banks directly or indirectly. The gross settlement principle was one of the factors that has helped ensure that, despite the lack of trust among credit institutions during the current financial crisis and the impairment to the interbank money market and money market trading that it has caused, the actual interbank payments have continued to function well.

At the same time, the highly standardised and harmonised euro payment system has not only opened up greater business opportunities for the banking industry as a whole but conversely – following the replacement of the various legacy currencies – led to intensified competition. The European Banking Association (EBA) operates Euro 1, an individual payments procedure which is designed as a net settlement system but, thanks to various provisions, is likewise extremely secure.

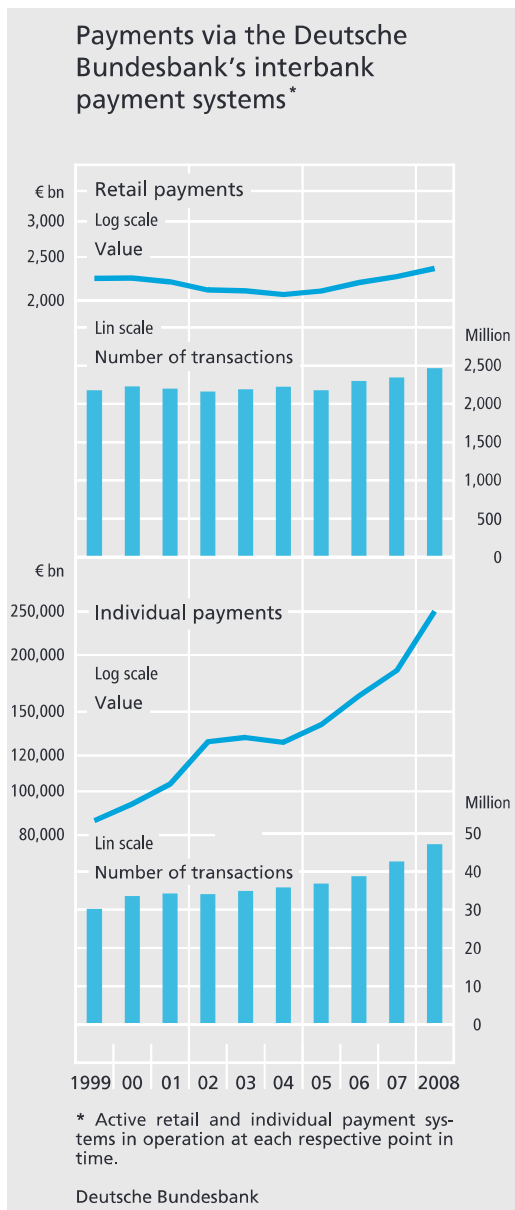
Intraday credit is a particularly important element in solving the structural liquidity problem in gross settlement systems. In order

*TARGET –  
a condition for  
a single money  
market*

*Advantages of  
interest-free  
collateralised  
intraday credit  
facility*

<sup>10</sup> Developments in the Deutsche Bundesbank's cashless payments up until the early 1990s are described in more detail in Deutsche Bundesbank, Monthly Report, August 1994, pp 45-61.

<sup>11</sup> Trans-European Automated Real-Time Gross Settlement Express Transfer.



to limit the risk to the central bank as the lender, intraday credit in the Eurosystem has to be backed by eligible assets which, if the credit is not repaid on time – thereby spilling over into overnight credit – can serve as collateral. The pronounced “frontloaded” nature of TARGET payments at the Bundesbank is thus due also to the interest-free collateralised intraday loan since the early use of intraday liquidity via payment orders costs the

delivering bank relatively little<sup>12</sup> yet “greases the wheels” of the system with liquidity. Every day, on average, around 50% of all transactions are already settled in the first three hours (out of an 11-hour operating day); after around 4½ hours, nearly 50% of the value has been transacted.

In addition, a considerable amount of effort has been made to limit risks in payments in the event of severe technical disruptions or other harmful external impacts (backup systems and procedures, business continuity and contingency planning).

### Bundesbank operates its own payment systems

Examples of how the Bundesbank also fulfils its statutory mandate by operating its own systems and applications include TARGET and its successor system, TARGET2, which was introduced in November 2007. There are different motives and rationales, from a central banking perspective, for participating in individual payments and retail payments.

#### Individual payments at the Bundesbank

In the second half of 2008, Germany’s credit institutions delivered an average of around 180,000 payments for around €1 trillion each day to the TARGET2 system. This represents around one-third of the value transacted by the system throughout Europe. Alongside the settlement of Eurosystem monetary policy op-

<sup>12</sup> There are, though, transaction costs involved in pledging collateral; in addition, forgoing other uses of the pledged collateral can lead to opportunity costs.

erations via the central banks' account system, individual payments are a precondition for efficient money market management and for implementing monetary policy using market-based instruments.

*TARGET2  
Single Shared  
Platform*

Since 19 November 2007, all TARGET2 participants have been using a "Single Shared Platform", developed and operated on behalf of the ESCB by three central banks (the Banque de France, the Banca d'Italia and the Deutsche Bundesbank),<sup>13</sup> to settle their euro payments.

*Advantages in  
central bank  
acting as  
"settlement  
agent"*

There are two reasons why central banks play a prominent role in individual payments: the operational implementation of monetary policy, and the considerable advantages to credit institutions in settling payments in central bank money via central banks' accounts. Since all credit institutions hold at least one account at their central bank, the balances on which are used as cover for interbank payments (also known as "working balances"), interbank credit transfers are often settled via the central bank, which acts as a "settlement agent". It is also conceivable that other major institutions could take on this role as a "central institution", in a manner similar to the role played by the Landesbanken for the savings banks or the central institutions of credit cooperatives for their affiliated credit cooperative institutions. However, the performance of "settlement agent" functions by the

## TARGET2-Securities

Years after the introduction of monetary union, European securities settlement remains fragmented, with many central securities depositories holding an island position in their national environment and hence minimising competition. Although some central securities depositories have made visible tentative moves in this direction, a far-reaching consolidation of European securities settlement has yet to occur – in contrast to the consolidation of central banks' payment systems in TARGET2 – owing, among other factors, to the central securities depositories' diverging interests and their differing ownership structures. Cross-border securities settlement in Europe is less efficient and more expensive than domestic settlement; among other things, this is because settlement is effected according to different standards and methods across countries. In order to provide an integrated infrastructure for securities settlement for the single European capital market, the Eurosystem will offer TARGET2-Securities (T2S) as a service for settling securities transactions in central bank money. In its basic features, T2S reflects the TARGET2 philosophy, according to which a single technical IT platform is more efficient, cost-effective and user-friendly than the current decentralised system and is thus also in line with other European initiatives in the area of clearing and settlement (eg Code of Conduct for Clearing and Settlement). T2S is a pure settlement service; securities custody as well as the associated services remain in the hands of the national central securities depositories. Once settlement has been centralised and the cash and securities legs have been integrated in a single platform, cross-border settlement will be just as simple and efficient in future as today's domestic settlement as well as significantly cheaper owing to economies of scale. The realisation of T2S and TARGET2 on the Eurosystem's single shared platform also holds significant potential for synergy and will therefore help to reduce costs even further. The Deutsche Bundesbank, the Banque de France and the Banca d'Italia, which are already responsible for the development and operation of TARGET2, are working together with the Banco de España to develop T2S on behalf of the Eurosystem and will operate it on the single shared platform. Unlike private providers, the Eurosystem is not commercially motivated and – as a neutral agent – will provide the service on a break-even basis, which rules out profit-maximising monopolistic behaviour. Moreover, T2S has the potential to act as a catalyst for further harmonisation of legislation and technology.

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<sup>13</sup> The national RTGS system "RTGSplus" developed by the Bundesbank, the TARGET system and its successor, TARGET2, are explained in more depth in the following publications: Deutsche Bundesbank, Monthly Report, June 2000, pp 59-71; April 2002, pp 57-70; September 2005, pp 45-57; and October 2007, pp 69-82.

central bank is more likely to offer advantages to the banking industry as a whole. There are several reasons: central banks are not subject to insolvency risk, at least in domestic currency; the central bank money used to settle balances is the best form of liquidity for the banking industry (maximum acceptance and usability and minimum risk); and central banks are competitively neutral. In addition, only central banks can act as the “lender of last resort” in order to provide urgently needed additional liquidity at very short notice. Furthermore, central providers of individual payment systems can take advantage of the benefits of low marginal costs, standardisation and economies of scale. These benefits accrue to users as well. The advantages provided by the central bank’s role are the main reason why securities settlement systems also settle the cash leg of their transactions in central bank money at the central bank.

*Effective remuneration of working balances provides financial centre advantage*

With respect to the competition that exists between financial centres, the remuneration on minimum reserves even gives the Eurosystem an advantage over financial centres without the instrument of minimum reserves. Since minimum reserves are to be maintained on a monthly average, are remunerated at market rates and, at the same time, can also be used as working balances for interbank payments, this means not only that the amount of liquidity required by the banking system for future open market transactions is measured constantly, but that, in effect, working balances are even remunerated at market rates.

## Retail payments at the Bundesbank

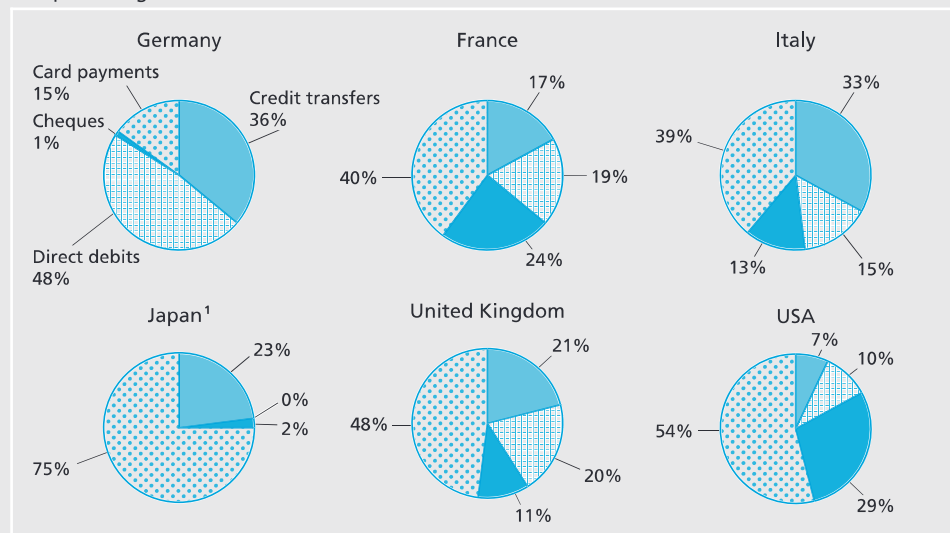
Retail payments – which include, in particular, everyday cashless payments made by non-banks (households, public administrations and enterprises) – are characterised by a high volume of payments of a fairly limited value and which are less urgent. On average, 9.9 million such payments with a total value of around €9.5 billion were transacted on average per day via the Bundesbank in the second half of 2008. At the forefront are efforts to keep costs low while ensuring safe settlement and minimising processing times. In Germany, the debit card (a bank customer card with which the account is debited one to two days later – used in 1.7 billion transactions in 2007) is the only other major retail payment instrument alongside the credit transfer and the direct debit. The chart and table on pages 61 and 63 list the uses of payment instruments in Germany and other selected countries. An international comparison of the number of transactions per capita shows that, in Germany, credit card usage is not particularly widespread.

In domestic retail payments (which account for around 55 million transactions settled on average each day), credit institutions exchange electronic payment messages using central institutions and association members’ computer centres (“bilateral interbank clearing”). At the end, only the respective gross amounts are settled via these institutions’ accounts with the Bundesbank. This means that around 85% of the total transaction volume is settled directly between banks. The remaining 15% of retail payments are settled via the

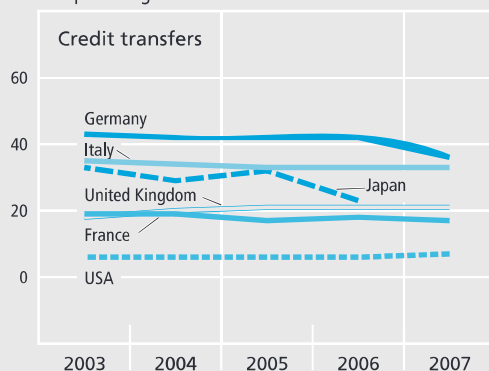
*Little recourse to Bundesbank’s system*

## Use of payment instruments by non-banks

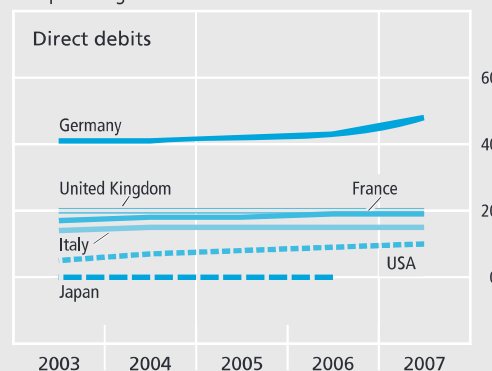
as a percentage of all transactions in 2007



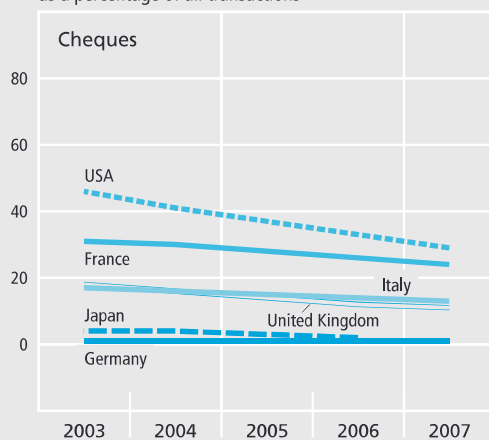
as a percentage of all transactions



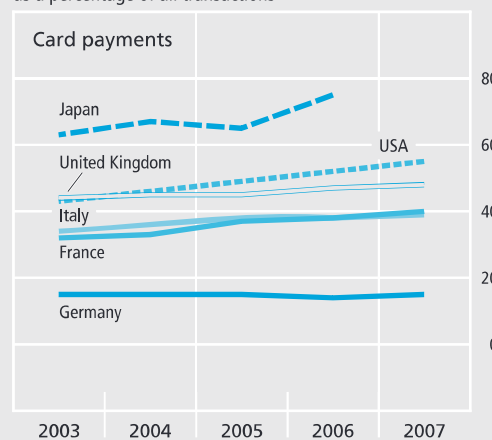
as a percentage of all transactions



as a percentage of all transactions



as a percentage of all transactions



<sup>1</sup> Data for 2006.

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Bundesbank's "Retail Payment System" (RPS). In 1991, the number of retail payments transacted via the Bundesbank peaked at just under 3.2 billion. After the Bundesbank, in a countermeasure, began to charge a fee for this service, the volume of transactions fell somewhat and, since 1995, has remained virtually constant, at around 2.3 billion transactions per year. This represents a reduction in market share by more than half from the Bundesbank's 1991 figure of nearly 35%. The Bundesbank's complementary role means that it is not in competition with the banking industry. Households and enterprises are not permitted to hold accounts with the Bundesbank. Therefore, besides domestic credit institutions, the only other parties eligible to hold Bundesbank accounts are public sector bodies (for which the Bundesbank acts as a "fiscal agent"), cash handling service providers, foreign credit institutions and international organisations.

*Reasons why the central bank is involved in interbank retail payments*

A central bank has different motives for participating in retail payments than for being involved in individual payments. The Bundesbank's giro network enables all banks, but particularly those without any group affiliation, to offer payment services without being at a competitive disadvantage. Every institution can reach every other institution for inbound and outbound payments via the Bundesbank. The Bundesbank, however, is also, in principle, ready to use the systems and processes of its infrastructure to close, at least partly, gaps caused by a technological failure afflicting parts of the banking industry.

The process of economic and monetary integration has likewise had a sustained impact on developments in retail payments in the past few years. In addition to EU Standard Credit Transfers,<sup>14</sup> since 28 January 2008 it has also been possible to use SEPA (Single Euro Payments Area) credit transfers to send cross-border retail payments to other European countries. The European Commission had previously already adopted a regulation ensuring that the fee charged for cross-border payments within Europe was no higher than the corresponding national charge.<sup>15</sup>

*SEPA credit transfers*

The SEPA direct debit is scheduled to follow as of November 2009. The guiding idea is that this new SEPA format for credit transfers and direct debits will, following a changeover period, completely replace the existing national formats and procedures rather than complement them. Following a changeover period that has yet to be determined, domestic payments effected by credit transfer or direct debit are also to be settled exclusively in the SEPA format. SEPA is the logical result of the Single Market and the introduction of the euro. The more competitive and efficient payment market that will be created is expected to deliver corresponding benefits to the financial sector, the real economy and consumers.

*SEPA: the logical result of the Single Market and the euro*

<sup>14</sup> Payments in accordance with Regulation (EC) No 2560/2001 of the European Parliament and of the Council of 19 December 2001 on cross-border payments in euro.

<sup>15</sup> The introduction of the International Bank Account Number (IBAN) and the use of the Bank Identifier Code (BIC) have made it easier to settle cross-border payments. The IBAN has made it possible to offset the vast differences across the Union in the systems used to assign bank account numbers. The BIC, an eight to eleven-digit alphanumeric code, is ultimately a bank's "address" in SWIFT, which is internationally identifiable by all credit institutions.



## Use of payment instruments by non-banks in selected countries

Number of transactions per inhabitant and per year

Year	Germany	France	Italy	Japan	United Kingdom	United States
Credit transfers						
2003	70.1	41.7	17.7	10.2	37.1	15.8
2004	74.8	41.6	18.2	10.4	43.4	17.0
2005	81.4	38.3	18.0	10.6	49.6	18.4
2006	88.2	41.4	18.2	10.7	50.5	19.9
2007	62.9	41.1	18.6	10.9	51.2	21.2
Direct debits						
2003	66.2	37.9	7.2	–	40.8	14.4
2004	73.4	40.7	7.9	–	43.3	19.6
2005	80.8	40.0	8.0	–	45.2	24.2
2006	89.4	43.3	8.2	–	47.2	29.0
2007	83.9	45.8	8.6	–	48.6	33.9
Cheques						
2003	1.6	68.7	8.8	1.3	37.8	128.0
2004	1.3	66.2	8.5	1.2	34.9	118.8
2005	1.3	62.3	8.0	1.1	32.1	110.1
2006	1.3	60.6	7.8	1.1	29.3	101.8
2007	1.0	57.4	7.2	1.0	26.2	93.5
Card payments <sup>1</sup>						
2003	24.4	70.0	17.1	19.3	90.9	117.5
2004	27.1	74.5	19.2	24.0	98.6	132.0
2005	28.8	83.5	20.6	21.9	104.4	144.6
2006	29.6	88.9	21.2	35.7	111.0	161.4
2007	25.2	96.7	22.6	–	118.1	178.3

Source: Bank for International Settlements – Committee on Payment and Settlement Systems, Statistics on pay-

ment and settlement systems in selected countries, March 2009, S. 245-246. — <sup>1</sup> Excluding e-money.

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In the long term, national stand-alone solutions are not compatible with the Single Market and the euro. The continued parallel existence of previous formats and processes means that not enough is being done to make full use of the options provided by SEPA for cross-border competition and cost reduction. It is precisely past experience which demonstrates that the courage to innovate – combined with the willingness to fund the necessary financial outlays – will pay off in the long run.

### Payment systems and monetary policy

Developments in cashless payments can discernibly influence the execution of monetary policy. Reference has already been made to

interbank payments – ie individual or large-value payments (TARGET, TARGET2) – regarding their importance for efficient money market management and for standardised money market conditions. Changes in non-banks' behaviour in retail payments, especially as a result of innovations and new terms and conditions or fees, can also impact on monetary indicators. The substitution of cash with deposit money is the best example. The demand for central bank money resulting from public demand for cash, minimum reserve requirements and the voluntary holding of working balances for interbank payments on central bank accounts is a key factor in the success of central banks in managing money market rates. Any changes in the demand for central bank money caused by, for instance, innovation in payment instruments have to be

taken into consideration by monetary policy-makers accordingly. The Eurosystem therefore needs to observe and analyse market devel-

opments intensively in order to take due account of new payment habits in a timely manner.