

## Longer-term trend in German credit institutions' inter- bank operations

Interbank operations are given much less attention in the monetary policy debate than credit institutions' lending and deposit transactions with non-banks. Nevertheless, interbank operations are also important for monetary policy. Interbank operations serve to adjust liquidity within the banking sector in the short and longer term and link the operations among the individual institutions and among the various banking categories. In doing so, they make transactions with non-banks easier and they support the transmission of monetary policy stimuli to the real economy. At the same time, they help to spread bank-specific risks within the banking sector. To that extent, the operations between the credit institutions are a major determinant of the efficient fulfilment of the banks' macroeconomic functions. However, a high degree of interdependence in the banking community can also increase contagion and systemic risks. In this article the longer-term trend in interbank operations in Germany will be analysed in detail although money market activities will be largely ignored. Particular attention will be paid to the relative significance and structure of interbank operations, financial operations within the same banking sectors and operations with banks abroad.

## Major results and trends

*German monetary union temporarily fostered interbank lending*

The basic conditions for German credit institutions and interbank operations have changed discernibly since the beginning of the nineties. The merger of the banking systems in eastern and western Germany in 1990 provided a strong boost to interbank operations for a time. The integration process of the banking systems in the European Union (EU) has advanced further. The interpenetration of the banking markets was encouraged by the single market regulations, which made cross-border financial transactions and the supply of banking services even easier (European passport, mutual recognition of the supervision performed by the authorities responsible in the home country), and more recently by the start of stage three of European economic and monetary union. The following analysis outlines the trends in interbank operations in the nineties; to cover longer-term developments, however, reference was also made in some cases to earlier periods.<sup>1</sup>

*Relative weight of German interbank volumes very stable*

Between 1990 and October 1999 the German institutions increased their mutual loans and advances not evidenced by certificates (advances) and unsecuritised borrowing (deposits)<sup>2</sup> from an annual average of approximately DM 900 billion to just over DM 1,910 billion<sup>3</sup>, which means that these transactions more than doubled (+ 112 %). Thus, interbank claims rose somewhat more slowly than the total business volume (+ 125 %) but faster than the advances to German non-banks (106 %). Over the longer term (since 1970) the ratio of German unsecuritised interbank assets and liabilities to total business volume

has remained virtually unchanged at just under 18 % – with the exception of the temporary bulge at the beginning of the nineties (see the table on page 57). This means that the relative importance of liquidity adjustment among the German institutions has not changed. At the same time, however, the breakdown of German interbank operations has shifted more towards the longer maturities of more than one year. The proportion of transactions with these maturities to total business volume increased by some 2 percentage points to 11½ % during the nineties.

*Trend towards longer maturities continues*

The borrower and lender positions of the various categories of banks in the interbank market, which are primarily determined by their typical operational fields and the structure of their business with non-banks, remained largely unchanged in the nineties. The most important “lender” institutions were the banks with special functions<sup>4</sup>, the mortgage banks and the Land banks (regional giro institutions) while on the “borrower” side there were (in descending order of magnitude) the savings banks, the regional banks, the regional institutions of credit cooperatives, the big banks and the branches of foreign institutions. The savings banks have had the largest liability overhang, in absolute terms, through German interbank operations since 1995.

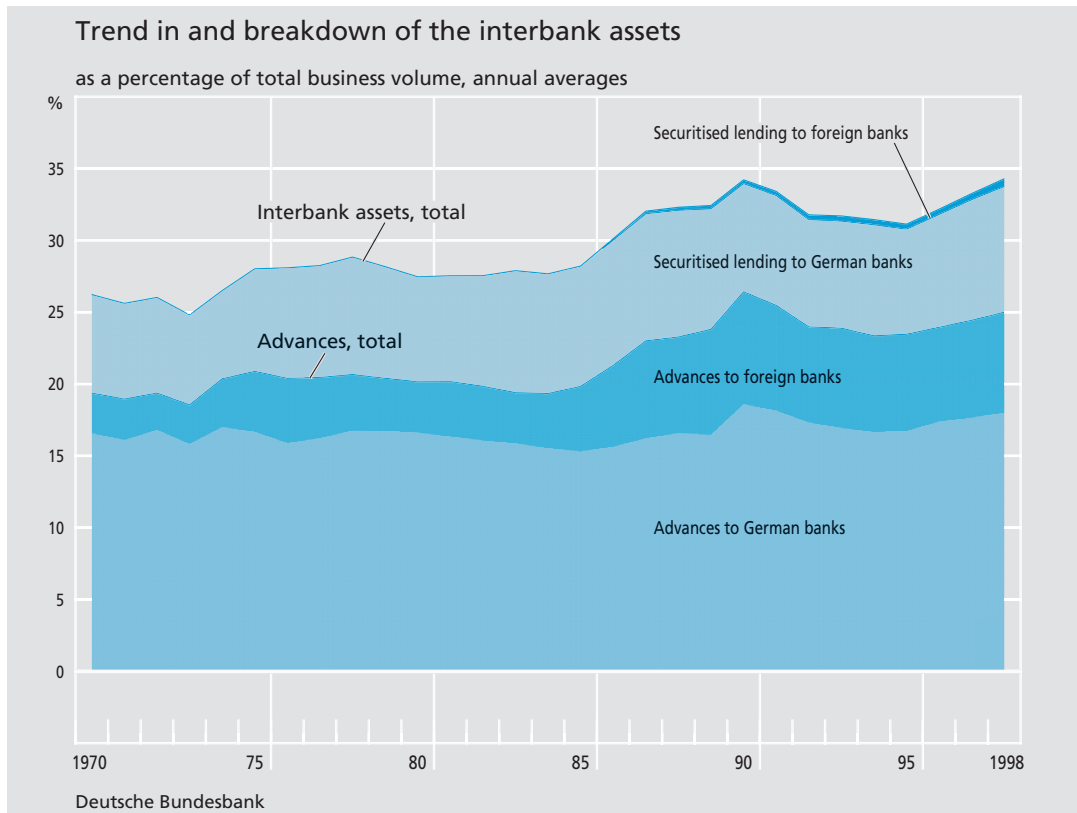
*Major borrower and lender groups in the interbank market*

<sup>1</sup> See also Deutsche Bundesbank, Domestic banks' interbank assets and liabilities since 1980, Monthly Report, March 1988, page 22 ff.

<sup>2</sup> The securitised assets and liabilities as well as the repo market transactions have been excluded; they are taken into account only where this is necessary for the analysis.

<sup>3</sup> The amounts for 1999 are also given in Deutsche Mark to make it easier to compare them with the figures for earlier years.

<sup>4</sup> Defined as “credit institutions with special functions” until the end of 1998.



*Pronounced maturity transformation within sectors*

In the savings bank and credit cooperative sectors the financial operations between the institutions of the primary level and the central institutions are characterised principally by liquidity adjustment and maturity transformation. The savings banks and credit co-operatives lend mostly short-term funds to the central institutions whereas the latter, by contrast, return mainly longer-term deposits to the primary institutions.

*Trend towards accumulation of liabilities in business with foreign institutions*

During the past few years the interbank operations with institutions abroad have seen a net growth in liabilities both in the case of the German institutions and in the case of their branches and subsidiary banks abroad. This is in line with the trend in Germany's net external assets position, which has been declining since the beginning of the nineties. By

contrast, the banks' net external assets and the German net external position had risen sharply in the eighties.

### Monetary policy and prudential aspects

Interbank operations serve to balance out liquidity and to spread and transform risks within the banking sector. They are an important instrument for the longer-term management of the assets and liabilities on bank balance sheets, which aims at cancelling out the imbalances arising at the individual banks from business with non-banks. From a monetary policy point of view short-term claims on other banks represent a "secondary" source of liquidity, which, as far as the individual banks are concerned, may be regarded as

*Liquidity adjustment and risk transformation*

a substitute for primary liquidity in the form of central bank balances. Even though the interbank liability positions on the money market will eventually net out, at least in the case of domestic operations, the money market may well have an effect on the liquidity of the banking sector and its ability to create money. Firstly, the money market makes it possible to use the central bank funds held by the entire banking system more efficiently. Secondly, excess balances tend to be channelled into more profitable uses in the lending and deposit business with non-banks.<sup>5</sup>

*Prudential importance of interdependence in the banking sector*

Interbank operations likewise deserve attention for their prudential importance. A high degree of interdependence in the banking sector generally increases the contagion and systemic risks through domino effects and corresponding chain reactions. Furthermore, a run on those institutions that are significant players on the interbank market can be potentially more dangerous for financial market stability than a "non-bank run".<sup>6</sup> Owing to the lack of a deposit guarantee scheme for interbank funds, there is no creditor protection here other than the usual means of recourse under civil law, unless the loans have been secured through repurchase agreements. On an average of the first 11 months of 1999 interbank liabilities arising from repurchase agreements with German institutions amounted to approximately DM 66 billion while those with institutions abroad came to DM 97 billion. The latter agreements have been increasing significantly more sharply since January 1999.<sup>7</sup> The fairly stable ratio between German interbank volumes and the total business volume suggests that the systemic risk in interbank oper-

ations – if considered separately – has changed very little. As a result of the increasing use of complex derivatives, however, transparency will probably have been reduced; to that extent, assessing systemic risks has not become easier.

### Definition and methodology

The analysis is focused on the advances and deposits of German institutions and mainly based on the monthly balance sheet statistics of the German institutions and – for the analysis of operations with foreign institutions – reporting data from foreign branches and foreign subsidiaries. The building and loan associations have been included in the group required to report since the beginning of 1999.<sup>8</sup> To that extent, the data for 1999 are not fully comparable with the data for earlier years. By contrast, the securitised assets and liabilities have been largely excluded. Firstly, securitised loans to other institutions – for example, in their function as surrogate debtors – are to be regarded as substitutes for public bonds and therefore are not necessarily to be analysed as a means of distributing liquidity

*Focus on unsecuritised operations between German institutions*

<sup>5</sup> The fundamental importance of the money market and of the interest rates on the money market for the implementation of monetary policy and the transmission mechanism is not covered here.

<sup>6</sup> On this subject, see Markus Staub: *Inter-Banken-Kredite und systemisches Risiko*. *Schweizerische Zeitschrift für Volkswirtschaft und Statistik*, Vol. 134, No. 2, June 1998, pages 193–230.

<sup>7</sup> Liabilities to foreign institutions doubled between January (DM 65 billion) and November (DM 128 billion) whereas liabilities to German institutions rose rather marginally (from DM 66 billion to DM 73 billion).

<sup>8</sup> From 1999 the assets and liabilities of the credit institutions vis-à-vis the money market funds are shown as transactions with monetary financial institutions. The data reported by the money market funds themselves are not included in the interbank operations here.

within the banking sector and as a form of financial linkage between the institutions. Secondly, these assets and liabilities are excluded for statistical reasons as the total liabilities arising from bank bonds issued cannot be broken down by purchaser group.

*Use of averages*

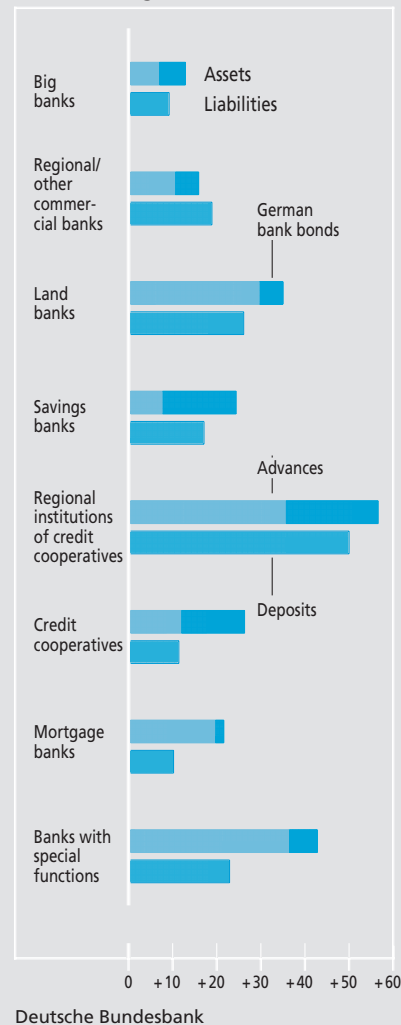
Unless otherwise stated, all data were converted into annual averages in order to avoid window dressing (fluctuations arising from choice of reporting date). The short-term interbank operations, which serve mainly to even out liquidity through the money market, are not analysed in more detail here. Furthermore, the institutions' operations with the Bundesbank which are primarily determined by monetary policy were disregarded.

*Reasons for statistical discrepancies between assets and liabilities*

In principle, the unsecuritised German interbank assets and liabilities ought to cancel out. In the past there was always a slight statistical surplus on interbank liabilities. One reason for this is that assets and liabilities were not always booked on the same day, that is to say, items such as credit transfers between institutions were still in the process of being settled at close of business. Another reason may have been problems in sectoral classification encountered by parties required to report.<sup>9</sup> From 1999 interbank operations are further "distorted" in that the data reported by the money market funds are not included in the statistical account of interbank operations in this article. Even so, the statistically induced liabilities overhang declined; in 1999 it no longer appeared, at least not in the average up to October.

Share of German interbank assets and liabilities in the business volume of major categories of banks

Annual averages for 1998



If the interbank operations are examined with respect to risk, the data taken from the balance sheet statistics will probably tend to be less informative than at the end of the eighties, especially on account of new off-balance-sheet financial instruments such as deriva-

*Limited informative value with respect to risk*

<sup>9</sup> Until the end of 1998 this could affect, for example, financial institutions which are credit institutions as defined by the Banking Act but which did not submit reports for the balance sheet statistics. To that extent, coverage was incomplete.

tives, which have already been discussed in detail elsewhere.<sup>10</sup> The rapid growth in derivatives business, most of which takes place among German and foreign credit institutions, reflects *inter alia* the increasing importance of the futures markets for the management of market price risks at the level of the individual institutions. For example, the nominal value of outstanding OTC contracts rose four-fold between March 1995 (US \$ 2,510 billion) and December 1998 (US \$ 10,831 billion).<sup>11</sup> By far the majority of these are interest-rate-related instruments (interest-rate swaps alone account for just over one-half of them), which help in the management of interest-rate risks. This indicates that, in future, risk-related analyses of the banking sector and of its interdependence will have to pay even more attention to the futures markets.

### Determinants of interbank operations

*Business with non-banks the deciding factor*

One of the most important determinants of interbank operations is the pattern of transactions with non-banks (non-MFIs). Institutions with net inpayments, i. e. with a surplus on their deposit business with enterprises, households and general government, either invest the funds that they do not require in securities or lend them as advances to other institutions. They act as lenders in the interbank market. Conversely, institutions with net outpayments in their transactions with customers (asset overhang) can borrow the additional funds required by issuing securities or trading on the interbank market.<sup>12</sup> The network of interbank relations makes it pos-

sible to transfer excess liquidity to institutions with net outflows of funds. From that point of view they represent – at least to some extent – a mirror image of the differently structured business with non-banks (non-MFIs).

Payment transactions of non-banks are another factor affecting interbank operations. They induce short-term liquidity fluctuations, which have to be balanced out in the money market. For example, average daily turnover through interbank payment transactions amounted to an estimated DM 830 billion in 1998; total advances between German institutions reached an average of DM 1,730 billion in 1998, the equivalent of just over two days' turnover in interbank payments.

*Payment transactions*

Funds which the banks with special functions transfer through the banking system to final borrowers as part of their function as promotional institutions of the government (for example, assistance for setting up new businesses, investment loans, local infrastructure, environmental protection) also play a significant role in interbank operations. This explains the considerable lender position of this category of banks.

*Interbank operations of banks with promotional functions*

The two sectors, that is to say, the savings banks and Land banks, and the credit co-

*Interbank operations within sectors*

<sup>10</sup> See Deutsche Bundesbank, Monthly Report, November 1995, pages 17–32; November 1994, pages 41–57; October 1993, pages 45–67; and Special Statistical Publication 13, "Off-balance-sheet operations of German banks", December 1998.

<sup>11</sup> The figures are taken from the stock reports compiled for the BIS statistics by the German banking groups that dominate the market.

<sup>12</sup> An adjustment of their asset-side business with non-banks – an extension in the case of lenders and a restriction in the case of borrowers – is a practical alternative only in the longer term.

operatives and the regional institutions of credit cooperatives, are characterised by the holding and distribution of liquidity, especially maturity transformation, i.e. the transfer of interest rate risks (see the section "Participation of major categories of banks ..." below).

*Capital flows within financial groups*

Another source of interbank assets and liabilities is the shifting of funds within financial conglomerates (for example, between parent institutions and mortgage banks, direct banks and other subsidiaries). The German financial system is characterised both by the universal banking concept and by a complex capital tie-up and division of labour within sectors and financial groups ("one-stop" financing strategies). In the seventies, moreover, "working balances" at other banks probably helped to ease bilateral payments flows; however, their importance has now declined sharply.

## German interbank operations

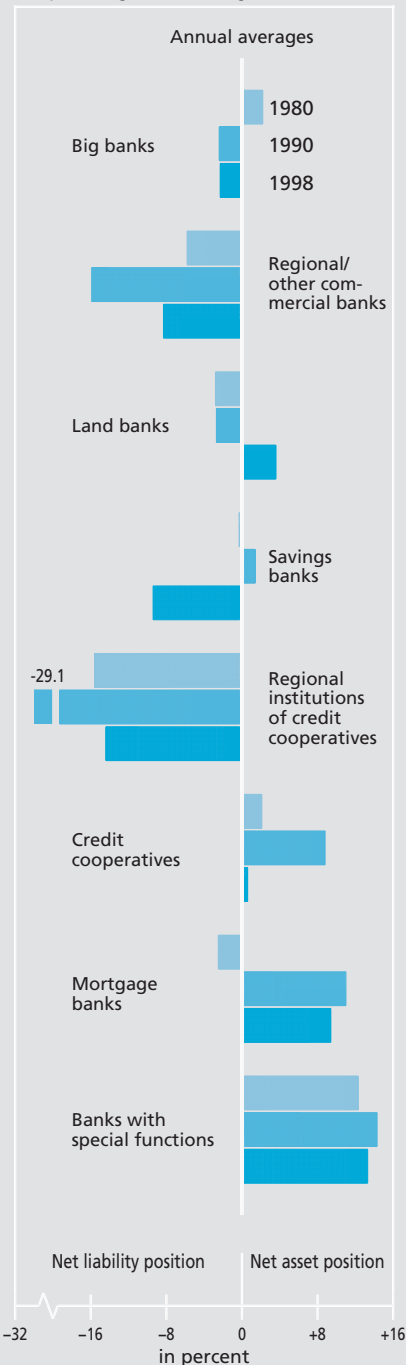
### Relative importance and structure

*Interbank volumes have doubled since 1990, stable share in business volume*

On an average of the ten months up to October 1999 the unsecuritised interbank assets of German credit institutions totalled approximately DM 1,910 billion. They have therefore more than doubled since 1990 (when they amounted to roughly DM 900 billion). However, this volume of DM 1,910 billion represents only just a little more than one-half of all interbank assets, which total DM 3,730 billion (see the table "Relative importance of interbank operations") and which include securitised loans to German banks (approximately 9% of average business volume) and

### Balances of German interbank assets and liabilities\* by major category of banks

as a percentage of the average business volume



\* Excluding securitised interbank assets and liabilities.

Deutsche Bundesbank

the claims on foreign banks (just under 8%). While the unsecuritised interbank operations between German institutions have been relatively constant at between roughly 16½% and 18% of business volume since the beginning of the seventies, the ratio of total interbank lending rose from approximately 27½% to approximately 34½% between 1980 and 1990 and has remained at this level ever since.

*Sharp increase in interbank operations owing to financial transactions of east German institutions*

However, the balance sheet statistics show a very sharp rise<sup>13</sup> – of about one-third – in the average volume of German interbank operations from 1989 to 1990. As the figures of the banking system in eastern Germany were included for the first time, the interbank loans increased from DM 670 billion to about DM 885 billion. Short-term lending alone accounted for just over DM 140 billion of this rise of approximately DM 215 billion. The specific financial relations that existed in the east German banking system as a result of the former centrally planned economy led in the first few months after German monetary union to an interbank liquidity transfer from the savings banks and credit cooperatives via the Staatsbank, in particular, to the Deutsche Kreditbank and other institutions.<sup>14</sup> (The balance sheet structures of the old east German banking system were not “normalised” until later.) Owing to the lack of adequate opportunities for lending to private and public borrowers, the savings banks redeployed their funds stemming from deposits of non-banks either as securitised loans or as interbank assets, which were interest-bearing in both cases. As a result of the involvement of the Staatsbank and of the Deutsche Kreditbank, which was acting as the

principal bank of the Treuhand agency, the interbank loans grew sharply (in relation to the total business volume from 16½% in 1989 to 18½% in 1990). The extensive promotional loans subsequently granted to borrowers in eastern Germany kept the volume of interbank operations at a high level although the Staatsbank was gradually withdrawn from the liquidity system and its balance sheet was reduced by this consolidation<sup>15</sup> (disappearance of interbank transactions).

Closer inspection of the breakdown of unsecuritised German interbank operations reveals a fairly stable trend towards longer maturities (see the table “Structural shifts in German interbank operations”). By the autumn of 1999 medium and long-term advances, totalling approximately DM 1,240 billion, had gained a share of around 65%.<sup>16</sup> In 1970 the ratio had been 36%. The weight of longer-term advances had already risen from 49% to 58% between 1980 and 1989 but then declined temporarily to 52% in 1990 owing to the preponderance of short-term interbank advances in eastern Germany.

*Trend towards longer maturities continues*

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<sup>13</sup> As a result of the annual averages used in this article, the actual jump from 1989 to 1990 is understated (the inclusion of the balance sheet data of the east German institutions meant an additional six monthly values in 1990).

<sup>14</sup> These were essentially the Bank für Landwirtschaft und Nahrungsgüterwirtschaft, the Deutsche Außenhandelsbank and the Deutsche Handelsbank.

<sup>15</sup> Instead of receiving funds from the Staatsbank, the Deutsche Kreditbank now received the funds held by the savings banks through capital market instruments.

<sup>16</sup> The jump in the case of medium-term advances between 1998 and 1999 (from 6½% to 14½%) is due to a statistical change (maturities of “four years up to and including five years” were classified as medium-term instead of long-term, as had been the case up to the end of 1998).



## Relative importance of interbank operations

Item	1970	1980	1989	1990	1995	1998	1999/10 1
Annual averages in DM billion							
Lending to German and foreign banks 2	201.0	610.2	1,319.9	1,627.6	2,223.3	3,293.5	3,728.5
Advances to ...							
German banks	127.1	369.5	671.0	885.3	1,196.4	1,731.2	1,910.1
of which: medium and long-term	45.9	182.6	390.2	460.4	730.8	1,063.2	1,240.0
Foreign banks	21.4	78.6	298.5	372.1	480.5	670.7	768.1
Securitised loans to ...							
German banks	52.4	162.1	340.9	357.6	521.5	839.7	981.7
Foreign banks	0.0	0.0	9.5	12.6	24.9	51.9	68.6
Deposits from ...							
German and foreign banks	158.3	505.6	880.8	1,134.1	1,678.5	2,543.9	2,836.8
German banks	137.8	400.9	687.3	905.5	1,229.5	1,767.5	1,910.1
of which: medium and long-term	57.9	209.6	402.1	472.4	760.7	1,087.9	1,226.2
Foreign banks	20.4	104.6	193.5	228.6	449.1	776.4	926.7
Memo item:							
Average business volume	765.1	2,218.2	4,064.5	4,751.1	7,132.7	9,591.6	10,701.5
As a percentage of the average business volume							
Lending to German and foreign banks 2	26.3	27.5	32.5	34.3	31.2	34.3	34.8
Advances to ...							
German banks	16.6	16.7	16.5	18.6	16.8	18.1	17.8
of which: medium and long-term	6.0	8.2	9.6	9.7	10.2	11.1	11.6
Foreign banks	2.8	3.5	7.3	7.8	6.7	7.0	7.2
Securitised loans to ...							
German banks	6.9	7.3	8.4	7.5	7.3	8.8	9.2
Foreign banks	–	–	0.2	0.3	0.4	0.5	0.6
Deposits from ...							
German and foreign banks	20.7	22.8	21.7	23.9	23.5	26.5	26.5
German banks	18.0	18.1	16.9	19.1	17.2	18.4	17.8
of which: medium and long-term	7.6	9.5	9.9	9.9	10.7	11.3	11.5
Foreign banks	2.7	4.7	4.8	4.8	6.3	8.1	8.7

1 Averages for the months January to October 1999, which are not fully comparable with the annual averages. — 2 In-

cluding securitised loans; contrary to other banking statistics tables, the figures for 1999 include trust loans.

## Structural shifts in German interbank operations

Item	1980	1985	1989	1990	1995	1998	1999/10 1
Annual averages in DM billion							
Interbank assets 2	369.5	480.4	671.0	885.3	1,196.4	1,731.2	1,910.1
Short-term assets	182.3	231.0	276.4	419.7	454.9	658.1	661.9
Short-term advances	170.9	210.5	259.6	401.5	438.1	641.3	661.7
Bill-based lending 3	11.4	20.5	16.9	18.2	16.8	16.9	0.1
Medium-term advances 4	26.5	36.4	62.6	105.8	101.8	112.9	275.6
Long-term advances	156.1	209.2	327.6	354.6	629.0	950.2	964.4
Trust loans	4.6	3.8	4.4	5.2	10.6	9.8	8.2
Interbank liabilities 5	400.9	506.4	687.3	905.5	1,229.5	1,767.5	1,910.1
Short-term deposits	179.0	220.8	269.4	416.5	452.2	664.0	683.3
Sight deposits	63.5	80.5	94.8	194.7	199.7	301.9	248.4
Short-term time deposits	115.5	140.3	174.5	221.9	252.6	362.0	434.9
Medium and long-term time deposits 6	209.6	265.0	402.1	472.4	760.7	1,087.9	1,226.2
Bills rediscounted	12.3	20.6	15.8	16.6	16.5	15.6	0.6
As a percentage of the total position							
Interbank assets 2	100	100	100	100	100	100	100
Short-term assets	49.3	48.1	41.2	47.4	38.0	38.0	34.6
Short-term advances	46.3	43.8	38.7	45.4	36.6	37.0	34.6
Bill-based lending 3	3.1	4.3	2.5	2.1	1.4	1.0	0.0
Medium-term advances 4	7.2	7.6	9.3	12.0	8.5	6.5	14.4
Long-term advances	42.2	43.5	48.8	40.1	52.6	54.9	50.5
Trust loans	1.3	0.8	0.7	0.6	0.9	0.6	0.4
Interbank liabilities 5	100	100	100	100	100	100	100
Short-term deposits	44.6	43.6	39.2	46.0	36.8	37.6	35.8
Sight deposits	15.8	15.9	13.8	21.5	16.2	17.1	13.0
Short-term time deposits	28.8	27.7	25.4	24.5	20.5	20.5	22.8
Medium and long-term time deposits 6	52.3	52.3	58.5	52.2	61.9	61.5	64.2
Bills rediscounted	3.1	4.1	2.3	1.8	1.3	0.9	0.0

1 Averages for the months January to October 1999, which are not fully comparable with the annual averages. — 2 Excluding holdings of money market paper and bank bonds. — 3 Bill portfolio in 1999. — 4 Up to the end of 1998: more than one year and up to less than four years;

from 1999: more than one year and up to and including five years. — 5 Excluding money market paper and bank bonds issued. — 6 Contrary to other banking statistics tables, the figures for 1999 include liabilities arising from trust loans.

*Interest rate level determines demand for longer-term interbank money*

One possible reason for the growing weight of longer maturities can be seen in the shifts in the pattern of non-bank business. The falling interest rate level and the exceptionally low interest rate phase during the past few years have encouraged customer demand for long-term loans and increased investors' preference for liquidity. This has led to a growing need for longer-term funds, especially in the case of banks which focus on deposit business with non-banks. This need has been partially met by an increase in longer-term interbank operations. At the same time, this development helped to change the spread of interest rate risks within the banking sector and – at least from the perspective of individual institutions – to limit these risks. However, the banking system as a whole cannot reduce its interest rate risks through interbank operations. It can only change or broaden the spread of these risks. By switching from short-term to long-term interbank funding, some institutions have been able to improve their liquidity ratio in accordance with the Banking Act, too.<sup>17</sup>

*Bill-based and trust loans between banks*

Bill-based credit operations between the banks which in 1998 had amounted to just under DM 17 billion, or 1 % of German interbank lending, came almost to a standstill last year. With the termination of the Bundesbank's rediscount credit and the quota system necessary as a result of the preferential rate, the banks no longer needed to acquire unused quotas through interbank trade or furnish evidence of other institutions liable to a bill (through their signature). Trust loans rose from an average of DM 4 billion in the eight-

ies to just under DM 12 billion (in 1996 and 1997) before declining again in 1998–99.<sup>18</sup>

In the case of interbank liabilities longer-term time deposits predominate in line with the breakdown of the assets (see the table on page 58). At the short end of the market, too, time deposits are more important than overnight deposits. However, the latter had risen from DM 95 billion to DM 195 billion between 1989 and 1990, a development which illustrates the highly liquid nature of the transactions that took place within the east German banking system in the year of unification.

*Time deposits more important than sight deposits*

#### **Participation of major categories of banks and net financial positions**

The business structure of the various categories of banks largely determines the extent of their participation in interbank operations. This applies to the maturity transformation within sectors, lending business (such as promotional loans) that is carried out largely

*Structure of business with non-banks determines interbank operations*

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<sup>17</sup> Liquidity Principles II and III will be replaced on July 1, 2000 by a new Liquidity Principle II. Whereas at present liquidity risks are to be limited by financing longer-term assets with resources of more or less matching maturities ("golden balance sheet rule") calculated on the basis of the original maturities, the funds available at short notice – and determined according to the residual maturity – must in future exceed the payment obligations callable at short notice. In the first time band (from "due on demand up to one month") the liquidity ratio must be at least 1 while observation ratios have to be calculated for the remaining three time bands up to three, six and 12 months. In terms of the eligibility of liquid assets there is no difference between short-term interbank advances and the corresponding securitised loans.

<sup>18</sup> As liability criteria play a decisive role in recording these as interbank trust loans, the extent of the promotional lending cannot be inferred from this amount. The "interbank trust liabilities", which amounted to an average of DM 53 billion in 1998, are somewhat more informative in this respect.

### Interbank assets and liabilities by category of banks \*

Annual averages in DM billion

Category of banks	1988		1989		1990		1991		1992		1993	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Big banks 1	26.0	28.9	26.3	33.0	30.5	40.9	29.9	44.2	33.8	50.9	33.2	52.2
Regional banks	41.3	84.3	42.0	90.9	70.5	176.4	58.9	237.5	51.6	229.9	57.9	141.4
Land banks 2	125.5	131.7	137.6	141.2	153.9	173.1	172.3	201.2	192.2	223.4	234.0	271.8
Savings banks	61.4	87.0	66.7	90.8	110.6	96.3	114.2	103.3	102.1	113.7	115.8	139.9
Regional institutions of credit cooperatives 3	78.3	120.3	75.5	118.0	77.3	133.6	72.8	132.5	74.6	127.2	85.5	139.3
Credit cooperatives	75.2	40.4	76.7	41.9	93.1	44.8	98.8	47.3	98.9	50.9	108.4	57.5
Mortgage banks	103.4	58.5	114.4	60.5	124.9	59.4	129.3	56.5	132.8	53.3	123.9	56.5
Banks with special functions 4	96.5	66.5	103.7	71.1	197.7	138.8	269.2	130.9	289.8	128.4	274.0	185.3
	1994		1995		1996		1997		1998		1999/10 5	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Big banks 1	38.8	56.2	38.3	63.7	47.5	76.9	54.5	85.1	71.4	94.6	118.1	150.3
Regional banks	69.2	156.7	84.0	181.3	94.2	207.6	113.6	218.9	127.3	227.0	159.1	189.9
Land banks 2	279.7	275.6	325.7	299.0	387.4	354.8	450.1	404.5	513.0	453.1	622.6	512.4
Savings banks	103.5	180.5	100.7	206.5	114.9	235.0	123.9	260.8	132.6	294.8	113.6	318.4
Regional institutions of credit cooperatives 3	93.8	140.5	102.2	143.9	111.7	160.8	116.1	173.7	130.2	182.6	136.5	179.5
Credit cooperatives	105.8	72.3	105.3	83.3	115.7	93.4	115.5	101.4	118.4	112.4	112.7	119.3
Mortgage banks	138.3	73.7	147.5	78.9	188.0	94.3	237.9	116.3	284.2	147.7	289.9	150.3
Banks with special functions 4	270.8	169.1	271.3	135.8	287.7	141.0	302.0	167.4	324.8	204.0	298.1	217.6

\* German interbank assets and liabilities including trust loans as well as bills discounted and endorsement liabilities but excluding bank bonds held and outstanding. Up to the end of 1998 excluding transactions with building and loan associations. — 1 Deutsche Bank, Dresdner Bank, Commerzbank and from 1999 Bayerische Hypo- und Vereinsbank. — 2 Previously defined as regional giro

institutions; including DGZ DekaBank. — 3 Including DG BANK. — 4 Up to the end of 1998 including Deutsche Postbank, which counts as a regional bank from 1999. — 5 Averages for the months January to October 1999, which are not fully comparable with the annual averages.

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through other banks and a structural overhang in the lending or deposit business with non-banks. An overview of the respective amounts as well as of the shares of various categories of banks in German interbank assets and liabilities totalling about DM 1,750 billion (on an annual average for 1998) is provided by the tables on this page and at the end of this article. The significance of interbank operations in terms of the business volume of the various categories of banks and the net positions as lenders or borrowers on the interbank market, which are derived from the balance on lending and deposits, are illustrated by charts.<sup>19</sup>

The banks with special functions show the largest net lender position on the money market. In 1998 they granted interbank credits

worth DM 325 billion and had liabilities of DM 204 billion. This gave a surplus balance of DM 121 billion. On an average of the years 1994 to 1998 this category of banks accounted for 46 % of the net funds offered on the interbank market. As already mentioned, this strong lender position is due mainly to the lending business of these institutions, which is conducted principally through third banks and which consists partly of their own advances and partly of the funds provided by third parties. The banks with special functions can raise funds directly on the market as issuers of bonds and are therefore not very de-

*Banks with special functions largest lender group*

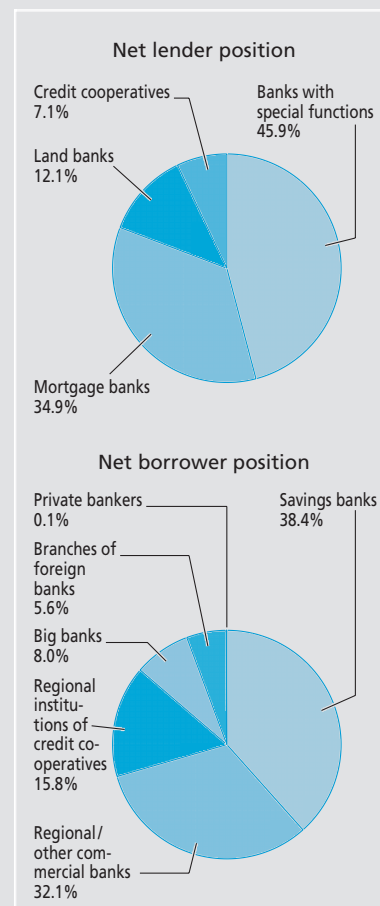
<sup>19</sup> See charts "Share of German interbank assets and liabilities in the business volume of major categories of banks" on page 53, "Net lender and borrower positions on the interbank market" on page 61 and "Balances of German interbank assets and liabilities by major category of banks" on page 55.

pendent on direct loans from other banks. The importance of interbank assets can also be seen in the fact that these accounted for about 36 % of total business volume in 1998. The sharp rise in interbank assets and liabilities of this category of banks from 1989 to 1990–91 was mainly due to the inclusion of the former Staatsbank of the German Democratic Republic. Subsequently the restructuring funds channelled into the east German economy played a fairly substantial role.

*Significance of mortgage banks*

The mortgage banks have likewise found themselves in a strong net lender position since about the middle of the eighties. On an average of the years 1994 to 1998 they had a 35 % share of the cumulated interbank asset position. In 1998 they granted loans worth about DM 285 billion on the money market and borrowed just under DM 150 billion. Owing to their much larger total business volume, however, the mortgage banks' interbank operations have a discernibly lower weight than those of the banks with special functions.<sup>20</sup> The mortgage banks' lender position is probably due mainly to their strong position in long-term refinancing business, which makes it easier for them to find refunding at attractive rates through long-term time deposits and the issue of their own bonds. The other institutions belonging to the same group as the mortgage banks also benefit from this by way of the money market. Loans to other banks are also admissible in the Mortgage Bank Act as "substitute cover",<sup>21</sup> an arrangement which provides the institutions with more flexibility in their refunding operations – for example, with respect to timing.

**Net lender and borrower positions\* on the interbank market**



\* Shares of cumulated interbank asset and liability positions, on an average of the years 1994 to 1998, excluding securities positions.

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In 1998 the greatest players by far in the interbank market were the Land banks, whose interbank assets of DM 513 billion (just under 30 % of the unsecuritised interbank assets of all German institutions) compared with DM 453 billion in interbank liabil-

*Interbank volumes of Land banks very large*

<sup>20</sup> Interbank lending amounted to about 20 % of the mortgage banks' total business volume of just under DM 1,450 billion.

<sup>21</sup> See section 6 (4) 2 of the Mortgage Bank Act.

ities. They perform *inter alia* the functions of liquidity reservoirs and maturity transformers for the savings banks by taking up short-term advances from the savings banks and returning these to the savings banks in the form of longer-term deposits. Consequently, the risks associated with rising interest rates are transferred to the central institutions; owing to their wholesale banking bias and therefore simpler means of hedging through derivatives, they can also bear these risks more readily. At around 12 %, calculated as the average of the years 1994 to 1998, the Land banks are in third place with respect to their net lender position on the interbank market. Between 1990 and 1993 they were still net borrowers. From 1994 their asset position rose regularly. This partly reflects the fact that the advances of the savings banks to the Land banks actually stagnated below DM 70 billion as they increasingly acquired securitised interbank assets. In the balance sheets of the Land banks this meant a shift away from interbank deposits in favour of bonds issued.

*Savings banks  
are largest  
borrowers*

If the unsecuritised interbank assets and liabilities alone are considered, the savings banks emerge as the largest net borrowers on the interbank market. Their interbank liabilities totalled about DM 120 billion on an average of the years 1994 to 1998; that is equivalent to a 38 % share of the net liability position of all "borrower" banks (see the chart on page 61). The interbank liabilities of the savings banks had been greater than their assets as far back as the eighties; only in 1990 and 1991 – as a result of the extensive advances by the east German savings banks – were

they temporary net "lenders" in the market for unsecuritised interbank funds. However, the savings banks' borrower status, which may be surprising in the light of their strong position in deposit business with non-banks, is transformed into a lender status when their securitised loans to other banks are taken into account. Thus, in 1998 the savings banks granted advances of just under DM 133 billion, but securitised loans in the form of German bank bonds amounted to DM 288 billion.<sup>22</sup> At the same time they accepted interbank deposits of DM 295 billion. The substitution of securitised loans for advances appears to be fairly attractive in view of liquidity (listing of securities, recognition as eligible assets) and yields. In the past few years the sharp fall in capital market interest rates has also provided additional profits from increased prices. However, greater attention must be paid to price risks in case of rising interest rates.

As already mentioned, the savings banks lend mostly – i.e. about 90 % – short-term advances to the Land banks while the latter, conversely, maintain medium and long-term deposits on approximately the same scale at the primary institutions. This helps the savings banks to improve maturity matching in their long-term business with non-banks. The pattern of this maturity transformation has remained fairly stable for decades (see the chart on page 63). The volumes of financial flows between the individual banks and their central institutions in the savings bank sector were more or less balanced until 1993. From 1994, however, the Land banks increased

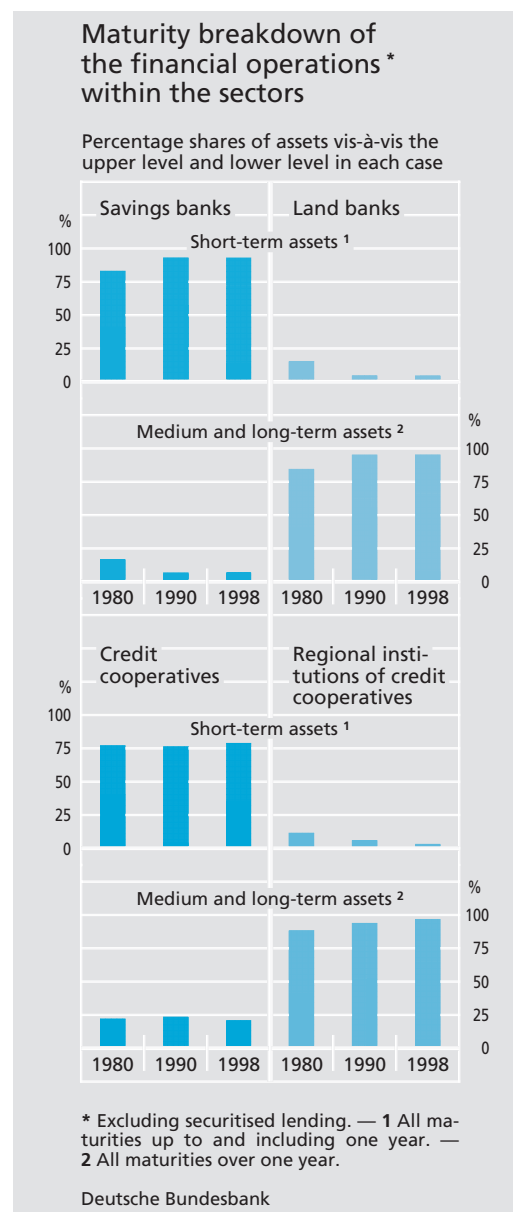
*Extensive  
maturity trans-  
formation  
within the  
savings bank  
sector*

<sup>22</sup> This is equal to 65 % of the savings banks' entire securitised assets totalling just over DM 440 billion.

their deposits with the savings banks significantly more sharply (in 1998 these amounted to just under DM 170 billion) than the rate at which the savings banks increased their lending to the Land banks (advances to Land banks amounted to just under DM 70 billion in 1998). To that extent, the Land banks also channelled long-term funds that they had raised elsewhere, for example, through issuing securities, to the savings banks. It is worth noting that the financial operations within this sector account for only about one-third of their German interbank advances in the case of the Land banks and about one-half<sup>23</sup> in the case of the savings banks, which indicates that these categories of banks are closely interlinked with other institutions, too.

*Analysis of the credit cooperative sector*

An almost identical picture emerges regarding the maturity pattern of operations between the lower level and the upper level in the credit cooperative sector. The cooperative banks' mainly short-term advances to the regional institutions are accompanied by return flows of largely longer-term funds. Even so, there are enormous differences. The credit cooperatives are net lenders in the bilateral financial relationship and the regional institutions of the credit cooperatives are net borrowers (see the table on page 64). One explanation for the relatively larger advances of the lower level to the regional institutions could be that their replacement by the acquisition of securities issued by the upper level is not possible to the same extent in the credit cooperative sector.<sup>24</sup> The central institutions apparently used the funds from the lower level to increase their own holdings of securities further. On an average of the years 1994



to 1998 the credit cooperatives were represented on the lender side of the interbank market with a share of approximately 7%; over the past few years, however, there has

<sup>23</sup> The savings bank regulations on the investment of funds may provide for the investment of liquid assets with the respective regional giro institution. See, for example, section 14 of the Hessian savings bank law.

<sup>24</sup> At the end of 1998 the Land banks had securitised liabilities amounting to DM 581 billion while those of the regional institutions of the credit cooperatives amounted to DM 61 billion.

## Financial operations within the savings bank and credit cooperative sectors

Annual averages in DM billion

Item	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Advances from the ...											
Land banks 1 to savings banks up to and including one year 2 more than one year	41.6 2.3 39.4	45.8 2.4 43.5	49.2 2.3 46.9	53.4 3.1 50.3	59.9 3.6 56.3	72.8 4.6 68.2	97.5 6.3 91.2	112.4 5.5 106.9	127.4 5.5 121.9	145.2 5.6 139.7	168.4 7.7 160.7
Savings banks to Land banks 1 up to and including one year 2 more than one year	40.6 36.8 3.8	43.1 39.6 3.5	52.4 48.8 3.6	72.2 69.0 3.2	60.8 57.5 3.3	72.1 70.3 1.8	63.0 61.1 1.9	58.8 56.4 2.4	68.0 64.4 3.7	67.5 63.0 4.5	69.7 64.7 4.9
Advances from the ...											
Regional institutions 3 to credit cooperatives up to and including one year 2 more than one year	28.0 1.3 26.7	28.9 1.1 27.7	30.3 1.8 28.5	32.3 2.4 29.8	35.8 1.9 33.9	40.9 2.1 38.8	50.6 1.8 48.8	58.5 1.8 56.7	66.0 1.9 64.1	70.7 2.1 68.6	76.4 2.3 74.1
Credit cooperatives to regional institutions 3 up to and including one year 2 more than one year	63.1 48.6 14.5	63.6 48.6 15.0	73.3 56.1 17.2	78.3 59.3 19.0	77.9 60.8 17.2	85.7 72.7 13.0	81.7 70.3 11.4	81.3 65.9 15.4	90.2 75.4 14.7	88.2 72.3 15.9	89.9 70.9 19.0

1 Excluding DGZ DekaBank. — 2 Including overnight advances. — 3 Including DG BANK.

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been a downward trend. The share of the regional institutions of credit cooperatives on the borrower side was just under 16 %.

*Regional and  
big banks  
net borrowers  
but ...*

The "regional banks and other commercial banks", which, with 32 % of all borrowed funds, are the largest borrowers after the savings banks, also recorded net liability positions (borrowers) on the interbank market on an average of the years 1994 to 1998. In 1998 their net borrowings amounted to approximately DM 100 billion while in 1996 and 1997 they had been even greater.<sup>25</sup> The big banks (8 %) and the "branches of foreign banks" (5 ½ %) were also net borrowers. However, these ratios are much less informative in the case of these three categories of banks because they maintain to a very much greater extent than other categories of banks

intensive interbank operations with banks abroad, including their own branches and subsidiaries or – in the case of branches of foreign institutions – their parent institutions in their home countries. The financial operations of the big banks with other German institutions belonging to the same group as themselves are also reflected here. Furthermore, the proportion of short-term funds is relatively larger, which is in line with their greater presence on the money market.

*... informative  
value severely  
restricted by  
extensive  
foreign  
business*

<sup>25</sup> The Deutsche Kreditbank with its significant net amount of liabilities in interbank operations appeared under "Regional banks" between 1990 and 1992 but was classified as a bank with special functions in 1993–94. There were therefore sharper fluctuations in the interbank liabilities of these categories of banks.



## Interbank operations with foreign banks

*Strong growth  
in interbank  
operations with  
branches*

Financial operations are also carried out between German institutions and institutions abroad, especially the branches and subsidiaries<sup>26</sup> of German banks. In the case of the last two groups, which also have interbank operations with partners abroad, the average share of total interbank operations in total business volume during the nineties was about one-half for both and was therefore very much greater than in the case of German institutions (just under 7% in the case of assets). A trend which had already emerged in the middle of the eighties, namely a very much sharper rise in the interbank activities of the branches than in those of the subsidiary banks, has tended to become even more accentuated in recent years (interbank advances of branches from 1990 to 1998: + 475%; those of subsidiaries: + 138%). Important factors here were the equity consolidation with subsidiary institutions which came into force in 1985, the extensive financial transactions undertaken by foreign branches with their German parent institutions and other branches abroad and the preference given to the establishment of branches in rapidly expanding financial centres abroad. Owing to the high degree of integration with foreign banks, a development which has been encouraged by the single European market and monetary union, the interbank funds create additional liquidity buffers, which may lead to an even more flexible credit supply from the banking sector. At the same time contagion risks are tending to rise.

German institutions' operations with banks abroad were clearly characterised by higher liabilities in 1997 and 1998 (the net liability position in 1998 amounted to more than DM 100 billion). This was due to large – mainly short-term – inflows of deposits from foreign institutions (plus DM 300 billion in 1997 and 1998 taken together).<sup>27</sup> Evidently the relatively large net capital exports by non-banks through portfolio transactions and direct investment were also in balance as a result. Just over one-third (about DM 115 billion) of these inflows came from the German banks' own branches abroad.<sup>28</sup>

*Increasing liabilities in the case of German institutions ...*

A similar trend towards increasing liabilities emerged in the case of the foreign branches and subsidiaries both in the area of special interbank business with institutions abroad and in interbank operations in general. In 1998 the (total) negative interbank balance amounted to approximately DM 85 billion in the case of both branches and subsidiaries. The refunding of these institutions by non-banks could not keep pace with the rapid increase in lending to non-banks – especially in

*... branches and subsidiary banks*

<sup>26</sup> See the table "Interbank operations of German institutions, foreign branches and foreign subsidiaries with foreign banks" on page 66. Securitised loans were excluded here, too. The term "non-residents" comprises all countries other than Germany and therefore includes the banks in the respective domicile of the foreign branches and subsidiaries. As coverage is incomplete here, in contrast to the case regarding domestic operations, there are sometimes large discrepancies between interbank assets and liabilities. There is a drastic rise in the data on branches between 1993 and 1994. This is purely statistical and is the result of the assets and liabilities vis-à-vis the parent institutions or other branches of the same institution being included for the first time.

<sup>27</sup> German banks' net external claims on foreign institutions had already begun to decline during the first half of the nineties.

<sup>28</sup> The claims of foreign branches on banks in Germany rose from an average of DM 138.2 billion in 1996 to DM 253.5 billion in 1998.

### Interbank operations of German institutions, foreign branches and foreign subsidiaries with foreign banks

Item	1990	1991	1992	1993	1994	1995	1996	1997	1998
Annual averages in DM billion									
<b>German institutions</b>									
Advances to foreign banks	372.1	391.0	381.1	429.7	448.7	480.5	516.3	589.9	670.7
Deposits of foreign banks	228.6	261.2	276.9	305.3	354.7	449.1	475.9	605.5	776.4
<b>Foreign branches of German banks 1</b>									
Interbank assets, total	175.9	187.6	210.1	262.5	432.3	552.8	647.9	816.0	1,013.6
Interbank claims on non-residents 2	174.4	186.2	208.2	252.6	336.6	407.5	509.7	635.3	760.1
Interbank liabilities, total	128.3	135.8	160.4	214.0	412.1	566.9	699.1	871.2	1,099.3
Interbank liabilities to non-residents 2	105.4	118.9	146.9	184.8	279.2	385.7	514.8	674.7	871.6
<b>Foreign subsidiaries</b>									
Interbank assets, total	164.1	167.7	175.4	209.1	241.2	276.1	317.2	369.7	390.6
Interbank claims on non-residents 2	130.4	129.8	133.5	159.8	174.0	182.8	217.4	252.9	251.3
Interbank liabilities, total	137.4	143.7	164.3	205.7	236.5	265.9	332.2	395.8	474.6
Interbank liabilities to non-residents 2	101.9	111.1	139.5	177.2	201.3	231.4	289.2	342.9	407.5
As a percentage of the average business volume									
<b>German institutions</b>									
Advances to foreign banks	7.8	7.3	6.7	7.0	6.7	6.7	6.6	6.8	7.0
Deposits of foreign banks	4.8	4.9	4.8	4.9	5.3	6.3	6.1	7.0	8.1
<b>Foreign branches of German banks 1</b>									
Interbank assets, total	52.2	48.4	49.4	47.9	55.0	55.8	52.6	50.6	48.8
Interbank claims on non-residents 2	51.7	48.0	48.9	46.1	42.8	41.1	41.4	39.4	36.6
Interbank liabilities, total	38.0	35.0	37.7	39.1	52.4	57.2	56.8	54.0	53.0
Interbank liabilities to non-residents 2	31.3	30.7	34.5	33.7	35.5	38.9	41.8	41.8	42.0
<b>Foreign subsidiaries</b>									
Interbank assets, total	57.7	53.5	50.4	50.2	51.1	52.7	49.8	49.1	46.0
Interbank claims on non-residents 2	45.9	41.4	38.4	38.3	36.9	34.9	34.1	33.6	29.6
Interbank liabilities, total	48.3	45.8	47.2	49.4	50.1	50.7	52.1	52.5	55.9
Interbank liabilities to non-residents 2	35.8	35.4	40.1	42.5	42.7	44.1	45.4	45.5	48.0

1 From December 1993 including assets and liabilities vis-à-vis the head office and branches in Germany. — 2 "Non-residents" in-

cludes the banks in the respective domicile of the foreign branches and foreign subsidiaries.

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the case of the branches – and additional interbank funds were required to make up the shortfall. One contributory factor was that the deposits of German non-banks in the Euro-market tended to stagnate, partly as a result of the lowering of the minimum reserve ratios in the mid-nineties. This weakness has been accentuated since the new minimum reserve system, including the remuneration of reserves, came into force in the Eurosystem at the beginning of 1999. German enterprises and individuals have since repatriated considerable amounts of Euro-deposits.

By far the majority of interbank operations of branches and subsidiaries are short-term, i.e. with maturities of up to and including one year. This is a reflection of both the intermediary function of these institutions and the buffer

function of interbank operations on the international money market. If there is an exception to this, it is the claims of foreign subsidiaries on banks in Germany. These are not very significant in terms of the amounts involved and are mostly geared to the longer term. This evidently reflects the longer-term influx of funds to the German parent institutions. One reason for the preponderance of longer-term maturities was probably the former regulation governing minimum reserves. According to that regulation, these liabilities – which German banks had vis-à-vis foreign institutions – with a maturity of less than four years were subject to the minimum reserve requirements.<sup>29</sup>

<sup>29</sup> This had no effect on the branches in that the total liability position was subject to the minimum reserve requirements, regardless of maturity. This also applied to the branches of foreign banks in Germany.

*Interbank operations mainly short-term*

## German interbank assets and liabilities by category of banks

as a percentage of the corresponding item for all banks; based on annual averages

Year	Interbank assets					Interbank liabilities				
	Total	Short-term advances	Bill-based lending	Medium-term advances	Long-term advances	Total	Short-term deposits	Bill-based borrowing	Medium-term deposits	Long-term deposits
<b>Commercial banks</b>										
1980	21.73	34.35	21.54	17.83	8.97	23.10	33.31	41.79	8.57	14.05
1990	13.45	22.38	14.11	6.24	5.56	28.23	30.72	45.79	49.57	18.53
1996	12.02	24.01	22.11	7.41	4.03	23.06	35.80	29.03	17.55	14.79
1997	12.63	26.77	24.18	6.54	3.58	22.28	36.62	27.37	12.47	13.58
1998	13.17	28.96	26.18	7.07	3.12	21.10	34.50	23.69	11.37	13.04
<b>Big banks 1</b>										
1980	6.20	6.99	12.04	10.63	4.22	4.49	4.81	12.29	0.74	4.24
1990	3.45	4.37	1.96	2.82	2.67	4.52	3.35	11.36	1.28	6.46
1996	3.47	6.23	3.49	2.74	1.63	5.48	7.54	3.07	2.38	4.50
1997	3.54	6.77	4.26	2.54	1.46	5.40	8.35	2.64	1.44	3.95
1998	4.13	8.55	6.25	2.96	1.27	5.35	8.89	2.63	0.46	3.54
<b>Regional banks and other commercial banks</b>										
1980	10.22	16.83	6.63	4.73	4.35	12.80	18.27	13.36	5.39	8.54
1990	7.96	14.12	9.15	2.71	2.58	19.48	20.47	16.15	46.68	10.75
1996	6.88	13.84	16.81	3.89	2.19	14.80	22.55	14.40	12.61	9.71
1997	7.38	15.89	17.46	3.24	1.93	13.90	21.79	13.05	9.48	9.06
1998	7.36	16.47	17.95	2.91	1.60	12.85	19.54	10.57	10.02	8.66
<b>Branches of foreign banks</b>										
1980	3.25	6.65	0.89	1.41	0.10	3.00	5.73	2.17	1.37	0.62
1990	0.85	1.64	0.85	0.35	0.12	2.19	3.91	7.44	0.87	0.39
1996	0.95	2.19	0.49	0.75	0.12	2.10	4.60	8.26	2.25	0.20
1997	1.07	2.55	0.56	0.63	0.13	2.49	5.70	9.12	1.41	0.28
1998	1.11	2.52	0.37	1.02	0.18	2.46	5.38	8.01	0.74	0.58
<b>Private bankers 2</b>										
1980	2.06	3.88	1.98	1.06	0.29	2.81	4.51	13.96	1.07	0.65
1990	1.18	2.25	2.16	0.36	0.19	2.03	2.99	10.85	0.74	0.92
1996	0.72	1.76	1.33	0.04	0.08	0.68	1.11	3.31	0.31	0.38
1997	0.64	1.56	1.90	0.13	0.06	0.49	0.77	2.57	0.14	0.29
1998	0.58	1.41	1.60	0.18	0.06	0.44	0.69	2.48	0.16	0.26
<b>Savings bank sector</b>										
1980	30.54	33.40	28.86	37.01	26.56	31.13	34.38	25.23	24.64	29.37
1990	29.88	34.09	24.35	19.51	28.51	29.75	25.98	29.97	17.88	37.41
1996	36.67	38.09	28.60	28.30	37.05	42.04	34.00	39.51	44.95	47.31
1997	37.28	39.75	29.84	24.78	37.48	42.24	33.40	40.17	47.38	47.70
1998	37.29	38.59	29.28	24.01	38.13	42.32	33.32	42.30	46.40	47.96
<b>Land banks 3</b>										
1980	20.01	18.71	5.07	15.68	23.16	21.04	29.06	15.29	17.17	14.10
1990	17.38	10.21	2.49	14.30	27.04	19.12	23.08	22.18	16.03	15.38
1996	28.28	19.32	3.74	22.53	35.96	25.29	31.33	30.48	40.08	19.09
1997	29.23	21.59	3.30	19.53	36.32	25.68	31.24	30.87	42.72	19.59
1998	29.63	21.26	3.17	19.30	36.91	25.63	30.67	32.41	41.78	20.35
<b>Savings banks</b>										
1980	10.53	14.69	23.79	21.33	3.40	10.10	5.32	9.94	7.47	15.28
1990	12.50	23.88	21.86	5.21	1.47	10.63	2.90	7.80	1.85	22.03
1996	8.39	18.77	24.86	5.77	1.10	16.75	2.67	9.03	4.87	28.22
1997	8.05	18.15	26.54	5.24	1.15	16.56	2.16	9.30	4.66	28.11
1998	7.66	17.33	26.10	4.71	1.22	16.68	2.65	9.89	4.62	27.60

Footnotes on page 68.

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## German interbank assets and liabilities by category of banks Cont'd

as a percentage of the corresponding item for all banks; based on annual averages

Year	Interbank assets					Interbank liabilities				
	Total	Short-term advances	Bill-based lending	Medium-term advances	Long-term advances	Total	Short-term deposits	Bill-based borrowing	Medium-term deposits	Long-term deposits
<b>Credit cooperative sector</b>										
1980	21.37	23.19	15.08	33.84	17.83	21.99	20.92	13.33	30.18	22.30
1990	19.24	25.85	34.68	19.27	11.08	19.70	22.41	23.12	17.42	17.13
1996	16.59	23.33	41.89	21.66	10.55	18.12	18.68	30.61	20.76	17.13
1997	15.04	19.92	41.06	21.64	10.25	17.47	17.62	31.66	21.08	16.63
1998	14.36	19.12	40.76	21.74	9.85	16.69	16.28	33.08	21.87	16.14
<b>Regional institutions of credit cooperatives <sup>4</sup></b>										
1980	12.93	9.22	7.64	20.25	16.04	15.42	17.69	7.59	28.20	11.62
1990	8.73	8.61	10.77	5.87	9.59	14.76	20.98	17.05	16.92	6.99
1996	8.15	5.99	10.72	8.61	9.54	11.46	17.68	26.24	19.90	5.74
1997	7.54	4.88	9.76	8.97	9.11	11.03	16.71	27.47	20.21	5.63
1998	7.52	5.96	8.88	7.21	8.58	10.33	15.30	28.99	20.85	5.53
<b>Credit cooperatives</b>										
1980	8.44	13.97	7.44	13.59	1.79	6.56	3.23	5.74	1.98	10.68
1990	10.52	17.23	23.91	13.40	1.49	4.94	1.43	6.07	0.50	10.14
1996	8.44	17.34	31.17	13.05	1.00	6.66	1.00	4.37	0.86	11.39
1997	7.50	15.04	31.30	12.67	1.14	6.44	0.91	4.20	0.87	11.00
1998	6.84	13.16	31.88	14.53	1.27	6.36	0.98	4.09	1.02	10.62
<b>Mortgage banks</b>										
1980	9.68	3.04	0.01	4.26	18.31	10.72	2.16	0.01	18.65	18.65
1990	14.11	2.80	0.16	15.54	27.02	6.56	2.69	0.06	5.05	11.68
1996	13.72	4.48	0.24	22.88	19.21	6.72	6.15	0.00	7.37	7.18
1997	15.45	4.65	0.16	28.71	21.30	7.38	7.41	0.00	8.88	7.31
1998	16.42	4.88	0.15	31.18	22.67	8.36	9.71	0.00	9.30	7.47
<b>Banks with special functions</b>										
1980	15.14	3.57	33.45	6.93	27.49	9.57	4.42	18.55	10.06	13.99
1990	22.33	13.58	26.70	39.43	26.85	15.33	17.28	1.05	10.09	15.25
1996	21.00	10.08	7.16	19.74	29.16	10.05	5.37	0.85	9.36	13.59
1997	19.61	8.91	4.76	18.34	27.39	10.63	4.95	0.80	10.20	14.78
1998	18.76	8.45	3.64	15.99	26.23	11.54	6.19	0.93	11.06	15.39
<b>Postal giro and postal savings bank offices <sup>5</sup></b>										
1980	1.13	1.67	—	—	0.82	0.38	0.86	—	—	—
1990	0.99	1.31	—	0.01	0.98	0.42	0.92	—	—	—
1996	—	—	—	—	—	—	—	—	—	—
1997	—	—	—	—	—	—	—	—	—	—
1998	—	—	—	—	—	—	—	—	—	—

1 Deutsche Bank, Dresdner Bank and Commerzbank. —  
2 Only credit institutions organised in the form of a sole proprietorship or as a partnership. — 3 Previously defined

as regional giro institutions; including DGZ DekaBank. —  
4 Including DG BANK. — 5 From 1992 classified as Deutsche Postbank AG under "Banks with special functions".

Deutsche Bundesbank