

Trends in public sector debt since German unification

Public debt has soared since the beginning of the nineties, mainly because of the fiscal consequences of German unification. Although part of the expenditure incurred in integrating the new Länder was financed by raising taxes and social security contributions and by cutting spending, particularly in the case of the Federal Government, substantial recourse was had to borrowing. However, increasing government indebtedness, as a partial response to the massive challenge posed by unification, is justifiable only for a limited period. Otherwise, there is a danger that the state might fall into a debt trap in which the budget deficit and the accumulated debt level become self-fuelling as a result of the rapidly growing interest payment burdens. In order to avoid such a development, the adopted course of fiscal consolidation has to be strictly maintained. This is also necessary to ensure the enduring soundness of public finance, which is a prerequisite for participating in the European monetary union.

Surge in indebtedness in the wake of German unification

According to the figures available so far, the debt of the central, regional and local authorities came to DM 2,135 billion at the end of 1996, whereas in 1989, the last year before German unification, it had been below DM 1 trillion (DM 929 billion). In relation to gross

*Sharp rise in
indebtedness*

Long-term trend in public debt

Period/year	Level at end of period or year		Increase as an annual average or compared with previous year (%)
	DM billion	% of GDP	
1955 to 1959	50	18.4	5.1
1960 to 1964	74	17.6	8.3
1965 to 1969	118	19.8	9.8
1970 to 1974	192	19.6	10.3
1975 to 1979	414	29.8	16.6
1980 to 1984	718	41.0	11.6
1985 to 1989	929	41.8	5.3
1990 to 1994	1,662	50.1	12.3
1991 1	1,174	41.1	11.4
1992	1,345	43.7	14.6
1993	1,509	47.8	12.2
1994	1,662	50.1	10.1
1995	1,996	57.7	20.1
1996	2,135	60.3	7.0

1 From 1991 for Germany as a whole.

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domestic product (GDP), government debt amounted to almost 60½% at the end of 1996, compared with just under 42% at the end of 1989. Hence in seven years the government debt ratio (as defined in the financial statistics) grew by 18½ percentage points.¹ At the end of the sixties it had stood at only 20%, and at the end of the seventies at 30% of GDP.

Unification-related credit financing

The outstanding occurrence which lay behind the mushrooming of public sector debt since 1990 was the unification of Germany, including the assumption of liabilities of the government and the economy in the former GDR. Not only was the fiscal policy challenge associated with this unforeseen, its magnitude was also underestimated at first. In addition, the unexpectedly vigorous economic

boom triggered by unification initially made the fiscal policy outlook appear in a quite favourable light. In these circumstances, budgetary policy makers for a time failed to fully adjust their revenue and expenditure policy decisions to the new situation, with the result that ultimately they had to resort to credit financing to a considerable extent. The budgetary situation was then aggravated by the recession that followed the boom, which pushed up the deficits of all levels of government. The subsequent dynamic recovery was short-lived. Between mid-1995 and the beginning of 1996 the German economy experienced a phase of stagnation which imposed a considerable burden on public sector budgets. In addition, the growth of tax revenue was much weaker, particularly in the last two years, than was to be expected on the basis of the macroeconomic data available.

The increase in indebtedness since unification has resulted not only from the financing of current deficits in both the old and the new Länder, but also – to a considerable extent – from the assumption of the liabilities which either stemmed direct from the GDR state budget or which arose in connection with the intra-German monetary union and the restructuring of the dilapidated east German corporate sector. Whereas these “inherited liabilities” from the GDR can be put at approximately DM 340 billion, the unification-related current deficits and the new borrowing to finance them can be measured only

Assumption of “inherited liabilities” from the GDR

¹ For the previous period, see Deutsche Bundesbank, Trends in public sector debt since the mid-1980s, Monthly Report, August 1991, page 32 ff.

incompletely. It is neither possible to clearly define all spending relating to unification nor to allocate the new borrowing to specific expenditure categories.²

Of the current net borrowing by the central, regional and local authorities, only the indebtedness of the east German Länder Governments and local authorities plus the new borrowing by the "German Unity" Fund and the bulk of that by the ERP Special Fund since 1990 can be ascribed unambiguously to reunification; overall, this comes to DM 235 billion. If it is further borne in mind that an (albeit not precisely quantifiable) part of the net borrowing of the Federal Government and the west German Länder Governments and local authorities is likewise related to unification, it can at least be said that more than half of the increase in the overall indebtedness of the central, regional and local authorities since 1989 (totalling about DM 1,200 billion) is attributable to reunification.

*International
comparison of
indebtedness*

One noticeable feature of the worldwide trend towards a deterioration of the public finance situation (which could be observed particularly at the beginning of this decade) is that Germany, in spite of its heavy extraordinary burdens, is not the worst performer by international standards regarding the growth of public debt relative to GDP. In some other major industrialised countries, the debt ratio – also under the impact of the temporary cyclical weakness – has grown even more steeply. The average rate of increase for all EU countries since 1989 has been somewhat greater than in Germany; particularly in France and Italy (at 22 and

Level of public debt

DM billion; end-of-year level

Central, regional and local authorities	1989	1994	1996 pe
Federal Government	491	712	840
Länder Governments (west) ¹	310	415	478
Länder Governments (east)	–	56	82
Local authorities (west) ²	121	156	166
Local authorities (east) ²	–	32	39
Special Funds	7	291	531
of which			
ERP	7	28	34
"German Unity" Fund	–	89	84
Debt-Processing Fund	–	102	–
Redemption Fund for Inherited Liabilities	–	–	³ 332
Federal Railways Fund	–	71	78
Equalisation Fund for Safeguarding the Use of Coal ⁴	.	.	3
Indemnification Fund	–	–	0
Central, regional and local authorities, total	929	1,662	2,135

¹ In 1994 and 1996 including Berlin as a whole. — ² Including special-purpose associations. — ³ Including old debt of social institutions at the local authority level in the former GDR. — ⁴ The debt of the Equalisation Fund was recorded in the debt level statistics for the first time in 1995.

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almost 28 percentage points, respectively), the rise in the debt ratio exceeded the German figure perceptibly. Of the major non-European industrialised countries, the increase in Canada was sharper than in Germany, whereas in Japan the debt ratio grew by the same margin. In the United States, by contrast, the rate of increase was much smaller, mainly thanks to the considerable reduction in that country's budget deficit in the past few years (for details, see the table on page 20).

² For a detailed account of the problem of calculating the unification-related payment transfers, see Deutsche Bundesbank, The debate on public transfers in the wake of German reunification, Monthly Report, October 1996, page 17 ff.

International comparison of public debt

as % of nominal GDP

Countries	1989	1990	1991	1992	1993	1994	1995	1996 e
EU states, ¹ total	54.1	56.7	56.0	60.3	66.1	68.1	71.3	73.5
of which								
France	34.4	35.4	35.7	39.6	45.6	48.4	52.8	56.4
Germany	42.0	43.8	41.5	44.1	48.2	50.4	58.1	³ 60.7
Italy	95.8	97.9	101.3	108.4	119.3	125.5	124.9	123.4
United Kingdom	41.0	35.4	35.7	41.9	48.5	50.4	54.1	56.3
Canada ²	69.2	72.5	79.4	87.2	94.4	97.2	99.6	100.5
Japan ²	68.7	65.1	62.3	63.5	67.9	73.2	80.7	87.4
United States ²	54.2	55.6	59.6	62.0	63.5	63.7	64.3	64.2

Source: European Commission (Convergence Report 1996), OECD Economic Outlook (December 1996). — ¹ According to the definition laid down in the Maastricht

Treaty, which may deviate from that given in the national debt level statistics. — ² As defined in the System of National Accounts (SNA). — ³ Provisional figure.

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The creation of additional public debt agencies

*“Elongation”
of the public
borrower
profile*

Up to the end of the eighties, the pace of increase in general government debt was largely determined by the level of net borrowing necessary to finance the deficits, and credit financing was concentrated on the Federal Government, the Länder Governments and the local authorities. Since unification, however, the public borrower profile has become elongated in institutional terms, principally because unification-related debt was apportioned to various new subsidiary budgets, or Special Funds. (for details, see the overview on page 22).

Thus the “German Unity” Fund – established as an interim solution prior to the inclusion of

the new Länder in the general revenue-sharing scheme – largely financed its transfers to the east German regional and local authorities by net borrowing. The debt bequeathed by the GDR state and the liabilities incurred directly in connection with the intra-German monetary union were taken over by the Debt-Processing Fund³, whose debt was transferred to the Redemption Fund for Inherited Liabilities at the beginning of 1995. Besides several other liabilities, this Fund also assumed the debt of the Treuhand agency, which the latter had accumulated chiefly to finance the cost of restructuring those east German enterprises which were deemed to

*Unification-
related debt
of the Special
Funds*

³ For details, see Deutsche Bundesbank, Function and significance of the equalisation claims granted to east German banks and enterprises, Monthly Report, March 1996, page 35 ff.

be viable concerns as well as the burdens ensuing from the closure of non-viable enterprises (e.g. for social plans).⁴ Finally, the increase in the indebtedness of the ERP Special Fund, too, is largely attributable to the financing of promotional measures for the east German economy.

Unification-related increase in public debt nearing its end

At the end of 1996, the increase in the public sector debt level due to unification-related old debt had almost run its course. In addition to the ongoing assumption of residual equalisation claims, the Redemption Fund for Inherited Liabilities took over at the beginning of 1997 the debt left by the GDR's social institutions at the local authority level totalling DM 8.4 billion, the allocation of which had been a matter of dispute for a long time.⁵ The volume of unification-related debt will also be raised by the allocation of debt certificates amounting probably to just under DM 13 billion which, under the indemnification regulations for assets expropriated in the GDR, are being allocated instead of cash payments; the debtor of those certificates is the Indemnification Fund, which was likewise newly created as a separate budgetary agency.

Other special debt funds

Public sector debt has been "lodged" over the medium term not only in the Special Funds established in the context of German unification but also in additional subsidiary budget accounts. An important preparatory measure for the transformation of the Federal railways and the east German railways into a public limited company at the beginning of 1994 was the assumption by the Federal Government of the debt accumulated

by the railways up to that time and its allocation (together with other liabilities, notably for pension payments to railway staff with civil servant status) to the newly established Federal Railways Fund. In addition, this Fund was allowed to raise loans to finance its current deficit in 1994 and 1995; from 1996 onwards, the deficits have to be met by transfers from the Federal Government, and the indebtedness is to be gradually reduced. Finally, the "Equalisation Fund for Safeguarding the Use of Coal", whose most important source of income was the "coal penny" levied on electricity bills until the end of 1995, also raised loans. After the subsidies previously financed by the Fund were included in the Federal budget from 1996 onwards, the Fund was left with the task of settling its outstanding claims and liabilities; for this purpose, it was granted a credit authorisation totalling DM 6 billion.

The creation of separate government budgetary agencies outside the central, regional and local authorities has made the institutional framework of public finance in Germany more complicated. However, it was justified to the extent that the Redemption Fund for Inherited Liabilities and the "German Unity" Fund, in particular, provide a well-defined framework for the objective of actually redeeming unification-related debt within a

Reduction of the debt of the Special Funds

4 Between 1990 and 1994 receipts, resulting mainly from privatisation proceeds, totalling DM 40 billion were offset by expenditure totalling DM 169 billion. This includes the redemption of equalisation claims granted to enterprises in the wake of restructuring, which at their peak (at the beginning of 1993) had amounted to DM 15 1/2 billion and which had been almost entirely eliminated by the end of 1994.

5 The corresponding debt service is being financed by the Federal Government and the new Länder.

Indebtedness of the Special Funds

Item	DM billion
I. Special Funds relating to German unification (including Treuhand agency)	
Debt-Processing Fund (until the end of 1994)	
Debt level at the end of 1994 ¹	102
Debt of the GDR state	28
Equalisation claims on the Currency Conversion Equalisation Fund arising from the asymmetric conversion of the claims and liabilities of banks	30
Increase in banks' capital to 4% of the balance sheet total	5
Write-off of claims on non-viable enterprises	39
Treuhand agency (until the end of 1994)	
Debt level at the end of 1994	205
Refinancing of old loans assumed from affiliated enterprises	73
Borrowing to finance current deficits	129
Other	2
Redemption Fund for Inherited Liabilities (since the beginning of 1995)	
Debt level at the end of 1996	332
Assumption of the debt of the Debt-Processing Fund	102
Assumption of the debt of the Treuhand agency	205
Assumption of the debt of the east German housing enterprises	29
Assumption of the debt of the former GDR's social institutions at the local authority level	8
Assumption of equalisation claims since the beginning of 1995	7
Redemptions effected in the meantime	- 20
"German Unity" Fund	
Debt level at the end of 1996	84
Borrowing to finance general transfers to the east German Länder Governments until the end of 1994	95
Redemptions effected in the meantime	- 11
ERP Special Fund	
Debt level at the end of 1996	34
Debt level at the end of 1989	7
Increase in indebtedness since 1990 which served mainly to finance low-interest loans to the east German economy	27
Indemnification Fund	
Debt level at the end of 1996	0
Expected debt level of just under DM 13 billion in the form of marketable debt securities which will bear 6% interest from January 1, 2004 and which will be redeemed in five equal annual instalments between 2004 and 2008.	
II. Other Special Funds	
Federal Railways Fund	
Debt level at the end of 1996	78
Assumption of the railways' old debt	71
Borrowing to finance current deficits	7
Equalisation Fund for Safeguarding the Use of Coal	
	3

¹ Breakdown partly estimated.

limited time-frame. If the liabilities had been absorbed into the general debt of the central, regional and local authorities, the task of monitoring the achievement of this objective would be considerably more difficult. As these Funds redeem debt, on balance, in the context of fixed annuities, they record growing surpluses; these should be used for reducing the overall public sector deficit.

Budget policy consequences of the increase in indebtedness

Risks of a sharp increase in debt

Heavy recourse to the credit markets by the public sector may not only lead to crowding-out effects in the capital market but also, over the medium and longer term, limits the budgetary leeway of the central, regional and local authorities themselves. If the credit financing ratio is high, there is a growing danger that the debt process may get out of hand as a result of the swelling interest burdens; the longer the delay in adopting the consolidation policy which is necessary in order at least to stabilise the debt ratio, the stricter that policy must be.

Components of the debt ratio

As shown in detail in the box on page 24, the increase in the debt ratio is determined by the level of the primary deficit (i. e. the overall deficit less interest expenditure) and the difference between the interest rate and the overall economic growth rate – as well as by other factors, such as assumptions of debt. The more the interest rate exceeds the growth rate, the higher must be the primary surplus needed merely to stabilise the debt ratio for a given level of accumulated debt.

Since a high level of public sector credit financing normally has an adverse effect on the interest rate level and hence on the interest rate-growth rate differential, this constellation of mutually reinforcing factors may lead to a vicious circle. Inflation is not a suitable escape route from this debt trap, and is out of the question anyway if monetary policy is to be stability-oriented. By contrast, a convincing course of fiscal consolidation may favourably influence the interest rate-growth rate differential and thus contribute, over and above its primary effect, to stabilising the debt ratio.

As shown in detail in the box on page 24, the trend in the debt ratio in Germany since unification must be regarded as being unsustainable over the long term. Apart from the leaps arising from the assumptions of debt, the pattern shows a "growth-adjusted interest burden effect" – with the exception of the year 1990, which was buoyed by the unification-related boom.⁶ The rise in the debt ratio due to this factor could not be offset by a sufficiently high primary surplus. Considerable consolidation efforts are therefore necessary merely in order to stabilise the debt ratio. However, in view of the debt ratio level reached at the end of 1996, an actual reduction is required, too, as envisaged in the Federal Government's medium and longer-term concept for a "symmetric public finance policy". Nor can any reassurance be derived from the fact that a top-heavy interest rate-growth rate differential is currently the prevailing pattern worldwide.

Trend in the debt ratio not sustainable over the long term

⁶ Owing to the lack of figures for Germany as a whole for 1990, no growth effect can be calculated for 1991.

Factors influencing the change in the debt ratio

The debt ratio at the end of period t (d_t) can be broken down arithmetically, for simplicity, into the primary deficit ratio (p_t) in the period under review, the interest burden component of the accumulated debt ratio (d_{t-1}) and the latter itself:

$$d_t = p_t + \frac{1+i}{1+g} d_{t-1}$$

where i represents the average effective rate of interest applying to public debt and g the growth rate of nominal GDP.

The change in the debt ratio ($d_t - d_{t-1} = \Delta d_t$) can thus be derived as follows:

$$\Delta d_t = p_t + \frac{i-g}{1+g} d_{t-1}$$

Hence the trend in the debt ratio is determined, on the one hand, by the level of the primary deficit ratio and, on the other hand, by the difference between the relevant interest rate level and the overall growth rate in conjunction with the debt ratio at the end of the previous period. The "growth-adjusted interest rate" $(i-g)/(1+g)$ can be broken down further into

the nominal interest rate effect: the real growth effect: and the GDP deflator effect:

$$\frac{i}{1+g} d_{t-1}$$

$$\frac{g_r}{1+g} d_{t-1}$$

$$\frac{\pi}{1+g} d_{t-1}$$

After taking account of other factors which influence the debt level (particularly debt assumptions), the empirical trend in the debt ratio of the central, regional and local authorities in Germany can be attributed to the factors shown in the table below:

as % of GDP

Year	Debt ratio at the end of the year 1	Change in the debt ratio in percentage points	of which attributable to						
			Primary deficit ratio 2	Interest burden/growth effect				Other financial factors affecting the debt level	
				Total 3	Nominal interest rate effect	Nominal growth effect		Total 4	of which
						Real growth effect	GDP deflator effect		
1989	41.8	-1.3	-1.8	0.3	2.8	-1.5	-1.0	0.2	-
1990	43.4	1.6	-0.8	-0.7	2.7	-2.2	-1.2	3.1	0.5
1991 5	41.1	-2.3	1.6	0.5
1992	43.7	2.6	0.3	0.3	3.3	-0.8	-2.1	2.0	2.1
1993	47.8	4.1	0.9	2.0	3.2	+0.5	-1.7	1.2	0.3
1994	50.1	2.3	-0.3	1.1	3.5	-1.3	-1.0	1.5	2.0
1995	57.7	7.7	-0.5	1.8	3.8	-0.9	-1.1	6.4	6.8
1996 e	60.3	2.6	-0.3	2.3	3.7	-0.8	-0.6	0.6	0.4

1 Gross debt level of the central, regional and local authorities according to the debt level statistics. — 2 Calculated on the basis of the data of the official financial statistics; positive values denote a primary deficit. — 3 Including

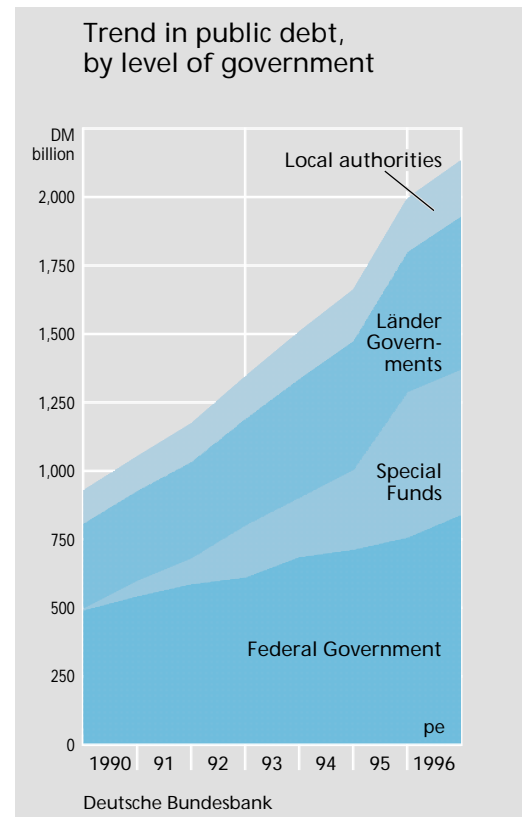
rounding differences. — 4 Debt assumptions, transitional financing, need for liquid funds, balance of reserves movements and previous year's settlements, and statistical residuals. — 5 From 1991 data for Germany as a whole.

*Increase in
debt at the
individual levels
of government*

Leaving aside the new Special Funds, the increase in the debt ratio was attributable mainly to the trend in respect of the Federal Government which, as the central public authority, had to bear the bulk of the unification-related burdens. At the end of 1996 its debt level overshoot the amount reached seven years previously by just over 70%. In the same period, the indebtedness of the Länder Governments in the west (including Berlin as a whole) grew by just under 55%. Between 1990 and 1993 these Länder Governments expanded their spending sharply, with the result that their deficits, in spite of a quite favourable revenue trend, were higher than at the end of the previous decade. The liabilities of the local authorities in western Germany increased by just over one-third. By the end of 1996, the debt level of the east German Länder Governments and local authorities – per inhabitant – had already reached just over 80% of western levels in both cases. Owing to the major structural problems in the new Länder, the public authorities there financed a substantially larger share of their expenditure by borrowing than the west German Länder Governments and local authorities, in spite of the high level of transfers from the west to the east.

*Mixed picture
at the level of
the Länder
Governments...*

However, the subordinate levels of government, particularly owing to their different individual financial strength, present a very mixed picture. Of the west German Länder Governments, by far the most favourable debt situation is shown by Bavaria, where in 1995 liabilities came to barely 50% of the budget volume; this ratio – in contrast to the trend in most other Länder – was consider-



ably below the level recorded in 1989 (64%). On the other hand, Saarland and Bremen⁷ range at the top of the debt list (with debt ratios of 227% and 216%, respectively). In both of these structurally weak Länder, the debt situation had assumed such alarming proportions that since 1994, following a decision of the Federal Constitutional Court, they have received special transfers from the Federal Government, which have reduced the debt level somewhat. The debt situation of Berlin has deteriorated particularly dramatically; whereas in 1989 the liabilities in the former West Berlin had come to only 47% of the expenditure volume, its unification with East Berlin and the partly associated large

⁷ The figures for these city-states include the local authority budgets.



deficits of the past few years led to an expansion to 99% at the end of 1995.

... and the local authorities

At the local authority level some big cities, in particular, are relatively heavily indebted. On the one hand, big cities, owing to their regional hub function, have a higher expenditure level and, especially in structurally weak regions, are burdened with an extremely high level of social benefit payments. On the other

hand, their revenue from the local authority share in income tax and from trade tax is often weakened by the migration to the surrounding countryside of people who work in the city and business enterprises which were formerly located in the city.

The increase in the public sector interest burden resulting from the high level of borrowing was mitigated by the fact that interest rates edged down from the high level they had reached at the beginning of the nineties under the impact of the unexpected financial challenge posed by German unification.⁸ This was due not least to the success achieved in Germany and in many other industrialised countries in curbing the rate of price rises and dampening inflation expectations. Nevertheless, the interest expenditure ratio of the Federal Government (including reimbursements of the interest payments of the Special Funds) went up from 11% of overall expenditure in 1989 to 16½% in 1996. The increase in respect of the west German Länder (from 7½% to 8%) was less pronounced; at the local authority level, the ratio, at just over 3½%, remained virtually unchanged. In 1996 the interest expenditure ratios of the east German Länder Governments and local authorities (at approximately 4% and just under 2½%, respectively) were still distinctly lower than the west German ratios.

Trend in the interest expenditure ratio

The trend in interest expenditure is determined not only by the level of interest rates and net borrowing but also, to an ever-

Growing significance of refinancing

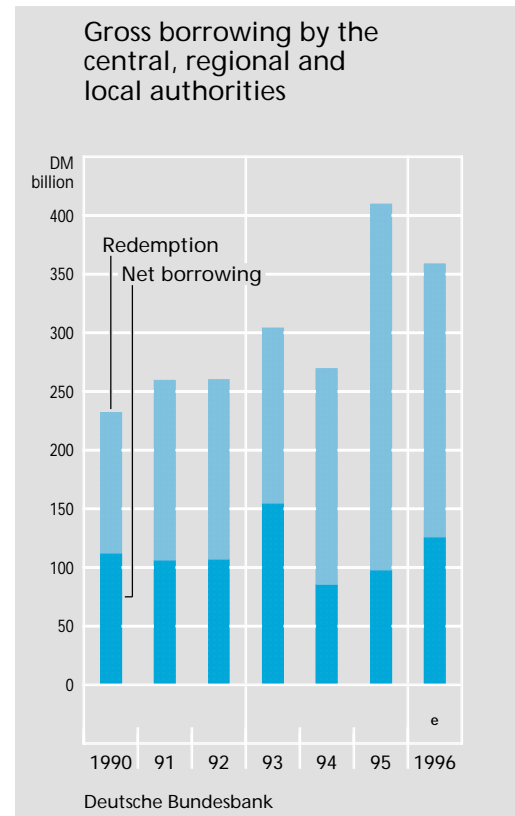
⁸ The yield on public bonds outstanding decreased from more than 8½% in 1990 and 1991 to 5½% on average last year.

increasing extent, by the refinancing of maturing loans. In this context, it is not only the rising debt level which is making itself felt but also a growing "rollover frequency". Whereas in 1989, at a redemption volume of DM 105 billion, just over 11% of indebtedness was refinanced, in 1996, at a redemption volume of DM 285 billion, the rollover rate came to just over 13%. For this reason, too, the dependence of public sector budgets on interest rate fluctuations is rising. Since a broad range of investment opportunities are available in the market and, as a result of the growing internationalisation of banking business and the globalisation of capital markets, even small investors can now invest in foreign capital markets more easily, it cannot be taken for granted either that the funds flowing back to the markets as a result of the redemption of public sector debt will be re-invested in German government paper. To that extent, net borrowing, and thus the increase in indebtedness, convey too favourable a picture of the public sector's reliance on the credit markets.

Trend in the debt structure

Types of debt

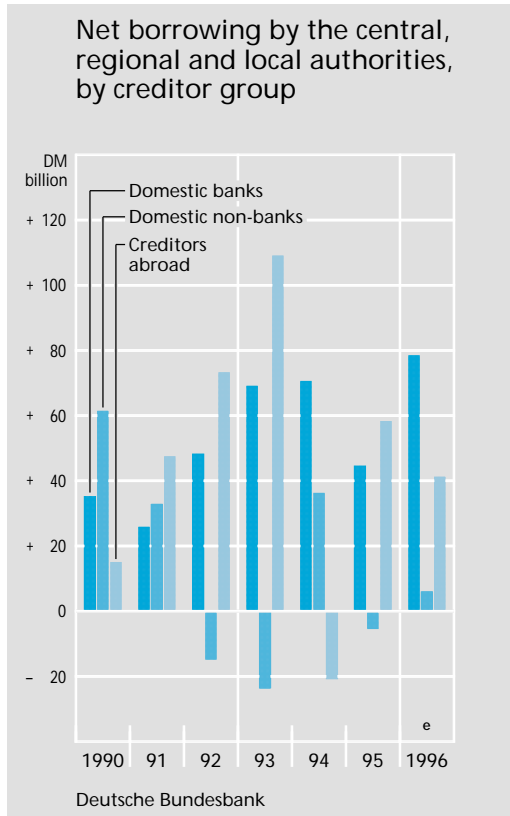
Just under two-thirds of the increase in indebtedness since 1989 was attributable to securities, just under one-third to loans against borrowers' notes and the rest to unification-related old debt not yet refinanced. Borrowing in the form of securities – which is preferred particularly by the Federal Government – has lost its former predominant position in the past few years. Between 1994 and 1996 it represented only just under



one-half of net borrowing, compared with about four-fifths in the period 1990 to 1993.

As a mirror image of this trend, loans against borrowers' notes have gained in importance. This is attributable, *inter alia*, to the fact that the share of Länder Governments and local authorities – which traditionally prefer this debt instrument – in total borrowing has grown slightly. In addition, the Federal Government, following the massive reduction in loans against borrowers' notes outstanding up to 1994, again met a part – albeit a moderate one – of its financial requirements in this way. Furthermore, in the past few years the Special Funds have restricted themselves largely to loans against borrowers' notes, while both the "German Unity" Fund and the Redemption Fund for Inherited Liabil-

Increasing importance of loans against borrowers' notes of late



considerable differences in the individual years caused chiefly by short-term fluctuations in interest rate and exchange rate expectations. Thus over the longer term the importance of foreign buyers has increased; at the end of 1989 their share in the total debt level had amounted to only just over one-fifth. This trend was facilitated not only by the predominantly favourable exchange rate expectations regarding the Deutsche Mark but also by the fact that, from 1990, German paper for a long time carried an interest rate advantage over comparable investment vehicles in the United States. An additional factor was that funds invested abroad by German savers for tax reasons were reinvested in the German financial system in the form of "foreign" purchases of securities.

ities have also refinanced matured securities through loans against borrowers' notes. In deploying this instrument, the possibilities of a more flexible formulation of the terms (such as variable interest rates, granting creditors the right to terminate the contract and the agreement of progressive interest rate patterns) were apparently utilised to an increasing extent.

However, the most important creditors have remained the domestic banks, which between 1990 and 1996 absorbed just under one-half of net borrowing; the loans against borrowers' notes, in particular, were largely bought by them. By contrast, domestic non-banks (primarily households and insurance enterprises) participated only to a minor extent in the acquisition of public sector debt certificates in the period under review as a whole. It was only at the beginning of the nineties, when long-term interest rates were still high, as well as in 1994, a year in which the downward slide in interest rates was interrupted, that they stepped up their purchasing activity.

Domestic creditors

External debt

Not least for that reason, the large credit needs of the central, regional and local authorities were met without any real difficulties because foreign investors bought relatively heavily in the German capital market. Overall, the acquisition of German public sector debt certificates by creditors abroad came to just over two-fifths of net borrowing between 1990 and 1996 – although there were

Only rough statistical data are available on the maturity breakdown of public sector

Debt maturity pattern

debt. Up to 1995, according to these data, the overall public sector debt showed no major changes in preferences, which focus on the medium and longer-term maturities (for details, see the table opposite). However, since 1994 – with the normalisation and steepening of the yield curve – an increasing tendency has emerged towards shorter-term borrowing, a tendency which was probably reinforced in 1996. Thus last year the Federal Government for the first time issued Treasury discount paper with a maturity of less than one year (Bubills) for budget financing purposes; however, its volume outstanding was restricted to DM 20 billion by agreement with the Bundesbank. The Länder Governments, too, have available an issuing volume in the same aggregate amount. In addition, a stronger predilection is being shown in respect of loans against borrowers' notes for short-term maturities and, in part, also for variable interest rates or for granting creditors the right to terminate the agreement. The Redemption Fund for Inherited Liabilities and the "German Unity" Fund, in particular, last year raised a large amount of loans against borrowers' notes running for less than 12 months.

*Dangers of
"short-
termism"*

Given the present interest rate pattern, it is true that short-dated paper offers debtors an immediate price advantage. However, a forward-looking debt management strategy cannot disregard the fact that the terms for borrowers in the long-term financing segment are likewise very favourable; it is therefore essential to weigh short-term interest advantages against long-term rates which are also relatively favourable. Ultimately, therefore, the

**Gross borrowing,
by maturity**

Year	Gross borrowing ¹ DM billion	Maturity		
		less than four years	from four to less than ten years	ten years or more
		as % of gross borrowing		
1990	250	24	40	36
1991 ²	255	23	47	30
1992	271	19	50	31
1993	311	9	45	46
1994	261	16	39	45
1995	403	19	54	27

Source: Federal Statistical Office. — 1 The definition of gross borrowing deviates from the figures presented in the chart on page 27 as the latter include other changes. — 2 From 1991 Germany as a whole.

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effects on the trend in interest expenditure are uncertain in the longer run. In addition, it should be borne in mind that a stronger concentration on shorter-term maturities could be interpreted by the markets as an indication of dwindling soundness, and their response could be to increase the risk premiums on interest rates in all the maturity categories, based on the long-standing international experience that long-term borrowing opportunities for countries with a laxer fiscal policy are limited. Furthermore, the planning certainty of public authorities is impaired by the fact that the dependence of expenditure on interest rate fluctuations grows with decreasing debt maturity and thus a rising "rollover frequency".

A strong preference for short-term debt instruments could also have unfavourable

macroeconomic effects. A spread of "short-termism" would not only make the interest rate pattern more volatile and increase the conflict potential in respect of monetary policy, which operates at the short end of the market, but could also, beyond the financial sphere, hamper growth in the real economy since it would be more difficult to fund long-term investment at matching maturities, and planning uncertainties as well as hedging costs would grow.

Fiscal policy conclusions

Rise in the debt ratio, chiefly through the interest burden

Public debt in Germany, mainly owing to the surge since the beginning of the nineties, has reached a level which imposes a heavy burden on government budgets. The fact, in particular, that the increase in the debt ratio during in the last few years (over and above the assumptions of debt) is largely attributable to the high interest burden has to be seen as a danger signal. In this way public sector debt grows automatically. The higher the debt ratio, the more determined must be the steps taken to stabilise or reduce it.

Convincing consolidation strategy required

The conclusion to be drawn is that the only way out of the current precarious debt situation is a convincing consolidation strategy. This would not only help to directly curb the growth of indebtedness but would also improve the overall economic conditions for the

trend in the interest burden. The prospect of a sustained fall in the public sector deficits – alongside a monetary policy geared towards steadiness and stability – would contribute to keeping interest rates low, which in turn would promote economic growth. The interest rate-growth rate differential, which is one of the factors behind the rise in indebtedness, could thus improve under these circumstances. If the necessary budgetary policy measures were deferred, the debt ratio would initially increase further, and even greater efforts would be necessary later in order to redirect the trend in indebtedness on to a path which is sustainable in the long term (for details, see the results in the box on page 31).

A marked lowering of the debt ratio is also necessary because, in the longer run, the demographic trend will give rise to further substantial burdens to be borne by future generations. A limitation of the budgetary burdens would open up leeway for an increased macroeconomic saving ratio and thus greater capital formation, which would promote economic growth and employment. That would make it easier to cope with the problems arising, in particular, in respect of the statutory pension, health and nursing insurance schemes and the financing of civil servants' pensions. The objective of an approximately balanced public sector budget also has to be seen in this broader context.

Long-term problems

Debt dynamic and fiscal consolidation requirements

The basic equation for deriving the change in the debt ratio, as presented in the box on page 24, is as follows:

$$(1) \Delta d_t = p_t + \frac{i-g}{1+g} d_{t-1}$$

If in the subsequent period the debt ratio is to be stabilised at the level reached ($\Delta d_t = 0$), the primary surplus needed is:

$$(2) p_t^* = -\frac{i-g}{1+g} d_{t-1}$$

Superimposing this constraint on the actual fiscal position, as shown in the current or planned primary balance, yields the extent of the consolidation requirements, also termed the "primary budget gap" (p_{bg}):

$$(3) p_{bg} = p_t - p_t^* \text{ or alternatively } (4) p_{bg} = p_t + \frac{i-g}{1+g} d_{t-1}$$

If, owing to an excessively high initial indebtedness and a medium-term orientation of fiscal policy, the debt ratio is to be reduced by the end of year t_n from currently d_o to \bar{d}_n , the following extended equation yields the primary balance required:

$$(5) p_n^* = -\left[\frac{i-g}{1+g} d_o + \frac{1}{s_n} (d_o - \bar{d}_n)\right] \text{ with } s_n = \frac{a^n - 1}{a - 1} \text{ and } a = \frac{1+i}{1+g}$$

The letter i now denotes the average rate of interest applying to government debt in the period under review and g the average growth rate.

The table below lists the primary surpluses for two macroeconomic model scenarios, calculated on the basis of this equation, needed to reduce a given initial indebtedness to 60% of GDP within five or ten years, respectively: ¹

as % of GDP

Initial indebtedness	Primary surplus needed to achieve a debt ratio of 60% of GDP			
	after 5 years		after 10 years	
	Nominal GDP: + 4 %, interest rate: 6 %		Nominal GDP: + 3 %, interest rate: 7 %	
70	3.3	2.3	4.6	3.6
90	7.5	4.5	9.0	6.0
110	11.7	6.7	13.5	8.5

The model calculation yields the following three main conclusions:

- Very substantial consolidation efforts are necessary for a number of years in order to break the dynamic of debt growth once it has gathered momentum and to reverse the trend. Even in the more favourable macroeconomic scenario, lowering the debt level from, say, 90% to 60% of GDP within five years appears to be very difficult; even over ten years this would require an annual primary surplus of 4½%.
- The overall interest rate-growth rate constellation strongly affects the consolidation efforts required even given a smaller debt ratio.
- A monetary policy stance geared towards steadiness and stability, which is reflected in a favourable capital market climate and interest rate level, is of considerable importance for the success of fiscal consolidation.

¹ Alternatively, the consolidation requirements can also be represented in terms of an overall budget gap if the overall balance rather than the primary balance is the relevant fiscal policy parameter. There would be a shift forward in

the pattern of the consolidation burden, measured against the primary balance, as a result, though without affecting the final consolidation target.