

Government debt and interest payment burden in Germany

Over the past few decades, government debt in Germany has risen sharply, both in absolute terms and relative to gross domestic product. During the same period, government net assets have progressively been depleted. In future, debt growth is to be narrowly restricted by the new debt rule. However, central government is initially expecting the debt ratio to continue climbing, reaching a record high of over 80% by 2013. Since the 1990s, the additional strains placed on public finances by rising debt have been obscured by the decline in interest rates. Although this trend will initially continue, it will not do so indefinitely. Given a sharp rise in debt in the short term, an increase in the currently very low level of interest rates would actually lead relatively quickly to budgetary burdens amounting to billions of euros, thus heightening the already considerable need for consolidation. The financial and economic crisis has recently provided abundant evidence of the advantages of a moderate government debt level, and these are gaining in significance in view of the demographic trend. Germany's central government has affirmed that both the national and the European consolidation requirements will be met, which is important for the debt ratio; however, this commitment has yet to be underpinned with concrete measures.

Introduction and overview

*Rise in
government
debt*

Over the past few decades, government debt in Germany has increased significantly. This trend has recently been greatly reinforced by the financial and economic crisis. Across the world, government debt levels are now rising dramatically, and this has heightened fears in some quarters that debt dynamics are unsustainable. This article examines the development of the German government's debt and its interest payment burden. A brief general discussion of the possible justifications for government borrowing is followed by an account of developments in Germany and an outline of the conclusions to be drawn for fiscal policy.

*Reasons for
borrowing and
need for
restriction*

From an economic perspective, government borrowing is not inherently advantageous or disadvantageous; it can be justified for a number of reasons. However, government debt always entails costs, and high indebtedness, in particular, is associated with especially large risks. It is important to remember that government borrowing activities are based on specific political incentive structures that harbour the danger of high and rising debt levels. This explains the rationale – in Germany and elsewhere – behind rules aimed at restraining snowballing growth in government debt.

*Government
borrowing to
smooth cyclical
fluctuations,
respond to
exceptional
burdens and ...*

For example, government borrowing can be justified within the framework of the automatic stabilisers. Macroeconomic developments can usually be stabilised by tolerating cyclically induced fluctuations in the fiscal balance without taking countermeasures. In

principle, however, this does not cause a lasting increase in government debt as the debt level climbs during recessions but falls back in boom periods provided that the structural orientation of fiscal policy remains unchanged. Nor would an active discretionary economic policy aimed at stabilisation in typical business cycles lead to a sustained increase in debt if applied symmetrically in upturns and downturns. In light of previous experiences – particularly with regard to political incentives, the impact of which can be heightened by difficulties in accurately assessing the economic situation at the time – it is highly unlikely that such a policy would be implemented successfully, especially with respect to the requirement of symmetry. Moreover, targeted debt-financed measures can be deemed necessary in response to particularly severe economic crises or in the event of natural disasters. Nonetheless, as there is no stipulated automatic redemption once these exceptional burdens cease to exist, safeguards must be put in place if a lasting expansion of debt is to be avoided.

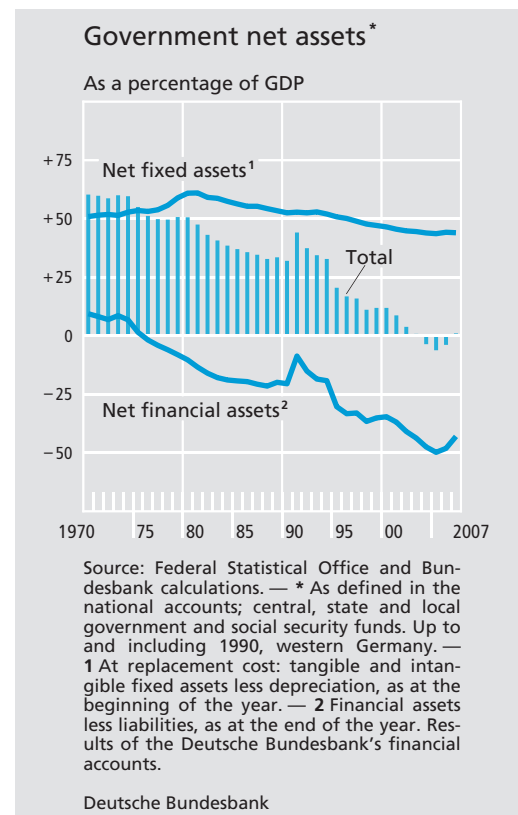
Government borrowing can generally be justified by the argument that it will achieve a targeted long-term intertemporal distribution of burdens. It is often contended that a fairer distribution of financial burdens can be achieved by debt-financing asset expansions that will be beneficial in the future (the "golden rule"). However, this makes a sufficiently diligent assessment of the costs and benefits very important. Moreover, given the political inclination towards government borrowing, such a rule – like a discretionary macro-management of the economy – is ex-

*... to distribute
burdens
intertemporally*

tremely difficult to apply in fiscal policy practice, as demonstrated by the ineffectiveness of the borrowing limit in Germany in recent decades.¹ The government net asset ratio has thus seen a sharp decline on balance since the mid-1970s despite the existence of a limit modelled on the “golden rule”. With regard to the intergenerational distribution of financial burdens, account should be taken not only of explicit government debt but also of implicit future burdens on public finances in connection with demographic change, above all in the area of social security. In addition to restricting growth in age-related expenditure, a process which has already been initiated with the fundamental pension reforms of the past two decades, restricting debt at an early stage can play an important part in ensuring more equal intergenerational burden-sharing.²

*Problems
caused by high
government
debt levels*

The adverse effects of additional government borrowing become particularly important if the debt ratio is already high. They include a potential crowding out of private investment, uncertainties and distortions arising from expected or actual future increases in the burden of taxes and social security contributions, as well as substantial risk premiums on the capital markets due to growing concerns about the government’s solvency. Furthermore, if debt ratios are high, the effectiveness of targeted debt-financed measures aimed at averting particularly severe crises is likely to be increasingly limited. In addition, the danger of conflicts between fiscal and monetary policy, which cause major macroeconomic costs, grows, whereas sound public finances



improve the conditions for a stability-oriented monetary policy.

The danger of excessive government debt is caused, not least, by the existence of the politically appealing option of using loans to defer the counterfinancing of expenditure increases or tax cuts to the future. For this reason, budgetary rules for preventing overly high indebtedness are common in many parts of the world. The specific form these rules take, budgetary transparency and public support are all key to ensuring their effectiveness.

*Rules for
preventing
excessive debt*

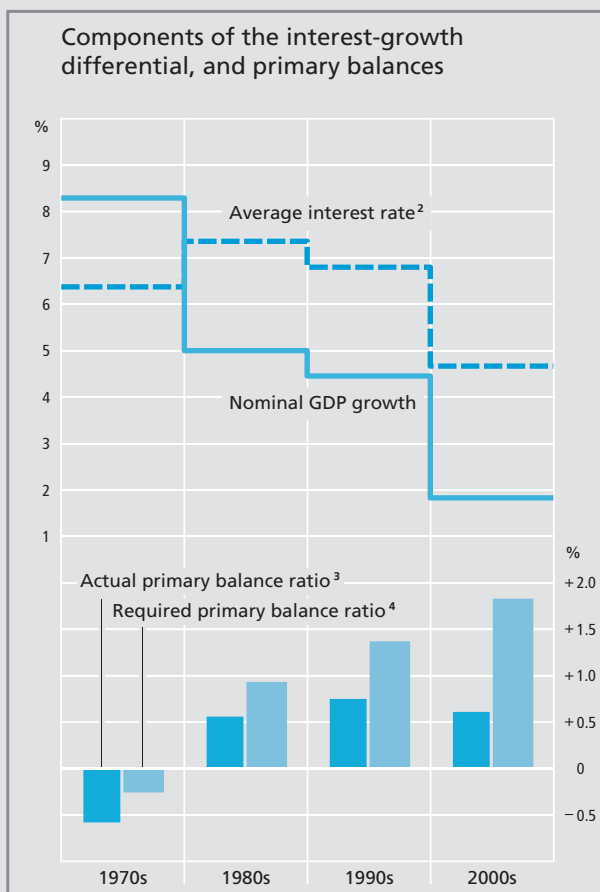
1 See Deutsche Bundesbank, Reform of German budgetary rules, Monthly Report, October 2007, pp 47-68.

2 See Deutsche Bundesbank, Demographic change and the long-term sustainability of public finances in Germany, Monthly Report, July 2009, pp 29-44.

Dynamics of debt ratios

The general government debt ratio is the ratio between government debt and nominal GDP. It changes over time if debt grows more quickly or more slowly than nominal GDP. In a simplified analysis, the growth in debt corresponds to a given year's deficit, which can be split into interest payments and the primary balance.¹ The development of the debt ratio may be represented as

$$b_t - b_{t-1} = \frac{\lambda_t}{1 + g_t} b_{t-1} - p_t,$$



1 Not included are financial transactions which, in an analysis based on the national accounts, influence the level of debt but not the deficit. These include, for example, debt-financed loans which increase both the level of debt and the financial assets of government. — 2 Effective average interest rate on government debt calculated on the basis of interest paid in accordance with the national accounts plus financial intermediation services, indirectly measured (FISIM). — 3 Primary balance as a percentage of GDP (in terms of the national accounts) adjusted for special factors such as the assumption of the Treuhand

where b_t denotes the debt ratio at the end of period t , p_t the primary balance ratio, and $\lambda_t = (r_t - g_t)$ the interest-growth differential (with g_t as the nominal growth rate of GDP and r_t as the nominal average interest rate on government debt). The equation makes clear that the change in the debt ratio depends not only on the primary balance ratio but also on the interest-growth differential and the debt ratio one period earlier. If the interest-growth differential is positive, a positive primary balance is required in order to prevent a rise in the debt ratio. The higher the prior-year debt ratio and the current-year interest-growth differential are, the higher this primary surplus must be.

The adjacent chart shows interest rates, growth rates and the resulting primary balances needed to stabilise the given debt ratios for the Federal Republic of Germany since the early 1970s. Actual primary balances are set against required primary balances. In each case, the average values of the variables for the individual decades are displayed in order to highlight structural developments.

It is evident that the nominal average interest paid on outstanding government debt was, in all past three decades, higher than nominal GDP growth. The calculations shown illustrate that, as the interest-growth differential for this period was positive, a marked and (mainly owing to the actual debt dynamics) rising primary surplus – already amounting to some 1¼% of GDP in the 1990s and around 1¾% of GDP in the past decade – would have been necessary to stabilise the actual debt ratios. Following clearly negative values in the 1970s, the actual average primary balance has been positive since the 1980s but has remained permanently below the level needed to stabilise the debt ratio.⁵

agency's debt and receipts from the auction of UMTS licences. — 4 Primary balance ratio needed to stabilise the actual debt ratio. — 5 Other effects have also contributed to the rise in the debt ratio over the past 40 years; these include financial transactions, changes in sectoral classification and, in particular, the increases in debt in the first half of the 1990s owing to German reunification (Currency Conversion Equalisation Fund, for example) resulting from government deficits in eastern Germany prior to 1991. — 6 See also Deutsche Bundesbank, Demographic change and the long-term sustainability of public finances in

Fundamentally, the present-period general government debt may be regarded as sustainable only if it is covered by the sum of all discounted future primary surpluses. In this context, it is ultimately the intergenerational burden resulting from government activities that is influenced by the temporal distribution of the primary balances. Shifting the necessary primary surpluses into the future would appear particularly dubious if the accumulated debt is not accompanied by any income-generating stocks of assets or if additional intergenerational burden shifts resulting, say, from a rise in age-related spending are to be expected anyway.⁶

Furthermore, it should be noted that high government debt ratios, in particular, may themselves have an impact on the economy and, therefore, on the interest-growth differential. A direct adverse effect on the interest rate level may occur as a result of risk premiums into which higher probabilities of default are incorporated owing to expected sustainability problems, for example. If doubts arise as to whether primary surpluses needed to service future debt can (or, from the standpoint of policymakers, should) be realised, interest payments may initially carry high risk premiums; in extreme cases, it may become impossible to sell debt securities in the financial markets. As soon as such developments become apparent, if not earlier, sharp and rapid corrections of the fiscal policy stance will be the only option. Empirically, it can be observed that countries with high debt ratios tend to have higher funding costs for government debt.

Moreover, an increase in government debt – even irrespective of any risk premium for the sovereign – may lead to a general rise in interest rates and thus *inter alia* to a crowding out of private investment.⁷ Reductions in growth are to be expected in this context, especially if the government spending contributing to

the debt is unable to offset the losses of productivity in the economy as a whole caused by lower private investment. The less the private sector adjusts saving to the change in government debt and to the resulting higher future tax payments, the more severe the crowding-out effects are.⁸ In an open economy, and given the international mobility of capital, both the positive and negative effects of national policy are spread more broadly⁹ and exchange rates, capital flows and current account balances may be affected.

Given a positive interest-growth differential, a higher general government debt implies the necessity of a higher primary surplus in future periods. This can be achieved – at least in part – by additional taxes. However, the associated distortions, in particular, result in further losses of potential growth. A further factor in this context is that a location might become less attractive both for skilled labour and investors from abroad owing to the future prospect of a higher tax burden.¹⁰

High government debts also make a stability-oriented monetary policy more difficult as it is then more difficult to anchor inflation expectations at an appropriate level. If investors harbour doubts about the sustainability of public finances and therefore regard higher inflation as a possibility, the long-term nominal interest rate might come under upward pressure owing to a rise in both inflation expectations and inflation risk premiums. As a result, a stability-oriented monetary policy would be more restrictive than otherwise required. Overall, this could lead to a deterioration in conditions for real economic growth. If actual price developments then remain unchanged owing to the monetary policy response, there will be an inevitable widening of the interest-growth differential, making the need for consolidation even more acute.

Germany, Monthly Report, July 2009, pp 29-44. — 7 Apart from the interest rate effect, government investment may also lead directly to a crowding out of private investment. — 8 See J Gali, J Lopez-Salido and J Valles (2007), Understanding the Effects of Government Spending on Consumption, *Journal of the European Economic Association* 5, pp 116-132. — 9 It should be noted, for example, that international capital inflows may mitigate the crowding out of growth-enhancing investment. — 10 On these points, see G Saint-Paul (1992), Fiscal Policy

in an Endogenous Growth Model, *Quarterly Journal of Economics* 107, pp 1243-1259, and J Aizenman, K Kletzer and B Pinto (2007), Economic Growth with Constraints on Tax Revenues and Public Debt: Implications for Fiscal Policy and Cross-Country Differences, NBER Working Paper No 12750, as well as S Ludvigson (1996), The macroeconomic effects of government debt in a stochastic growth model, *Journal of Monetary Economics* 38, pp 25-45.

*Stabilisation
of debt ratios
through
primary
surpluses*

All in all, the development of the government debt ratio is of great importance when assessing public finances. The main factors affecting the debt ratio are generally the existing debt level, the interest rate, nominal growth of gross domestic product (GDP) and the general government primary balance (ie the fiscal balance excluding interest payments). If nominal interest rates exceed nominal GDP growth, as they have on a ten-year average for the past three decades in Germany, a positive primary balance is necessary to prevent explosive debt growth. The higher the debt ratio and the greater the difference between the interest rate and growth, the larger the primary surpluses must be (for more information on this subject and on the macroeconomic effects of government debt, see the box on pages 18 and 19). In Germany, the fiscal stance ultimately was not ambitious enough to prevent a rise in the debt ratio.

Development of government debt in Germany

Sharp rise in debt ratio in three stages

Government debt³ in Germany has risen almost continuously since the Federal Republic of Germany was founded. Regarding the government debt ratio, three large upsurges, each amounting to almost 20 percentage points, can be identified. The first was connected with attempts to actively manage demand following the oil price shocks of 1973 and 1979-80, the second with the adjustment following German unification up to

1996, and the third with the financial and economic crisis from 2008 onward.

From 1950 to 1970, the debt ratio remained relatively stable at just under 20%. At the end of the 1960s, the constitutional borrowing limits for central and state government were changed. Subsequently, public finances were required to take account of the need to maintain the macroeconomic equilibrium. The aim was for new borrowing to be expanded during economic downturns and cut during boom periods. In principle, it was even possible to overshoot the already generous standard borrowing limit – equivalent in size to the total budgeted investment expenditure – by an unlimited sum if this was required in order to avert a disruption of the macroeconomic equilibrium. By contrast, there was no explicit obligation during upturns to repay debts incurred in such circumstances. The years of very high new net borrowing during the economic crises triggered by the oil price shocks were followed by periods of merely more moderate debt growth. In the first two decades in which this constitutional rule was applied, debt growth accelerated significantly overall. At the end of 1990, the debt level reached almost €540 billion, or around 40% of GDP.

The unification of Germany placed considerable additional strains on public finances, particularly with regard to improving infrastruc-

*After
constitutional
reform,
government
debt rose
sharply in wake
of oil price
shock*

³ In this article: up to the end of 1990 according to the budgetary debt statistics, subsequently according to the Maastricht methodology. Detailed data for different federal levels (central, state and local government) as defined in the budgetary debt statistics. For information on conceptual differences and some structural breaks, see also p 21.

Debt as defined in the government's financial statistics and under the Maastricht Treaty

Debt level in national financial statistics

In Germany, the Federal Statistical Office collects data on government debt on the basis of the Public Finance and Personnel Statistics Law (*Finanz- und Personalstatistikgesetz*).¹ Government debt comprises the debt of central, state and local government including special purpose associations. Special Federal funds – such as the Financial Market Stabilisation Fund or the Investment and Repayment Fund – and similar entities belonging to individual states are also included. By contrast, it does not contain the liabilities of social security funds, which are generally not permitted to obtain funding on the credit market anyway. The financial statistics cover the period from 1950 onwards. However, over the course of the past decades, a number of changes have been introduced which, to some extent, has limited the comparability of data over time. Publicly owned and operated enterprises were included up to 1973 and hospitals keeping commercial accounts up to 1992. At state level, the debt of those enterprises and other entities, such as road construction enterprises, universities and outsourced statistical institutes, belonging to the government sector has additionally been included in the financial statistics since 2006. In the case of municipal special purpose associations, debts of entities keeping commercial accounts have since been omitted from the reporting group. Overall, however, the revisions are not likely to have had a decisive impact on the underlying trends.

Maastricht debt level

As part of the EU budgetary surveillance procedure, the level of general government debt under the Maastricht Treaty is fixed as a central fiscal indicator at a reference value of 60% of GDP. The methodological basis is the European System of Accounts (ESA 1995), which is legally binding in the EU.² Over the years, Eurostat has issued a series of individual methodological decisions defining certain aspects of the ESA more precisely or adding to it, not least in order to eliminate the possibility of an unwarranted (from an economic perspective) use of scope when calculating the debt level and also to ensure that the actual situation is reflected as accurately as possible.

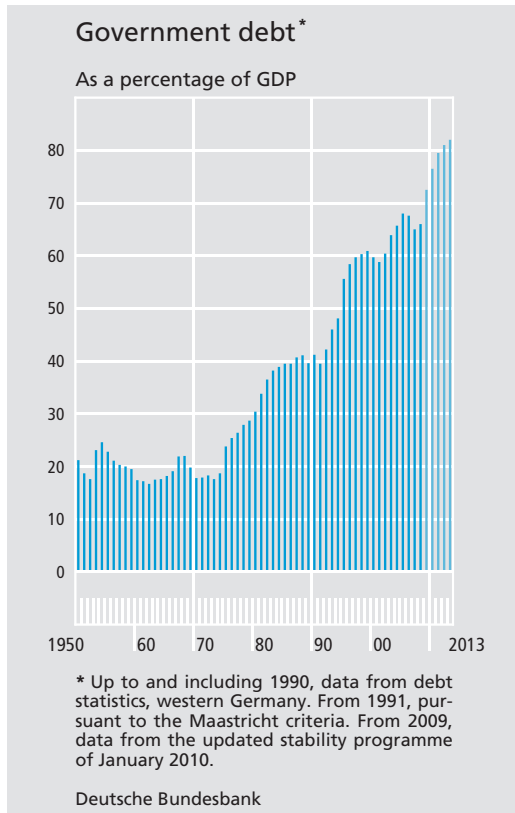
1 For more details on this and the following points, see also the quality assessment section in Federal Statistical Office, *Schulden der öffentlichen Haushalte*, 2008, Fachserie 14 Reihe 5 (available in German only). — 2 In a departure from valuation at market price, which is the standard method under ESA 1995, the Maastricht debt level is defined at nominal value. — 3 As a rule, the Maastricht debt level does not include ESA categories such as other accounts payable (eg trade credit), derivative liabilities (eg

In addition to credit market debt and cash advances as included in the government's financial statistics, the Maastricht definition of debt comprises several other types of liabilities – notably the volume of coins in circulation and imputed borrowing, such as surrogate financing. One example of this is the transactions between the German government and the KfW Bank (*Kreditanstalt für Wiederaufbau*) where the government transferred shares at a discount but secured a participating interest in the performance of these shares and ultimately has thus not relinquished economic ownership. Furthermore, the definition also covers cash collateral paid to the government as part of derivative transactions. In addition, if the government assumes certain project risks in public-private partnerships or instructs – typically publicly owned – enterprises to enter into transactions on its behalf that generate borrowing requirements, respective amounts of debt are assigned to the government. Securitisation transactions where the government transfers only part of economic ownership or which are based on future tax or social contribution revenues are also recorded in the debt. In Germany, the securitisation in 2005 and 2006 of future payments by the postal services' successor enterprises for forthcoming civil servant pensions by the Federal Pension Service for Post and Telecommunications (*Bundespensionservice Post und Telekommunikation*), which is allocated to the government sector, is also recorded in the debt level.³

One general rule which has become particularly significant in view of the financial crisis is that debt relief entities initiated by, acting in the interests of and shielded from risk by the government are to be assigned to the government. This is driving up the Maastricht debt level by the amount of their liabilities. However, Eurostat's decision of July 2009 has temporarily modified this rule by attaching greater importance to the issue of legal ownership of these entities⁴ but, overall, these changes have so far not had any impact on such cases in Germany.

In total the Maastricht debt level amounted to €1,762 billion (73.2% of GDP) at the end of 2009 whereas the debt level as defined in the government's financial statistics amounted to €1,692 billion.

liabilities arising from interest and currency swaps) or insurance technical reserves (eg for pension liabilities). Impracticalities inherent in the measurement of these items were cited as reasons for their exclusion. For instance, trade payables are not generally recorded under the cameralistic accounting system. — 4 See also Deutsche Bundesbank, *Statistical recording of financial market stabilisation measures*, Monthly Report, August 2009, pp 77-81.



Debt increase caused by budgetary burdens arising from German unification

ture and social benefits in the east German states, while economic growth decelerated significantly. Overall, the debt ratio soared to 58% by 1996. The European reference value of 60% was exceeded for the first time in 1998. This rise flattened out in the years that followed; however, as high budget deficits continued to be recorded – particularly in phases of weaker macroeconomic development – and additional borrowing occurred even in boom years, the debt ratio rose to 68% by the end of 2005. It then declined somewhat to 65% by 2007.

Further upsurge in debt ratio due to financial and economic crisis

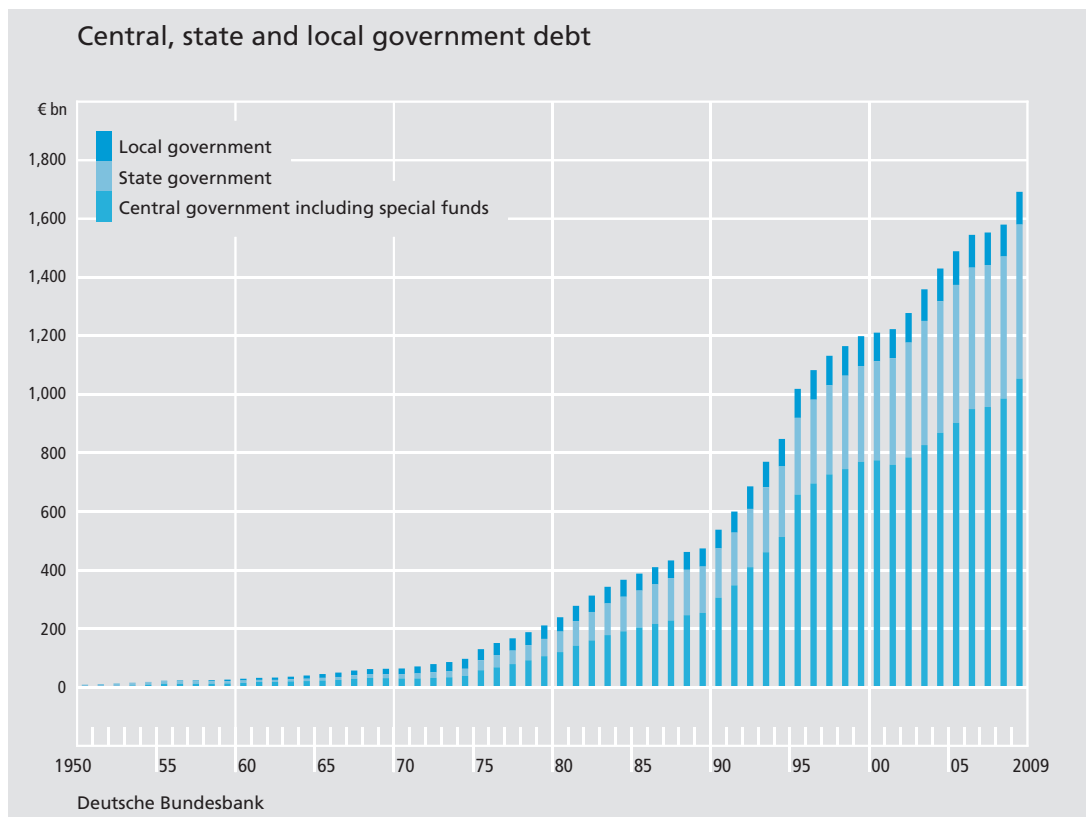
However, the financial and economic crisis has led the debt ratio to rise again dramatically, reaching around 73% last year. In the stability programme adopted at the beginning of 2010, central government forecast that it

would reach 82% in 2013. This figure was calculated under the assumption of both relatively strong economic growth and the implementation of steps towards consolidation, even though no measures for achieving the latter were cited. In addition, the effects of the further tax cut envisaged in the central government's coalition agreement and the establishment of new debt relief entities for banks were not factored into the calculation. Consequently, substantial risks remain in this area.

Central government with highest debt

The individual levels of government were affected differently by these developments. Particularly in the 1960s, the rate at which central government's debt grew was still disproportionately slow, and its share in total debt fell to less than 40% by 1973. At the end of 1989, however, central government – with debts amounting to almost €255 billion – already accounted for 53½% of credit liabilities. The costs of German unification were initially financed largely outside the central government budget via the Treuhand agency (which dealt mainly with state-owned enterprises in eastern Germany). However, when the agency's liabilities were assumed by the Redemption Fund for Inherited Liabilities in 1995, the level of debt attributed to central government soared to almost €660 billion, and its share in total general government debt reached an all-time high of 64½%. The relative position of central government subsequently improved, not least owing to the one-off proceeds of almost €51 billion from the auction of UMTS mobile telephone

High and rising central government share in debt



licences in 2000, which were used for debt repayment. Nonetheless, comparatively high deficits led to a renewed rise in its share in total government debt. At the end of 2009, the credit market liabilities of central government and its special funds exceeded €1 trillion, which corresponds to a share of 62½% in total debt.

Federal states with sharply divergent debt levels

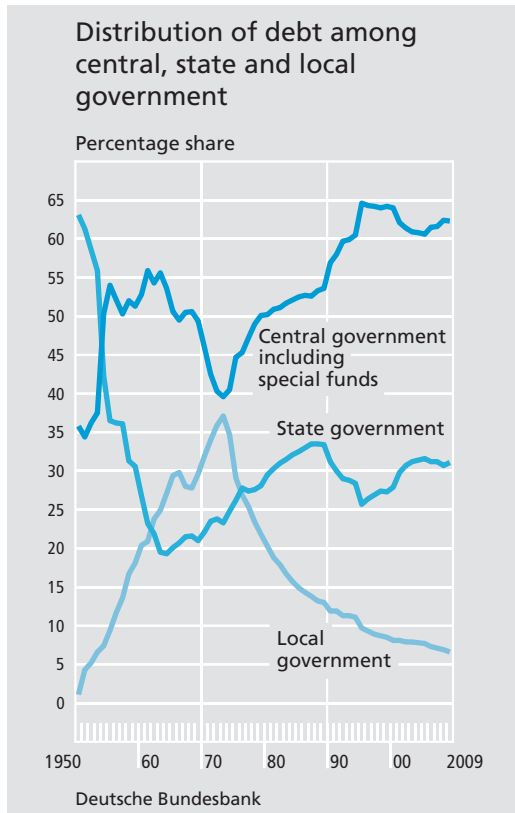
In 1950, the federal states still had the highest share in government debt; however, this subsequently fell significantly, reaching around one-fifth in the 1960s. As in the case of central government, new borrowing increased in the wake of the oil price shocks. This expansion was facilitated by the reform

of budgetary legislation. While state government debts more than doubled between 1950 and 1970, they increased twelvefold in the following two decades. Following further strong growth, debt levels temporarily stabilised from 2006 to 2008 before rising again very steeply in 2009. State government's share in total debt was 31% at last report.

Nonetheless, it should be borne in mind that developments in the individual federal states have varied widely in the past, and continue to do so at present. With per capita credit market debt levels of €1,770 and €2,280 respectively (compared with a nationwide average of €5,870), Bavaria and Saxony were the federal states with the lowest debt levels at the end of 2008, having both adopted a general legal ban on new borrowing in their

... but sharply divergent developments in individual states throughout

State government debts likewise rose steeply, ...



state budgetary rules. Of the non-city states, the highest per capita debt levels were recorded by Saarland (€9,180) and Saxony-Anhalt (€8,260); the latter, like Saxony, had begun 1990 with virtually no debt. Levels among the city states (including the local government tier, which is less indebted) were even higher, with Bremen posting the largest figure (€23,080). Whereas per capita debt growth in Saxony has effectively been at a standstill since 2000, Bremen recorded an increase of four-fifths in the same period.

The Federal Constitutional Court ruled in 1992 that, in connection with their high levels of debt, Bremen and Saarland were facing a situation of extreme budgetary hardship, meaning that all other members of the German federation had an obligation to pro-

vide assistance. However, a comparable petition by Berlin was rejected in the autumn of 2006 *inter alia* on the grounds that Berlin had not yet exhausted all of its own possibilities to resolve the situation. When the new constitutional borrowing limit obliging the federal states to achieve structurally balanced budgets from 2020 onward was agreed, temporary financial assistance was arranged in five of the federal states in response to doubts over whether the limit would be practicable. In the wake of the financial crisis, some federal states have now found themselves confronted not only with substantial tax shortfalls but also with considerable risks triggered by the financial difficulties of their Landesbanken. These difficulties are reflected in the debt levels recorded in the financial statistics mainly by capital injections totalling €27½ billion in Baden-Württemberg, Bavaria, Hamburg and Schleswig-Holstein.⁴

Local government with restrictive budgetary rules and large differences between individual local authorities

In the years following the establishment of the Federal Republic of Germany, local government saw a particularly sharp rise in credit liabilities, which followed the investment trend. While in 1950 local government's share in total debt was only 1%, it rose to 37% by 1973. Unlike central and state government, local government did not see an acceleration in the debt development in the 1970s; instead, growth declined. When the

Growth in local government debt slower in recent times, but ...

⁴ In addition, debt relief entities for WestLB and SachsenLB totalling €42 billion have so far been factored into the Maastricht debt level.

local government budgetary rules were changed, they continued to take account of the “capability concept”, under which evidence of sufficient financial capacity is imposed as a general prerequisite for borrowing to finance budgets. While the debt level doubled by 1990, local government’s share in general government liabilities fell back substantially to 12%. Despite the continued overall increase in local government indebtedness following the unification of Germany, the rise in regular per capita credit market debt remained very limited. However, the outsourcing of debt-ridden entities from core budgets also played a role here.⁵

... sharp increase in cash advances in many cases

At the same time, since the 1990s the volume of cash advances, which are actually only intended to bridge short-term liquidity shortfalls, included in total debt has risen from €1 billion to €35 billion (just under one-third of local authorities’ total credit liabilities), reflecting their *de facto* use as a financing instrument. As with the federal states, there are great differences in the debt levels of the individual local authorities, ranging from those with no credit liabilities to those in considerable financial distress, whose respective supervisory bodies at state level have been attempting for many years to slow down debt growth by imposing tough budgetary restrictions. While the differences in total per capita debt are smaller than at state government level, the trend in cash advances demonstrates that in many cases strict budgetary limits alone are insufficient. Overall, the share of local government in the combined debt of central, state and local government has now fallen further to 6½%.

Further debt-like burdens on public finances

In addition to explicit credit liabilities, there are other obligations, such as pension claims and pension entitlements, for which no reserves have yet been formed. According to preliminary statistical calculations, the total of such obligations incurred to date by the statutory pension insurance scheme alone is around three times the recorded level of government debt.⁶ Unlike explicit debt, however, these – in some cases extremely long-term – government obligations can be reduced substantially through changes to benefits legislation, and the calculated volume depends heavily on assumptions regarding life expectancy, pay trends and the discount factor, which occasionally need to be revised.⁷

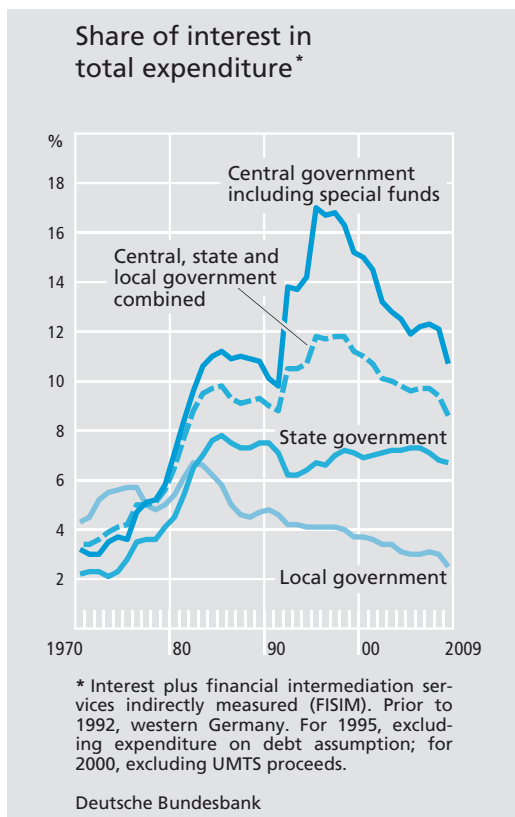
High costs arising from pension entitlements, ...

... but obligations can be restricted and depend heavily on assumptions

⁵ In addition to the outsourcing of businesses in areas such as waste management, special purpose associations keeping commercial accounts were also removed from the reporting group for the financial statistics. Analyses of the local government tier have shown that around one-half of all debts in the local authorities’ area of influence are not included (any more) in the narrower reporting sample (see, for example, M Junkernheinrich and G Micosatt, *Kommunaler Finanz- und Schuldenreport Deutschland 2008*, Bertelsmann-Stiftung; available in German only). However, for those outsourced entities that are market producers with independent accounting and autonomy in their core business it would be inappropriate to include their liabilities in the calculation of government debt.

⁶ See A Braakmann, J Grütz and T Haug, *Das Renten- und Pensionsvermögen in den Volkswirtschaftlichen Gesamtrechnungen*, *Wirtschaft und Statistik*, 12/2007, pp 1167-1179 (available in German only).

⁷ Approaches that show the likely budgetary burdens arising under existing benefits legislation and with the expected future demographic trend allow inferences to be drawn regarding a possible need for fiscal policy action. Such calculations reveal that substantial additional burdens can be expected in future in this regard, necessitating extensive adjustments in order to lastingly restrict government deficits. See Deutsche Bundesbank, *Demographic change and the long-term sustainability of public finances in Germany*, *Monthly Report*, July 2009, pp 29-44.



Budgetary risks caused by guarantees tightly restricted on the whole

Guarantees constitute contingent liabilities and are another source of risks to public finances. However, only a small part of the €½ trillion in outstanding guarantees is likely to cause actual costs as the regulations for issuing such guarantees generally stipulate strict criteria regarding the probability of their being called. In addition, the commitment fees, which usually have to be calculated in keeping with market conditions, provide a continuous source of earnings that offsets possible costs in certain cases. Nonetheless, it cannot be ruled out that the guarantees for credit institutions, which have been increased since 2008 in the course of the financial crisis, will lead on balance to noticeable budgetary burdens, although it is not currently possible to reliably estimate their size.

Development of interest expenditure

Fluctuating budgetary burden arising from interest expenditure

The sharp rise in government debt is reflected in interest expenditure. A long-term comparison using the national accounts definition adjusted for methodological alterations shows a significant increase in the share of interest in the combined overall expenditure of central, state and local government. From just over 3% in 1970, the interest burden climbed almost continuously to nearly 10% in the mid-1980s. Following a temporary decline, there was a renewed marked increase to almost 12% in the mid-1990s in the wake of German unification. After a period of stabilisation, a substantial decrease began in 1999 and accelerated again last year. At just over 8½%, the share of interest payments in total expenditure even fell back somewhat below the level recorded in the late 1980s.

Sharp longer-term rise in interest expenditure burdens despite decline over past few years

The differences in debt developments between central, state and local government are also reflected in their interest expenditure. The interest burden in the wake of German unification is particularly apparent in the budget and special funds of central government. However, after reaching a high of 17% in 1995, the share of interest expenditure has fallen almost continuously and, at just over 10½% at last report, has returned to the level recorded at the end of the 1980s. Nonetheless, the medium-term financial plan adopted in the summer of 2009 forecasts that, given high deficits, the interest burden as defined in the government budget ac-

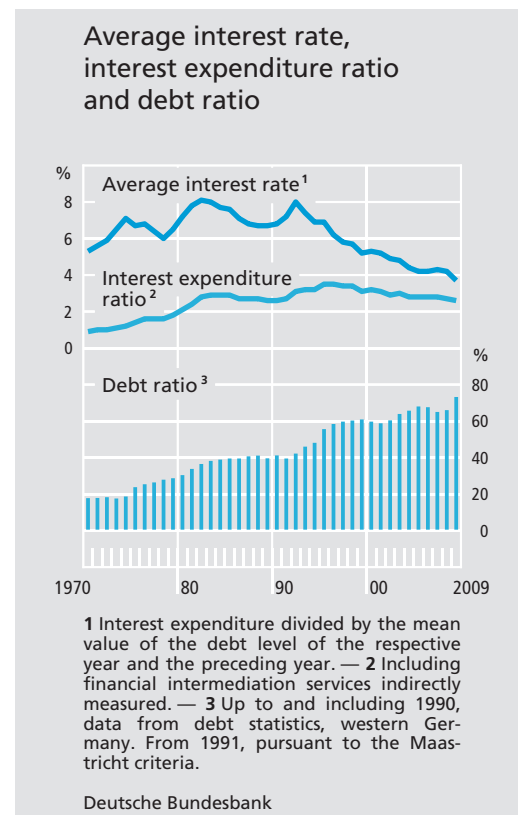
Burden on central government budget particularly large, but substantial dampening here too in past few years

counts will rise again very sharply to 16½% by 2013. For state government as a whole, the eastern German states' virtually debt-free start led to a marked decrease in the interest burden at the beginning of the 1990s. However, the continued strong overall growth in credit liabilities led to a renewed rise in the interest burden to just under 7½% in 2006, which was followed by a decline. By contrast, local government has seen a clear decrease in its share of interest expenditure since the early 1980s. At 2½% at last report, it had even fallen to less than two-fifths the size of the peak recorded in 1982.

Steep decline in average interest rate since German unification

Calculated average interest rate has halved since German unification

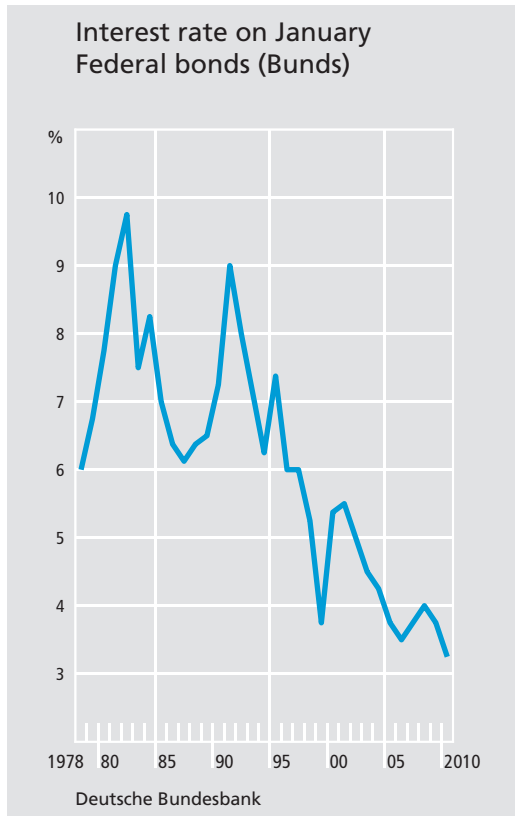
The interest expenditure burden depends critically on both the extent of indebtedness and the average interest rate. The latter can be estimated using data from the national accounts. The annual interest expenditure is placed in relation to indebtedness, using the mean of the value for the end of the year under review and the end of the preceding year to approximate the actual loans on which interest was due. From 1970 to 1990, this average interest rate fluctuated around 7%. The interest expenditure ratio thus tended to follow the growing debt ratio in this period. While the debt ratio continued to increase significantly in the subsequent years up to 2009, in the same period interest expenditure in relation to GDP, starting from just over 3%, first experienced a moderate rise but then fell to just over 2½%. The average interest rate thus decreased substantially, declining almost continuously from 8% in



1992 to 4¼% in the period 2005-08. There was a further clear reduction to 3¾% last year, meaning that the average interest rate had halved since the unification of Germany. Where this decline reflects lower inflation or occurs amidst decreasing real GDP growth rates, the falling interest expenditure is not associated with a real reduction of the burden (see also the box on pages 18 and 19).

The calculated average interest rate hinges on a number of determinants that, for the most part, cannot be controlled in the short term. Changes generally only occur in connection with refinancing, when the debt level is expanded or when floating rate debt instruments are used. Changes in interest rate conditions are therefore only reflected fully in

Lagged adjustment of average interest rate



government interest expenditure with a time lag.

Capital market rates

Significance of international capital market yields as well as risk and liquidity premiums

The average interest rate paid on German government debt depends, in particular, on the capital market rates in the euro area. The latter are affected, among other things, by both global and specific endogenous macro-economic developments and by inflation expectations. With regard to the respective debt instruments, particular account must also be taken of liquidity and default risk premiums. The better the secondary market performs, the lower the liquidity premiums will be. The size of a default risk premium depends on the issuer's solvency rating. To date, Germany has benefited from very low default

risk and liquidity premiums and forms the euro-area point of reference for yields on other countries' ten-year government bonds. At the height of the financial and economic crisis in the spring of 2009, however, the cost of credit default swaps, which can be taken as a measure of default risk, temporarily reached almost 1%, even for German government bonds. Although it has since fallen back by around two-thirds, it remains clearly above the pre-crisis level.

A comparison of the interest rates on ten-year German Federal bonds (Bunds) issued every January since the late 1970s can be used, as a central government example, to demonstrate the extent of the decline in capital market rates. In addition to cyclical and inflation-driven fluctuations, a strong downward trend can be identified. In 2010, a new low of 3¼% was recorded. This constitutes a reduction of two-thirds from the peak of 9¾% reached in January 1982 and of nearly one-half from the mean value of 6%.

Steep decline in long-term rates

Maturity structure

Alongside the general interest rate level, the yield curve and the maturity structure of borrowing are also key determinants of the size of interest expenditure. As a rule, the yield curve slopes upward, meaning that debt contracts with longer maturities have higher interest rates than short-term debt instruments – above all owing to the greater uncertainty associated with the former. However, they provide the government with greater planning certainty, and the issue yields are

Effect of maturity

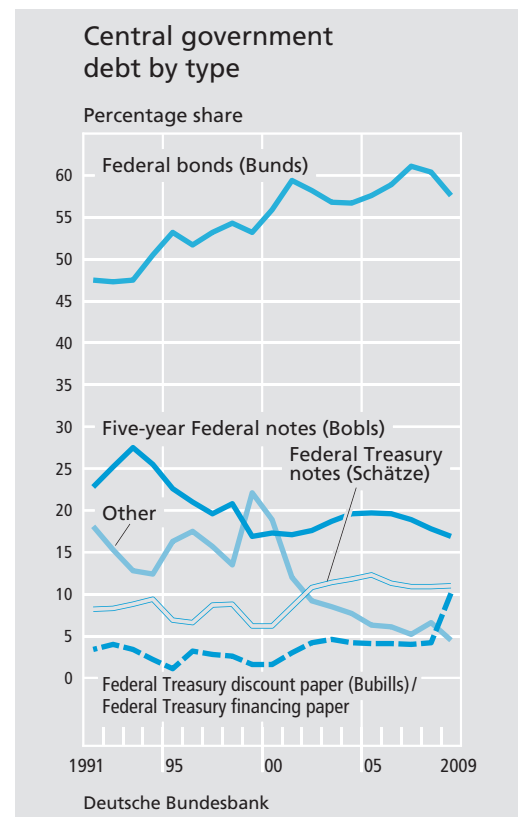
subject to markedly lower cyclical fluctuations.

Until 2008, only limited proportional shifts in the structure of central government debt

Looking at the structure of central government debt, there is quite a firm focus on the long-term range, in which bonds are generally issued with maturities of 10 or 30 years. Since 2000, such instruments have accounted for just over 55% of central government debt. Although the share of five-year Federal notes (Bobl) has been declining since 2006, it still makes up just over one-sixth. The share of two-year Federal Treasury notes (Schätze) has increased slightly to just over one-tenth. More striking is the development of Federal Treasury discount paper (Bubills; introduced in 1996) and Federal Treasury financing paper, both of which usually have significantly shorter maturities. After gradually increasing to nearly 5%, their share soared to 10% in 2009.

Slight increase in residual maturities

The average residual maturity has risen from just over 5½ years in 1999 to just over 6 years at last report owing primarily to the increased use of thirty-year Federal bonds (Bunds). However, this figure has a limited informative value with regard to average interest rates and the dependence of debt servicing on changes in the more volatile short-term interest rates. For example, the average interest rates can fall while residual maturities remain virtually unchanged if the share of issues with very long and very short maturities simultaneously increases, since the yield curve is often significantly flatter when maturities are very long. Unlike some federal states, for a number of years now central government has not used the option of indexing the rate on instruments with long maturities to a money

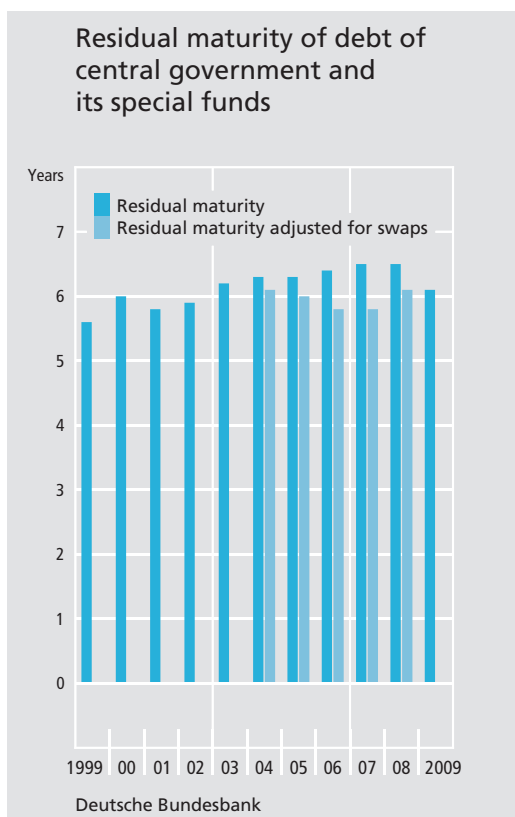


market rate upon issue in order to shorten the interest rate lock-in period. Nonetheless, there has recently been a greater overall dependence on short-term interest rates owing, in particular, to the clear increase in Bubills.

Other determinants of interest expenditure

Borrowing in a foreign currency means that the debt level and interest payments are dependent on exchange rate developments. To avoid the risks associated with this dependence, contractual protection against changes in the exchange rate is needed. Given the same interest rate lock-in period, it would appear difficult to achieve notable cost savings – the calculation of which would also need to include counterparty risks arising from ex-

Only moderate indebtedness in foreign currencies



change rate hedging transactions – through such borrowing. Consequently, there was a long period in which central government did not place any foreign currency securities. It was not until 2005 that central government started to do so again, issuing two bonds with a total volume of US\$9 billion; their maturities – until 2010 and 2012 – were relatively limited.

Use of derivatives barely documented

Interest flows can generally be modified through the conclusion of supplementary agreements. For example, long-term fixed interest rates can, in effect, be converted into variable rates using swaps. The associated expenditure is estimated together with the interest payments for the underlying instruments in the central government budget and therefore cannot be derived from the pub-

lished budgetary figures. Every year since 2004, the Budget Acts have contained authorisations to conclude such agreements to the sum of €80 billion. According to the debt report by the Federal Ministry of Finance, the scope for authorisations in 2008 had been virtually exhausted by the end of the year, with a take-up of €74 billion. As little of the data on these transactions is made public, an information gap remains. The data reported to the Commission under the EU excessive deficit procedure reveal that the net interest income from derivatives has been positive on average since 2002, which, with a normal yield curve, is consistent with the shortening of maturities using swaps recorded in central government debt reports in aggregated form only. Precise data are not available for state and local government, either. However, large burdens resulting from transactions with derivative instruments have been reported in some local authorities. All in all, the question arises as to whether the risks, lack of transparency and monitoring problems associated with using derivatives do not ultimately outweigh any possible savings for the government.

In addition, interest expenditure can be affected by premiums or discounts when debt instruments are issued. In the budgets, discounts arising when securities are issued with a coupon below the market interest rate are booked as current interest expenditure, while premiums are deducted from it. The – sometimes inevitable – costs or cost savings of subsequent periods are thus recorded as discounted counterentries in the current budget. For securities with longer maturities, this can

Occasional distortions caused by discounts

give rise to sizeable sums, obscuring actual interest expenditure. In the past few years, this effect has occasionally played a more significant role owing, among other things, to declining interest rates. However, the budgetary estimates were generally cautious. For example, while a burden of €1 billion arising from discounts was forecast in the 2009 central government budget, premiums of €1 billion, or 2½% of total interest expenditure, were ultimately received.

Inflation-indexed debt instruments

Finally, inflation-indexed interest and redemption payments can also be agreed. They offer investors protection against the risk of unexpected price rises – restricted by investment income taxation, which is determined by the nominal interest rate. With an issue volume of €30 billion, however, such Federal bonds (Bunds) and Federal notes (Bobl) currently make only a relatively limited contribution.⁸

Outlook and fiscal policy implications

Budgetary burden resulting from rising debt ratio obscured by falling interest expenditure ratio, ...

In recent decades, the debt ratio has risen dramatically. Nonetheless, in the past few years the resulting expenditure pressure would seem, at first sight, to have been more than offset by the clear fall in the average interest rate. Interest expenditure in relation to GDP has thus declined on balance. If the average interest rate had remained at the level recorded in 1992, this would have resulted in additional expenditure of €70 billion, or almost 3% of GDP.

However, cost savings accrued through a decrease in the average interest rate must not

simply be interpreted as fiscal policy leeway. If nominal GDP growth rates fall in parallel with the average interest rate on government debt, the interest expenditure savings must be used to reduce deficits in order to stabilise the debt ratio (for more details, see the box on pages 18 and 19).⁹ If, in a period of decreasing inflation and declining output growth, nominal GDP growth falls faster than average interest rates (owing to the gradual adjustment of borrowing conditions), the refinancing savings will actually be insufficient to stabilise the debt ratio. Without additional consolidation measures, burdens would thus be deferred to the future. In Germany, there has, in fact, been an upward trend in the interest-growth differential over the past three decades. The adjustment of primary balances was not sufficient to stabilise the debt ratio, which was, at times, also driven up by effects that have no impact on deficits. Indeed, the gap between the actual primary surplus and that required to stabilise the debt ratio has widened even further in recent decades, and the debt ratio has therefore climbed significantly.

... which, however, does not allow any budgetary leeway given falling growth trend

To reverse the debt trend of the past few decades, the German budgetary rules for

Fall in refinancing savings foreseeable

⁸ However, the booking of the related interest expenditure in the central government budget has led to erratic fluctuations. Since 2009, provisions have been made for the extra sums related to future final payments of inflation-indexed debt instruments issued since 2006. A transfer of €1½ billion, equivalent to 4% of interest payments, was used also to offset the burdens accumulated in the years from 2006 to 2008. Despite moderate inflation expectations, additional provisions of €½ billion were made in the 2010 budget.

⁹ Given a stable interest-growth differential but lower interest and growth rates, some additional consolidation would even be required in order to keep the debt ratio constant.

central and state government stipulate that, in future, they must achieve at least close-to-balance budgets in structural terms.¹⁰ With fixed limits on new borrowing, changes in interest expenditure directly affect fiscal policy leeway. Refinancing savings can be expected to decline markedly from their recent substantial level in the coming years. If interest rates rise again perceptibly from their current very low level, additional costs could even be incurred.

Dependence on interest rate developments already high

The high indebtedness alone means that the sensitivity of public finances to interest rate changes is considerable and will increase further in the coming years. Even with debt at the level recorded at the end of 2009 (€1.7 trillion), a rise of one percentage point in the average interest rate will already result in additional spending of €17 billion per year. Although interest rate lock-in periods mean that current interest developments are only fully reflected in interest costs with a lag, the short-term effects are already being felt. Owing to the substantial volume of debt instruments with initial maturities of less than one year and of variable rate liabilities, a rise of one percentage point in the short-term interest rate is likely to lead to a relatively rapid increase of €2 billion in government interest expenditure.¹¹ Given a general government refinancing volume of nearly €200 billion in fixed rate debt instruments with original maturities of more than one year, an increase of one percentage point in longer-term interest rates would also lead to additional costs of €2 billion in the following year, which would subsequently continue to rise. This would be accompanied by higher

spending on foreseeable additional net borrowing. Given a volume of over €140 billion – the amount estimated by the German Financial Planning Council for 2010 – such an interest rate rise alone would lead to additional expenditure from 2011 onward of almost €1½ billion vis-à-vis the conditions currently possible. Given persistently high deficits, these costs would rapidly increase.

All in all, sharply rising debt ratios and the foreseeable burdens on future budgets owing to the demographic trend mean that extensive consolidation is needed to ensure sustainable public finances and compliance with national and international obligations. Diminishing confidence in the sustainability of public finances has grave consequences, such as higher financing costs due to rising risk premiums and macroeconomic burdens caused by an overall increase in interest rates. Such developments can currently be observed in several countries. Sound public finances also play a central role in anchoring inflation expectations at an appropriate level as part of a stability-oriented monetary policy. It is therefore particularly important that the euro-area member states comply with the European fiscal rules. As an anchor of stability, Germany has a key role to play with regard to the implementation of European rules. The new national debt rule can, if consistently applied

Sustained budgetary consolidation in Germany indispensable

¹⁰ See Deutsche Bundesbank, Federal budget for 2010 and scope for borrowing up to 2016, Monthly Report, February 2010, pp 72-73.

¹¹ This could be significantly intensified by swaps, whose potential effects on public finances are not disclosed. Any increase in the Bundesbank's profit distributions would ease the strain on the central government budget in the following year only if the ceiling for the central government budget – which will be lowered to €2.5 billion by 2012 – would not otherwise have been reached.

and observed, reinforce this function. This is one reason why the temptation to defer adjustment burdens to the future should be resisted. Using possible loopholes in the

changeover period for short-term burden relief would jeopardise the credibility of the new rules.