06

SOUND FISCAL POLICY, ESPECIALLY IN GOOD TIMES

This is a translated version of the original German-language chapter "Solide Finanzpolitik gerade in guten Zeiten", which is the sole authoritative text. Please cite the original German-language chapter if any reference is made to this text.

SUMMARY

Fiscal sustainability in Europe

The sharp increase in public debt is raising **doubts about fiscal sustainability** in many member states of the European Monetary Union (EMU). This requires a more in-depth analysis in order to assess the sustainability of public finances. Deterministic approaches point to the **foreseeable burden as a result of demographic change**. Econometric procedures analyse past reactions of policy-makers and indicate a need for consolidation in a number of member states, even though the results are ambiguous. Analyses based on structural models suggest that the **scope for revenue-side consolidation** is limited and that measures should be taken on the expenditure side. In particular, it has become apparent that even minor changes in the financing environment or in overall macroeconomic conditions can be sufficient for investors to withdraw from sovereign bonds and thus trigger a sovereign debt crisis. Last but not least, the willingness to pay, political economic incentives, and the overall institutional conditions, especially effective fiscal rules, play crucial roles.

Public finances in Germany

Currently, the **state of public budgets** in Germany is good. The remarkable recovery after the Great Recession was due to structural improvements – in addition to the cyclical upturn and favourable refinancing conditions. An expansionary fiscal policy has reversed this trend, at the latest since 2015, although additional challenges posed by demographic change are expected. This is an argument against a further increase in the public spending ratio. Instead, growth-friendly changes in the structure of public expenditures should be given high priority. The ratio of taxes and social security contributions to gross domestic product has increased steadily since 2010. A **reduction in the contribution rate for the unemployment insurance scheme** and a **full reimbursement of the cumulative increase in tax revenues from bracket creep** in income taxation could ease the tax burden, particularly on the middle-income class.

The fiscal situation of the Länder and municipalities

The general fiscal situation of the German Länder and municipalities has improved. However, there are large differences between them with still some Länder having excessive indebtedness. Future expenditure on civil servants' pensions will put pressure on Länder budgets. Payments into pension reserve funds should thus be shielded from politically motivated influences. Large stocks of municipal short-term liquidity loans remain concentrated in four non-city-states. The states should assume greater responsibility for their municipalities and, at the same time, monitor their fiscal management more closely. In future, therefore, municipal liquidity loans that have a maturity of more than one year should only to be possible from the Land, and should count towards the Länder deficit under the debt brake. As a general rule, the stricter European fiscal rules defining a budget deficit should be adopted for the German debt brake. This applies, for example, for a delimitation of public enterprises, since a large proportion of general government activity is outsourced. Furthermore, better data is required for assessing the public sector's fiscal situation.

I. FISCAL SUSTAINABILITY IN EUROPE

1st Long-term trend toward rising debt levels

520. The **public debt** levels of the member states of the European Monetary Union (EMU) and the G7 are still high. ↘ CHART 59 Additional expenditures during the financial crisis, in particular to stabilise the banking system, along with weak revenues have led to a strong increase. The rate of increase in debt-to-GDP ratios has slowed somewhat since 2012 – and has even fallen in a few EMU member states, e.g., in Germany and Ireland. Yet, the level of debt-to-GDP ratios in all major member states is still significantly **above the Maastricht criterion** – 60 % of nominal gross domestic product (GDP) – and is also high in the other G7 states.

However, rising debt-to-GDP ratios are not simply a recent phenomenon. In fact, the trend of rising debt-to-GDP ratios began in the 1970s and has continued across different economic cycles ever since. There is, however, **considerable heterogeneity** in debt levels among the highly developed economies. ↘ CHART 59

521. Intensive economic research has been conducted on the **reasons for changes in public debt**, examining which factors explain their development across time and the differences between countries (Holtfrerich et al., 2015; Expertise, 2007). Normative issues – i.e., when a state should run deficits and when it should consolidate – also play a role. However, the relevant literature does not always distinguish clearly between normative and positive explanatory attempts.

Public debt occurs as a result of **slowdowns in business cycles**, or it can be triggered by one-off events such as German unification or natural disasters. A temporary increase in public debt can be justified with the aim of **tax smoothing**, because, in times of large fluctuations in expenditure, tax financing leads to a relatively higher excess burden of taxation than keeping tax rates constant over time. Arguments of **intergenerational equity** are invoked especially with regard to the use of public infrastructure by future generations. **Political economic factors**, such as the political budget cycle or the overuse of the fiscal commons by different stakeholder groups, provide further explanation (Feld and Reuter, 2017).

However, high debt levels **reduce the government's fiscal space** to effectively counter adverse economic shocks. A high debt level also leads to high expenditure on debt servicing and exposes public finances to the risk of changing interest rates. ↘ ITEMS 377 FF. In addition, there is the threat of risk premiums, which in extreme cases can block a country's access to financial markets.

522. Against this background, it is necessary to analyse the fiscal sustainability of current fiscal policy and possible strategies for consolidation in different countries. Each case requires a **different methodological approach**. Deterministic approaches, e.g., examining debt-to-GDP ratios or sustainability indicators, provide for a first hint towards long-term challenges. In case of Germany, for exam-

ple, the long-term sustainability indicators point to the future challenges of demographic change. ↘ ITEMS 529 F. However, deterministic approaches ignore the fact that policy-makers can react to changing debt levels or expenditure over time, and that this in turn has an effect on the level of interest rates and economic growth.

523. Econometric methods can be used to analyse whether and how policy-makers responded to an increase in public debt in the past. ↘ ITEMS 532 FF. Fiscal policy is regarded as sustainable if expenditure and revenue – or primary surpluses and debts – are positively correlated. However, an analysis of EMU member states by the German Council of Economic Experts (GCEE) using different methodological approaches **does not provide unambiguous results**.

524. Deterministic and econometric approaches do not allow for conclusions on **possible consolidation paths**. This gap is closed by structural models which incorporate feedback effects of consolidation measures on economic growth and

↘ CHART 59

Debt-to-GDP ratios of selected countries[1]
% of GDP
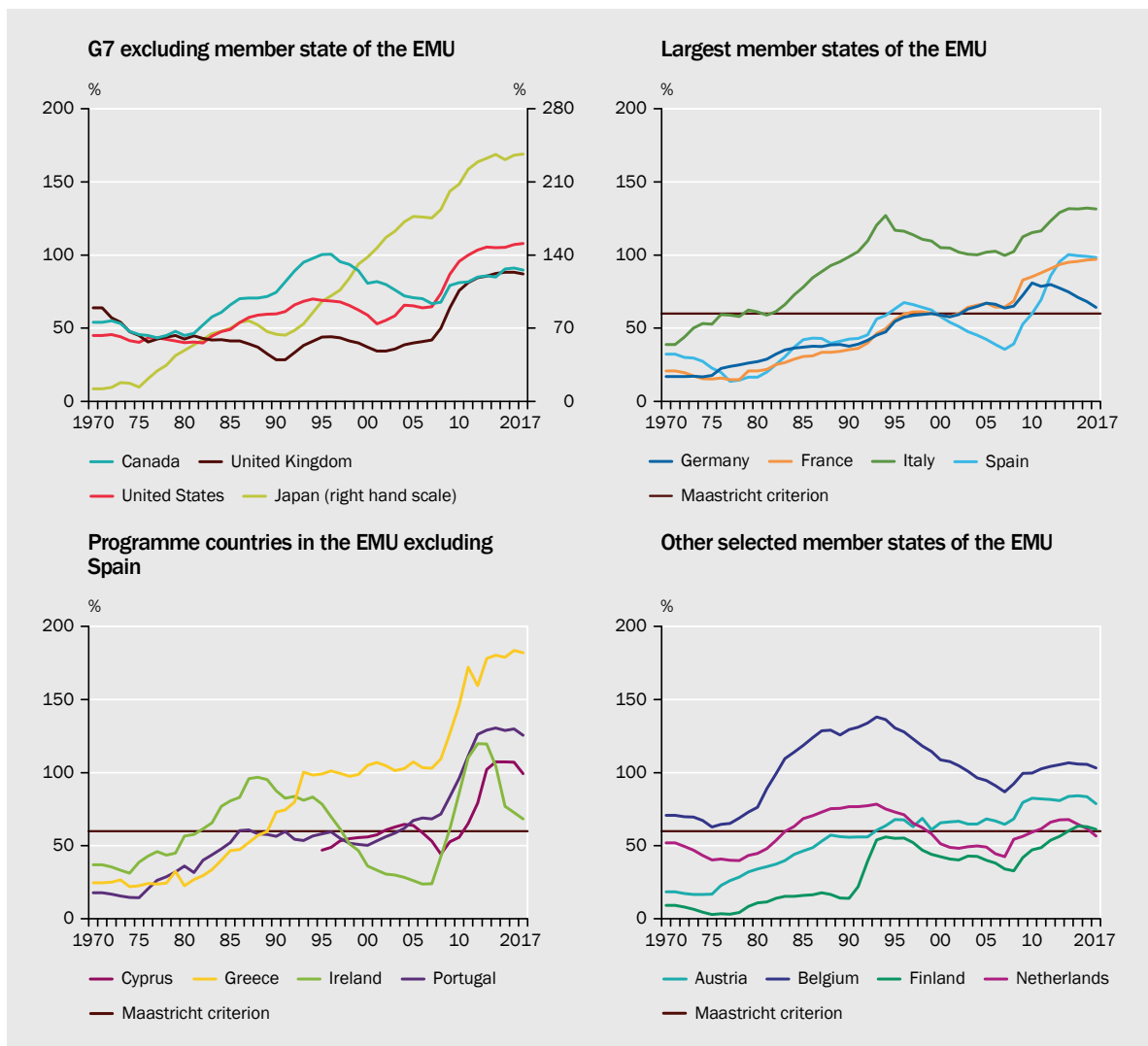
1 – Combinded data from the IMF World Economic Outlook and IMF Historical Public Finance Database.
Sources: IMF, Mauro et al. (2015), own calculations

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interest rates. Analyses show that the scope for a revenue-side consolidation is limited, for example in Germany and Italy. ↘ ITEMS 540 FF. Furthermore, above a certain debt level it is shown that even small debt increases can dramatically increase the likelihood of a default. ↘ BOX 16
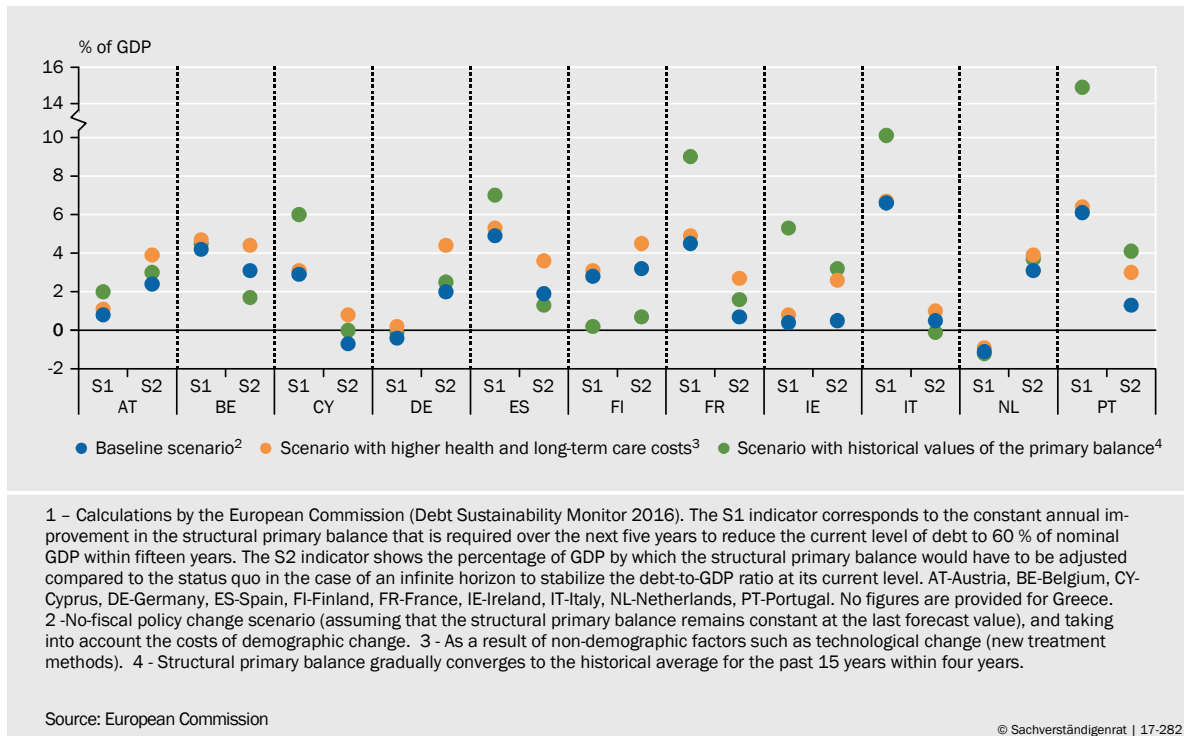
525. These approaches often ignore the fact that political economic incentives might exist, or that market distortions can induce governments **not to meet their payment obligations** before solvency limits are reached. ↘ ITEMS 550 FF. Countries have an incentive to act accordingly if the benefits from discontinued debt service outweigh the costs of default. Therefore, even lower debt-to-GDP ratios must be assessed as unsustainable in contrast to those suggested under the assumption of a constant willingness to pay. Particularly in a monetary union, an effective institutional framework is required to limit excessive public debt.

2. Evaluation of fiscal sustainability

526. The **debt-to-GDP ratio** provides for a **first impression of the sustainability of public finances**, but it entails no information, for example, about the timing of the payment obligations related to outstanding debt. As currently the case in Greece, this implies that a very high debt-to-GDP ratio can coincide with low payment obligations from debt servicing over a long time period. Furthermore, the ratio does not reveal whether a country's debt is rather domestic or foreign, or whether it is rather denominated in its own or in a foreign currency, even though this has an influence on the possibilities for debt reduction, e.g., by inflation. ↘ ITEM 557 Debt of the EMU member states is similar to debt in foreign currency.

527. In addition, the debt-to-GDP ratio only covers explicit debt; it does not take **contingent liabilities** into account. Among other things, these include guarantees undertaken by the general-government, liabilities from public-private partnerships, and liabilities of state-controlled outsourced facilities. However, data collection on contingent liabilities is neither complete nor uniform across countries. Furthermore, the debt-to-GDP ratio does not cover **future payment obligations** such as commitments of social security systems, e.g., pensions, which are increasingly important as a result of demographic change.

528. Alternative indicators are needed to take the effect of future fiscal burdens into account. This requires the definition of a fiscal-policy objective stating when sustainability would be met. The commonly used indicators are based on the **intertemporal budget constraint** (Schutt and Stoßberg, 2015). It is met when the present value of future surpluses over an infinite time horizon corresponds to the public debt accumulated in the past.

529. To assess sustainability, the European Commission uses the **indicators S1 and S2**, which are based on the intertemporal budget constraint. ↘ CHART 60 The S1 indicator, on the one hand, represents the constant annual improvement in the structural primary balance that is required over the next five years in order to reduce the current level of debt to 60 % of nominal GDP within 15 years. The S2

↘ CHART 60
Sustainability gaps in selected euro area countries[1]

1 – Calculations by the European Commission (Debt Sustainability Monitor 2016). The S1 indicator corresponds to the constant annual improvement in the structural primary balance that is required over the next five years to reduce the current level of debt to 60 % of nominal GDP within fifteen years. The S2 indicator shows the percentage of GDP by which the structural primary balance would have to be adjusted compared to the status quo in the case of an infinite horizon to stabilize the debt-to-GDP ratio at its current level. AT-Austria, BE-Belgium, CY-Cyprus, DE-Germany, ES-Spain, FI-Finland, FR-France, IE-Ireland, IT-Italy, NL-Netherlands, PT-Portugal. No figures are provided for Greece.
2 -No-fiscal policy change scenario (assuming that the structural primary balance remains constant at the last forecast value), and taking into account the costs of demographic change. 3 - As a result of non-demographic factors such as technological change (new treatment methods). 4 - Structural primary balance gradually converges to the historical average for the past 15 years within four years.

Source: European Commission
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indicator, on the other hand, corresponds to a **sustainability gap** indicating the percentage of GDP by which the general-government primary balance would have to be adjusted compared to the status quo over an infinite horizon in order to stabilise the debt-to-GDP ratio at its current level. The indicator is zero if the debt-to-GDP ratio remains constant, conditional on policies remaining unchanged. Both indicators, S1 and S2, must be taken into account to assess the sustainability of public finances. While the S2 indicator is probably better suited for capturing the long-term challenges, it can go hand in hand with persistently high debt-to-GDP ratios. The S1 indicator, on the other hand, shows what efforts are needed to reduce the currently high debt levels.

530. According to these indicators, **sustainability gaps exist in the majority of EMU member states** in 2016. ↘ CHART 60 There are large differences between the medium-term S1 and the long-term S2 indicator in some member states. For example, the adjustment required for Germany is relatively greater according to the S2 indicator than according to the S1 indicator because of the heavy future burden due to demographic change. By contrast, the picture in Italy is reversed. Whereas the S1 indicator reveals a very large need for adjustment, because the current debt level is far above the limit prescribed by the respective Maastricht criterion, the need for adjustment is small in the case of the S2 indicator. This is due to Italy's transition to a notional contribution-based pension system with a retirement age that is linked to rising life expectancy. On a cautionary note, an assessment of sustainability on the basis of these indicators depends on the extent to which reform measures, once decided upon, are maintained and not reversed.

The GCEE has used the S2 indicator several times in the past, most recently to analyse the possible permanent influence of the refugee influx (GCEE Annual Report 2015, items 692 ff.; Aretz et al., 2016) and the need for reform of the public pension system (GCEE Annual Report 2015, items 559 ff.; 2016, items 592 ff.; Werding, 2016). Among other things, due to an extended projection period up to 2080, the sustainability gap of these analyses for Germany is higher (at 4.2 % of GDP) than in the calculations of the European Commission (2 %) over a projection period up to 2060. This reveals the continuing need for consolidation in Germany in view of demographic developments.

531. These deterministic indicators of fiscal sustainability have the additional disadvantage that essential parameters that determine future debt development are set exogenously. This holds in particular for imputed GDP growth rates or interest rates a country faces when refinancing its debt. Creditors base their decisions on the demanded interest rates on the **default probabilities of sovereign debt**, which themselves depend, among other things, on future refinancing requirements. Rising refinancing requirements during the terms of sovereign bonds therefore lead to higher interest rates. This in turn increases the refinancing requirements in future periods.

In such a **self-reinforcing process**, **debt-to-GDP ratios can become too high** unusually **quickly** (Feld and Scheuering, 2017). This puts fiscal policy in a difficult position because, on the one hand, it must respond with a significant increase in primary balances to send a credible signal that a country will reduce its debt in the future. However, at the same time, the measures taken to increase revenues or to reduce expenditures must not have an overly negative effect on general macroeconomic conditions, because these also influence the creditors' assessment of fiscal sustainability. The detailed design of a budgetary consolidation strategy is thus of great importance. Huang and Xie (2008) model the relationship between the debt-to-GDP ratio, refinancing costs, and GDP growth rates in a general equilibrium model; they show that it is not enough to target a sustainable debt-to-GDP ratio. Rather, countries should monitor the growth of their expenditures, because tax increases have adverse effects on economic growth.

3rd Reactions of policy-makers to debt

532. A deterministic assessment of public debt ignores the fact that policy-makers **can react to changing levels of debt or expenditure**. A second step towards assessing fiscal sustainability therefore consists in analysing past fiscal policy reactions. Various econometric methods can be used to assess the direction and extent of these reactions, based on data for the period from 1950 to 2016 (Feld et al., 2017a).

533. Furthermore, these procedures are an important component both of the analyses by the European Commission and the IMF, and of the academic literature on the sustainability of public debt, fiscal space or fiscal limits (European Commission, 2017a; Berti et al., 2016; Ghosh et al., 2013). In this context the **fiscal**

limit is defined as the debt-to-GDP ratio above which an exceptional response (by historical comparison) by policy-makers to the debt levels would be necessary in order to prevent an explosion of debt. The **fiscal space** is the difference between the current debt-to-GDP ratio and the fiscal limit. The concept of fiscal space is used by the European Commission to assess the fiscal stance of the EU and its individual member states (European Commission, 2016). ↘ BOX 17

534. A first step of econometric procedures, a **stationarity test,** checks whether public debt or primary deficits increase or decrease over time relative to nominal GDP (i.e., are non-stationary) or develop independently of time (i.e., are stationary). If public debt is stationary, its discounted present value tends to zero and a necessary condition for the intertemporal budget constraint is met. This type of testing normally requires a large number of observations to obtain meaningful results. However, this is not always the case, in particular regarding data at the national level.

535. It is not possible to find unambiguous results with respect to the stationarity of debt for any country in the euro area between 1950 and 2016. ↘ TABLE 25 As such, this indicates that the public finances are not sustainable in these countries. The results for various countries change when the tests are applied over different periods of time, e.g., only for the years after 1990 or only up to the financial crisis. Even when controlling for breaks in the time series – for example based on the Zivot-Andrews test – the results of the tests are heterogeneous (Feld et al., 2017a). This shows how **sensitively** the **test results** react to the choice of the sample.

536. In a second step, **cointegration tests** examine whether revenues and expenditures moved in a long run synchronicity in the past. This can mean, for example, that policy-makers have responded to increases in expenditure with an increase in revenue, or to falls in revenue with expenditure cuts. Looking at the euro area, such a relation can only be found for Germany, France, the Netherlands and Portugal. ↘ TABLE 25 If the same data are tested with **error correction models** that can also measure the deviation from the long-term equilibrium and the strength of the response, the kind of relation that indicates sustainability can only be found for the Netherlands and Portugal.

537. **Model-based sustainability analyses** examine whether governments reacted to a rising debt level with an increase in the primary balance in the past. In a theoretical approach, Bohn (1995, 1998) shows that every significantly positive reaction indicates sustainability, whatever its size. According to this approach, therefore, sustainability is already given if a country that is forced to consolidate by a high debt level actually initiates measures to improve its primary balance. Fiscal reaction functions based on Bohn (2008) that control for the economic cycle show a significantly positive reaction by the primary balance to the debt at the highest significance level for Belgium, Ireland, Italy, Slovakia and Spain. ↘ TABLE 25 In these countries, therefore, policy-makers in the past responded to an increase in the debt-to-GDP ratio with an increase in their primary balances. This would point to a sustainable fiscal policy, although in the case of Belgium, Italy and Spain it contradicts results from the other tests.

538. In addition, based on long time series beginning in 1800, Mauro et al. (2015) show that a country's reaction to the debt level is by no means constant. For example, the coefficient for Germany is not different from zero in estimates using data from 1950 to 1990, yet positive and significant from 1990 to 2016 (Feld et al., 2017a). Such differences in a country over time are frequently due to different **institutional frameworks**. If structured in a certain way, these can restrict political economic incentives for governments to allow for high deficits, and induce a stronger reaction to rising debt levels. Feld et al. (2017a) confirm that institutions – such as fiscal rules or the design of the budgetary process – are important for the estimated reactions.

↘ TABLE 25

Econometric tests of the policy response to indebtedness in the member states of the EMU[1]

Country	Stationaritaty[2]						Expenditure and revenue[3]		Reaction of primary balance to the level of debt
	Debt[3]			Primary balance[3]			Cointegration[4]	VECM[5]	Bohn[6]
Zeitraum	1950–2016	1990–2016	1950–2006	1950–2016	1990–2016	1950–2006	1950–2016	1950–2016	1950–2016
Belgium									0,028 ***
Germany									0,001
Estonia[7]									0,015
Finland									0,016
France									−0,010
Greece									0,008 *
Ireland									0,042 ***
Italy									0,010 ***
Latvia[7]									0,049 **
Lithuania[8]									0,076 **
Luxembourg[9]									−0,028
Malta[10]									0,162 *
Netherlands[11]									0,020 *
Austria									0,005
Portugal									0,014 *
Slovakia[8]									0,138 ***
Slovenia[8]									−0,044 ***
Spain									0,018 ***
Cyprus[7]									0,041

1 – See Feld et al. (2017a) for details on the methodology. 2 – Stationarity tests: Augmented-Dickey-Fuller test, Phillips-Perron test and Kwiatkowski-Phillips-Schmidt-Shin unit-root test. In the event of stationarity at the 5 % level in all three tests (with or without trend) = ▮, in the event of stationarity in two of the three tests = ▮, in the event of mixed results = ▮, if integrated of order 1 in two of the three tests = ▮, if integrated of order 1 in all three tests = ▮. 3 – As % of GDP respectively. 4 – Johansen cointegration test. In the event of cointegration = ▮, if results are mixed = ▮, in the absence of cointegration = ▮, no symbol if time series is too short. 5 – Vector Error Correction Model (VECM). In the event of cointegration = g, in the absence of cointegration = g. 6 – Reaction coefficient from country-specific Bohn MBS test. In the event of a positive significant reaction of the primary balance to debt = ▮, in the event of no positive and no significant or non-significant reaction = ▮. 7 – From 1999. 8 – From 1996. 9 – From 1995. 10 – From 2001. 11 – From 1951.

***, ** and * denote significance at the level of 1 %, 5 % and 10 %.

Source: Feld et al. (2017a)

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539. Overall, this econometric approach **does not allow for a uniform assessment** of governments' reactions to rising debt levels and thus of the sustainability of public finances. The results vary across the test procedures, the observed time periods and the countries. But they do confirm the doubts on sustainability in various member states. Even so, these econometric procedures offer an insufficient basis for reliable calculations of the fiscal space or fiscal limits. The reliability of such calculations is particularly doubtful because the reactions of the financial market participants can be sudden when there is a change in the fiscal environment. ↘ BOX 16

4. Revenue-side consolidation options

540. Countries can use suitable consolidation measures to try to reduce their debt levels and thus send out a credible signal about their fiscal policy's soundness. Analyses using **structural macroeconomic models** provide information on the effects of such measures (Cogan et al., 2013). For example, differences emerge depending on which taxes are increased or the expenditure categories in which cuts are made. Consolidation programmes on the expenditure side are often more growth-friendly than measures taken on the revenue side (GCEE Annual Report 2013, items 209 ff.). These analyses take into account the fact that economic actors adjust their behaviour, and this, in turn, influences an economy's scope for consolidation.

541. In models which consider revenue-side consolidation measures, there is a functional relation between the tax rate and the corresponding tax revenue. This relation can be illustrated with **'Laffer curves'**: starting with low tax rates, tax hikes initially lead to increases in revenue. The negative incentive effects of taxation are small at low tax rates. Because of these incentive effects, however, a higher tax burden tends to reduce the tax base, particularly labour or capital income. Starting from a certain level, a further increase in the tax rate leads to lower instead of higher tax revenue, because the disincentives become too strong. In addition, a tax rate that maximises revenue usually differs from the welfare-maximising tax rate. In order to determine the latter, efficiency and distribution effects in particular would have to be taken into account.

542. The fundamental idea that the maximum level of tax revenue is limited by incentive effects is probably relatively undisputed. However, there is considerable uncertainty about the shape of the Laffer curve in an economy. It depends on many factors, in particular the preferences of private households. Laffer curves can be calculated within a structural model (Trabandt and Uhlig, 2011). Such an analysis shows that many European economies are closer to their maximum tax revenues subsequent to the financial crisis than on average for the previous fifteen years (Trabandt and Uhlig, 2012). The **possibilities for further increases in revenue** have therefore **been reduced**.

543. The limited possibilities of increasing revenues by means of higher tax rates form the basis of a sustainability analysis based on the **fiscal limit** (Bi, 2012; Bi and Leeper, 2013). This limit can be determined by stochastic simulations of a

calibrated structural model; it provides information on which debt level would still just be in line with the government's intertemporal budget constraint. ↘ BOX 16
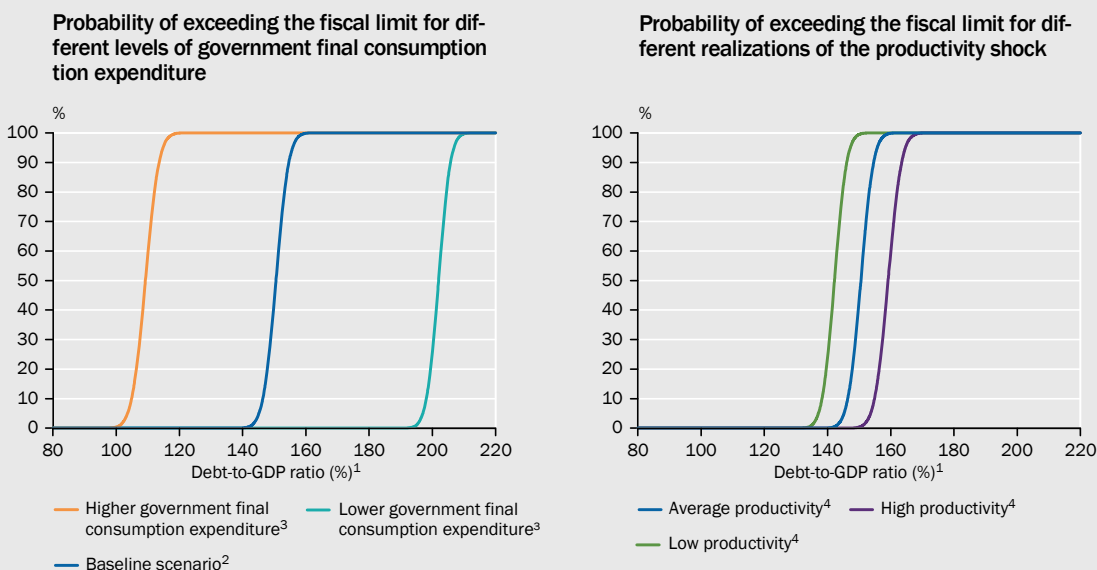
↘ BOX 16

Simulation of the fiscal limit on the basis of a structural model

A calibrated structural model of an economy is used in order to determine the fiscal limit as described by Bi (2012) or Bi and Leeper (2013). The future development of public expenditures on consumption and transfers is depicted by stochastic processes, as is the productivity of the economy. Public expenditure is contrasted to the maximum possible tax revenue in each period. The latter is determined by a Laffer-curve relationship for the income tax. From the figures for expenditure and revenue results the general-government primary balance for each period. The discounted sum of the primary surpluses can be used to calculate the debt level that is still just in line with the **intertemporal budget constraint**. Because a large number of simulations is examined, the fiscal limit is shown as a probability distribution across the different debt levels.

The distribution depends on various parameters. General government expenditure, for example, must be financed via taxes. The higher the **general government expenditure**, the greater the probability that the future tax revenue will not be sufficient to meet the intertemporal budget constraint. ↘ CHART 61 LEFT In addition, the fiscal limit is state-dependent. For example, it is low when an economy is in a weak cyclical phase, during which the government can only generate little revenue. ↘ CHART 61 RIGHT

↘ CHART 61
Simulation of the fiscal limit according to Bi (2012)

Probability of exceeding the fiscal limit for different levels of government final consumption expenditure

Probability of exceeding the fiscal limit for different realizations of the productivity shock

— Higher government final consumption expenditure[3]
— Lower government final consumption expenditure[3]
— Baseline scenario[2]

— Average productivity[4]
— High productivity[4]
— Low productivity[4]

1 – In relation steady-state GDP. 2 – Parameterization of the baseline scenario based on the values from Bi (2012) for the average of a group of 19 OECD member states. 3 – In the steady state, the ratio of government final consumption expenditure to GDP is 21.3 % in the baseline scenario, 18 % in the scenario with lower expenditure, and 24 % in the scenario with higher expenditure. 4 – Results for the baseline scenario. The diagram shows the values for the steady state of productivity (average productivity), as well as for realizations of the productivity shock, which are two standard deviations above or below this value.

Sources: Bi (2012), own calculations

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Bi (2012) uses the concept of the fiscal limit to explain the increase in risk premiums on sovereign bonds. She does not use a threshold value; rather, she characterises a marginal area of debt-to-GDP ratios within which the probability of **defaulting on the outstanding sovereign bonds** rises sharply. Investors form expectations regarding the distribution function and demand corresponding risk premiums. The shape depends on the parameters of the stochastic processes in the model. For many par-
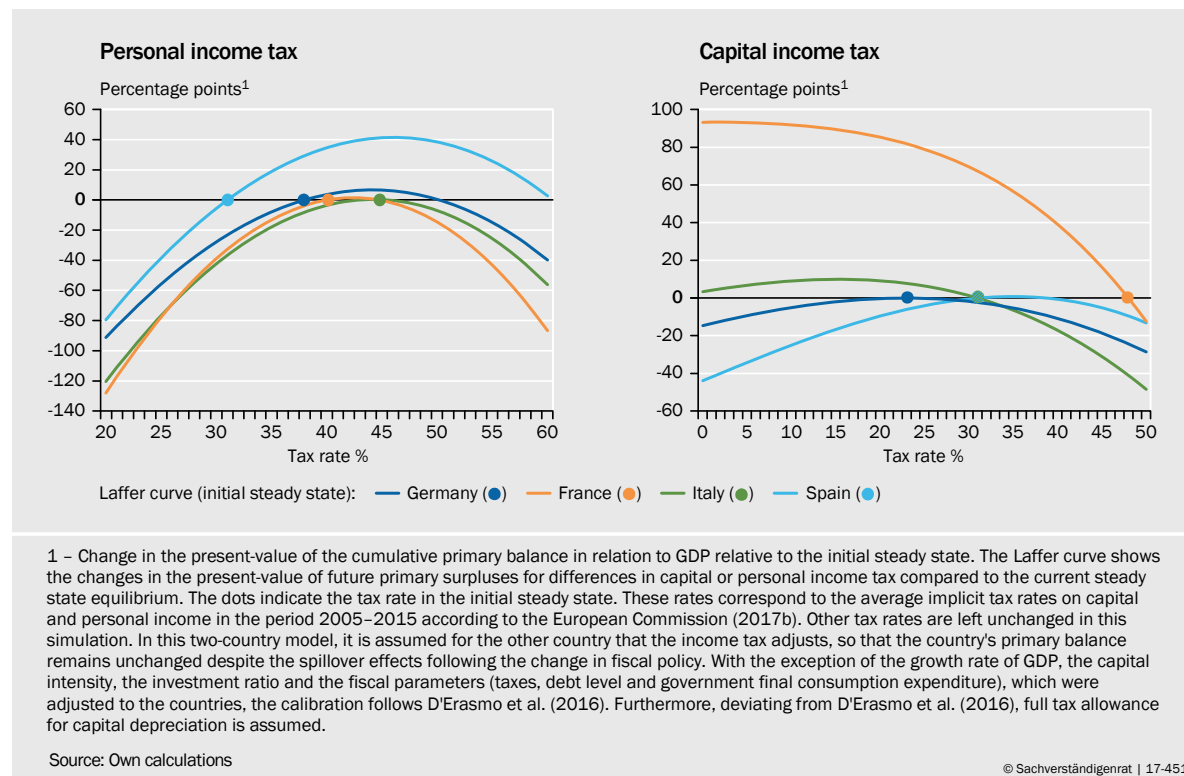
ametrisations the probability of a default increases dramatically above a certain debt level, even when there are only small changes in debt. Because of investors' expectations, this leads to non-linear increases in risk premiums. Bi and Traum (2014) note that an estimated version of the non-linear model is consistent with the rise in interest rates in Greece in 2011.

544. In addition, Mendoza et al. (2014) and D'Erasmo et al. (2016) point to the **importance of the international economic environment for consolidation possibilities**. International externalities, such as an outflow of capital as a reaction to tax increases on capital income, influence the revenue that can be generated by unilateral tax increases and can additionally restrict consolidation options in an open economy.

545. In a two-country model for the United States and Europe, D'Erasmo et al. (2016) note that the possibilities of generating higher revenues through a unilateral increase in personal income taxes are reduced in both economies **because of their economic openness**. The same applies to taxes on capital income. Whereas a tax increase in the United States would generate only little additional revenue, since it already has a relatively high tax rate at the outset, the tax rate in Europe is already above the revenue-maximising level.

546. In a two-country model for the **euro area**, Mendoza et al. (2014) find that an increase in the capital income tax would not lead to noticeable increases in revenue in the member states particularly affected by the crisis. By contrast, the prospects for higher revenue would improve if personal income taxes were increased. However, such a unilateral increase would have clearly **negative effects on growth and welfare**. In addition to looking at unilateral tax increases, Mendoza et al. (2014) consider the effects of countries coordinating their tax rates. Although this would increase the scope for revenues, such coordinated behaviour is probably not credible, because unilateral deviations can be beneficial.

547. Using the model of Mendoza et al. (2014) for an analysis of individual, large member states compared to the rest of the euro area, **differences emerge in the scope that remains** for generating more revenue by one-off, unilateral adjustments of tax rates. ↘ CHART 62 LEFT Whereas Spain can still generate considerable additional revenue by raising personal income tax rates due to its initially relatively low taxation, this scope is virtually exhausted in Germany, France and Italy. At the same time, an increase in the income tax rate would lead to a significant reduction in the long-term level of GDP, mainly as a result of reduced labour supply. According to the results obtained from this model, Spain's economic output would fall by 19 % if the tax rate were increased to the revenue-maximising level.

Similarly, there is also relatively little scope for increasing revenue when it comes to capital income taxes. ↘ CHART 62 RIGHT According to the model, only France, whose tax rate is above the revenue-maximising level, could significantly increase revenue by cutting capital income tax rates which increases GDP with positive repercussions on revenues.

Additional revenue achievable following unilateral changes in tax rates in the model of D'Erasmo et al. (2016)

1 – Change in the present-value of the cumulative primary balance in relation to GDP relative to the initial steady state. The Laffer curve shows the changes in the present-value of future primary surpluses for differences in capital or personal income tax compared to the current steady state equilibrium. The dots indicate the tax rate in the initial steady state. These rates correspond to the average implicit tax rates on capital and personal income in the period 2005–2015 according to the European Commission (2017b). Other tax rates are left unchanged in this simulation. In this two-country model, it is assumed for the other country that the income tax adjusts, so that the country's primary balance remains unchanged despite the spillover effects following the change in fiscal policy. With the exception of the growth rate of GDP, the capital intensity, the investment ratio and the fiscal parameters (taxes, debt level and government final consumption expenditure), which were adjusted to the countries, the calibration follows D'Erasmo et al. (2016). Furthermore, deviating from D'Erasmo et al. (2016), full tax allowance for capital depreciation is assumed.

Source: Own calculations

548. The Laffer curves for capital-income taxes are **highly sensitive to the model specification**. Unlike Trabandt and Uhlig (2012), Mendoza et al. (2014) and D'Erasmo et al. (2016) take into account the possibility of a variable utilisation of the existing capital stock. The more the level of capital utilisation reacts to changes in the capital income tax rate, the smaller the revenue increases through tax hikes. The analysis by Cogan et al. (2013) shows that variable capital utilisation boosts the positive growth effects of a personal income tax cut. While D'Erasmo et al. (2016) conclude that the capital income tax rates in the EU are above the level that maximises tax revenue, Trabandt and Uhlig (2012) state that, despite the fact that the taxation of capital income is high by international comparison, revenue can be increased slightly by raising tax rates on capital income. While, according to the model, substantial increases in revenue are not to be expected in Europe from higher personal income tax rates , there is still **significant uncertainty** about the impact of higher or lower taxes on capital income.

549. Structural models still paint a simplified picture of **complex economic relationships**. Many assumptions have to be made, particularly for the quantitative analysis. With respect to the analyses mentioned here, it must be noted in particular that the tax system is far more complex in reality and that, for example, not all tax schedules have a fixed linear marginal tax rate like in the models. At the same time, the assumptions made in the calibration of the tax rates as a result of this modelling decision are of great importance for the quantitative results. Nevertheless, despite all the limitations, these analyses provide important insights as to the existing challenges for consolidation. On the one hand, they reveal consolidation possibilities; on the other hand, they support the conclusion

that the scope for further revenue increases through tax hikes is limited. This only leaves expenditure-side measures to achieve sustainable public finances.

5. Further restrictions on sustainability

550. Analyses of fiscal sustainability based on the approaches presented above pay too little attention to other aspects. First, structural breaks and one-off events can hardly be depicted. Second, the approaches often ignore the fact that political economic incentives might exist, or that market distortions can lead to governments **not to meet their payment obligations**.

551. The ranges of plausible scenarios for sustainability analyses and the econometric estimates are based **on historical developments**. Similarly, the structural models are based on assumptions that in turn stem mostly from experience. This can mean that rare, **extreme events**, such as the global financial crisis of the years 2007 and 2008, are not sufficiently captured by the analysis. Needless to say that such events have an enormous impact on the financial situation of the countries concerned, especially in the short and medium term.

552. The approaches for sustainability analyses presented up to now do not sufficiently consider crises and upheavals on the financial markets. The isolated observation of a public debtor's ability to repay its debt neglects the relevance of the **access to financial markets in order to refinance** due debts. Liquidity crises involving a loss of access to the market could be caused by misjudgements on the financial markets.

They can also be triggered by the **existence of multiple equilibria** on the market for sovereign bonds (Chatterjee and Eyigungor, 2012; Cole and Kehoe, 2000; Detragiache, 1996). **Self-fulfilling expectations** on the part of investors can lead to default because investors refuse to refinance. This can be the case, for example, if they assume that other investors will act in the same way, even if the fundamental data made an equilibrium involving debt repayment possible. The risk of such defaults further reduces the debt levels that actually guarantee repayment. Under certain circumstances, the central bank of an economy with debts in its own currency can avert the default due to multiple equilibria by monetary-policy measures (Corsetti and Dedola, 2016). However, this frequently leads to monetary financing of government budgets (Uhlig, 2015).

553. Furthermore, lenders such as the IMF or the European Stability Mechanism (ESM) can prevent default in the event of a loss of market access. The existence of an official crisis facility with sufficient financial strength can influence market expectations and prevent the outbreak of a liquidity crisis (Weder and Zettelmeyer, 2017). Protecting the crisis mechanism from the costs of an insolvency does not only require stringent conditions for the provision of official loans, but also requires an **orderly restructuring of sovereign loans** within the framework of crisis programmes (JG 2016 Kasten 2; Andritzky et al., 2016). Such restructuring is all the more difficult the greater the interdependence between governments and banks (GCEE Annual Report 2015, items 52 ff.).

554. The economic literature on credit defaults emphasises both a country's ability to pay and its government's **willingness to pay** (Aguiar and Amador, 2014). The principle of state sovereignty makes it difficult to enforce payment claims against the governments' will. This brings the **political economic incentives for debt repayment** to the centre of attention. States have an incentive to settle their debts if the costs of a default exceed the benefits of no longer servicing the debt. If this is not the case, a country may **refuse to pay even before the limits of solvency are reached**. Lenders take this cost-benefit-analysis by governments into account when making their investment decisions, demanding correspondingly higher risk premiums on the interest rates of sovereign bonds.

555. One of the main **costs of a default** is the (temporary) loss of access to new loans on the international financial market. Another consequence might be interest premiums for countries with a negative credit history. These financing constraints can have an impact on domestic businesses and lead to a decline in economic output. The international exchange of goods between the economies concerned could be impeded by a lack of credit and additionally restricted by explicit sanctions imposed by creditors. If the default leads to upheavals in the domestic banking system, this can result in higher costs for the domestic economy. In addition, creditors have certain legal options for the de facto enforcement of repayment (Schumacher et al., 2012). The **economic costs** are compounded by **political costs** for the country's incumbent government, for example by being not re-elected (Borensztein and Panizza, 2009).

556. The literature investigates which aspects influence the **government's decision not to meet its payment obligations**. These include for example the currency and maturity of the incurred debt, the costs involved by a default, and the detailed arrangements of the agreement between creditors and debtors following the default (Aguiar et al., 2016). After the 1950s, crisis-driven debt restructuring initially only happened in emerging countries (Das et al., 2012), although the behaviour of the Greek government in the first half of 2015 can serve as another example.

557. While many of these studies deal with defaults vis-à-vis external creditors, Reinhart and Rogoff (2011) document the high proportion of **domestic debt**. In general, in this context there is the additional possibility of an implicit default, e.g., as a result of higher inflation. In a common currency area with an independent central bank, this is no longer possible due to the loss of monetary authority. In addition, the decline in income from seignorage can be fiscally significant, especially for member states that previously experienced high inflation. Between the 1950s and the early 1980s, seignorage accounted for an average of 2.3 % of GDP in Italy and 1.8 % in Spain, compared to 0.8 % in Germany and 1.1 % in France (King and Plosser, 1985). Apart from the currency in which debt is held, **the debt distribution amongst creditors** can also play a role. In a model with domestic creditors, D'Erasmo et al. (2016) show that the incentive to repay debt – and thus the level of sustainable debt – falls when debt is concentrated on a small number of creditors, and the government has a preference for redistribution.

6. Conclusion: Strengthening the institutional framework

558. Overall, the relevant literature and the analyses conducted by the GCEE point to many factors that affect fiscal sustainability. It cannot be unambiguously stated for **any of the euro area member states** that their public finances are **sustainable**. For example, deterministic processes reveal sustainability gaps. Nor can econometric methods provide clear-cut results on the sustainability of public debt in the euro area. Structural models underline the risk of a sudden increase in the default probability and point to the need to keep a safety margin with respect to debt-to-GDP ratios. Furthermore, the models offer evidence that revenue-side consolidation possibilities are limited. It is unlikely that excessive public debt in the euro area can be reduced without expenditure-side consolidation.

559. In addition, the high level of indebtedness in the euro area raises doubts as to whether the member states would be able to effectively counter a new economic shock. When the initial level of the debt-to-GDP ratio is high, there is an increased likelihood of self-reinforcing processes on the bond markets, leading to a new debt crisis (Feld and Scheuering, 2017). Therefore, there is an urgent need for member states to take action to reduce their public debt, especially since **insufficient use has been made of currently favourable economic times**. Last but not least, political economic incentives and the institutional framework play a major role in fiscal sustainability. Political economic factors relating to common fiscal resources, as well as elections and political competition, are important causes of the heterogeneous and continuously rising level of debt. In this environment, the institutional framework, e.g., fiscal rules or fiscal councils, can help counter the adverse political economic incentives. However, the peculiarities of EMU as an association of sovereign states must be taken into account in this context.

560. Alongside rigorous fiscal rules or fiscal councils, it is essential that these institutional instruments include regulations on the orderly restructuring of sovereign lending and the removal of privileges for sovereign bonds. Both of these institutions aim at increasing market incentives to avoid excessive public indebtedness. The GCEE has submitted a **proposal for phasing out banking regulations that privilege sovereign bonds** (GCEE Annual Report 2015, items 52 ff.), as well as a **proposal for a mechanism to regulate sovereign debt restructuring** for the member states of the euro area, which defines rules for an orderly restructuring in the event of a crisis (GCEE Annual Report 2016, item 56). The latter aims at counteracting incentives for excessive indebtedness in anticipation of a bail-out or the mutualisation of debt. In this annual report, the GCEE considers options for the further development of the ESM that is currently being discussed under the keyword '**European Monetary Fund**'. ↘ ITEMS 122 FF.

561. Nevertheless, **fiscal rules or fiscal councils** can effectively support the consolidation process. They were strengthened at national and European levels after the debt crisis in the EU. Relating to fiscal rules, a large number of empirical studies exist at the national and sub-national level documenting the fundamental **effectiveness of fiscal rules** (Burret and Feld, 2017a; Heinemann et al.,

2017; Feld and Reuter, 2017). These rules have an effect even if they are not always followed. The limit fixed in the respective rules serves as an anchor for the public, the media and agents on financial markets. As a result, political decision-makers also use them for orientation, and the variables limited by the rules converge over time towards the numerical limits (Reuter, 2015). However, this is not in line with the original idea of the rules, which define maximum values, not only targets.

562. In order to effectively limit the deficits, therefore, it is necessary to make **monitoring and sanctioning systems** stricter. The fixed limits should differ from the target values of fiscal policy and not be exceeded on a regular basis, but only in the rarest of cases. The new regulations are yet to be tested at the European level, since these rules have only been in force for a few years. The European Council and the European Commission should insist on strict adherence, and impose sanctions where appropriate, to increase the credibility of the rules. More independent monitoring and implementation of the rules at the national level would also tend to encourage stricter compliance (Reuter, 2017).

563. The European and many national rules should be simplified to ensure that they work effectively as an anchor. ↘ INTEMS 95 FF. There should not be any increase in **flexibility or exceptions**, as discussed in Germany and at the EU level, as these also encourage the active use of ways to circumvent the rules (Milesi-Ferretti, 2004; Von Hagen and Wolff, 2006) and moving public expenditure or borrowing to downstream levels of government (Burret and Feld, 2017b).

564. **Functioning fiscal oversight** is essential to ensure the strict implementation of the rules, strengthen public awareness and prevent circumvention (Christofzik and Kessing, 2014). **Fiscal councils** were introduced in all EU member states after the debt crisis to strengthen national supervision. However, they are heterogeneous in design, and in many cases not strong enough to reinforce existing fiscal rules (Yeter, 2017). In order to be credible and effective, these institutions must be independent and better integrated into the national budget process. In addition, the mandate of national fiscal councils could be systematically extended by adding regular, independent spending reviews. This could protect productive parts of the budget from cuts in favour of unproductive parts, and prevent a problematic composition of the overall budget.

565. At the European level, the **European Fiscal Board** (EFB) was introduced in 2016. Unlike the national fiscal councils, its main task is to advise the European Commission on its responsibility for enforcing the European fiscal framework. Against this background, the Board's independence is in question, since it is located within the European Commission, its personnel are former staff members of the European Commission, and it lacks resources of its own. It also remains to be seen whether the EFB will be effective, how visible it will be to the general public, and how it will interact when there are conflicting opinions among the national fiscal councils, e.g., on the subject of a national fiscal stance. ↘ BOX 17 Nevertheless, additional powers – e.g., the right to determine independently whether the EU fiscal rules are being complied with – could be assigned to the

EFB; or a role in the evaluation of the fiscal adjustment programmes could be assigned to the ESM (Asatryan et al., 2017).

> ↘ BOX 17

Fiscal stance for the euro area: a problematic concept

Since November 2016, the European Commission has recommended a specific form of fiscal stance for the euro area (European Commission, 2016). This concept is given further significance by the fact that the newly founded European Fiscal Board is to evaluate it. The fiscal stance is calculated as the **sum of the changes in the country-specific structural budget balances**. Country-specific recommendations on the direction of fiscal policy are derived from the recommendation of a desired fiscal stance.

This proposal ignores the fact that in a monetary union with a common monetary policy, national fiscal policy should first and foremost pursue the objective of stabilising the national economy; after all, the member states have relinquished responsibility for monetary policy that they were previously able to direct towards reaching this objective. The idea of now also gearing fiscal policy towards the euro area is instead based on the following reasoning.

The European Commission (2016) claims that the common monetary policy is not enough when the nominal interest rate is restricted by a zero lower bound for a longer period of time. In this case, it claims, fiscal policy is especially effective (Blanchard et al., 2014). In particular, the Commission hopes that countries with no fiscal space will benefit from spillover effects from an expansionary fiscal policy in the other member states. In this context, the Commission is prepared to accept an **overheating of the economy** in some member states in order to stabilise the economy in other member states. In addition, it expects a faster convergence of wages and competitiveness within the euro area, the aim being to help the ECB reach its inflation target.

This line of argument does not stand up to critical scrutiny for the following reasons. The concept of a fiscal stance is based on the idea that the economic cycle can be stabilised by central fine tuning. Past experience shows that control of the economic cycle by policy-makers cannot be assured and that **attempts at fine tuning are likely to do more harm than good**. Even determining the position in the economic cycle is an extremely difficult task. Then there are additional uncertainties relating to the effectiveness of fiscal-policy measures and delays in their implementation (Blinder, 2006). On the other hand, automatic stabilisers without discretionary interventions by the government have an anticyclical effect (Dolls et al., 2012; Elstner et al.2016).

Furthermore, **spillover effects** from an expansionary fiscal policy in one member state to other member states of the euro area are also highly questionable (GCEE Annual Report 2015, items 341 ff.). Simulations show that even a substantial increase in public investment in Germany of one percentage point of GDP will **only generate muted stimuli** for most member states (Ademmer et al., 2016; Deutsche Bundesbank, 2016a). Certainly, national fiscal multipliers are likely to have a much greater impact than spillover effects (IMF, 2017). Since the latter are not even symmetrical, divergences within the euro area would be further amplified. In Germany, the stimulus would have a procyclical effect. In addition, meaningful additional public investments would first have to be carefully identified.

As a general rule, **fiscal policy should remain a national responsibility**. Furthermore, the Commission's recommendation is in conflict with the aim of restoring sustainable public finances. It should therefore rather focus on monitoring the fiscal rules.
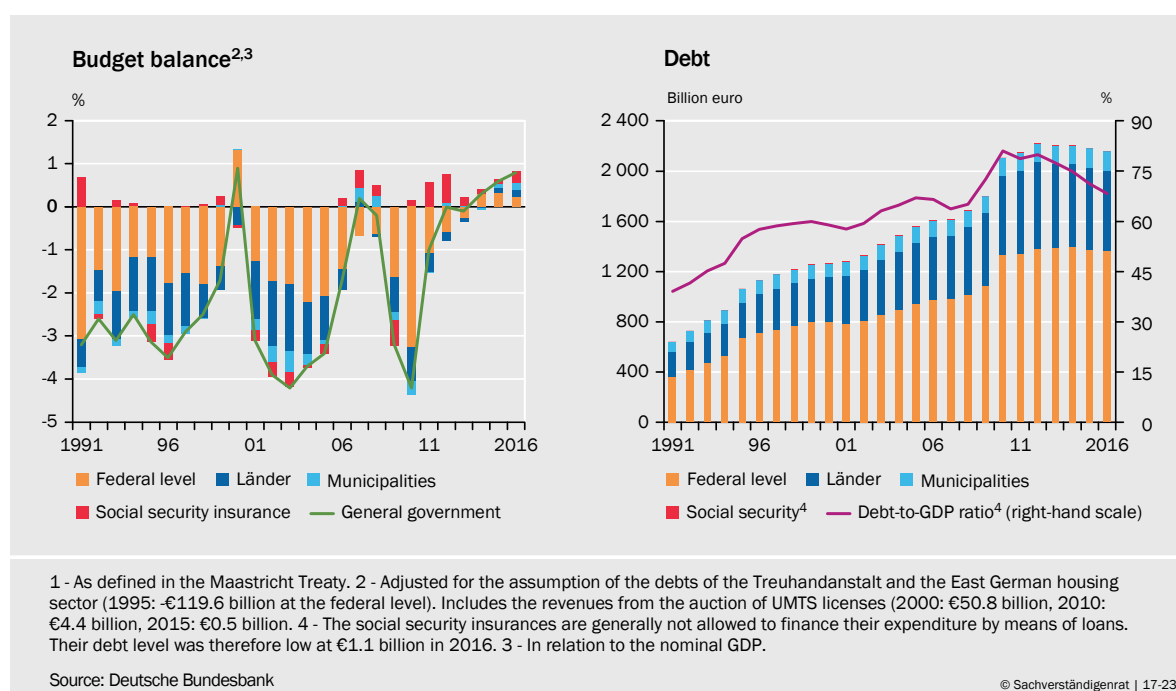
II. FISCAL POLICY IN GERMANY

1st Fiscal situation currently good, challenges remain

566. The fiscal situation of the public sector in Germany is currently good. There is likely to be a general-government **budget surplus for the fourth consecutive year**. This is not exclusively due to the favourable economic situation or to one-off effects; it also stands up to structural analysis. ↘ ITEM 317 In the last two years, revenue exceeded expenditure at each level of government as well as in the social security system, for the first time since German unification. ↘ CHART 63 LEFT National and European deficit rules are thus currently being complied with.

567. The **debt-to-GDP ratio continues to fall** relative to its record level of over 80 % of nominal GDP in 2010 and is approaching the Maastricht debt threshold of 60 % of nominal GDP. ↘ CHART 63 RIGHT In its stability programme, the federal government plans to move below this threshold in 2020 for the first time since 2002 (BMF, 2017). If it keeps to this path, it will exceed the target for debt reduction (1/20 rule) of the Stability and Growth Pact.

568. Public finances are sustained in particular by the **encouraging development on the labour market**, reflected in high employment and a low unemployment rate, ↘ ITEM 306 the resulting dynamic revenues from taxes and social security contributions, and the **favourable financing conditions**. ↘ ITEMS 573 FF. This has made it possible to balance out the expansionary **spending policy** of the last few years. ↘ ITEMS 575 FF. However, when favourable financing conditions or the good economic situation end, the pressure on the public budgets will increase again. Due to additional challenges like demographic change, an **in-**

↘ CHART 63
Public-sector debt¹

1 - As defined in the Maastricht Treaty. 2 - Adjusted for the assumption of the debts of the Treuhandanstalt and the East German housing sector (1995: -€119.6 billion at the federal level). Includes the revenues from the auction of UMTS licenses (2000: €50.8 billion, 2010: €4.4 billion, 2015: €0.5 billion. 4 - The social security insurances are generally not allowed to finance their expenditure by means of loans. Their debt level was therefore low at €1.1 billion in 2016. 3 - In relation to the nominal GDP.

Source: Deutsche Bundesbank

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crease in the fiscal burden is already foreseeable (GCEE Annual Report 2016, item 592).

569. Furthermore, looking at aggregate figures hides the **heterogeneity** among the various social security funds and within the levels of government. Regarding the **social security system**, while the statutory pension insurance reported a deficit in 2016, the statutory health insurance, the social long-term care insurance and the Federal Employment Agency all generated surpluses.

The reserves at the Federal Employment Agency are expected to increase to about €18 billion this year. In part, these rising surpluses reflect a structural improvement on the labour market. As a result, the **contribution rate for unemployment insurance could be reduced**. The GCEE estimates the sustainable contribution rate at 2.5 %. ↘ ITEM 588

570. The Länder and municipalities have also succeeded in reducing their aggregate debt-to-GDP ratios over the last few years. A comparison **between the different Länder and the municipalities**, however, reveals big differences, for example in the scope and structure of their debts, in expenditure and in demographic development. ↘ ITEMS 589 FF. Furthermore, especially at the local level a considerable proportion of state activity takes place in public enterprises outside general government. ↘ ITEMS 607 FF.

2nd Background to the improved financial situation

571. Germany has had general-government budget surpluses since 2014. This is likely to continue during the forecast period. ↘ ITEM 313 From a historical perspective this is an **unusual development**. Since 1971, a year with surpluses has always been followed by quite a long period with deficits. The last time a phase with surpluses lasted more than a year was in the 1950s.

572. The situation of public finances was particularly tense between 2001 and 2005, when German economic growth was very weak and unemployment high. As late as 2003, the general-government budget deficit amounted to 4 % of nominal GDP. The fiscal situation has improved considerably since then. A general-government budget surplus of 1.1 % of GDP is expected next year. The budget balance will thus probably have increased by over 5 percentage points between the trough in 2003 and the situation in 2018. In order to be able to judge whether a sustainable recovery of the overall public budget has been achieved since then, the question arises as to the **reasons for this improvement**.

Improved structural primary balance

573. To answer this question, the general-government budget balance is first decomposed into three components: a cyclical and a structural component of the primary balance, and net interest expenditure. ↘ CHART 64 LEFT This reveals that the favourable financing conditions have significantly reduced the burden on the public budget. ↘ ITEMS 377 FF. Next year, general-government net interest expendi-

ture is expected to be about 0.8 % of nominal GDP; it has thus fallen by 1.7 per-centage points since 2003. Therefore, almost a third of the entire improvement of around 5,3 percentage points is the result of the lower net interest expendi-ture.

An analysis of primary balances shows the extent to which the favourable eco-nomic situation has contributed to the improvement of the budget balance. To determine the **cyclical component**, it is necessary to assess how strongly the general-government revenue and expenditure components relative to nominal GDP react to the business cycle. ↘ BOX 18 Particularly the tax ratio and social ben-efits other than social transfers in kind, which are large components, exhibit a sizeable elasticity. Overall, the **elasticity of the primary balance** is estimated to equal **0.55**: if the output gap increases by one percentage point, the primary balance increases by 0.55 percentage points in relation to nominal GDP.

↘ BOX 18

Approach for a decomposition of the budget balance into cyclical and structural components

With the help of **budgetary elasticities**, the general-government budget balance as well as the reve-nue and expenditure categories can be decomposed each into a structural and a cyclical component. These elasticities show to what extent budget balances or their components react to a change in the output gap, a way of measuring cyclical developments (Elstner et al., 2016). To do this, the change in the respective revenue or expenditure component in relation to GDP was regressed on the change in the output gap estimated by the GCEE. To avoid endogeneity, an instrumental-variable approach has been employed in which the change in the cyclical component of the log of world trade was used as an instrument. The instrumental-variable estimate provides an elasticity that defines the cyclical component of the respective revenue and expenditure components when multiplied by the output gap. If this is deducted from the ratio of the respective component (in relation to nominal GDP), the result is the structural component.

The cyclical component of primary balances is zero if the output gap is closed. It is negative (positive) if production capacity is underutilised (overutilised). If there is a negative (positive) output gap, the structural primary balance in relation to nominal GDP is higher (lower) than the actual observable primary balance.

On the basis of a sample starting from 1970, the estimates show that a one-percentage-point in-crease in the output gap increases primary balances by 0.55 percentage points in relation to nominal GDP. This elasticity corresponds approximately to the results of the European Commission (Mourre et al., 2014). The tax ratio increases by 0.12 percentage points, but the revenue ratio from social secu-rity contributions decreases by 0.10 percentage points. On the expenditure side, particularly social benefits other than social transfers in kind decrease by more than 0.30 percentage points in relation to nominal GDP. The decline in social benefits in kind and in the compensation of employees amounts to 0.08 and 0.09 percentage points respectively. Public gross capital formation however hardly reacts to the cycle.

574. In 2003, the output gap was negative (−1.9 %), reflecting a phase of economic weakness. The economic situation improved until the outbreak of the financial crisis. Since 2011, the output gap has been continuously widening again and is estimated at +1.4 % for 2018. ↘ CHART 29 RIGHT PAGE 131 According to these esti-mates, the improved economic situation compared to 2003 can thus explain
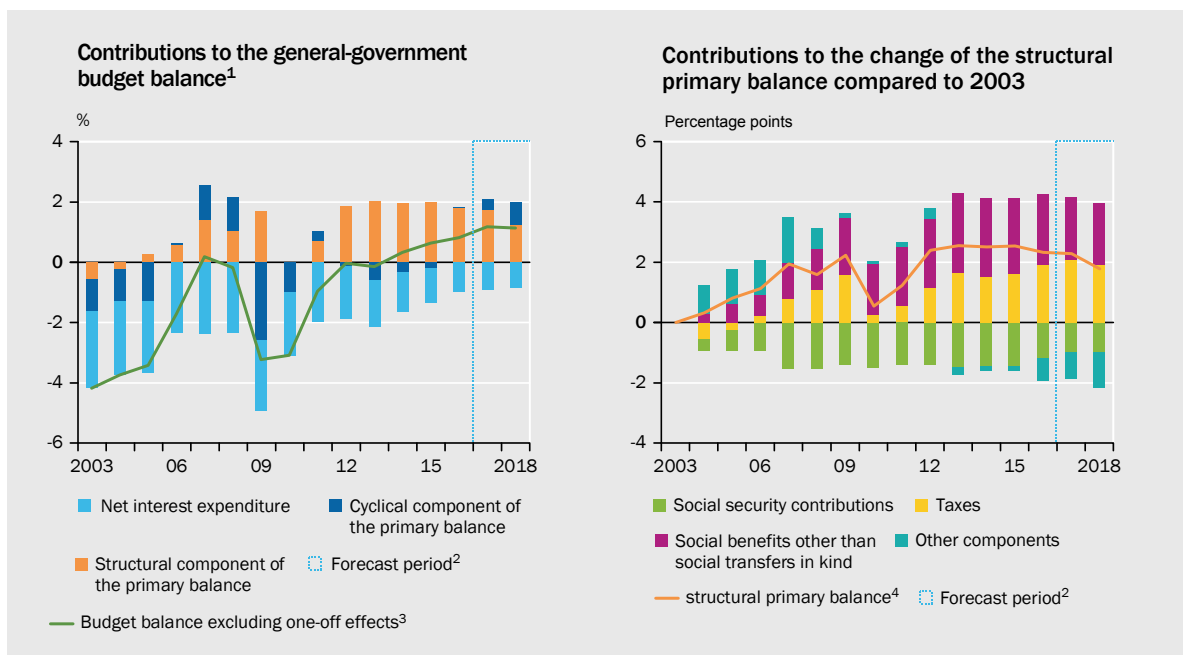
about 1.8 percentage points of the increase in primary balances during this peri-
od.

575. The **structural primary balance** is determined by deducting the cyclical
component from the actual primary balance. The change in this variable can
serve as a measure for the direction of fiscal policy. Between the trough in 2003
and the estimate for 2018, the balance has improved by about 1.8 percentage
points and reflects the consolidation efforts that began with the Agenda reforms.
However, the positive structural primary balances in relation to nominal GDP
are declining from its peak in 2015. This points to an expansionary fiscal policy.
According to the disaggregated approach of the GCEE the structural primary
balance already decreases slightly from 2014 onwards. ↘ CHART 3 UPPER LEFT PAGE 23
The fiscal impulse as an alternative measure indicates an expansionary fiscal
policy from as early as 2013 (GCEE Annual Report 2016, items 228 ff.; Gemein-
schaftsdiagnose, 2017). ↘ ITEM 316

576. The structural improvements since 2003 can be analysed more closely by a sepa-
rate examination of the **structural components** of the largest elements of the
general-government budget balance: tax revenue, revenue from social security
contributions, expenditure on social benefits other than social transfers in kind,
and other components. ↘ CHART 64 RIGHT Revenue from taxes and social security
contributions together account for about 89 % of revenue, social benefits other
than social transfers in kind constitute approximately 36 % of the expenditure
without interest payments (primary expenditure). In particular, public expendi-
ture on social benefits in kind, compensation of employees and intermediate
consumption are subsumed in other components.

↘ CHART 64

Components of the general-government budget balance

Contributions to the general-government budget balance[1]

Contributions to the change of the structural primary balance compared to 2003

Net interest expenditure   Cyclical component of the primary balance

Structural component of the primary balance   Forecast period[2]

Budget balance excluding one-off effects[3]

Social security contributions   Taxes

Social benefits other than social transfers in kind   Other components

structural primary balance[4]   Forecast period[2]

1 – In relation to nominal GDP. 2 – Adjusted for the assumption of debt of the Treuhandanstalt and the East German housing sector,
revenue from the allocation of UMTS licenses, expenditure on bank bailouts, and reimbursement of revenue from the tax on nuclear fuel.
3 – Forecast of the GCEE. 4 – In comparison to 2003.

Source: Own calculations

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577. Between 2003 and 2009, **structural tax revenue** initially rose sharply, by more than 1.6 % of GDP. It then fell as a result of the tax cuts introduced in 2009. Since then, however, it has made a growing contribution to the improvement of the structural primary balance. One reason, for example, is the increase in the income tax burden as a result of bracket creep, of which only a small proportion has been offset by adjustments to the tax rate. ↘ ITEM 586 Although the latest cuts in income taxes in particular are slightly reducing the size of this component, starting in the current year, the structural increase in tax revenue continues to make a significant contribution to improving the primary balance.

578. Expenditure on **social benefits other than social transfers in kind** has also structurally declined. Pension payments are the biggest component of these social benefits, which also include unemployment benefits and social assistance. The reforms of the statutory pension insurance presumably led to an improvement in the structural balance (GCEE Annual Report 2016, items 574 ff.). The expansion of benefits (mothers' pension, pensions from the age of 63 for for long-term contributors, harmonisation of pension law between East and West Germany) and higher pension increases counteract this effect. The labour market's overall changed conditions as a result of wage moderation and the Hartz reforms have curbed structural expenditures for the unemployed. ↘ ITEM 267

579. By contrast, the development of **social security contributions** has led to a worsening of structural revenue compared to 2003. This may seem surprising at first glance, because the structural improvements on the labour market should also be reflected here. But the unemployment and statutory pension insurance contribution rates were reduced during the same period. This counteracts the positive effect related to the improved overall conditions on the labour market. For example, the contribution rate for the unemployment insurance in particular was reduced by more than two percentage points in 2007. The burden for the insured had been especially high in 2003. Rising contribution rates have been reducing the structural burden on public budgets since last year. As a result, the tax and contribution ratio is increasing again. ↘ ITEMS 586 FF.

580. The other components of structural primary balances have been worsening the balance since 2013. ↘ CHART 64 RIGHT These are mostly **items on the expenditure side**, and these are likely to be extended in the forecast period. Social benefits in kind are growing rapidly due to the expansion of services in the statutory long-term care insurance and rising health expenditure; central and subnational governments are hiring new staff, and additional infrastructure investments are planned. ↘ ITEM 316

Rising general-government expenditure, cautious public investment

581. Last year, general-government expenditures on transfers, government consumption, investment, and debt service totalled 44.3 % of GDP. ↘ CHART 65 TOP LEFT This means that **the public spending ratio slightly rose again compared to the previous year**, despite a further decline in interest expenditure in contrast to the trend of the last few years. A more detailed examination of the spending structure shows on the one hand savings in interest expenditure and transfer ex-

penditure for the unemployed, and, on the other hand, higher spending due to large increases in pensions and an expansion of government consumption. Apart from the compensation of employees, the latter category includes benefits in kind by social security funds, e.g., for medical or hospital services.

582. The **government consumption ratio** has been rising continuously since 2011. At 19.7 % of GDP in 2016, it was one percentage point higher than in 2011. The main reason for this increase is social benefits in kind, which have risen considerably in the last five years – by about 28 % (0.8 % of GDP). By contrast, compensation of employees fell by 0.2 % of GDP in this period. The largest contribution came from additional expenditure in the area of health and illness. ↘ CHART 65 BOTTOM LEFT In the field of medical services, pharmaceuticals and hospi-

↘ CHART 65

Structure of government expenditure
% of GDP
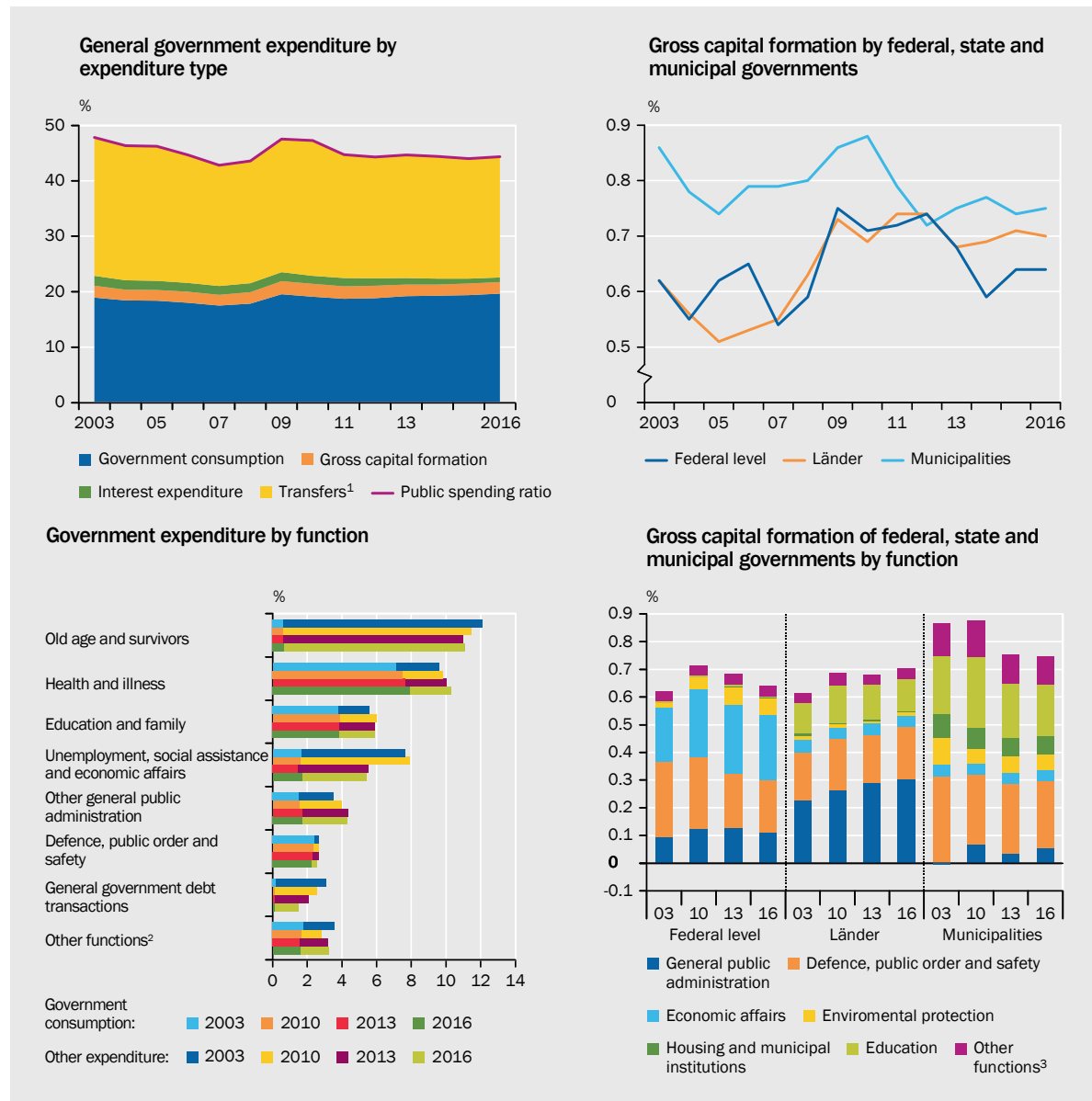
1 – Including other expenditures. 2 – Enviromental protection, housing and municipal institutions, leisure, sport, culture and religion, other social security. 3 – Health, leisure, sport, culture and religion, social security.

Sources: Federal Statistical Office, own calculations

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tal services alone, social benefits in kind provided by social security funds rose by 0.3 % of GDP. Government consumption also increased in the field of public administration.

583. The GCEE estimates that direct **expenditure related to the inflow of refugees** will be the equivalent of 0.3 to 0.4 % of GDP in this and the coming year, respectively. This figure includes expenditure to cover the cost of living for asylum seekers, the costs of integration measures, additional expenditure for basic security benefits (Volume II of the German Social Code [SGB II]), and higher administrative costs (GCEE Annual Report 2016, items 690 ff.). Since the majority of the asylum applications have been processed, ↘ CHART 93 LEFT, transfer expenditure in particular can be expected to rise in the coming year.

584. The **employment figures of the overall public budget** have risen, especially in the municipalities. Since 2012, personnel figures have risen by around 1.1 % overall, and by over 5 % in municipalities, where 5.2 % more staff were recruited particularly in the field of 'general services'. The picture is heterogeneous in other labour-intensive areas. The personnel headcount in the area of social security has risen sharply at the federal level, the Länder and the municipalities – by about 9.4 % overall – whereas the number of people employed in the education sector has remained virtually unchanged.

585. **Public investment** remains cautious despite the funds that have been made available for that purpose. The public investment ratio declined in the wake of the post-unification construction boom. It has been relatively constant since the early 2000s. At 2.1 % of GDP, it is at the same level as in 2003. In the meantime, the federal level, the Länder, and the municipalities each contribute about a third to public gross capital formation. While the municipalities have invested less, investment by the federal level and the Länder has increased slightly. ↘ CHART 65 TOP RIGHT The main increases in investments at the federal level have been in defense and environmental protection. The Länder and municipalities have invested more intensively in general public administration. ↘ CHART 65 BOTTOM RIGHT The federal level and municipalities invested less in the field of economic activities, which includes the field of transport, for example.

To date, therefore, the municipalities seem to have been hesitant in absorbing the federal funds that are available for promoting municipal investment. The reasons could include false priorities, insufficient planning capacity, or the fact that the construction industry is already working at full capacity. Since the public sector's fiscal position is good, a general lack of funds is unlikely to be the explanation. In the view of the GCEE, **additional financing requirements for public investment** should in future be met within existing frameworks **without an increase in the public spending ratio**. An increase in the public spending ratio diverts more private funds into public investment projects. Despite favourable financing conditions, therefore, public investments should only be carried out if they stand up to a critical weighing up of costs and benefits (Schmidt and Schmidt, 2017).

Surplus due to dynamic revenue development

586. The high general-government budget surpluses – against a background of a rising public spending ratio – are currently being generated due to dynamic revenue development. This development goes hand in hand with an **increasing burden from taxes and social security contributions**. While the revenue from indirect taxes – not least of which is VAT – is falling slightly in relation to GDP, revenue from direct taxes has been rising substantially since 2010. ↘ CHART 66 LEFT Alongside the wage tax, profit taxes in particular have again been growing dynamically since the crisis.

587. Taxpayers recently received a small cut in income tax, but this did not fully offset the cumulative **increase in revenue as a result of bracket creep**. ↘ CHART 66 RIGHT As a result of the progressive income tax schedule, the tax burden rises even when real incomes remain the same, unless the tax rate is sufficiently adjusted. Compared to 2010, the additional tax burden amounts to almost 6 billion euros per year solely as a result of price increases.

588. Furthermore, revenue from contributions to the social security system as a whole is increasing. The reserves of the Federal Employment Agency are likely to rise to approximately 18 billion euros this year, thanks to the good state of the labour market. The purpose of these reserves is to offset deficits and avoid pro-cyclical increases in contribution rates during weak economic phases. But such a high level of reserves can generate political temptations. In part, the rising surpluses are also an expression of a structural improvement. A **reduction in the contribution rate to unemployment insurance** should therefore be considered. Such a reduction could ease the high burden of social contributions to some extent – at least temporarily (Breidenbach et al., 2017).

↘ CHART 66

Increasing tax burden

Taxes and social security contributions

%[1]

— Direct taxes[2]   — Indirect taxes
— Net social security contributions   ⬚ Forecast period

Bracket creep in income tax

Billion euro[3]

■ Annual increase in tax burden compared to 2010
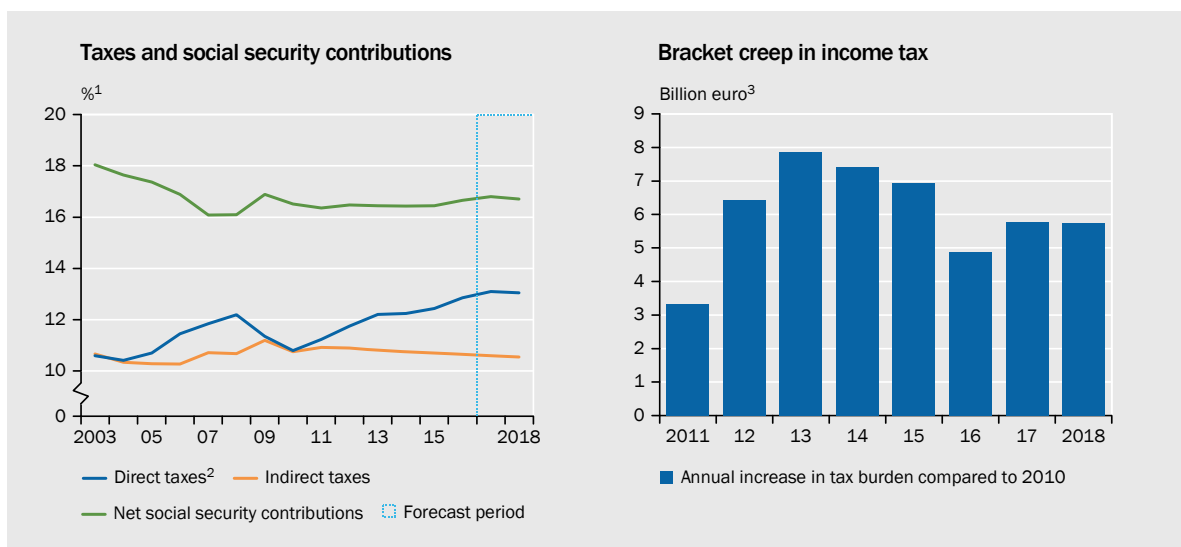
1 – In Relation to nominal GDP. 2 – Income and capital tax, inheritance tax. 3 – Estimated additional tax burden as a result of price increases; based on a special evaluation of the statistics on wage and income tax from 2013.

Sources: Federal Statistical Office, own calculations

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The GCEE estimates the sustainable contribution rate after adjustment for cyclical components at 2.5 %. The current contribution rate of 3 % could thus be reduced by up to 0.5 percentage points. Given the current economic situation, the reserves would not continue to rise.

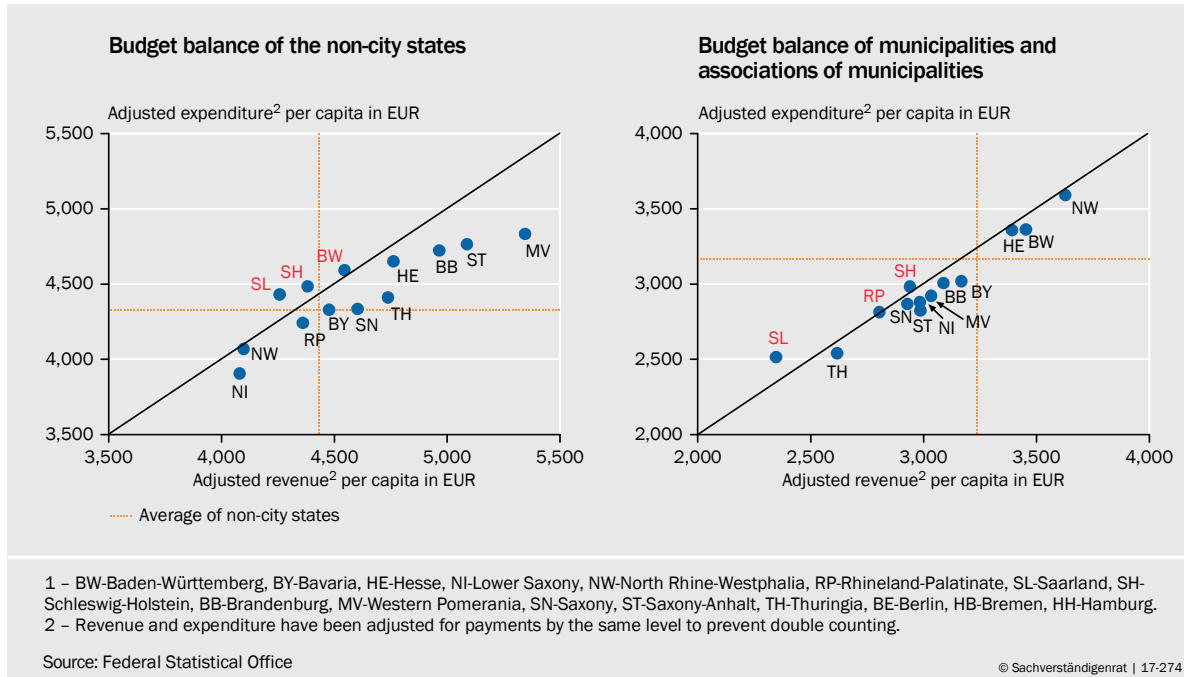## 3rd Challenges for the Länder and municipalities

589. The **debt brake** has been enshrined in the German constitution, the Basic Law, since 2009. It stipulates that the **Länder budgets must be structurally balanced** as from 2020 onwards. Deficits are still possible in periods of economic downturn, but they must be balanced by surpluses in economically good times. This symmetrical design of the rule aims to prevent an increase in the debt-to-GDP ratio throughout the business cycle (Deutsche Bundesbank, 2017a). Therefore, in view of the currently good economic situation, the fiscal surpluses that can be observed in most Länder are not a sufficient criterion to ensure that the Länder will comply with the debt brake, if their debt brake includes a cyclical adjustment.

The **municipalities** are **exempt from the debt brake**, and deficits they might make are not attributed to the Länder. However, the implicit liability of the Länder for their municipalities already means that their financial situation cannot be analysed independent of their municipalities. Furthermore, the debt brake could also have repercussions on the local level. In particular, there is the fear that the Länder could put their municipalities under more fiscal pressure in order to meet the requirements of the debt brake (GCEE Annual Report 2011, item 315). This risk is reinforced by the fact that the Länder only have very limited autonomy over their revenues (GCEE Annual Report 2014, items 629 ff.).

Mainly surpluses

590. Last year, the majority of the Länder and their municipalities on aggregate exhibited surpluses. At the Länder level, expenditures exceeded revenues only in Baden-Württemberg, Schleswig-Holstein, and Saarland. ⬂ CHART 67 LEFT In Saarland, Schleswig-Holstein, and Rhineland-Palatinate, the municipalities exhibited deficits. ⬂ CHART 67 RIGHT Among the city-states, Hamburg and Bremen were also in deficit with around €125 of debt per inhabitant.

591. A comparison of revenues and expenditures of the Länder and municipalities highlights the **different levels of local autonomy**, which makes the Länder difficult to compare. In North Rhine-Westphalia, e.g., the municipalities are responsible for a comparatively large proportion of expenditure, while expenditure per inhabitant at the state level is below average. However, the municipal share in revenues is also high. Boettcher et al. (2017) find that the distribution between revenue and expenditure is unfavourable for the municipalities in Mecklenburg-Western Pomerania, Saxony, Hesse, Saarland, and Brandenburg, where the municipalities' share of revenue is lower than their share of expenditure.

↘ CHART 67

Revenue and expenditure of the core and extra budgets of the non-city states and municipalities in 2016[1]

Budget balance of the non-city states

Adjusted expenditure[2] per capita in EUR

Budget balance of municipalities and associations of municipalities

Adjusted expenditure[2] per capita in EUR

┈┈┈ Average of non-city states

1 – BW-Baden-Württemberg, BY-Bavaria, HE-Hesse, NI-Lower Saxony, NW-North Rhine-Westphalia, RP-Rhineland-Palatinate, SL-Saarland, SH-Schleswig-Holstein, BB-Brandenburg, MV-Western Pomerania, SN-Saxony, ST-Saxony-Anhalt, TH-Thuringia, BE-Berlin, HB-Bremen, HH-Hamburg.
2 – Revenue and expenditure have been adjusted for payments by the same level to prevent double counting.

Source: Federal Statistical Office

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592. The federal level, the Länder and the municipalities each have been reducing their debt-to-GDP ratios continuously since 2012. At the same time, the **budget balances have improved in almost all Länder and municipalities**. Lower interest expenditures have made a bigger contribution in the Länder than in the municipalities because of the Länder's high debt level. In the Länder, the interest expenditure fell on average by €115 per inhabitant in real terms, in the municipalities by only about €14 per inhabitant. The burden of personnel costs on budgets was higher compared to 2012: an average of €57 per inhabitant in real terms in the Länder, approximately €62 per inhabitant in the municipalities. Most of the improvement in the budget balances is due to higher current revenues.

593. The fiscal equalisation system between the federal level and the Länder aims to ensure that the constitutional requirement of equivalent living conditions is met in all Länder. However, it can lead to **false incentives** that make it unattractive for Länder to improve their revenue situation. ↘ TABLE 26 The current system involves **high marginal transfer rates** especially for the recipient Länder (GCEE Annual Report 2016, Box 4).

On average, they amount to 85 %, so that only 15 cents out of every euro of additional tax revenue remains in the Länder (38 cents if only the donor Länder are considered) (Burret et al., 2017). Furthermore, a differentiated analysis for the Länder reveals considerable heterogeneity as to the level, development over time, and volatility. ↘ CHART 68 The latter is very high, particularly among the Länder in East Germany and in the city-states, regardless of the classification as a donor or recipient state.

↘ TABLE 26

Indicators for the Länder and their municipalities[1]

		West Germany								East Germany					City-states		
		BW	BY	HE	NI	NW	RP	SL	SH	BB	MV	SN	ST	TH	BE	HB	HH
Average economic growth and budget balance between 2012 and 2016																	
Real GDP growth (%)		1.6	1.6	1.0	0.5	1.0	1.4	0.2	1.3	1.7	0.6	1.7	0.9	1.7	1.6	1.3	1.2
Real GDP per capita (€1,000)		42.5	43.0	43.0	33.2	36.8	33.4	34.8	30.7	26.7	25.3	27.9	26.0	26.9	35.6	47.2	61.3
Budget balance in core budget (euro per capita)	L	6	145	–114	–22	–136	–134	–362	11	146	240	135	96	164	216	–550	–81
	G	104	124	–95	75	–23	–51	–244	–30	67	5	28	56	54			
Budget balance including extra budgets (euro per capita)	L	–59	160	–94	11	–97	–115	–402	–19	217	315	298	166	185	255	–629	–287
	G	90	116	–121	77	–21	–50	–299	–39	64	–5	38	78	67			
Average debt and interest expenditure per capita between 2012 and 2016																	
Public-sector debt (euro)	L	5,553	2,041	8,200	7,908	11,153	8,585	16,031	10,396	8,360	6,275	906	9,439	7,712	21,833	34,707	20,335
	G	3,507	2,587	5,292	3,097	5,064	4,635	6,992	2,590	3,129	4,157	2,872	3,832	3,398			
Of which: outsourced (%)	L	29	5	13	5	29	2	13	6	15	4	7	0	4	18	8	35
	G	83	60	45	49	44	34	51	48	74	71	73	63	72			
Short-term liquidity loans in overall public budget (euro)	L	11	0	140	1	207	72	68	56	33	23	0	96	36	55	430	139
	G	18	19	1,126	435	1,488	1,536	2,089	275	323	418	27	539	84			
Interest-to-tax ratio (%)	L	7	2	7	8	10	9	18	10	8	8	3	10	10	14	25	9
	G	2	3	7	5	7	7	10	5	3	5	4	6	6			
Average personnel expenditure and expenditure on pensions per capita between 2012 and 2016																	
Personnel expenditure (euro)	L	1 629	1 598	1 732	1 635	1 547	1 663	1 817	1 510	1 284	1 441	1 340	1 348	1 403	2 671	3 072	3 107
	G	836	742	853	702	828	727	742	671	878	710	848	864	754			
Expenditure on pensions (euro)	L	383	359	395	380	360	360	475	380	64	61	43	71	56	438	701	679
	G	98	103	89	76	101	83	84	77	37	56	43	51	38			
Demography and financial capacity																	
Dependency ratio (2015)[2] (%)		64	63	64	68	65	65	65	70	66	65	71	68	68	58	64	58
Dependency ratio (2030)[2] (%)		80	78	79	84	81	86	89	85	97	98	93	98	97	71	75	66
Unemployment rate (2016) (%)		3.8	3.5	5.3	6.0	7.7	5.1	7.2	6.3	8.0	9.7	7.5	9.6	6.7	9.8	10.5	7.1
Marginal transfer rate in fiscal equalization scheme (%)		61	59	65	79	68	84	88	85	86	88	85	87	87	84	87	63
Sustainability of fiscal policy in the Länder[3]																	
Stationary debt[4]																	
Stationary primary deficit[4]																	
Stationary revenue[4]																	
Stationary expenditure[4]																	
Reaction of the primary balance to the debt level[5]																	

1 – Unless otherwise specified, averages for the year 2012-2016 per capita deflated by the Länder GDP deflator in prices of 2016. L stands for Länder, M for municipalities. Colour marking based on threshold values; which are determined dividing the absolute difference between the maximum and minimum observations by five. In the case of the variables relating to the budget balance, loans, debts, and expenditure of non-city states, the colour marking is based on the sum of the figures for Länder and municipalities. BW-Baden-Württemberg, BY-Bavaria, HE-Hesse, NI-Lower Saxony, NW-North Rhine-Westphalia, RP-Rhineland-Palatinate, SL-Saarland, SH-Schleswig-Holstein, BB-Brandenburg, MV-Mecklenburg-West Pomerania, SN-Saxony, ST-Saxony-Anhalt, TH-Thuringia, BE-Berlin, HB-Bremen, HH-Hamburg. 2 – Population younger than 20 and older than 65 as a percentage of the population aged between 20 and 64. 3 – Period of analysis for Länder in West Germany: 1950-2015 (1955-2015 in the case of data on debt);for East Germany: 1991-2015. For details see Feld et al. (2017b). 4 – Stationarity tests: Augmented Dickey-Fuller tests, Phillips-Perron tests and Kwiatkowski-Phillips-Schmidt-Shin unit-root tests. In the event of stationarity at the 5 % level in all three tests = ▮, in the event of stationarity in two of the three tests = ▮, in the event of mixed results = ▮, if integrated in the order of 1 in two of the three tests = ▮, if integrated in the order of 1 in all tests = ▮. 5 – Country-specific Bohn MBS test. In the event of a positive significant reaction of the primary balance to the debt level = ▮, in the event of no positive or no significant reaction or an insignificant reaction = ▮. This can also be the case if, for example, declining debt levels coincide with increasing primary balances for a period, as in Saxony between 2005 and 2015.

Sources: Burret et al. (2017), Feld et al. (2017b), Federal Statistical Office, own calculations

594. Although the recent **reform of fiscal equalisation** slightly reduces the marginal transfer rates, it **exacerbates** the **inefficiencies of the existing system**. The distribution of revenues is less transparent, because decision-making powers for transfers to financially weak Länder no longer lie with the Länder parliaments. Furthermore, the supplementary federal grants based on municipal tax revenue (GFK-BEZ) can lead to an excessive transfer of municipal tax revenue, causing higher marginal transfer rates or even a change in the fiscal capacity ranking. The reform has failed to improve important points and to strengthen revenue autonomy (GCEE Annual Report 2014, items 629 ff.).

Debt reduced, short-term liquidity loans concentrated

595. In 2016, Länder debt accounted for around 30 % of general-government debt, municipalities' debt about 7 %. On aggregate the indebtedness of the Länder and municipalities currently does not pose a problem. However, not all Länder are able to balance their budgets, despite the positive overall conditions. Moreover,

↘ CHART 68

Development of the marginal transfer rates
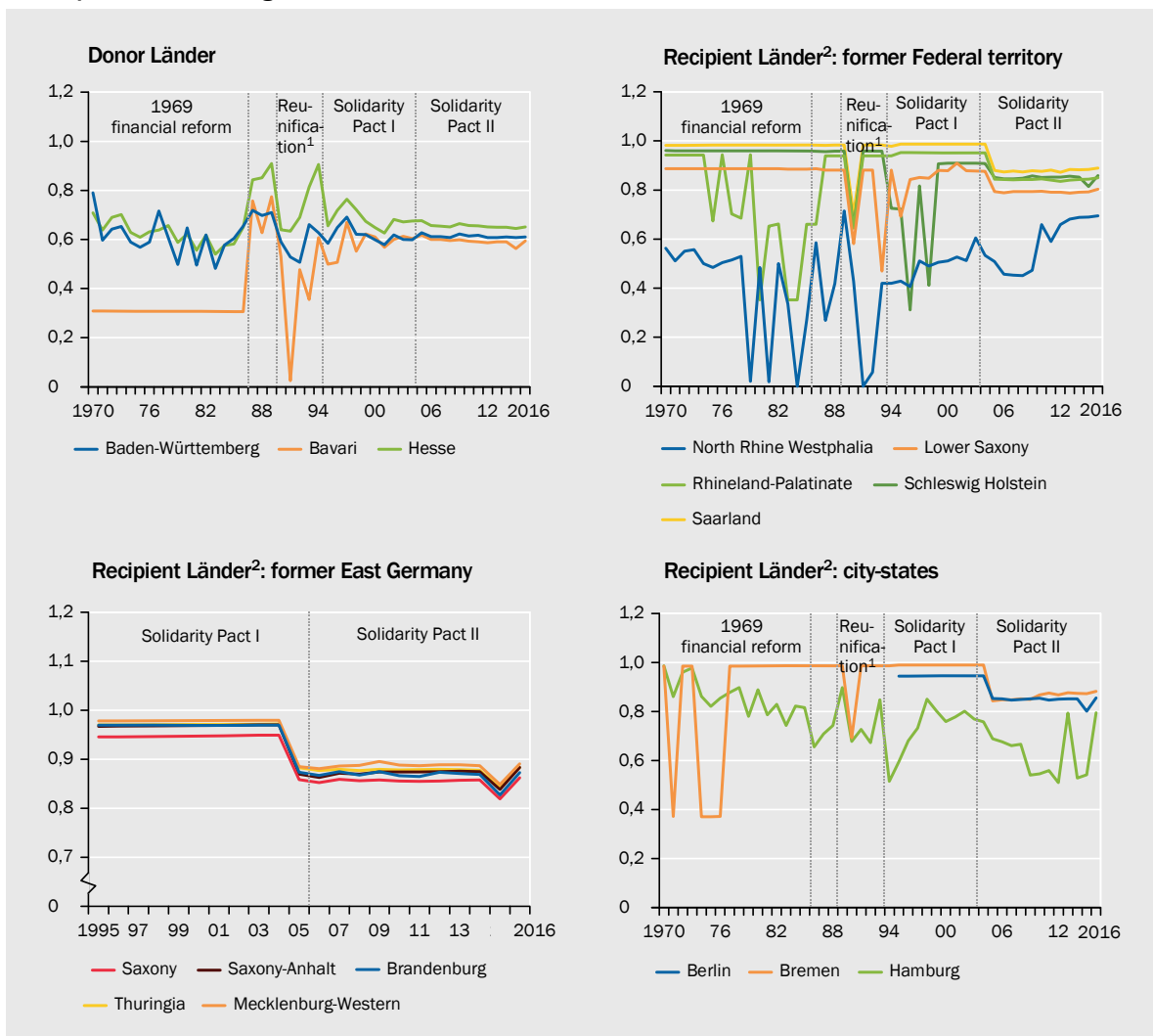
1 – Transitional period integrating former East Germany (without effect of FDE). 2 – On the basis of the narrow definition of the Fiscal Equalisation Scheme.

Source: Burret et al. (2017)

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large differences among the municipalities remain. ↘ TABLE 26 There is also the risk of general-government activity being outsourced to off-budget activities, for example in the form of public enterprises. ↘ ITEMS 607 FF.
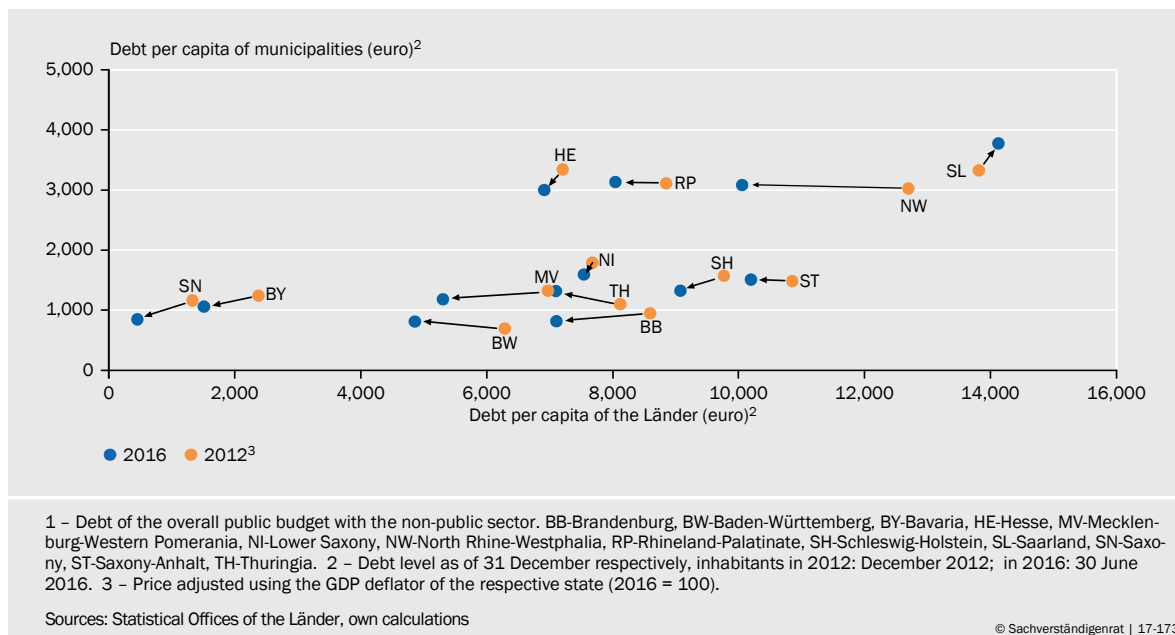
596. It could be particularly problematic if high levels of debt at the local level were to coincide with a high level of indebtedness in the Länder. Between 2012 and 2016, in most Länder with low municipal debt levels both the Länder and the municipalities were able to reduce their debts in real terms; by contrast, particularly in those Länder with high debt levels at the municipal level (Saarland, North Rhine-Westphalia, Rhineland-Palatinate), the municipalities slightly increased their debt in real terms despite assistance on debt relief and favourable economic conditions. ↘ CHART 69 The degree of **heterogeneity among the Länder** has **intensified** consequently.

597. What is particularly striking is the **development of municipal short-term liquidity loans** (*Kassenkredite*), which are available to the municipalities in addition to debt which can be incurred only for investment purposes. Short-term liquidity loans are intended for bridging short-term liquidity shortages only; they should be repaid in the course of that year or subsequently covered if transferred into the next year. A permanently higher portfolio of short-term liquidity loans is thus an indicator that current expenditure is being permanently financed on credit, which is actually prohibited (Heinemann et al., 2009). The fact that the level of these loans is still high shows that certain municipalities are unable or unwilling to achieve the prescribed balanced budget.

598. **Long-term financing with short-term liquidity loans** points to a **grave fiscal problem for the affected municipalities**. Since the short-term liquidity loans are particularly concentrated in the four non-city-states of Hesse, North Rhine-Westphalia, Rhineland-Palatinate and Saarland, they could represent a risk for state finances there. Although these Länder have initiated debt-

↘ CHART 69

Relation between public debt of the Länder and their municipalities in 2012 and 2016[1]

1 – Debt of the overall public budget with the non-public sector. BB-Brandenburg, BW-Baden-Württemberg, BY-Bavaria, HE-Hesse, MV-Mecklenburg-Western Pomerania, NI-Lower Saxony, NW-North Rhine-Westphalia, RP-Rhineland-Palatinate, SH-Schleswig-Holstein, SL-Saarland, SN-Saxony, ST-Saxony-Anhalt, TH-Thuringia. 2 – Debt level as of 31 December respectively, inhabitants in 2012: December 2012; in 2016: 30 June 2016. 3 – Price adjusted using the GDP deflator of the respective state (2016 = 100).

Sources: Statistical Offices of the Länder, own calculations
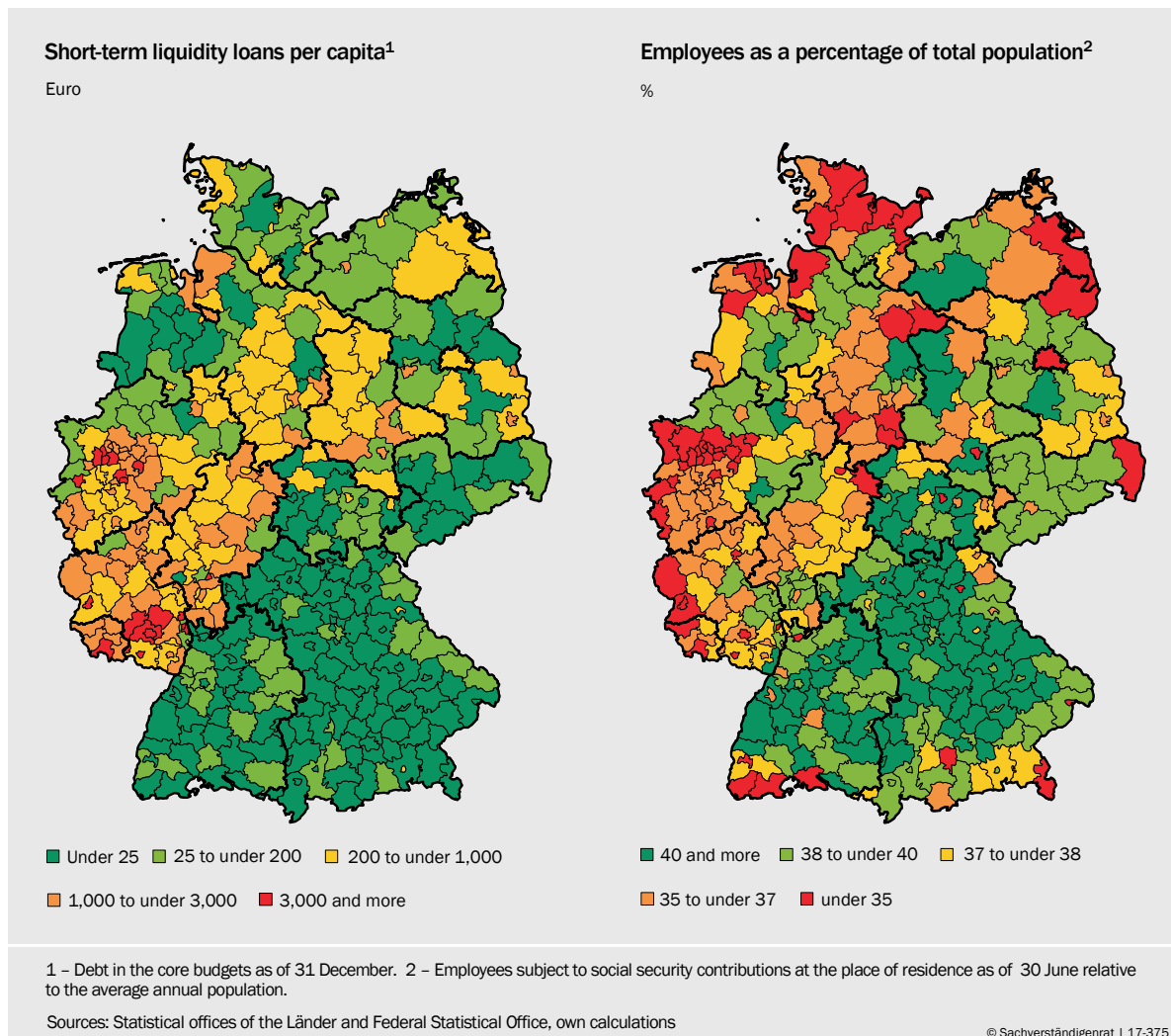
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relief programmes for their municipalities in the past few years, this has by no means solved the problems. A large proportion of the municipalities in North Rhine-Westphalia, for example, was unable to present a balanced budget in 2016. Several of the municipalities in North Rhine-Westphalia already exhibited negative equity and thus showed balance-sheet overindebtedness. Within the Länder, the short-term liquidity loans are again **strongly concentrated on individual districts**. ↘ CHART 70 LEFT

599. **Short-term liquidity loans, demographic and economic factors are mutually dependent**. The proportion of employees who are subject to social insurance contributions as a percentage of the total population can, on the one hand, serve as a rough indicator of a municipality's original revenues; on the other hand, it can be interpreted as an indication of the expenditure burden. ↘ CHART 70 RIGHT Revenue can be expected to be high if employment is high, since, for example, income-tax payments by citizens at their place of residence serve as a key for the distribution of the income-tax revenue to the municipalities. At the same time, a low employment rate can indicate that the municipality might have an unfavourable age structure or high unemployment rate. It is therefore not surprising that in 2015 short-term liquidity loans and the employment rate were

↘ CHART 70

Regional comparison of short-term liquidity loans and employment in 2015

Short-term liquidity loans per capita[1]
Euro

Employees as a percentage of total population[2]
%

Legend (left map): Under 25 | 25 to under 200 | 200 to under 1,000 | 1,000 to under 3,000 | 3,000 and more

Legend (right map): 40 and more | 38 to under 40 | 37 to under 38 | 35 to under 37 | under 35

1 – Debt in the core budgets as of 31 December. 2 – Employees subject to social security contributions at the place of residence as of 30 June relative to the average annual population.

Sources: Statistical offices of the Länder and Federal Statistical Office, own calculations

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negatively correlated with a value of -0.44. However, an important **factor for explaining** high levels of short-term liquidity loans is the **policy at the state-level**, e.g., via the catalogue of municipal tasks, fiscal equalisation or fiscal over-sight.

600. The Länder, in which municipalities have experienced high levels of short-term liquidity loans in the past, have either failed in their obligation to provide their municipalities with adequate fiscal resources, or inadequately discharged their oversight duty (Christofzik and Kessing, 2014; Deutsche Bundesbank, 2016b). It could also be the result of failed business development policies of a municipality or the respective Land. **More responsibility for and oversight of the municipalities by the Länder** is therefore necessary. In future, this could be achieved by allowing municipal liquidity loans that have a term of more than one year only to be taken out from the Land, in order to achieve a greater alignment of liability and control (Deutsche Bundesbank, 2016b; Unabhängiger Beirat des Stabilitätsrates, 2017). As a rule, lending by Länder to their municipalities is not registered by the debt brake as financial transactions are excluded; this rule should not apply for such short-term liquidity loans. The state would then have incentives to provide its municipalities with appropriate fiscal resources and to intensify its oversight.

Impact of an increase in interest rates

601. The low level of interest rates affects the public budget in different ways. On the one hand, interest payments decrease; on the other hand, returns from financial assets are lower. Furthermore, low interest rates influence pension provisions for civil servants (Rappen et al., 2017). The low interest rates are currently taking some of the pressures particularly of public budgets with large debts. In the medium term, an increase in interest rates would again increase the **pressure on public budgets with high levels of debt or short-term liquidity loans**.

602. Average interest rates have been falling since the early 1990s (Deutsche Bundesbank, 2017b). The **average interest rate** for the Länder **has fallen continuously** on aggregate from 4.6 % in 2005 to 2.4 % in 2016 ↘ CHART 71 TOP LEFT, for the municipalities from 4.4 % to 2.4 %. ↘ CHART 71 TOP RIGHT Saxony is an exception in this context. Here, the average interest rates have risen steadily in recent years despite falling interest expenditure. This could be due to its considerable debt reduction. Since 2012, Saxony has not taken on any new loans from the private sector – with the exception of cases where formerly off-budget special accounts have been incorporated. This has probably meant that only a residual amount of debt has remained at higher interest rates.

A **large proportion of debt has fixed interest rates** – about 85 % in the Länder and 93 % in the municipalities. Debt is also predominantly **long-term**. Of the new securities and loans taken on in 2016, 54 % had a maturity of over five years in the case of the Länder; in the municipalities the figure was as high as 80 %. There is no information on the maturity of the short-term liquidity loans. If they were to do justice to their character as short-term liquidity loans,

their maturity would be short. In the four non-city states with large portfolios of municipal short-term liquidity loans, the proportion of debt with long maturity is therefore presumably somewhat lower. Due to these long terms and fixed interest rates, the average interest rate is slow to react to falling interest rates, which are reflected by the EURIBOR as a reference figure. ↘ CHART 71 TOP

603. This debt structure reduces the risk of sudden budgetary burdens caused by rising interest rates. In order to estimate the **additional burden that would ensue if interest rates were to increase**, calculations are made based on the different terms of fixed-rate loans in the Länder and municipalities up to 2021 at the Länder level. Based on the residual maturities of the existing loans and the proportion of loans that do not have fixed interest rates, it is possible to

↘ CHART 71

Interest expenditure of the Länder and municipalities

Average interest rates[1]

Länder

Municipalities and associations of municipalities

Scenario 1 %: Average — Minimum and maximum value[2] — Euribor (twelve month rate)[3]
Scenario 3 %: Average — Minimum and maximum value[2]

Development of interest expenditure at different interest rates[4]

Länder — Euro per capita[5]

Municipalities and associations of municipalities — Euro per capita[5]

■ Interest expenditure 2016   ● Interest expenditure 2021: Scenario 1 %[a]   ● Interest expenditure 2021: Scenario 3 %[a]

1 – The average interest rates were determined by dividing interest expenditure to the non-public sector of the current year by the average value of securities and loans from the non-public sector as of 31 December of the current year and the previous year. 2 – Maximum value for the Länder excluding Saxony where the average interest rates rose to 9.2 % in 2016. 3 – Annual averages calculated on the basis of monthly average figures. The average for 2017 covers the period from January to September. 4 – BW-Baden-Württemberg, BY-Bavaria, HE-Hesse, NI-Lower Saxony, NW-North Rhine-Westphalia, RP-Rhineland-Palatinate, SL-Saarland, SH-Schleswig-Holstein, BB-Brandenburg, MV-Western Pomerania, SN-Saxony, ST-Saxony-Anhalt, TH-Thuringia, BE-Berlin, HB-Bremen, HH-Hamburg. 5 – Population as of 30 June 2016.
a – Beginning of the simulation. Technical simulation of interest expenditure based on the assumption of a 1 %/3 % interest rate from 2018 onwards. It is based on the maturity structure as of 31 Dec. 2016. A 1 % interest rate is assumed for the current year. It is assumed that all due debts are directly refinanced. A one-year term is assumed for short-term liquidity loans.

Sources: Deutsche Bundesbank, Federal Statistical Office, own calculations

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estimate the additional fiscal burden that would obtain from an increase in interest rates.

In the **simulation**, it is initially assumed that, as from 2017, all debts will be refinanced on the due date at an interest rate of 1 %. This would mean that the average interest rate would continue to fall. ↘ CHART 71 TOP This scenario is contrasted to a situation in which the Länder and municipalities have to refinance their debt at an interest rate of 3 % starting in 2018. The debt structure remains unchanged. For reasons of simplicity, a maturity of one year was assumed for the short-term liquidity loans, even though fixed interest rates over several years have been agreed in the meantime.

604. Compared to a situation with an interest rate of 1 %, under these assumptions and at an interest rate of 3 % the **interest expenditure of the Länder** would increase by about 40 % in 2019 and by 60 % in 2021. Nonetheless, for most Länder the interest expenditure in 2021 would be only slightly higher than in 2016. ↘ CHART 71 BOTTOM LEFT Bremen's interest expenditure would then amount to about €900 per inhabitant due to the high level of debt. This is 20 % higher than in a scenario with a 1 % interest rate. The increase would have been much higher if Bremen had not recently completely replaced its debt with variable interest rates with fixed-interest loans and taken on more long term debt.

The **interest expenditure of the municipalities** would increase by 56 % in 2019 and by 70 % in 2021. ↘ CHART 71 BOTTOM RIGHT Because of the large number of short-term liquidity loans, the overall interest expenditure of municipalities in North Rhine-Westphalia, Rhineland-Palatinate and Saarland would rise considerably already in the first year of the interest-rate increase. The additional burden is likely to be significantly higher again for individual municipalities within these Länder. **Municipalities with large portfolios of short-term liquidity loans** would be hit particularly hard.
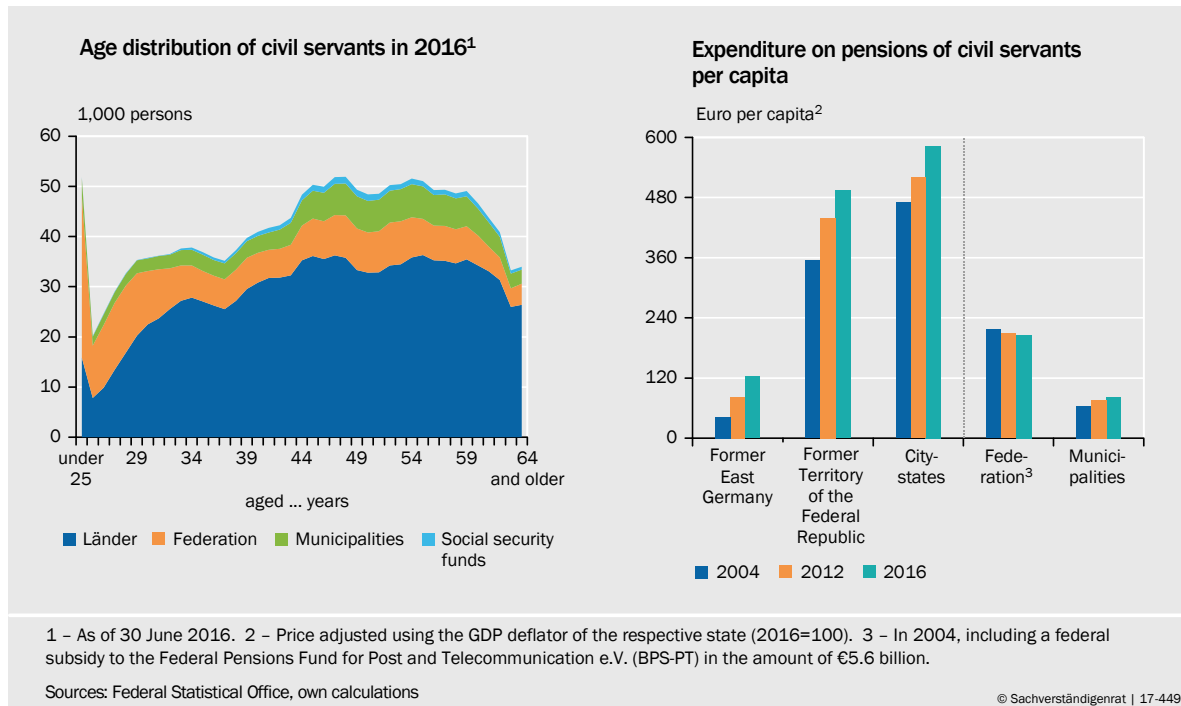
Risks for the Länder from expenditure on pensions of civil servants

605. **Expenditure on pensions** makes up a large proportion of public spending, especially for the Länder. Unlike in the case of salary earners, all levels of government must pay the pensions of their retired civil servants themselves. In 2016, the Länder were responsible for 54 % of this expenditure, the federal level for 31 %, and the municipalities for 12 %. ↘ CHART 72 RIGHT A differentiated analysis at the state-level shows, furthermore, that the city-states have the highest pension spending per inhabitant, even when the municipalities are included among the non-city-states. While the burden on the Länder in East Germany is lower by comparison, the growth is very dynamic. For example, real pension spending per inhabitant has grown by 191 % since 2004. In West Germany and the city-states, pension spending rose by 39 % and 24 %, respectively, in the same period.

The **future development of pension spending** will depend, among other things, on the structure of employment contracts and the age distribution of the staff. The Länder employ mainly civil servants. In terms of full-time equivalents, they make up a share of 56 %. In the municipalities, by contrast, they represent a

↘ CHART 72

Structure and development of pensions of civil servants

Age distribution of civil servants in 2016[1]

1,000 persons

Länder   Federation   Municipalities   Social security funds

aged … years

Expenditure on pensions of civil servants per capita

Euro per capita[2]

2004   2012   2016

1 – As of 30 June 2016. 2 – Price adjusted using the GDP deflator of the respective state (2016=100). 3 – In 2004, including a federal subsidy to the Federal Pensions Fund for Post and Telecommunication e.V. (BPS-PT) in the amount of €5.6 billion.

Sources: Federal Statistical Office, own calculations

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minority. These relations are very persistent across time, such that being more cautious about promoting staff to civil-service status is unlikely to lead to any significant fall in future pension spending. This effect is additionally amplified by the civil servants' age distribution, because 28 % of the current Länder staff will be retiring in the coming decade. ↘ CHART 72 LEFT

606. Combined with the dynamic development of pension spending, the persistent employment structure and the age distribution of civil servants mean that the Länder budgets can expect to be under considerable pressure in the future. Although pension rates have already been reduced and the legal retirement age for pensioners gradually raised, **the Länder will need to take further precautionary measures** due to the continuing increases in life expectancy.
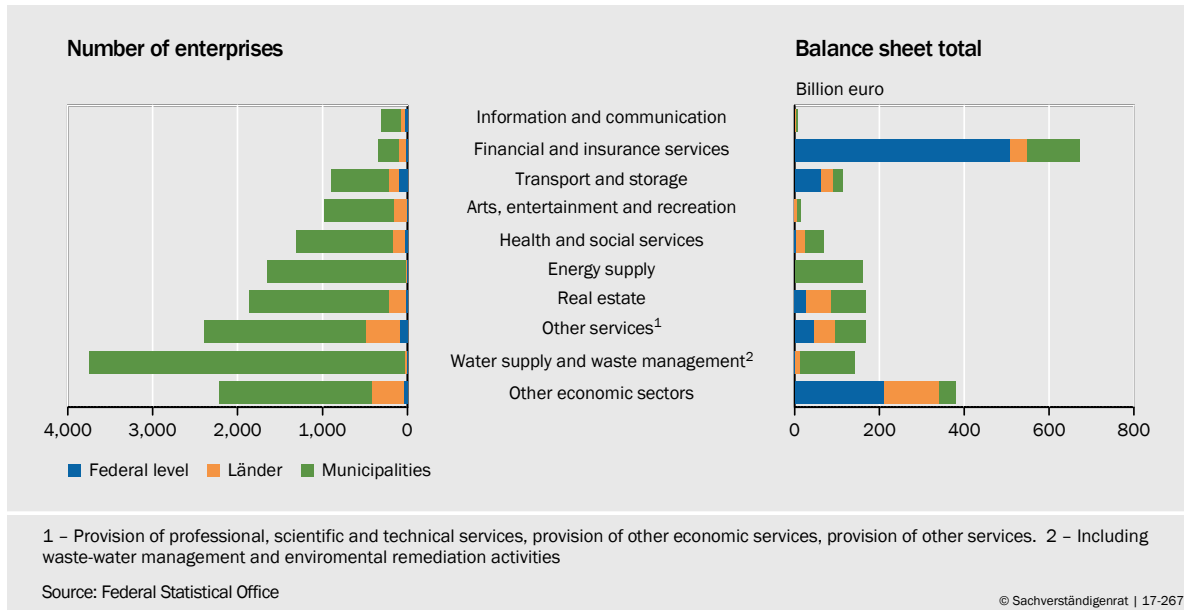
Against this background, the Länder were obliged by the Federation to set up pension reserve funds as early as 1998 (Deutsche Bundesbank, 2015). However, since the federalism reform of 2006, the Länder have been free to decide on their design and whether to continue them. As a result, in the light of their individual budgetary development, some Länder have reduced payments into the fund; others have decided to dissolve the fund's assets or to transform them into new funds. For example, Bavaria and North Rhine-Westphalia pay fixed, annual amounts into the funds, whereas Brandenburg and Lower Saxony allocate variable amounts depending on the budgetary situation. Furthermore, due to the current phase of low interest rates, the Länder are moving further and further away from the goal of fully financing their pension spending via the funds. In this context, it is strongly recommended that the **allocations to and design of the funds be protected from discretionary and politically motivated influences**, in order not to weaken the desired effect of reducing the burden on the Länder in the future (Kulawik et al., 2017).

Considerable proportion of state activity outsourced

607. Since the 1980s, public tasks have increasingly been carried out outside the core administrations (Federal Statistical Office, 2016). In the shell concept, on which the financial statistics are based, the core budgets and the extra budgets, which include pension funds and public universities, among others, are referred to as the **overall public budget**. The National Accounts (NA) define the public sector in this way, for example to determine the public investment ratio. The level of debt in the general-government sector provides the basis for calculating debt according to the Maastricht criteria. When it comes to the debt brake, even the extra budgets are only partially included.

608. In addition, the **public sector** includes the other public funds, institutions and enterprises (other FEUs). They are characterised by the fact that the public budgets (core budgets) are direct or indirect shareholders with more than 50 % of the capital or voting rights; at the same time they are classified as market producers. In the national accounts, these public enterprises, which do not belong to the extra budgets, are not assigned to the general government, but to the private sector. Thus, a considerable proportion of debt and public investment activity is disregarded when only the overall public budget is taken into account.

609. In 2014, the Federal Statistical Office's annual balance sheet statistics included a total of 15,707 public funds, institutions and enterprises (FEUs) which were applying commercial accounting and exhibited a balance sheet total of €1.9 trillion. Only some 3,000 of these FEUs were assigned to the overall public budget as extra budgets, the remainder to the other FEUs. Thus, the **great majority** of FEUs did **not belong to the public sector**.

610. Around 88 % of the FEUs were spin-offs at the municipal level. Most of these were related to the areas of real estate and housing, water supply, waste/water disposal, and energy supply. Although the federal level and the Länder were shareholders in a smaller number of spin-offs, the balance sheet total of these spin-offs was much higher than that at the municipal level. ⬎ CHART 73

611. Only since 2010, when the Federal and State Statistical Offices' reporting obligations were extended, has the **debt of the public sector** (including the other FEUs) been part of their reports. The share of the debt of municipalities and municipal associations accounted for by the 'other FEUs' in 2016 ranged between 31 % in Rhineland-Palatinate and 76 % in Baden-Württemberg. ⬎ CHART 74 TOP LEFT These differences show that when the overall public budget is examined in isolation, a large amount of debt and the heterogeneity of the Länder remains hidden.

612. The degree of outsourcing is reflected not least in the **personnel headcount**. In 2016, about half of the staff were employed in core budgets, the other half in public enterprises. In the fields Supply and Disposal and Health and Sport, only a small percentage of employees were included in the core budget: 6 % and 7 % respectively. ⬎ CHART 74 TOP RIGHT

↘ CHART 73

Public funds, institutions and enterprised applying commercial accounting by economic sector in 2014

Number of enterprises

Balance sheet total

Billion euro

| Information and communication |
| Financial and insurance services |
| Transport and storage |
| Arts, entertainment and recreation |
| Health and social services |
| Energy supply |
| Real estate |
| Other services[1] |
| Water supply and waste management[2] |
| Other economic sectors |

4,000 3,000 2,000 1,000 0

0 200 400 600 800

■ Federal level   ■ Länder   ■ Municipalities

1 – Provision of professional, scientific and technical services, provision of other economic services, provision of other services. 2 – Including waste-water management and enviromental remediation activities

Source: Federal Statistical Office
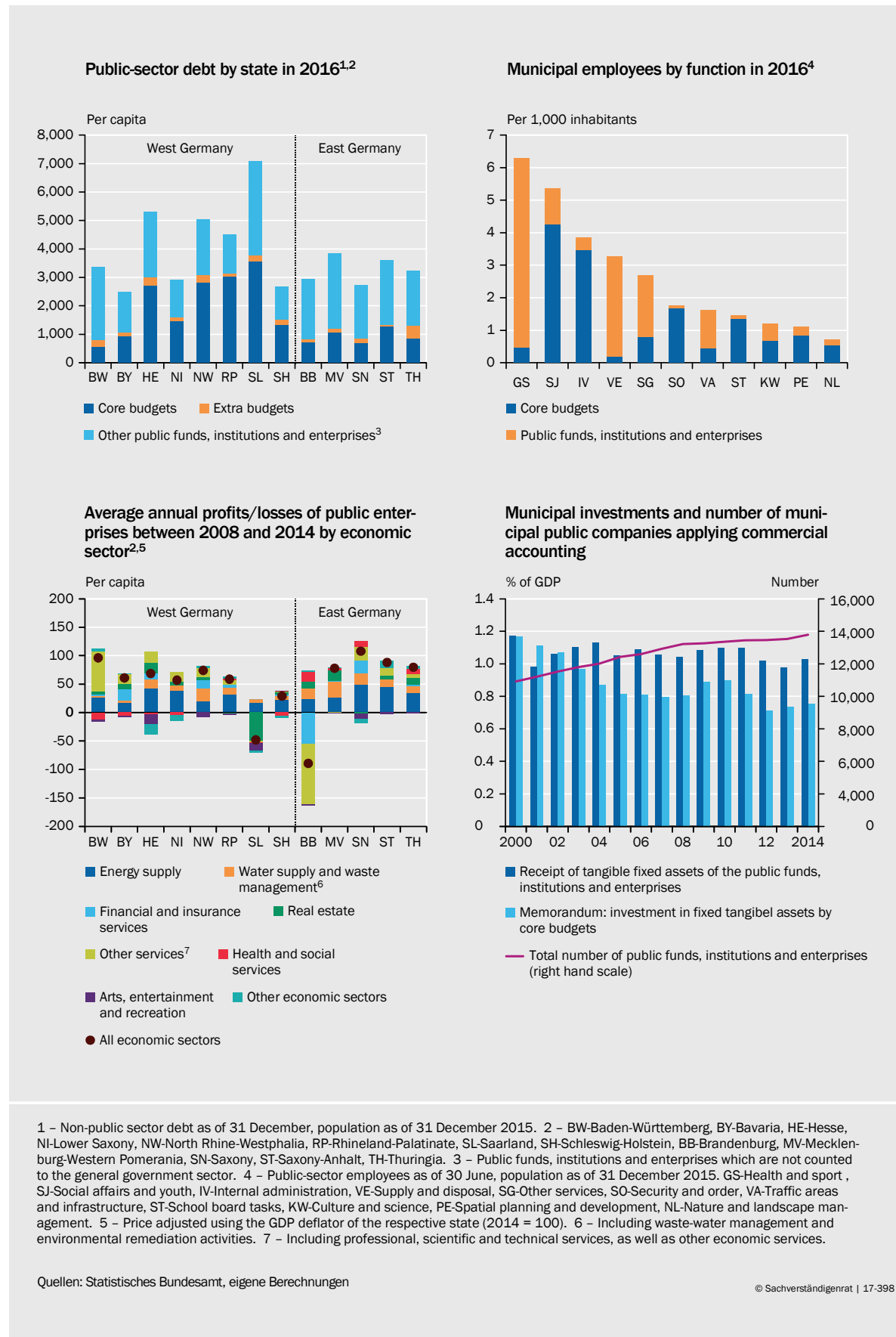
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613. Between 2008 and 2014, the municipal spin-offs **made an overall profit** in most Länder. ↘ CHART 74 BOTTOM LEFT This profit was particularly high in Saxony with an average of around €100 per inhabitant at 2014 prices; by contrast, the public enterprises in Saarland and Brandenburg made an overall loss. The main reasons for the loss in Saarland were high deficits by public enterprises in real estate and housing; in Brandenburg the losses were made by public enterprises offering financial, insurance and/or other services. By contrast, public enterprises in these economic sectors in other Länder made a profit – in some cases significant ones. The municipal spin-offs operating in the fields of energy and water supply made a profit in all Länder.

614. The reluctance of municipalities to invest plays an important role in the public policy debate. ↘ ITEM 585 One possible explanation could be that investment is increasingly made by state-controlled enterprises outside the public sector. A statistic that can give an approximate idea of **investment activity in public enterprises** is 'additions to tangible fixed assets' from the annual balance sheet statistics of the other FEUs which exhibit commercial accounting. However, simply adding up these data and the investments made by the core budgets can certainly not generate figures on the 'total investment of the public sector' (Hesse et al., 2017). For example, asset transfers from the core budget can also be seen as 'additions to tangible fixed assets' of the FEUs, yet they are not investments. In addition, neither minority stakes nor enterprises using accrual or cameralistic accounting are taken into account. Similarly, alternative forms of investment as seen in public private partnerships (PPPs) are not included either.

Despite these restrictions, the data can provide at least an impression of investment activities by public enterprises. Since 2000, additions to tangible fixed assets by these municipal public enterprises has averaged to 1.1 % of GDP. ↘ CHART 74 BOTTOM RIGHT

↘ ABBILDUNG 74

Municipal core budgets and public enterprises

Public-sector debt by state in 2016[1,2]

Per capita

West Germany | East Germany

BW BY HE NI NW RP SL SH | BB MV SN ST TH

■ Core budgets   ■ Extra budgets
■ Other public funds, institutions and enterprises[3]

Municipal employees by function in 2016[4]

Per 1,000 inhabitants

GS SJ IV VE SG SO VA ST KW PE NL

■ Core budgets
■ Public funds, institutions and enterprises

Average annual profits/losses of public enterprises between 2008 and 2014 by economic sector[2,5]

Per capita

West Germany | East Germany

BW BY HE NI NW RP SL SH | BB MV SN ST TH

■ Energy supply   ■ Water supply and waste management[6]
■ Financial and insurance services   ■ Real estate
■ Other services[7]   ■ Health and social services
■ Arts, entertainment and recreation   ■ Other economic sectors
● All economic sectors

Municipal investments and number of municipal public companies applying commercial accounting

% of GDP   Number

2000 02 04 06 08 10 12 2014

■ Receipt of tangible fixed assets of the public funds, institutions and enterprises
■ Memorandum: investment in fixed tangibel assets by core budgets
— Total number of public funds, institutions and enterprises (right hand scale)

1 – Non-public sector debt as of 31 December, population as of 31 December 2015. 2 – BW-Baden-Württemberg, BY-Bavaria, HE-Hesse, NI-Lower Saxony, NW-North Rhine-Westphalia, RP-Rhineland-Palatinate, SL-Saarland, SH-Schleswig-Holstein, BB-Brandenburg, MV-Mecklenburg-Western Pomerania, SN-Saxony, ST-Saxony-Anhalt, TH-Thuringia. 3 – Public funds, institutions and enterprises which are not counted to the general government sector. 4 – Public-sector employees as of 30 June, population as of 31 December 2015. GS-Health and sport , SJ-Social affairs and youth, IV-Internal administration, VE-Supply and disposal, SG-Other services, SO-Security and order, VA-Traffic areas and infrastructure, ST-School board tasks, KW-Culture and science, PE-Spatial planning and development, NL-Nature and landscape management. 5 – Price adjusted using the GDP deflator of the respective state (2014 = 100). 6 – Including waste-water management and environmental remediation activities. 7 – Including professional, scientific and technical services, as well as other economic services.

Quellen: Statistisches Bundesamt, eigene Berechnungen

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Like the ratio for the core budgets, the development of this approximate public investment ratio of public enterprises is quite stable. In 2014, public enterprises with commercial accounting – which do not belong to the extra budgets and are thus attributed to the private sector – accounted for a large proportion: 95 %. To date, no reactions have been noted at the municipal level to the debt brake which was introduced in 2009.

615. The problem with off-budget activities is the risk that **state activity might be concealed** if the relevant data is not adequately captured. The introduction of a mandatory municipal overall balance sheet including a report on holdings could counteract this information deficit; in this context, the annual results should be communicated in a timely manner. The outsourcing of tasks can involve a gradual loss of authority and control by the public sector. Monitoring off-budget activities can be complex. It cannot, therefore, always be guaranteed that spin-offs carry out their public task for the common good. In general, it is questionable whether the public sector should be active in all these areas or whether private companies are being displaced as a result.

616. Spin-offs are hardly regarded by the debt brake. Particularly Länder that have difficulty complying with the new debt rule might have an incentive to **pass on tasks and debt to them** (Fuest and Thöne, 2013). Therefore, at least the stricter European fiscal rules on calculating the budget deficit should be adopted for the German debt brake (GCEE Annual Report 2016, item 85).

4th Conclusion: Strengthening the alignment of liability and control

617. The fiscal situation in Germany is currently good. In addition to the favourable financing conditions and the positive economic situation, this is due to structural improvements. These consolidation successes should not be wasted. Additional challenges, especially those posed by demographic change, are already on the horizon. Current margins to the threshold values stipulated by national and European deficit rules are therefore **no reason to pursue an expansionary expenditure policy**. In addition, the orientation of fiscal policy is already procyclical. ↘ ITEMS 316 F. Rather, the focus should be on a growth-friendly design of fiscal policy. The burden of taxes and social security contributions should be reduced by lowering the contribution rate to unemployment insurance scheme by up to 0.5 percentage points. Furthermore, it would be appropriate to return the increase in tax revenue that has accumulated since 2010 as a result of bracket creep in income tax. Finally, a shift towards a growth-friendly expenditure structure should be given higher priority.

618. The fiscal situation of the Länder and municipalities has also improved overall. However, there are big differences. Bremen, Berlin, and Saarland in particular perform poorly in econometric tests. ↘ TABLE 26 **Future expenditure on civil servants' pensions will cause additional burdens for Länder budgets**. This expenditure has already been very dynamic over the last few years. In the past, the Länder were required by the federal level to set up pension reserve

funds. In future, allocations to these funds should be protected from discretionary and politically motivated influences. It would also be necessary for all Länder to publish the expected pension burden in a transparent form.

619. Large stocks of municipal short-term liquidity loans remain concentrated in the four non-city-states of Hesse, North Rhine-Westphalia, Rhineland-Palatinate and Saarland. The Länder should assume **greater responsibility for their municipalities** and, at the same time, **oversee their financial management more closely**. In future, at least municipal liquidity loans that have a maturity of more than one year should only be taken out from the respective Land, and these short-term liquidity loans should count towards the Länder deficit within the framework of the debt brake. By this measure, liability and control will be better aligned.

620. As a general rule, the stricter European fiscal rules on defining a budget deficit should be adopted for the German debt brake. This applies in particular to the delimitation of the public enterprises, since a large proportion of **public sector activity is outsourced**. **Better data** is needed for assessing the situation. For example, public minority stakes in enterprises are not recorded, and information on public enterprises that are assigned to the private sector is published late. It could prove useful to introduce a mandatory overall balance sheet for municipalities, including a report on holdings, in which the annual results are communicated in a timely manner.

A differing opinion

621. One member of the German Council of Economic Experts, Peter Bofinger, has a different opinion on two essential points presented in this chapter.

622. The attempt to deduce fiscal sustainability from an analysis of **past developments** assumes that the processes which took place in the years from 1950 to 2016 or from 1990 to 2016 can shed light on how governments will behave in the coming decades and how, accordingly, public finances will develop. However, it cannot be concluded from an increase in a country's public debt since the 1950s either that this development will continue, or that the level currently reached does not represent an optimum level.

623. **Model analyses** that map the countries of the euro area on the basis of two production factors with a uniform income tax rate and capital income respectively, and derive from this a limited potential for higher government revenue, should not be overstrained because of the simplicity of their modelling. And they are certainly not evidence that public indebtedness in the member states of the euro area is unsustainable.

624. All attempts to determine the sustainability of public debt face the fundamental problem that there is no scientifically deduced **target value for a country's**

debt-to-GDP ratio in the field of public finances. The Maastricht Treaty's 60 % ceiling represents an arbitrary figure. It was simply calculated from the average debt-to-GDP ratios of the member states in 1990. The attempt made by Reinhart and Rogoff (2010) to deduce a limit of 90 % failed. The concept of intertemporal **budget constraint** implicitly assumes a ceiling of zero, but this is de facto to be reached not in infinity, but within decades, depending on the discount factor chosen. It can be translated at any time into a concrete trajectory for the debt-to-GDP ratio.

625. The majority of Council members take a critical view of the European Commission's concept of **'fiscal stance'** for the euro area, stating that the proposal ignores the fact that, in a monetary union with a common monetary policy, national fiscal policy should first and foremost pursue the objective of stabilising the national economy; and that the idea of gearing fiscal policy towards the euro area is based on a line of reasoning that does not stand up to a critical examination.

626. The concept of a fiscal stance for the euro area stems from the 1989 **Delors Report**. It is justified as follows:

"However, an economic and monetary union could only operate on the basis of mutually consistent and sound behaviour by governments and other economic agents in all member countries. In particular, uncoordinated and diverging national budgetary policies would undermine monetary stability and generate imbalances in the real and financial sectors of the Community. Moreover, the fact that the centrally managed Community budget is likely to remain a very small part of total public sector spending and that much of this budget will not be available for cyclical adjustments will mean that the task of setting a Community-wide fiscal policy stance will have to be performed through the coordination of national budgetary policies. Without such coordination it would be impossible for the Community as a whole to establish a fiscal/monetary policy mix appropriate for the preservation of internal balance, or for the Community to play its part in the international adjustment process. Monetary policy alone cannot be expected to perform these functions."

627. This idea is by no means incompatible with the statement that national fiscal policy should stabilise the national economy. The decisive issue is which type of **shocks** are affecting the euro area and national economies:

– In the event of an **idiosyncratic** shock, it is true that national fiscal policy is under particular pressure in a monetary union, since the common monetary policy can only react partially to such a disturbance. This is an argument for not over-restricting the fiscal room for manoeuvre in a monetary union. The concept of the fiscal stance would then not entail any significant need for action even for the monetary union.

– In the event of a **shock that** affects **all member states** more or less equally, it is important to determine at the level of the monetary union how large the required overall fiscal impulse needs to be. The Great Recession showed that no major economic area managed to stabilise its economy by monetary

policy alone. If there is **uncoordinated behaviour** on the part of national governments, it cannot be automatically guaranteed that the individual fiscal efforts will be strong enough to generate the fiscal stance that is optimal for the currency area. This follows primarily from the fact that the fiscal stimulus, due to its cross-border impacts, has the character of a public good, especially for smaller economies or for larger, but very open economies. The fiscal stance required for the currency can turn out to be too small because of this **positive externality**.

628. The **phase after the Great Recession** offers an example of an inadequate fiscal stance of the euro area based on a fiscal policy operating at a purely national level. In the period from 2010 to 2012, the euro area had a considerable negative output gap. At the same time, a number of member states saw themselves forced to take substantial consolidation measures because of growing pressure from the financial markets.

At that time, **Germany** could have spread its consolidation over a longer period in order at least to avoid exerting any additional negative pressure on the euro area. Instead, Germany's structural deficit was reduced by 3.3 percentage points between 2010 and 2012, thus further strengthening the euro area's procyclical, restrictive fiscal stance. The euro area's structural deficit was reduced from −5.0 % to −1.9 %. Germany harmed itself with this policy. The strong recovery of the German economy, which had begun in 2010 after the Great Recession, slowed down significantly in 2012 and 2013.

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