

## Outlook for the German economy – macroeconomic projections for 2017 and 2018 and an outlook for 2019

*Germany's economy is on a sound upward path. The chief source of growth is buoyant domestic demand, which is being propelled by the upbeat situation in the labour market and rising household incomes. However, the highly favourable setting for household consumption at present looks set to turn slightly gloomy in the years ahead as demographic constraints soften employment growth and mounting energy prices erode consumers' purchasing power. Foreign business, which will continue to be held back next year by muted growth in global trade, should slowly gather steam as the markets for German exports improve, but this is unlikely to fully offset the less vibrant domestic activity.*

*In this scenario, the German economy could post calendar-adjusted growth rates of 1.8% this year and next, before expanding at a slightly flatter pace of 1.6% in 2018 and 1.5% in 2019 (1.9% in 2016 and 1.5% in 2017 in unadjusted terms). The rates of expansion expected throughout the projection horizon are therefore distinctly higher than the increase in potential output. Aggregate capacity utilisation at the end of the projection horizon is thus likely to be significantly higher than the long-term average. This will be accompanied by mounting labour market bottlenecks that are still being amplified by unfavourable demographics and will be a catalyst for brisker wage growth. Barring new expansionary measures, Germany's public finances are projected to continue generating surpluses, though these should fall slightly short of last year's figures. This is being driven by an expansionary fiscal stance which is being masked by upbeat cyclical factors and dwindling borrowing costs, however. A steady decline in the debt ratio is projected, possibly down to the 60% limit by 2019.*

*The sharp fall in energy prices is the chief reason why average consumer price inflation for 2016 remains distinctly muted. Only from next year onwards will the effect of domestic factors probably begin to become evident. As measured by the Harmonised Index of Consumer Prices (HICP), inflation could rise from 0.3% this year to 1.4% next year. Excluding energy, HICP inflation is expected to climb from 1.1% to 1.4%. With labour costs then projected to pick up more strongly, both the headline inflation rate and the rate excluding the energy component could increase to 1.7% in 2018 and 1.9% in 2019.*

*Compared with the June 2016 projection, expectations for economic growth have now been raised slightly for 2017 and pared back marginally for 2018. Expectations for inflation remain largely unchanged on the whole. The risks to projected economic growth appear balanced overall. Consumer price rises could be stronger than projected here, particularly in 2017, as oil prices have risen considerably since the assumptions were made. The risks appear balanced in the subsequent years, seeing as the rise in the price of crude oil is then likely to have less of an inflationary effect and it might not be possible to pass on higher labour costs to prices to the extent assumed here.*

## ■ Economic outlook<sup>1</sup>

*German economy temporarily grew at more moderate pace in 2016 Q2 and Q3, ...*

Following the robust fourth quarter of 2015 and first quarter of 2016, the German economy expanded at a solid, but more moderate, pace in the second and third quarters of 2016. As forecast in the June projection, real gross domestic product (GDP) rose by a total of 0.6% in the second and third quarter, after seasonal and calendar adjustment.<sup>2</sup> This meant that the aggregate economic upturn temporarily lagged somewhat behind the fairly robust underlying cyclical trend. On the one hand, this was because industry was not quite able to maintain the significantly higher production level from the start of the year. On the other hand, a number of special factors that had played a role in the particularly brisk domestic economy in the winter ceased to apply in the summer or even reversed. The crude oil price, for instance, which was still down considerably around the end of 2015 and start of 2016, started to climb again slightly. Because of the lapsing purchasing power gains this entailed, households' real disposable income, and hence their consumption, increased at a slower pace than before. In addition, construction output had been boosted by the mild winter weather. Despite fundamentally healthy construction activity, construction investment therefore suffered a setback. Finally, investment in machinery and equipment, which had previously risen very steeply, decreased again significantly.

*... but likely to see renewed brisk growth in 2016 Q4 and 2017 Q1*

As before, the domestic economy is generally in robust shape, however. What is more, a distinct upturn is on the horizon for export-oriented industry in the fourth quarter of 2016 and first quarter of 2017. Capacity utilisation in the manufacturing sector expanded further in October, foreign orders are heavily on the rise, and sentiment recently brightened significantly among enterprises. The German economy is therefore likely to once again grow with strong momentum in the fourth quarter of this year and first quarter of the next.

Over the course of the projection horizon, the outlook for foreign demand is clearly more subdued. The domestic economy will thus retain its role as the main pillar of economic growth. However, the very favourable conditions at present will tarnish somewhat over time. Employment is likely to rise at a less dynamic rate than in previous years owing to lower levels of immigration, an unfavourable outlook for German demographics and growing labour shortages. This will be accompanied by stronger increases in wages. However, since the dissipating effects of the past oil price drops are also causing consumer prices to rise more strongly again, households' real income growth is being curbed overall. It can therefore be expected that private consumption will slacken slightly. The same applies to housing construction investment. Finally, additional government expenditure in connection with refugees is likely to taper slightly in the coming years, which is one factor in the incremental decline in the expansiveness of fiscal policy. This means that the domestic economy will lose some momentum. Initially, exports are likely to see major growth in the fourth quarter of 2016 and first quarter of 2017, but over the course of the projection horizon they will suffer from the rather hesitant recovery in world trade (see the box on pages 20 to 23). The gradual and slight acceleration in exports – and the resultant higher level of industrial investment – will therefore be unable to fully offset the weaker overall domestic activity.

*Domestic economy to lose some momentum over projection horizon, which slightly higher export growth will not fully offset*

Following robust increases of 1.8% in both 2016 and 2017, calendar-adjusted real GDP could thus rise somewhat more sluggishly in the two subsequent years, at 1.6% and 1.5% respectively. In unadjusted terms, the picture is less even, with growth rates of 1.9% and 1.5% for 2016 and 2017 respectively, particularly be-

*Economic growth steep in 2016 and 2017, subsequently somewhat weaker*

<sup>1</sup> This projection for Germany was completed on 24 November 2016. It was incorporated into the projection for the euro area published by the ECB on 8 December 2016.  
<sup>2</sup> See Deutsche Bundesbank, Outlook for the German economy – macroeconomic projections for 2016 and 2017 and an outlook for 2018, Monthly Report, June 2016, pp 13-28.

cause of the differing number of working days (see the bottom table).<sup>3</sup> This means that a slightly higher level of calendar-adjusted GDP growth is expected in 2016 and 2017 than was assumed in the June projection (see the table on page 28). Besides upward revisions in the fourth quarter of 2015 and first quarter of 2016, this is mainly due to the present more favourable assessment for the fourth quarter of 2016 and first quarter of 2017. For 2018, however, the expectations were revised downwards slightly, reflecting the weaker assumptions for sales market growth of German exporters.

*Capacity utilisation at end of projection horizon clearly stronger than long-term average*

According to this projection, growth in the German economy will consistently outpace potential output by a significant margin, with the latter's growth subsiding from 1.4% this year to 1.3% in the next two years and 1.2% in 2019. One reason for this is the assumption of diminishing net immigration. Another is that the dampening effect of German demographics on labour force potential will tend to keep increasing. The positive output gap, which is already marked this year, will therefore widen increasingly, with the result that capacity utilisation at the end of the projection horizon will be significantly higher than the long-term average.

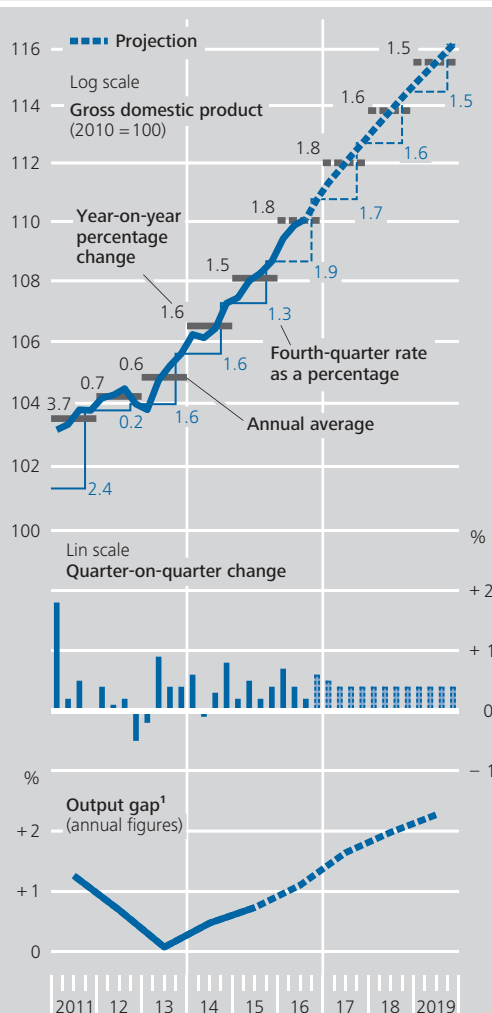
*Exports to climb slowly after brief spurt*

German exports are likely to gain significant momentum temporarily. In the short term, following the slight decline in the third quarter, a substantial increase in exports is expected given the marked surge in orders from abroad and enterprises' high export expectations. However, the sales markets will recover only hesitantly in tandem with world trade. Initially, less impetus is thus expected to emanate from for-

<sup>3</sup> The pronounced negative calendar effect in 2017 is due not only to the general calendar pattern, but also to the 2017 Reformation Day being declared a public holiday in all federal states to mark the 500th anniversary. This one-off effect additionally dampens the GDP increase in 2017 by around 0.1 percentage point in purely arithmetical terms.

## Aggregate output and output gap

Price, seasonally and calendar-adjusted



Sources: Federal Statistical Office and Bundesbank calculations. 2016 to 2019 Bundesbank projections. <sup>1</sup> Deviation of GDP from estimated potential output. Deutsche Bundesbank

## Technical components of the GDP growth projection

% or percentage points

Item	2016	2017	2018	2019
Statistical carry-over at the end of the previous year <sup>1</sup>	0.5	0.7	0.6	0.6
Fourth-quarter rate <sup>2</sup>	1.9	1.7	1.6	1.5
Average annual GDP growth rate, calendar-adjusted	1.8	1.8	1.6	1.5
Calendar effect <sup>3</sup>	0.1	-0.3	0.0	0.0
Average annual GDP growth rate <sup>4</sup>	1.9	1.5	1.6	1.5

Sources: Federal Statistical Office; 2016 to 2019 Bundesbank projections. <sup>1</sup> Seasonally and calendar-adjusted index level in the fourth quarter of the previous year in relation to the calendar-adjusted quarterly average of the previous year. <sup>2</sup> Annual rate of change in the fourth quarter, seasonally and calendar-adjusted. <sup>3</sup> As a percentage of GDP. <sup>4</sup> Discrepancies in the totals are due to rounding.

Deutsche Bundesbank

### Business situation and expectations

2005 = 100, seasonally and calendar-adjusted, log scale

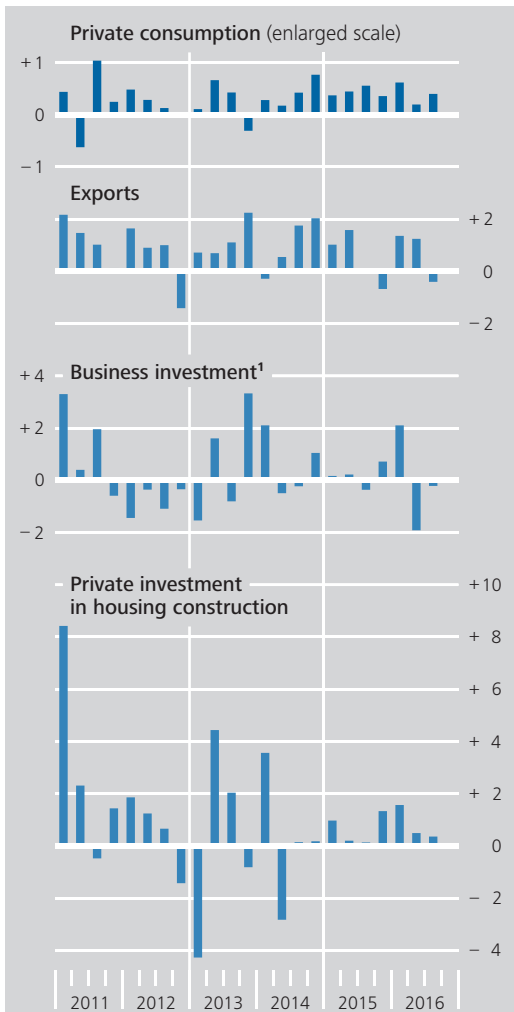


Source of the unadjusted figures: Ifo Institute. **1** For the next six months.

Deutsche Bundesbank

### Major demand components

Quarter-on-quarter percentage change, price, seasonally and calendar-adjusted



Source: Federal Statistical Office (national accounts). **1** Private non-residential fixed capital formation.

Deutsche Bundesbank

eign demand over the rest of the horizon.<sup>4</sup> Exports should subsequently realign more strongly with the sales markets, whose growth rate will rise only slightly over the projection horizon. In this context, export growth is likely to be somewhat slower than growth in the global sales markets. For one thing, the price competitiveness of German enterprises in intra-euro-area trade is deteriorating, as unit labour costs are rising more sharply than in other EMU member states. For another, German exports to non-euro-area countries are likely to be dampened, over and above the direct sales market effect, by the impact of the United Kingdom's intended exit from the European Union (EU) and China's shift in demand towards consumer goods. Both developments particularly affect capital goods, which make up a large share of Germany's exports. German exporters may well gain a little price competitiveness over their competitors in non-euro-area countries thanks to lower price rises, but this is unlikely to be sufficient to completely prevent losses of market share.

In the second and third quarter, business investment was unable to expand slightly on the level previously reached, as it had been expected to do, and instead declined substantially. This could reflect a wait-and-see attitude among export-oriented enterprises in German industry in view of heightened uncertainty surrounding the outlook for international trade. Industrial investment is also likely to see renewed distinct growth given the recent significant improvement in sales expectations and majorly increased capacity utilisation in the manufacturing sector, plus the temporary acceleration in the pace of economic growth expected in the fourth quarter of 2016 and first quarter of 2017. Over the course of 2017, as well, the underlying cyclical trend will remain

*Favourable conditions for clear hike in business investment*

<sup>4</sup> Whereas the results of the Ifo business survey on export expectations point to robust exports around the end of 2016 and start of 2017, the export expectations outlined in the survey of the German Chambers of Commerce and Industry (DIHK), which spans the entire year, indicate a subdued export outlook.

robust enough – thanks to substantial domestic demand – that aggregate capacity utilisation will increase further. As a result, enterprises are likely to once again be faced with more urgent expansions to their production capacity. Furthermore, financing terms are still advantageous and somewhat stronger export growth is also expected again in the later years of the projection horizon. The conditions for significantly expanding business investment are therefore favourable.

*Housing construction initially very dynamic, later somewhat less lively*

Unlike business investment – including non-residential construction – housing construction investment continued to expand in the second and third quarter of 2016, exceeding the expectations of the June projection. The expansionary underlying trend in housing construction is due, chiefly, to households' favourable income situation and low financing costs. Impetus is also likely to come from the ongoing high level of labour-market-oriented immigration. The higher growth in housing investment since the fourth quarter of 2015 and first quarter of 2016 may also stem from the need for housing arising from refugee immigration last year.<sup>5</sup> Housing construction is likely to continue growing steeply in the first instance, given the high level of orders, the business conditions and outlook considered by construction companies to be extraordinarily good, and the extremely high utilisation of machinery and equipment. The gradual processing of the accumulated orders could see construction lose momentum significantly after that, however. As immigration dwindles, the trends determined by domestic demographics are likely to gradually take shape in the form of lower demand for housing and dampened housing construction activity.

<sup>5</sup> Additionally, anticipatory effects relating to the approval of construction projects, in connection with the requirements for the energy standards of new residential buildings being tightened as of the end of 2015 and start of 2016, may also have partially impacted on construction investment.

## Key figures of the macroeconomic projection

Year-on-year percentage change, calendar-adjusted<sup>1</sup>

Item	2015	2016	2017	2018
GDP (real)	1.5	1.8	1.8	1.6
GDP (real, unadjusted)	1.7	1.9	1.5	1.6
Components of real GDP				
Private consumption	1.9	1.7	1.6	1.5
<i>Memo item</i> Saving ratio	9.7	9.6	9.6	9.5
Government consumption	2.8	4.1	2.3	2.0
Gross fixed capital formation				
Business investment <sup>2</sup>	0.9	1.2	2.1	2.9
Private investment in housing construction	1.0	3.5	3.7	2.9
Exports	4.6	2.3	3.2	3.4
Imports	5.1	3.1	4.1	4.5
<i>Memo item</i> Current account balance <sup>3</sup>	8.4	8.9	8.1	7.8
Contributions to GDP growth <sup>4</sup>				
Domestic final demand	1.8	2.2	1.9	1.8
Changes in inventories	-0.4	-0.2	0.0	0.0
Exports	2.1	1.1	1.5	1.6
Imports	-2.0	-1.2	-1.6	-1.8
Labour market				
Total number of hours worked <sup>5</sup>	0.6	0.8	0.9	0.7
Employed persons <sup>5</sup>	0.9	1.0	0.9	0.6
Unemployed persons <sup>6</sup>	2.8	2.7	2.6	2.6
Unemployment rate <sup>7</sup>	6.4	6.1	5.9	5.8
Wages and wage costs				
Negotiated pay rates <sup>8</sup>	2.3	2.1	2.1	2.7
Gross wages and salaries per employee	2.7	2.4	2.4	2.9
Compensation per employee	2.4	2.2	2.4	2.8
Real GDP per employed person	0.6	0.7	0.9	1.0
Unit labour costs <sup>9</sup>	1.9	1.4	1.5	1.8
<i>Memo item</i> GDP deflator	2.0	1.4	1.5	1.8
Consumer prices <sup>10</sup>				
Excluding energy	1.1	1.1	1.4	1.7
Energy component	-7.0	-5.7	0.8	1.7

Sources: Federal Statistical Office; Federal Employment Agency; 2016 to 2018 Bundesbank projections. **1** If calendar effects present. For unadjusted data see the table on p 31. **2** Private non-residential fixed capital formation. **3** As a percentage of nominal GDP. **4** In arithmetical terms, in percentage points. Discrepancies in the totals are due to rounding. **5** Domestic concept. **6** In millions of persons (Federal Employment Agency definition). **7** As a percentage of the civilian labour force. **8** Monthly basis (pursuant to the Bundesbank's negotiated wage index). **9** Ratio of domestic compensation per employee to real GDP per employed person. **10** Harmonised Index of Consumer Prices (HICP).

## Underlying conditions

This projection is based on assumptions, made by the Eurosystem's experts, about the global economy, exchange rates, commodity prices and interest rates. The assumptions are based on information available as at 17 November 2016. The assumptions regarding economic activity in the euro area are derived from projections made by the national central banks of the euro-area countries. With regard to fiscal policy, the projection incorporates only measures which have been adopted or adequately specified and are likely to be implemented.

The global economy was able to step up its pace of expansion somewhat in the third quarter of 2016. Global growth was thus largely in line with the expectations of the previous projection exercise. The underlying pace of economic activity in the United States remains moderate, which means that it will probably be difficult to maintain the strong rate of growth seen in the third quarter in the following period.<sup>1</sup> Despite the fact that, following the referendum on membership of the European Union (EU), the UK economy initially proved to be more robust than assumed, weaker UK economic growth is expected for the coming years, in particular owing to a gloomier outlook for private consumption, foreign trade and investment. For the advanced economies as a whole, no strengthening of growth is assumed over the projection horizon beyond the rates expected for the second half of 2016.

The pace of growth in the emerging market economies (EMEs) has regained some momentum of late. The commodity-exporting EMEs are benefiting from rising prices for their export products, and at least the re-

cession in Russia appears to have ended. China currently finds itself in a transition to a less investment and export-driven growth model. The accompanying negative effects on economic growth are being largely cushioned by an expansionary monetary and fiscal policy, which means that economic growth will slow down only gradually over the next few years, too. Overall, for the EMEs it is expected that the coming years will see only a slight increase of the recently achieved growth rates. As a result, the outlook was revised downwards slightly compared with the June projection – much like for the industrial countries. The current projection assumes that the global economy (excluding the euro area and weighted by purchasing power parities) will grow by 3% in the current year. The rates of growth are likely to accelerate only slightly at 3½% in 2017 and 3¾% for both 2018 and 2019.

As 2016 progressed, global trade was again slightly below the expectations of the preceding projection. In particular, the exports of the advanced economies were disappointing in the second and third quarters and grew at rates similar to those of EMEs' imports. Over the projection horizon, too, imports – especially for the industrial countries – are expected to pick up more slowly than was thought as recently as June. Overall, following growth of 1% in the current year, it is assumed that rates of increase for international trade (excluding the euro area)

---

<sup>1</sup> The projection for the global economy is not based on any potential implications of the impending change in the US government which go beyond the market expectations that are incorporated into the interest rate and exchange rate assumptions and short-term heightened uncertainty. This concerns, in particular, possible fiscal policy measures, restrictions on trading relations and migration.



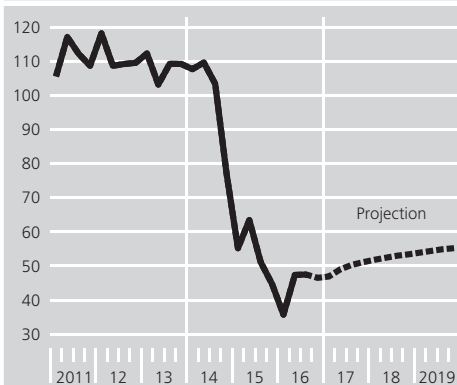
will amount to 2¾% in 2017 and 3¾% in both 2018 and 2019.

Since the June projection was finalised, crude oil prices having been moving within a relatively narrow band between US\$45 and US\$50 per barrel. The forward prices, from which the assumptions for crude oil prices are derived, continue to point to a very flat increase over the projection horizon. For 2017 and 2018, the crude oil prices on which this projection is based thus stand only marginally above the movement assumed for the June projection. For 2019, the forward quotations show a further slight rise to US\$54.6 for a barrel of Brent Crude. Owing to the appreciation of the US dollar against the euro, oil prices are, in euro terms, somewhat more clearly above the assumptions of the June projection. The prices of other raw materials went down somewhat in September and October, but should recover again towards the end of the year. With the expected moderate growth in the global economy, commodity prices are likely to go up again from 2017, including on an annual average.

The Eurosystem continued to make purchases as part of the expanded asset purchase programme (APP). These are to be maintained until the Governing Council of the ECB sees a sustained correction of the inflationary path in the euro area consistent with its aim of achieving inflation rates below, but close to, 2% over the medium term.<sup>2</sup> The accommodative monetary policy has helped to keep interest rates at a very low level since the June projection was finalised. Market expectations with regard to future interest rate movements, on the other hand, are somewhat more clearly pointing upwards. This is reflected in the technical assumptions – derived from these expectations – about future developments in short-term interest rates and yields on

### Oil price

US\$ per barrel, quarterly



Sources: Thomson Reuters and Bundesbank calculations. 2016 Q4 to 2019 Q4 projection assumptions. Deutsche Bundesbank

### Major assumptions of the projection

Item	2016	2017	2018	2019
Exchange rates of the euro				
US dollar/euro Effective <sup>1</sup>	1.11	1.09	1.09	1.09
Interest rates				
Three-month Euribor	-0.3	-0.3	-0.2	0.0
Yield on government bonds outstanding <sup>2</sup>	0.1	0.4	0.6	0.8
Commodity prices				
Crude oil <sup>3</sup>	44.3	49.3	52.6	54.6
Other commodities <sup>4, 5</sup>	-4.0	6.6	3.8	4.5
German exporters' sales markets <sup>5, 6</sup>	2.4	3.0	3.7	3.8

<sup>1</sup> Compared with the currencies of the 38 most important trading partners of the euro area (EER-38 group of currencies); 1999 Q1 = 100. <sup>2</sup> Yield on German government bonds outstanding with a residual maturity of over nine and up to ten years. <sup>3</sup> US dollars per barrel of Brent crude oil. <sup>4</sup> In US dollars. <sup>5</sup> Year-on-year percentage change. <sup>6</sup> Working-day adjusted.

Deutsche Bundesbank

nine to ten-year government bonds. Even so, they will be staying at a very low level

<sup>2</sup> At the time the projection was finalised, the decision by the Governing Council of the ECB to continue the purchases at least until March 2017 with a monthly volume of €80 billion was still in effect. On 8 December 2016, and thus after this projection had been finalised, the ECB Governing Council took a decision to continue its asset purchases until at least December 2017. The volume is set to be reduced to €60 billion per month as from April 2017.

up to the end of the projection horizon. The same applies to interest rates on bank loans in Germany. According to the Ifo credit constraint indicator and the special analysis of access to funding from the late summer survey of the Association of German Chambers of Commerce and Industry (DIHK), access to credit is still extremely favourable. The DIHK autumn survey also shows financing conditions as very advantageous.

Expectations with regard to the future monetary policy stance of the US Fed have changed since the June projection was finalised and led to perceptible fluctuations in the euro-US dollar exchange rate. Since the end of September, positive economic data from the US have been strengthening the US dollar. Against the backdrop of speculation about future large-scale debt-financed public spending programmes, a marked rise in yields began in the United States after the US presidential election. The euro came under further downward pressure as a result. This development is partly reflected in the time horizon that is relevant for the derivation of exchange rate assumptions. The euro was trading at US\$1.09 and thus 4½% below the assumptions for the June projection. Following the UK referendum on continued EU membership, however, the euro appreciated markedly against the pound sterling. Besides market players' concerns about the negative impact on the British economy, the Bank of England cutting official interest rates in early August was a contributory factor in this context. In nominal effective terms, ie in relation to the most important countries for foreign trade, the euro therefore depreciated only marginally and nearly matched the assumptions of the June projection.

The euro-area economy continued its recovery process in the second and third quarters in line with the moderate under-

lying pace expected in the June projection. A slight strengthening of growth is expected for the final quarter of 2016 and the first quarter of 2017. Domestic demand is likely to go on generating strong impulses over the projection horizon. Private consumption is benefiting from the ongoing robust growth in employment and fairly high wage increases. Given rising capacity utilisation and if favourable financing conditions remain in place, investment, too, is likely to continue its gradual recovery. Following their temporary dip in the third quarter, exports should return to the expansionary path that is consistent with the growth of sales markets abroad. Owing to persistent low inflation, greater price competitiveness in third markets could have a positive impact.

Despite the less powerful external stimuli from third countries, expected GDP growth for the euro area (excluding Germany) over the next two years will be 1.7% and 1.6% in calendar-adjusted terms, which is roughly as high as in the June projection. Growth of 1.6% is also expected for 2019. This could mean that aggregate capacity utilisation in the euro area is roughly at a normal level again in 2019.

With regard to public finances in Germany, the fiscal policy measures that are taken into account will marginally reduce the burden of taxes and social security contributions. The contribution rate for the public long-term care insurance scheme is to be increased in 2017, and the average of the additional contribution rates to the statutory health insurance scheme is likely to go up noticeably from 2018. Factors which weigh slightly more heavily, however, are the shortfalls in revenue resulting from the incorporated legislative changes, mainly as a result of the scheduled higher tax allowances and shifts in negotiated rates of pay



in the case of income tax in 2017 and 2018, as well as the phased changeover to a downstream taxation of pensions. The measures on the expenditure side will place a heavier strain on government budgets. A good part of this is connected with the 2017 reform of long-term care, which is likely to bring a marked increase in spending on care (with a time lag in some cases). Moreover, more funds are to flow into transport infrastructure, schools and child day-care, in particular, as well as into internal security and the armed forces.

In view of developments over the course of the year, the assumptions on the scale of refugee migration to Germany have been revised downwards substantially from the last projection.<sup>3</sup> Additional government spending on providing for refugees is likely to increase by roughly ½% of GDP in the current year (compared with 2014, ie prior

to the strong immigration in 2015) and then fall slightly by the end of the projection horizon.

---

<sup>3</sup> See p 25.

*Clear increase in government investment*

Government investment is likely to see markedly stronger growth than GDP over the entire projection horizon.<sup>6</sup> For example, central government is planning to spend more on infrastructure, and its promotion of investment in financially weak local governments<sup>7</sup> is also set to rise significantly. Primarily, however, the relatively healthy budgetary situation in many state and local governments (partly thanks to greater relief provided by central government) is likely to be used, not least, to step up investment.

*Gross fixed capital formation to grow fairly substantially*

This therefore gives rise, on the whole, to fairly substantial increases in gross fixed capital formation over the next two years. As things currently stand, a slightly smaller expansion of fixed capital formation is to be expected for 2019, as the slower pace of residential construction is then likely to make itself felt.

Private consumption, which had previously expanded very rapidly, lost a small amount of momentum in the second and third quarter.

This was chiefly due to the fact that real disposable income grew more slowly than had been expected in June. However, the underlying trend in private consumption remains on a clear upward trajectory and will be determined over the projection horizon by the still favourable conditions on the labour market. Subsequently, the dampening effect of the slower projected employment growth on disposable income will be more than offset by the stronger rises in wages and other income. However, the stimulus effects of depressed inflation caused by the fall in the price of oil in the last two

*Households' consumer spending continues to rise markedly, albeit with waning momentum*

---

<sup>6</sup> Developments are very volatile, though, especially in government investment in machinery and equipment. The strong fluctuations in this are mainly due to military procurements, which are recorded in full in the national accounts at the time of delivery.

<sup>7</sup> To date, hardly any funds have been disbursed from the fund to promote municipal investment set up for this purpose, probably also because this requires settlements of at least partially completed projects. The draft supplementary budget for 2016 approved by the Federal Cabinet at the end of November, involving the doubling of the fund's volume to €7 billion, was not yet incorporated.

years will gradually disappear as inflation rises. While the saving ratio could edge downwards, as some of the oil-price-related gains in purchasing power were initially saved, this will not be sufficient to fully offset this effect. Therefore, household consumer spending is likely to continue to rise markedly, though with slightly diminishing momentum as time goes by.

*Continued growth in government consumption in the coming years*

Government consumption has grown particularly strongly this year, owing to additional non-financial benefits and personnel costs relating to refugee immigration. As of the coming year, expenditure on this front<sup>8</sup> is expected to grow at a slower rate, but the rate of increase in government consumption is still expected to be above the rate of GDP growth. This is chiefly attributable to a relatively strong rise in health expenditure and an expansion of the benefits granted in the wake of the 2017 long-term care reform.

*Strong rise in imports expected following muted growth in 2016*

Imports experienced a period of weakness in the second and third quarter of 2016, scarcely moving above their level in the previous six-month period. A key reason for this was the fall in investment in machinery and equipment. However, this development is likely to be reversed owing to the expected strengthening of industrial investment over the projection horizon. An additional boost comes from the slight increase in the growth of exports, which draw on imports to an even greater extent than investment in machinery and equipment. Ultimately, due to the increasing international division of labour, the import shares in key demand components are expected to continue to rise moderately. Overall, imports are therefore likely to rise significantly in the coming years.

*Moderate fall in the current account balance expected as of 2017*

Together with the expected development in exports, this results in a slightly declining trade surplus over the projection horizon. The renewed increase this year has been attributable solely to the lower annual average crude oil and commodity prices and the associated robust improvement in the terms of trade.

Looking ahead, it is assumed that the increase in import prices seen of late will continue and that the terms of trade will remain stable on the whole. At the start of the year, the rise in the balance on the current account had actually been markedly higher still than the trade surplus. However, this was predominantly attributable to the unusually small deficit in secondary income. It has since contracted noticeably and is expected to shrink further over the projection horizon. However, this fall is not expected to exceed the contraction in the trade balance, as primary income is expected to continue to post high surpluses owing to the continued rise in foreign assets.

## ■ Labour market

Employment increased in the second and third quarter of 2016, albeit more slowly than before and also less strongly than expected in the June projection. Contrary to initial expectations, registered unemployment continued to fall. This was partially attributable to the fact that labour market policy measures for refugees were expanded with greater intensity than anticipated. In addition, the number of unemployed among both residents and other immigrants also fared much better than had been expected under the previous projection.

*Employment, but also unemployment, lower than expected in the second and third quarter*

According to leading indicators, the essentially favourable development on the labour market is likely to again feature more prominently in the coming months, and employment is likely to increase at a faster rate. Unemployment is expected to fall further, albeit at a slower rate of decline. Among the unemployed, the share of persons facing multiple placement difficulties is now relatively high. Furthermore, despite labour market policy measures, the number of unemployed refugees will continue to rise at first.

*Favourable labour market development in the short run*

<sup>8</sup> As the number of recognised asylum seekers rises, so too do means-tested monetary social transfers. However, overall, there is a slight fall in expenditure.

*Demographic-related scarcity of domestic workers, which has already been observed for some time, ...*

In the latter years of the projection horizon, demographic and other structural factors are likely to lead to increasing labour supply shortages. The number of working-age residents<sup>9</sup> has already been falling for a number of years, and this development will intensify in future. If demand for labour remains high, the scarcity this causes can, in principle, be counteracted through employment-related immigration and higher labour market participation among the domestic population. However, both adjustment mechanisms are likely to have an increasingly minor impact over the projection horizon than they have had on average in recent years.

*... set to increasingly outweigh the offsetting effect of employment-related immigration and ...*

Employment-related immigration is already at a very high level and in recent years has been made up primarily of people from other EU member states, particularly from eastern Europe. Freedom of movement of workers from countries in eastern Europe was introduced in stages from May 2011 to July 2015. Immigration from the respective countries of origin increased considerably in the first few years in each case. However, immigration from the EU-8 countries of central and eastern Europe,<sup>10</sup> whose citizens were the first of the new member states to be granted freedom of movement, already peaked some time ago. A similar profile is assumed over the projection horizon for immigration from Romania, Bulgaria and Croatia. The number of immigrants from the southern European euro-area countries, which were particularly affected by the sovereign debt crisis, has also fallen considerably in the meantime with the economic recovery in these countries. Furthermore, from the present perspective, refugee immigration is likely to recede markedly from its peak in 2015.<sup>11</sup> Despite a relatively high assumed recognition rate,<sup>12</sup> it is likely that a sizeable portion of the refugees that arrived in 2015/2016 will have to leave Germany again in the coming months and years. Therefore, net immigration of asylum seekers is likely to be low, and net immigration overall could thus fall considerably. It is assumed that it will amount to 300,000 people in 2019, only half as many as on average between 2012

## Employment indicators for Germany

Seasonally adjusted



Sources: Ifo business survey, Institute for Employment Research (IAB). <sup>1</sup> Index values on a scale from 90 (very poor outlook) to 110 (very good outlook). Deutsche Bundesbank

and 2016 (for the migration assumptions, see the table on page 26).

The growth in labour market participation in 2015 and 2016 has been weaker than its trend in recent years, being curbed by one-off effects such as the option to retire on a full pension at

*... increasing labour force participation over the coming years*

<sup>9</sup> The labour force potential is calculated using the comprehensive definition of the International Labour Organisation (ILO) for people aged 15 to 74. This includes the hitherto relatively small but fast growing group of people in the labour force aged 65 to 74. The gradual increase in the statutory pension age beyond the age of 65 also plays a role in this.

<sup>10</sup> The EU-8 countries are Poland, the Czech Republic, Slovakia, Hungary, Slovenia, Lithuania, Latvia and Estonia.

<sup>11</sup> Since March 2016, the monthly inflows have been moderate, at around 16,000 people gross per month, and are set to continue at roughly the same level. The June projection assumed higher refugee immigration.

<sup>12</sup> The projection assumes that the proportion of refugees recognised as refugees will be initially just over 60% before falling considerably over the projection horizon. Of the 530,000 asylum decisions made by the German Federal Office for Migration and Refugees (Bundesamt für Migration und Flüchtlinge, BAMF) between January and October 2016, the overall recognition rate was 64%. The average recognition rate for the 2010 to 2015 period was 37%.

## Migration assumptions

In thousands of persons

Item	2015	2016	2017	2018	2019
Total migration flows					
Inflows	2,140	1,550	1,400	1,300	1,200
Outflows	1,000	1,050	1,000	950	900
Net inflows	+ 1,140	+ 500	+ 400	+ 350	+ 300
<i>of which Asylum channel</i>					
Inflows	890	260	250	200	200
Outflows	150	200	220	170	150
Net inflows	+ 740	+ 60	+ 30	+ 30	+ 50

Sources: Federal Statistical Office and Federal Ministry of the Interior, rounded. Outflows of refugees: Bundesbank estimate. Bundesbank projections for the 2016-19 period.

Deutsche Bundesbank

63 for persons insured on a long-term basis, the general statutory minimum wage and refugee immigration. By contrast, in 2017, labour force participation will initially probably expand again considerably, for two reasons in particular. Labour force participation among the older age groups is likely to increase again markedly as the one-off effects dissipate. Furthermore, the dampening effect stemming from refugees is being reversed as they are gradually integrated into the labour market. In the following years, however, the fact that reserves in the domestic population have already been largely activated in recent decades is likely to make

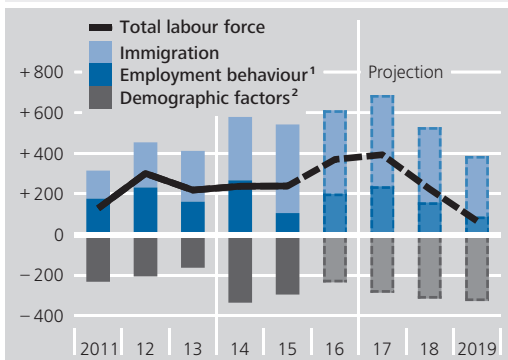
itself increasingly felt. Female labour market participation, in particular, is already fairly high by international standards.<sup>13</sup> The rise in labour force participation towards the end of the projection horizon will therefore be increasingly limited to those over the age of 55.

Overall, declining immigration and, post-2017, slower growth in labour force participation will result in the negative domestic demographic effects having an increasingly strong impact on the labour supply. The labour force, which could grow by ¾% in both 2016 and 2017, will accordingly expand by only ½% in 2018 and noticeably less again in 2019. While unemployment could still fall slightly, here, too, the scope for this to happen will probably become more limited because of the already low level under the given conditions. The high employment growth this year and next year is likely to lose considerable momentum thereafter. However,

*High employment growth to weaken considerably after 2017*

## Labour force in Germany

Year-on-year change, in thousands of persons



Sources: Federal Statistical Office and Bundesbank calculations. 2016 to 2019 Bundesbank projections. <sup>1</sup> Of domestic workers. <sup>2</sup> Contains changes in the domestic labour force as well as changes resulting from shifts in the age structure of the domestic population to labour force participation.

Deutsche Bundesbank

<sup>13</sup> In contrast to the comparatively high labour market participation of women in Germany, the average number of hours they work is actually rather low by international standards. There are still reserves here for a higher volume of work. This is taken into account in this projection by assuming an increasing amount of hours worked per person in employment. The expansion of child day-care and long-term care infrastructure should support this. However, the increase in total hours worked will probably be limited to 2018 and 2019 and be rather moderate, as the trend to more part-time work – which has weakened considerably in recent years – is moving in the opposite direction.

marginally rising hours worked per person in employment and higher productivity gains on the back of the healthy economy will probably limit the negative impact of labour market shortages on macroeconomic activity.

## ■ Labour costs and prices

*Negotiated pay rates up only moderately to begin with, but growth increasingly steeper from 2018*

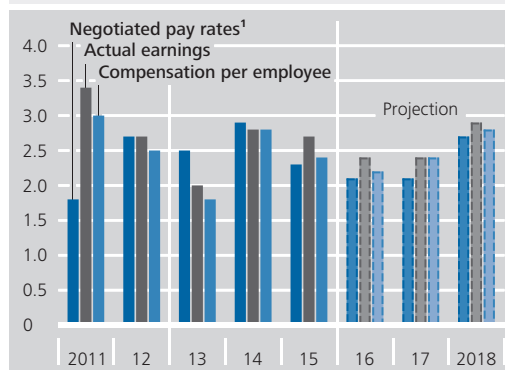
As in 2016, negotiated rates of pay are likely to experience only moderate growth in 2017. Despite the favourable labour market situation and the positive economic outlook, management and labour in this year's wage-bargaining round agreed not only on quite moderate pay increases for 2016, but also, in many instances, on graduated increases for 2017 which tended to be even lower. The temporarily subdued inflation rate caused by the fall in oil prices may have contributed to this. In addition, new agreements as part of a comparatively "small" bargaining round are pending, primarily in services industries with below-average wage dynamics. While some factors that depressed the figures for 2016 no longer apply, it is for these reasons that more substantial increases in negotiated rates of pay are not yet to be expected in 2017 either.<sup>14</sup> In the following years, however, they should then be distinctly higher on account of the ever-tightening labour market, climbing capacity utilisation rates and stronger price inflation.

*Stronger growth likewise for unit labour costs from 2018 following certain lull*

According to the projection, the persistently favourable economic situation and increasing working hours will also be reflected in a positive wage drift in the form of higher bonus and overtime payments.<sup>15</sup> Actual earnings, while following a similar time profile to negotiated rates of pay, will therefore see stronger growth over the entire projection horizon. The restrained compensation increases in 2016 and 2017 mean that the ongoing comparatively substantial upsurge in unit labour costs from 2012 onwards will be slightly weaker temporarily. From 2018, though, unit labour costs will pick up again, despite increasing productivity

### Negotiated pay rates, actual earnings and compensation of employees

Year-on-year percentage change, monthly basis



Sources: Federal Statistical Office. 2016 to 2018 Bundesbank projections. <sup>1</sup> According to the Bundesbank's negotiated wage index.

Deutsche Bundesbank

gains having a dampening effect, as is commonly the case with booms.

Assuming profit margins remain broadly unchanged, as they have in previous years, the profile of unit labour costs will determine domestic price pressures which, as measured by the GDP deflator, are expected to rise from around 1½% this year and next year to 2% by the end of the projection horizon. These domestic inflationary effects will not be fully reflected in consumer prices to begin with, however, on account of international factors alleviating the price pressures. With the expected pick-up in import prices, mainly driven by higher energy prices, the domestic price pressures should increasingly start to show in the form of higher consumer prices.

*Domestic price pressures measured by GDP deflator greater over medium term*

Growth in consumer prices over the past few months has been somewhat stronger than

<sup>14</sup> All past pay agreements included in the Bundesbank's negotiated pay rate statistics are taken into consideration in the projections of negotiated wage increases and extrapolated beyond their contractual term, taking into account the overall economic situation and industry-specific features.

<sup>15</sup> All other things being equal, the general statutory minimum wage adjustments which take place every two years lead to fluctuations in the wage drift. In years where the minimum wage is raised – ie 2017 and 2019 in this projection period – the positive wage drift will be slightly strengthened, whereas it will be reduced to a similar degree in 2018.

**Revisions since the  
 June 2016 projection**

Year-on-year percentage change

Item	2016	2017	2018
<b>GDP (real, calendar-adjusted)</b>			
Projection from December 2016	1.8	1.8	1.6
Projection from June 2016	1.6	1.6	1.7
Difference in percentage points	0.2	0.2	-0.1
<b>Harmonised Index of Consumer Prices</b>			
Projection from December 2016	0.3	1.4	1.7
Projection from June 2016	0.2	1.5	1.7
Difference in percentage points	0.1	-0.1	0.0

Deutsche Bundesbank

*Inflation to date somewhat higher than forecast in June owing to energy and food*

expected; the June projection had assumed annual HICP growth for October of 0.3%, compared with the actual rate of 0.7%.<sup>16</sup> Approximately half of this discrepancy can be put down to the energy component. Prices for mineral oil products jumped higher than anticipated on account of steeper growth in crude oil prices and the fact that the wider refinery margins did not contract back to their long-term average as assumed. The cost of food, too, was up contrary to expectations, with adverse weather conditions in the third quarter in particular probably playing a role in shortening supply. Price inflation on industrial goods excluding energy and services, by contrast, fell somewhat short of expectations.

*Impact of positive domestic activity on prices not yet visible in 2016 ...*

In 2016, average consumer price inflation was distinctly dampened by the slump in the price of crude oil at the turn of the year 2015-16, and HICP inflation is expected to amount to a mere 0.3%, compared with a prospective figure of 1.1% for HICP inflation excluding energy. Non-energy inflation would thus lie somewhat below the ten-year average, despite distinct overutilisation in the economy as a whole. This was partly due to the fact that, in spite of the temporary weather-induced price surge in the third quarter, food price inflation continued to be slowed by an oversupply in some product categories. As was the case in 2015, inter-

national influences in the form of reduced prices for other commodities, excess capacity at the global level, and lower rates on hotels for travel abroad also alleviated pressure. Moreover, rises in unit labour costs slowed somewhat.

Non-energy inflation is likely to grow considerably over the course of the projection horizon. External factors, which are still having a dampening effect at the moment, should turn themselves around, partly because it is assumed that the recent upswing in commodity prices will intensify. In the case of food products, the experience of the past few years has shown that, for many products, increases in commodity prices are quickly passed on to consumers in full, meaning that inflation should rise markedly in this industry. Prices of other imports are likewise expected to rise again, with industrial goods excluding energy, in particular, as well as some services likely to become more expensive. On the domestic side, the expanding overutilisation level and mounting pressure on the labour market, which will result in more considerable growth in labour costs again from 2018, should lead to greater increases in consumer prices. Overall, consumer price inflation excluding energy (as measured by the annual HICP rate) could climb to 1.7% in 2018 and grow somewhat further in 2019.

*... but growing markedly in future*

In the years following 2016, energy prices are likely to rise at similar rates as other goods and services. The assumed rise in crude oil prices should be reflected in the prices of mineral oil products almost immediately, as well as in the prices of gas and levies with some delay. Following marginal increases in 2016, electricity is expected to see more significant price hikes again, with substantially rising grid charges, in particular, pushing up prices against the backdrop of a considerable need to expand the net-

*Energy prices no longer curbing inflation*

<sup>16</sup> According to preliminary Federal Statistical Office data, the HICP rate stood at 0.7% in November, which was 0.1 percentage point above the figure forecast in June. However, more detailed information on the November value is not yet available.



work. Headline HICP could grow from 0.3% this year to 1.7% in 2018 and rise slightly more in 2019, meaning inflation in Germany would be somewhat higher than the average in the rest of the euro area.

## Public finances

*Expansionary fiscal stance in a favourable underlying setting*

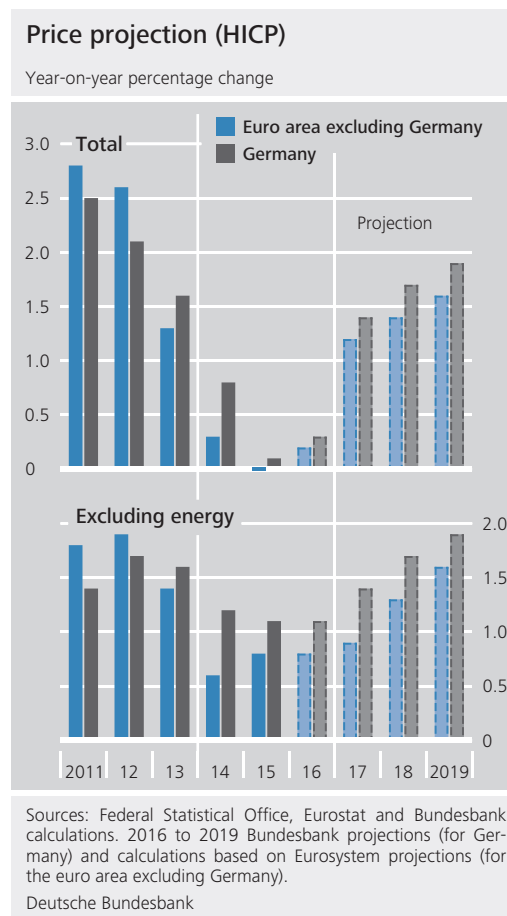
Under the assumptions being applied here, the government will continue to run a moderate budget surplus (2015: +0.7% of GDP) across the entire projection horizon. Public finances will benefit from favourable economic developments and falling interest expenditure.<sup>17</sup> These positive impacts contrast with an expansionary fiscal stance which will be reflected, above all, in a considerable deterioration in the structural primary balance, especially for 2016 and 2017, and which will boost aggregate demand. The fiscal surplus is thus likely to recede slightly in the current year, subsequently possibly remaining more or less unchanged at around ½% of GDP.<sup>18</sup>

*Considerable revenue growth and ...*

The revenue ratio is likely to increase somewhat during the current year, due mainly to strong growth in profit-related taxes. No major changes are expected after that. This should compensate to a great degree for the revenue surplus caused by fiscal drag<sup>19</sup> and the increase in contribution rates to the social security funds caused by the shortfalls in receipts induced by changes to tax law.<sup>20</sup>

*... relief through the business cycle and low interest rates but primary expenditure set to rise sharply for structural reasons*

The expenditure ratio is likely to rise somewhat more sharply in 2016 than the revenue ratio. As things stand today, it is likely to change little further down the road. Positive cyclical influences in the numerator, especially the accelerated GDP growth this year, will push the ratio down. In addition, the interest expenditure ratio is expected to dip further over the entire projection horizon, mainly in connection with the low interest rates and the refinancing of maturing debt securities at favourable terms. This contrasts with comparatively strong growth of structural primary expenditure (overall ex-



penditure adjusted for cyclical impacts, one-off effects and borrowing costs). Refugee migration will also be reflected in the current year. In addition, throughout the projection period pension payments will rise quite sharply, and healthcare and long-term care benefits are set

<sup>17</sup> The frequency auction conducted in the summer of 2015 will provide slight temporary fiscal relief which will be recognised in the national accounts as lowering expenditure on an accrual basis as the frequency bands become available, and thus mainly in 2017.

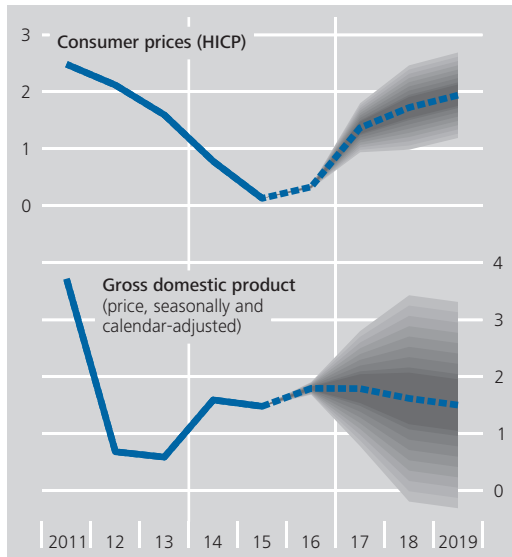
<sup>18</sup> The announcement that the UK will exit the EU is a fundamental source of risk. However, under the current projection, its impact on public finances will be minor. It depends in particular measure on how the UK's post-Brexit payment relations to the EU are resolved. In addition, court proceedings in connection with the nuclear fuel tax are pending; their outcome, along with the court ruling just issued on the phasing-out of nuclear energy, could represent a manageable but still perceptible burden on the budget. It must also be noted that additional measures with an impact on public finances could be taken in connection with next year's German general elections.

<sup>19</sup> This refers to the positive revenue effects of bracket creep in income taxation (including through real wage growth) less the negative impact of specific excise duties being largely independent of prices.

<sup>20</sup> See p 22 f for additional information on the measures included.

### Baseline and uncertainty margins of the projection\*

Annual data, year-on-year percentage change



Sources: Federal Statistical Office and Bundesbank calculations. 2016 to 2019 Bundesbank projections. \* Uncertainty margins calculated on the basis of the empirical forecast errors. For 2016 to 2018, the width of the band distributed symmetrically around the most probable value equals double the mean absolute forecast error. For 2019, the figure for 2018 is multiplied by a factor resulting from the estimation of a time series model which captures the margins of uncertainty over the forecast horizon.

Deutsche Bundesbank

to rise quickly as well. Moreover, given the rather good overall fiscal situation, central, state and local governments are expected to increase their expenditure, primarily on child-care and infrastructure.

Under these conditions, the debt ratio would fall relatively quickly, possibly returning to the 60% mark by 2019 (end-2015: 71.2%). It was last below this mark in 2002. Growth of nominal GDP in the numerator, given moderate budget surpluses, is the main reason for the decline. In addition, the liabilities of the government-owned bad banks will probably be reduced further through asset realisations, though this is fraught with major uncertainty.

## Risk assessment

All in all, the risks to economic growth appear to be broadly balanced. Looking towards the external setting, however, the risks are

tilted to the downside. The recovery of some commodity-exporting emerging markets could turn out to be considerably weaker than assumed here. Moreover, there is a certain danger that Chinese growth could decelerate more quickly in the event of disruptions to the financial system or a downward revision in the real estate market. Simmering geopolitical tensions could also be reignited, dampening the global economy. On the other hand, German exports were projected conservatively in comparison to the assumed growth in sales markets during the projection horizon – with the exception of short-term trends. The assumed revival of global economic output could therefore also lead to a stronger rise in exports and, concomitantly, increased corporate investment. Given the already prudent assessment of medium-term economic growth in the United Kingdom, the additional risks to the German economy deriving from the announcement that the United Kingdom intends to leave the EU appear to be relatively balanced. To round out the list, the potential shift in US economic policy represents an additional external risk.

*Risks to economic growth in terms of the external setting slightly on the downside and ...*

Looking towards economic policy, though, the risks are on the upside. Fiscal expansion, such as through a cut in income taxes, would impact positively on aggregate growth. Moreover, the monetary policy measures that have already been adopted could trigger stronger demand stimulus in the rest of the euro area and in Germany than assumed here.<sup>21</sup>

*... slightly on the upside with regard to economic policy*

From the period when the assumptions underlying the projection were made until the projection report went to press, crude oil prices (Brent) rose across the entire spectrum of forward quotations, by an average of around US\$6 per barrel. Should this price increase end up becoming entrenched, model calculations show that this could curb economic growth slightly, primarily next year; in particular, infla-

*Price risks in connection with assumed crude oil price movements more on the upside*

*Debt ratio remains on downward path*

<sup>21</sup> The impacts of these measures were factored into the projection particularly in terms of their impact on technical assumptions (especially interest rates and exchange rates).

tion could end up just under ½% higher. If the euro were, for instance, to depreciate owing to a growing disparity between the euro area and other currency areas in the monetary policy stance, this could fuel economic growth as well as price pressures.

*Further price projection risks leaning slightly on the downside*

Other risks to price developments are slightly on the downside. Enterprises will be less able to pass on the rising labour costs to consumers than assumed here, particularly if, for instance, competition between domestic producers intensifies as a result of the structural reforms carried out in some euro-area countries. Moreover, in January 2018 a new model for calculating the rents sub-index of the HICP, which, at just over 10%, makes up a considerable percentage of the basket of goods, will be introduced in the official statistics. One potential consequence of this new methodology could be to reduce the increases reported for this sub-index.<sup>22</sup> On the whole, the risks to the price outlook for 2017 appear to be on the upside and roughly balanced for the subsequent years.

### Key figures of the macroeconomic projection – non-calendar adjusted

Year-on-year percentage change

Item	2015	2016	2017	2018
GDP (real)	1.7	1.9	1.5	1.6
GDP (real, calendar-adjusted)	1.5	1.8	1.8	1.6
Components of real GDP				
Private consumption	2.0	1.9	1.4	1.6
<i>Memo item</i> Saving ratio	9.7	9.6	9.6	9.5
Government consumption	2.7	4.1	2.3	2.0
Gross fixed capital formation	1.7	2.3	2.5	2.9
Business investment <sup>1</sup>	1.5	1.4	1.5	2.8
Private investment in housing construction	1.5	3.7	3.0	2.8
Exports	5.2	2.4	2.6	3.2
Imports	5.5	3.2	3.7	4.4
<i>Memo item</i> Current account balance <sup>2</sup>	8.3	8.9	8.1	7.8
Contributions to GDP growth <sup>3</sup>				
Domestic final demand	2.0	2.3	1.7	1.8
Changes in inventories	-0.5	-0.3	0.0	0.0
Exports	2.4	1.1	1.2	1.5
Imports	-2.2	-1.2	-1.4	-1.7
Labour market				
Total number of hours worked <sup>4</sup>	0.9	0.8	0.5	0.7
Employed persons <sup>4</sup>	0.9	1.0	0.9	0.6
Unemployed persons <sup>5</sup>	2.8	2.7	2.6	2.6
Unemployment rate <sup>6</sup>	6.4	6.1	5.9	5.8
Wages and wage costs				
Negotiated pay rates <sup>7</sup>	2.3	2.1	2.1	2.7
Gross wages and salaries per employee	2.7	2.4	2.4	2.9
Compensation per employee	2.4	2.2	2.4	2.8
Real GDP per employed person	0.8	0.8	0.6	1.0
Unit labour costs <sup>8</sup>	1.6	1.3	1.8	1.8
<i>Memo item</i> GDP deflator	2.0	1.4	1.5	1.8
Consumer prices <sup>9</sup>				
Excluding energy	1.1	1.1	1.4	1.7
Energy component	-7.0	-5.7	0.8	1.7

Sources: Federal Statistical Office; Federal Employment Agency; 2016 to 2018 Bundesbank projections. **1** Private non-residential fixed capital formation. **2** As a percentage of nominal GDP. **3** In arithmetical terms, in percentage points. Discrepancies in the totals are due to rounding. **4** Domestic concept. **5** In millions of persons (Federal Employment Agency definition). **6** As a percentage of the civilian labour force. **7** Monthly basis (pursuant to the Bundesbank's negotiated wage index). **8** Ratio of domestic compensation per employee to real GDP per employed person. **9** Harmonised Index of Consumer Prices (HICP).

Deutsche Bundesbank

<sup>22</sup> See also B Goldhammer, Die neue Mietenstichprobe in der Verbraucherpreisstatistik, *Wirtschaft und Statistik* (5/2016), pp 86-101.