Outlook for the German economy – macroeconomic projections for 2018 and 2019 and an outlook for 2020

Germany's economy is experiencing a strong upswing. Driven by lively foreign demand, industry is seeing dynamic growth and the sharp upturn in business investment is persisting. Private consumption and housing investment continue to benefit from the outstanding labour market situation. According to the current forecast, this broad-based, robust economic upswing is reaching an increasingly mature state, which means that the pace of growth is likely to slow in the medium term and converge to that of potential growth. As a result, exports will grow less dynamically, with further growth potential being constrained above all by strong capacity utilisation and, in particular, labour shortages.

In this scenario, the German economy could post strong calendar-adjusted growth rates of 2.6% this year and 2.5% next year, before expanding at a slower pace of 1.7% in 2019 and 1.5% in 2020 (in unadjusted terms: 2.3% in 2017 and 1.9% in 2020). The growth rates of gross domestic product (GDP) are thus considerably outpacing those of potential output, particularly in the short term, and aggregate capacity utilisation could soon reach similarly high levels to those seen at the peak of the last economic cycle in 2007. This will be accompanied by increasing bottlenecks in the labour market and perceptibly rising wage increases.

As measured by the Harmonised Index of Consumer Prices (HICP), the inflation rate, which has increased considerably to 1.7% on average for 2017 owing to markedly higher crude oil prices as well as food shortages, is likely to remain similarly high until 2019 and could rise to 1.9% in 2020. Energy prices, which according to expectations will scarcely rise any further, conceal increasing price pressure among other goods and services resulting predominantly from more dynamic wage growth. Excluding energy and food, inflation is therefore likely to climb from 1.3% in 2017 to 1.9% in 2019. An inflation rate of 2.1% is conceivable for 2020.

Public finances are developing very favourably under the current fiscal policy stance. Buoyed by the exceptionally good state of the economy and the low interest rates, the fiscal surplus would therefore rise noticeably above 1% of GDP in the coming years. However, it is to be expected that additional budgetary burdens will be adopted after the new government has been formed and that fiscal policy will therefore be more expansive. This is a key reason why, all in all, the risks for economic growth – and to a slight extent for price developments – are deemed to be tilted to the upside.

Compared with the June 2017 projection, economic growth expectations have now risen significantly, particularly for 2017 and 2018. Mainly due to the changed outlook for energy prices, the inflation forecast has been raised somewhat for 2017 and 2018 and lowered slightly for 2019.

Economic outlook[1]

German economy continued its strong upturn in the second and third quarters of 2017 …

The German economy grew sharply in the second and third quarters of 2017, even somewhat exceeding the strong pace of growth seen in the fourth quarter of 2016 and the first quarter of 2017. In the second and third quarter, real gross domestic product (GDP) rose by 1.5% overall in seasonally and calendar adjusted terms, and thus considerably more strongly than expected in the June projection.[2] Driven by lively foreign demand, the value added of the manufacturing sector increased sharply. This led to a further rise in capacity utilisation, with enterprises investing more than before in tangible fixed assets. Investment in housing construction also rose again considerably, although signs are showing that the construction sector is increasingly nearing its capacity limits. With a large boost from the favourable development in the labour market, private consumption also expanded considerably.

… and is also likely to expand strongly in the fourth quarter of 2017 and the first quarter of 2018

Growing at rates far above those of potential output, the German economy's high underlying pace of economic growth is likely to continue in the fourth quarter of 2017 and the first quarter of 2018. The recent very strong inflow of orders as well as the record high level of sentiment in the manufacturing sector indicate that industrial activity will continue to rise robustly. As there are a large number of orders, in particular from abroad, and as export expectations are especially optimistic, exports are likely to rise sharply. The increasing capacity utilisation and the lively demand are likely to motivate enterprises to invest more in machinery and equipment. Private consumption also remains on a clearly upward trajectory in light of the marked rise in employment and optimistic consumer sentiment.

Easing of GDP growth in the medium term due to labour shortages and less dynamic exports

Over the course of the projection horizon, it is to be expected that the German economy's current high pace of growth will slow. The considerable deceleration in employment growth, caused principally by demographic and migration factors, will amplify the shortage of skilled labour that is already perceptible in some sectors. On the supply side, it will therefore be increasingly difficult to maintain a rate of growth that is markedly higher than that of potential output. On the demand side, the currently high rates of export growth are likely to initially align with the lower, and progressively falling, growth in the markets for German exports, and subsequently fall even slightly below this level. This will probably contribute to corporate investment rising more slowly. In addition, the labour supply's slowing growth rates could also have a dampening effect here, as enterprises are less likely to invest in new tangible fixed assets if they anticipate a shortage of skilled labour. The expansion of private consumption could likewise be dampened by the slowing rise in employment. It is not expected that higher real wage growth will be enough to fully offset the braking effect on households' real disposable income.

Economy likely to grow considerably more strongly in 2017 and 2018 than expected in June

All this paints a picture of a strong upswing that is reaching an increasingly mature state, whereby the pace of growth is set to slow over time due to a decelerating rise in demand and, above all, gradual supply-side restrictions. Calendar-adjusted real GDP is likely to advance strongly by 2.6% in 2017 and – helped by the high statistical overhang at the beginning of the year – by 2.5% in 2018. In 2019 and 2020, growth rates could fall back to 1.7% and 1.5% respectively. As 2017 has fewer workings days than 2016, the growth rate for the current year without adjusting for calendar effects is lower at 2.3%. While such calendar effects scarcely play a role in the coming two years, they increase the growth rate in 2020 by a considerable 0.4 percentage point to 1.9%. The GDP growth rates for 2017 and 2018 are thus expected to be significantly higher than estimated in the June projection, while the growth rate

1 This projection for Germany was completed on 30 November 2017. It was incorporated into the projection for the euro area published by the ECB on 14 December 2017.
2 See Deutsche Bundesbank, Outlook for the German economy – macroeconomic projections for 2017 and 2018 and an outlook for 2019, Monthly Report, June 2017, p 11-27.

for 2019 has been revised upwards only marginally (see the table on page 17). An important factor in this upward revision is the greater dynamics[3] across the entire upswing, combined with perceptibly higher growth in German export markets for 2018 and somewhat higher growth in these markets for 2019 (see the box on pages 6 to 8).

Aggregate capacity utilisation climbs to an exceptionally high level

According to this projection, the German economy will grow considerably faster than potential output this year and next year, while the difference between the growth rates is set to shrink markedly in 2019 and 2020. It is now estimated that potential output will expand by 1.5% in both 2017 and 2018. Subsequently, it is expected to fall to 1.3% in 2020 on account of demographic change and an anticipated decline in net migration.[4] The already considerably positive output gap this year will therefore expand again substantially, above all in 2018. According to current estimates, aggregate capacity utilisation could soon reach similarly high levels to those seen at the peak of the last economic cycle in 2007.

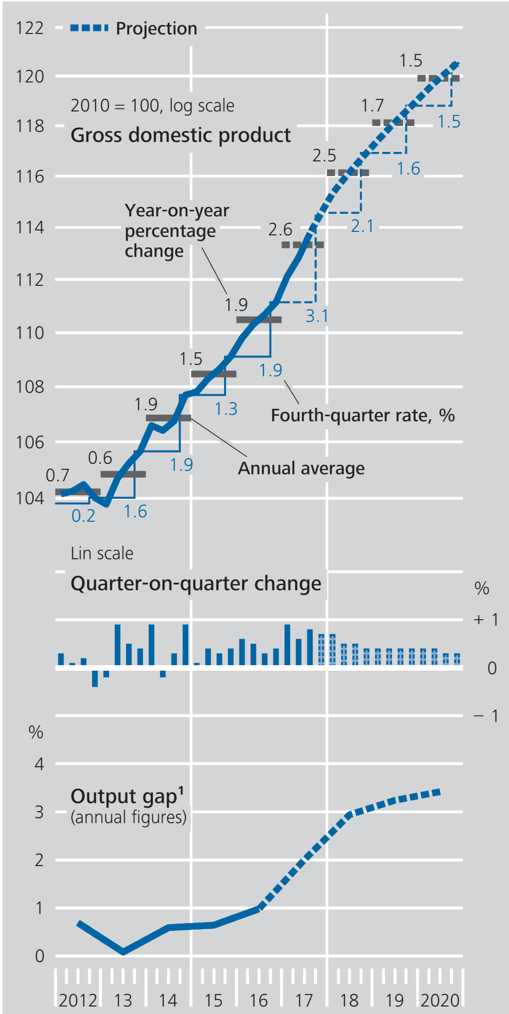
Strong momentum in German exports to continue at first, before becoming somewhat more moderate

German exporters benefited in the second and third quarters from the ongoing strong expansion in global trade and, contrary to expectations, perceptibly increased their market share. Exports therefore grew more strongly than assumed in the June projection. In the final quarter of 2017 and the first quarter of 2018, the high export growth is likely to continue and again outpace the expansion of German export markets. At least this is indicated by German industry's exceptionally high volume of incoming orders from abroad, as well as enterprises' very optimistic export expectations. Over the rest of the coming year, the rise in exports is

3 In addition to the stronger-than-expected expansion in the second and third quarters, it is of significance that GDP growth according to the revised figures is somewhat higher in the second half of 2016 and markedly higher in the first quarter of 2017.
4 For more information on the medium-term outlook for potential growth in Germany, see Deutsche Bundesbank, Demographic change, immigration and the potential output of the German economy, Monthly Report, April 2017, pp 35-47.

Aggregate output and output gap

Price, seasonally and calendar-adjusted



Sources: Federal Statistical Office and Bundesbank calculations. 2017 to 2020 Bundesbank projections. **1** Deviation of GDP from estimated potential output.
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Technical components of the GDP growth projection

% or percentage points

Item	2016	2017	2018	2019	2020
Statistical carry-over at the end of the previous year[1]	0.6	0.6	1.1	0.7	0.6
Fourth-quarter rate[2]	1.9	3.1	2.1	1.6	1.5
Average annual GDP growth rate, calendar-adjusted	1.9	2.6	2.5	1.7	1.5
Calendar effect[3]	0.1	– 0.3	0.0	0.0	0.4
Average annual GDP growth rate[4]	1.9	2.3	2.5	1.7	1.9

Sources: Federal Statistical Office; 2017 to 2020 Bundesbank projections. **1** 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. **2** Annual rate of change in the fourth quarter, seasonally and calendar-adjusted. **3** As a percentage of GDP. **4** Discrepancies in the totals are due to rounding.
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Business situation and expectations in trade and industry

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

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

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Manufacturing sector

Seasonally and calendar adjusted

Sources of the unadjusted figures: Federal Statistical Office and ifo Institute. **1** Balance of positive and negative business survey responses.

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likely to align with the increasingly subdued growth of the export markets. As of 2019, German exporters could even relinquish small amounts of market share. In trade with the other euro area countries they are gradually losing price competitiveness, above all because unit labour costs are rising faster in Germany. In addition, the increasing shift in Chinese demand towards consumer goods is likely to dampen the additional need for capital goods. This applies similarly to demand from the United Kingdom, due to the UK's aim to exit from the European Union. This would impact German exports disproportionately, as capital goods comprise a higher-than-average share of the country's exports.

Business investment continues its cyclical upturn

Against the background of the boom in industrial activity and the increasing capital utilisation in manufacturing, industrial investment continued to experience a marked upturn in the second and third quarters. In particular, enterprises invested considerably more in machinery and equipment, and did so to an even greater extent than estimated in the June projection. Industrial construction investment, by contrast, was not able to maintain its fast pace of growth and has been scaled back of late. In light of the highly favourable outlook for industry, the strong cyclical upswing in business investment is likely to continue in the coming quarters. Even beyond this time horizon, commercial investment should remain lively on account of the favourable financing conditions, rising demand and increasing overutilisation in the economy as a whole. However, the growth rates should then gradually decelerate, as the currently very buoyant demand for industrial export goods is set to fall markedly over the course of the projection horizon. In addition, the tendency of enterprises to expand their production capacity in Germany is likely to be less pronounced than in earlier boom periods. On the one hand, this is because Germany is fairly far advanced along the economic cycle compared to other countries, and especially to other euro area countries. Therefore, companies with production facilities abroad could, for example, first of all exhaust any remaining capacity reserves there. On the other hand, the German economy is on a long-term path to lower potential growth as a result of demographic change. The associated drop in labour force potential is likely to have a dampening effect on business investment going forward.[5]

Housing construction somewhat less dynamic than of late

The housing market is still faced with excess demand. The persistently expansionary underlying trend in housing demand is being fuelled by households' favourable income prospects and low financing costs. Added impetus is being provided by labour market-oriented immigration as well as the increasing population density in urban centres observed for some years now. Supply, measured in terms of housing investment, expanded exceptionally strongly until the middle of the current year. In the third quarter, however, housing investment grew only modestly and growth is expected to be more subdued for the final quarter of 2017 and the first quarter of 2018 as well. This is probably attributable to the fact that the construction sector, given the high production volume that has now been reached, is increasingly nearing its capacity limits. The reported forward reach of the order books in the main construction industry, the level of utilisation of machinery and equipment, and the business climate of the sector are all at a very high level, while enterprises are increasingly reporting difficulties in obtaining qualified staff and construction prices are rising perceptibly. However, construction capacities in the coming years are likely to expand. Housing investment will therefore probably increase further, albeit at a slower rate than this year. The supply bottleneck in the residential property market could soon gradually recede, as demand is likely to increase less considerably than in recent years. This applies in particular to new buildings, with the number of completions jumping especially sharply of late. This is indicated by the lower number of

5 See also, Deutsche Bundesbank, A reference value for business investment in Germany, Monthly Report, April 2017, pp 44-46.

Key figures of the macroeconomic projection

Year-on-year percentage change, calendar-adjusted[1]

Item	2016	2017	2018	2019
GDP (real)	1.9	2.6	2.5	1.7
GDP (real, unadjusted)	1.9	2.3	2.5	1.7
Components of real GDP				
Private consumption	1.9	2.3	1.7	1.7
Memo item Saving ratio	9.7	9.8	10.1	10.1
Government consumption	3.7	1.3	1.8	1.9
Gross fixed capital formation	2.9	4.4	4.2	3.3
Business investment[2]	2.5	4.1	4.8	3.2
Private investment in housing construction	3.8	5.2	3.0	3.0
Exports	2.4	5.0	5.4	3.8
Imports	3.8	5.3	6.0	5.1
Memo item Current account balance[3]	8.2	7.9	8.0	7.7
Contributions to GDP growth[4]				
Domestic final demand	2.3	2.4	2.1	1.9
Changes in inventories	− 0.1	− 0.1	0.1	0.0
Exports	1.1	2.3	2.6	1.8
Imports	− 1.5	− 2.0	− 2.4	− 2.1
Labour market				
Total number of hours worked[5]	0.6	1.7	1.3	0.9
Employed persons[5]	1.3	1.5	1.1	0.7
Unemployed persons[6]	2.7	2.5	2.4	2.3
Unemployment rate[7]	6.1	5.7	5.3	5.1
Wages and wage costs				
Negotiated pay rates[8]	2.1	2.1	2.6	2.9
Gross wages and salaries per employee	2.4	2.7	2.9	3.3
Compensation per employee	2.2	2.6	2.7	3.1
Real GDP per employed person	0.5	1.1	1.4	1.0
Unit labour costs[9]	1.7	1.5	1.4	2.1
Memo item GDP deflator	1.3	1.5	1.8	2.1
Consumer prices[10]	0.4	1.7	1.6	1.7
Excluding energy	1.1	1.5	1.7	1.9
Energy component	− 5.4	3.1	0.7	0.0
Excluding energy and food	1.1	1.3	1.6	1.9
Food component	1.3	2.7	2.0	1.9

Sources: Federal Statistical Office; Federal Employment Agency. 2017 to 2019 Bundesbank projections. **1** If calendar effects present. For unadjusted data see the table on p 19. **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).

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Underlying conditions for macroeconomic projections

This projection is based on assumptions made by Eurosystem experts about the global economy, exchange rates, commodity prices and interest rates. The assumptions are based on information available as at 22 November 2017. The assumptions regarding economic activity in the euro area are derived from projections made by the national central banks of the euro area countries.[1] With regard to fiscal policy, the projections incorporate all measures that have been adopted or that have been adequately specified and are likely to be implemented.

Global economy gaining momentum, world trade buoyant

The pace of global economic growth over the course of 2017 was slightly higher than forecast in the June projection. It is assumed that the growth rates for the advanced economies (excluding the euro area) will fall again somewhat from their current fairly high levels. The recent solid economic growth in the United States is also likely to mark something of a turnaround compared with the more subdued upward movement observed in the final quarter of 2016 and the first quarter of 2017. Changes in inventories also contributed significantly to economic growth in the third quarter of 2017, meaning that the underlying pace of economic expansion is expected to remain moderate.[2] Against the backdrop of the debate surrounding the scope and implementation of a tax reform and further expansionary measures, expectations concerning the positive impact on economic growth in the United States were lowered for 2018 and 2019 as compared with the June projection. The assumptions in this projection were determined before the tax reform bill was passed by the US Senate. If it is approved by Congress, economic growth in the United States could be somewhat higher than assumed here.

Looking over the projection horizon, the emerging market economies will probably be able to largely maintain the pace of growth that they have reached in the meantime. A gradual deceleration in growth in China is being partly offset by developments in other east Asian countries. In addition, Russia and Brazil are continuing to benefit from the recovery on the commodity markets. All in all, the global economy (excluding the euro area and weighted by purchasing power parities) looks set to grow by 3¾% in all years over the projection horizon. The only exception to this is next year, in which a slightly higher growth rate is expected.

World trade expanded more strongly on average for 2017 than forecast in the previous projection. While growth is expected to wane slightly in the years to follow, it is still likely to be markedly higher than the pace of expansion assumed in the June projection – particularly in 2018. Following an uptick of 5½% this year, international trade (excluding the euro area) is expected to increase by 4½% next year, and to a lesser extent in the years thereafter.

1 The projections made by the national central banks of the euro area countries were completed on 30 November 2017.
2 The burden on the US economy caused by hurricanes is likely to have been minimal in this context. See also Deutsche Bundesbank, The impact of hurricanes on economic activity in the United States, Monthly Report, November 2017, pp 14-15.

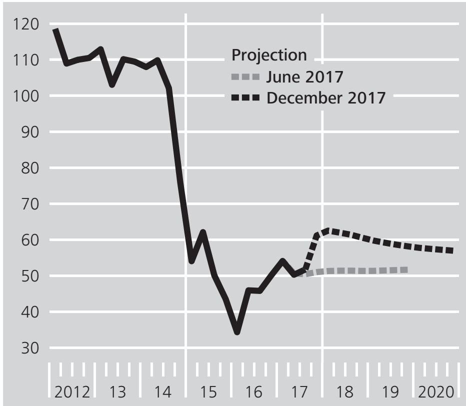
Technical assumptions of the projection

Expectations of oil output cuts in major oil-producing countries and political conflicts in the Middle East during a period of growing demand caused crude oil prices to surge in the third quarter of this year. The forward quotations from which these oil price assumptions are derived are higher than those assumed in the June projection. However, whereas it was assumed in the previous projection that crude oil prices would remain broadly unchanged, they are now expected to fall slightly. The appreciation of the euro significantly lessened the shortfall compared with the June assumptions in euro terms. Following their sharp rise on average this year, the prices of other commodities on a US dollar basis are set to increase moderately in line with expected global economic growth up until 2020.

On 26 October 2017, the ECB Governing Council decided to scale back its net purchases under the expanded asset purchase programme from a monthly pace of €60 billion at present to one of €30 billion from January 2018. The purchases are set to continue until the end of September 2018, or beyond, if necessary, and in any case until the Governing Council sees a sustained adjustment in the path of euro area inflation consistent with its inflation target. The Governing Council also confirmed its continued expectation that policy rates will remain at their current level for an extended period of time, and past the horizon of the net asset purchases. The firm expectations of a sustained accommodative monetary policy stance have helped keep interest rates at a very low level since the June projection was finalised. While market expectations concerning future interest rate movements remain on a slightly upward trajectory, the slight trend increase in short-term interest rates and in yields on nine to ten-year government bonds will now set in somewhat later than assumed in June. Much the same applies to bank lending rates in Germany. The expectation that the spell of low interest rates will persist is consistent with the fact that the percentage of enterprises citing financing difficulties as a risk to economic development in a survey conducted by the Association of German Chambers of Commerce and Industry (DIHK) in summer 2017 remains at a historically low level.

Oil price

US$ per barrel, quarterly data



Sources: Bloomberg and ECB projections.
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Major assumptions of the projection

Item	2017	2018	2019	2020
Exchange rates of the euro				
US dollar/euro	1.13	1.17	1.17	1.17
Effective[1]	112.1	115.3	115.3	115.3
Interest rates				
Three-month Euribor	– 0.3	– 0.3	– 0.1	0.2
Yield on government bonds outstanding[2]	0.3	0.5	0.8	1.0
Commodity prices				
Crude oil[3]	54.9	61.6	58.9	57.3
Other commodities[4, 5]	7.9	3.3	3.4	4.3
German exporters' sales markets[5, 6]	5.4	4.4	3.9	3.7

1 Compared with the currencies of the 38 most important trading partners of the euro area (EER-38 group of currencies); 1999 Q1 = 100. **2** Yield on German government bonds outstanding with a residual maturity of over nine and up to ten years. **3** US dollars per barrel of Brent crude oil. **4** In US dollars. **5** Year-on-year percentage change. **6** Working day-adjusted.
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Positive economic data for the euro area have given rise to a perceptible appreciation in the euro since the second quarter. A shift in expectations concerning economic policy impetus in the United States is likely to have further boosted the single currency's appreciation against the US dollar over the course of the third quarter.[3] The euro traded at US$1.17 in the period used for deriving the exchange rate assumptions, which was 7¼% higher than the assumptions in the June projection. Compared with the currencies of the euro area's 38 most important trading partners, the appreciation averaged 4½%.

Buoyant economic activity in the euro area

The rapid pace of euro area economic growth seen in the final quarter of 2016 and the first quarter of 2017 continued over the course of the year and outstripped the economic upswing projected in June. Against the backdrop of expected further employment gains, rising wage growth and increasing capacity utilisation, domestic demand is set to remain an important provider of stimulus over the projection horizon, too. Turning to exports, growth consistent with robust developments in sales markets abroad is expected. It is therefore assumed that the strong growth rate for exports at present will slow down slightly over the years to come. The current high growth in domestic demand is expected to normalise as well. Moreover, the labour supply is having an increasingly constraining effect in some countries. As a result, the pace of overall economic growth in the euro area is likely to decelerate slightly over the projection horizon.

Given the improved outlook for the external environment compared with June and the buoyant activity in the euro area, expectations regarding GDP growth in the euro area (excluding Germany) were, following an increase of 2.3% this year, raised by around four-tenths to 2.2% for 2018 and by roughly three-tenths to 2.0% for 2019. Economic growth of around 1.8% is expected for 2020.

Fiscal policy measures moderately expansionary

The fiscal policy measures taken into account for Germany will have a moderately expansionary effect, both over the projection horizon as a whole and above all next year. The loss of revenue from income-related taxes as a result of various legislative changes will be broadly offset by additional revenue arising from overall progressive taxation. The contribution rate to the statutory pension insurance scheme will fall slightly next year from 18.7% to 18.6%. According to this projection, an additional reduction of 0.1 percentage point will be needed in 2019 so as to prevent the upper limit for the reserves from once again being exceeded by quite a margin at the end of 2019. The statutory health insurance institutions are expected, on average, to slightly lower their (respective) additional contribution rates next year and subsequently leave them unchanged. Furthermore, spending by state and local government will rise – not least on fixed asset formation, for which a higher outflow of provided funds is assumed.

3 See also Deutsche Bundesbank, Financial markets, Monthly Report, November 2017, pp 32-40.

building permits issued this year to date, which at the start of 2017 had already fallen sharply after the elevated level of the year before. In addition, the fall in population in Germany as well as – according to assumptions – receding immigration levels look set to have a dampening effect on additional housing demand over time. In terms of housing investment as a whole, the flagging momentum in new construction will probably be counteracted by a further increase in investment in the housing stock, for example in connection with renovation work to improve energy efficiency or to make accommodation more suitable for the elderly.

Gradual decline in housing price inflation

The increased expansion of the housing supply was also reflected in the growth rate of housing prices, which had been slightly lower since the first quarter of 2017. Nonetheless, price growth, which remains high and partially exceeds the rates set by macroeconomic determinants, is set to recede further in future. As price adjustments on the property market are typically sluggish, the current price surge will probably have a certain knock-on effect on the rates in the coming years. Looking ahead, prices should increase at a pace consistent with the anticipated increase in disposable household income and the expected development of interest rates for mortgage loans (see the box on pages 10 to 12). In addition, price impulses, which are the result of immigrants entering the labour market and the increased share of the population living in urban areas, will probably continue to decline.

Considerable increase in government investment

Growth in government investment should significantly outstrip GDP growth over the projection horizon. At the political level, a need for greater investment has been identified, above all, in the areas of transport infrastructure as well as child day-care and schools.[6] Considering the favourable prospects for central, state and local government budgets, a pronounced increase in investing activities thus seems plausible. Here it is assumed that the apparent planning shortfalls at the general government level at present can be better surmounted. Central government has also provided extensive funding for financially weak local governments, which is likely to be used to a far greater extent than has been the case to date, not least once it has been stocked up and its range of potential uses extended.

Gross fixed capital formation experiencing strong but declining growth stimulus

As was the case this year, there is set to be a strong increase in overall gross fixed capital formation next year. Growth is projected to slacken somewhat in 2019 on account of weaker increases in commercial investment. As things stand, this trend appears likely to continue into 2020.

Private consumption shaped by positive labour market situation

In spite of a dip in the third quarter, households stepped up their expenditure considerably in the second and third quarters overall. They also increased their savings by greater amounts. In the light of the very positive economic activity and the excellent condition of the German labour market, private consumption remains on a clear upward trajectory, though the saving rate could also rise somewhat further again in the short term. Over the course of the projection horizon, however, the current extremely strong growth in real disposable income is likely to slow down perceptibly. This expectation is driven by the fact that due to the increasing supply shortages in the labour market, markedly slower employment growth is expected also when demand is persistently high, and that this is likely to be only partially offset by steeper rises in real wages. If households' savings behaviour remains largely unchanged, private consumption is also likely to experience correspondingly weaker expansion.

Considerable increase in government consumption

Government consumption rose sharply last year, due in part to additional expenditure on refugees in Germany. Such expenditure is now expected to decline markedly, particularly on

6 In the light of past developments and decisions as well as central government's plans to date, growth in defence expenditure is also expected. Large military procurements are recorded as state investment in machinery and equipment in the national accounts.

A model of housing price developments in Germany

The Eurosystem's projections for the country-specific development of key macroeconomic variables are also to serve in future as a starting point for the scenario calculations on which the bank stress tests of the European Banking Authority (EBA) are based. These variables include, among others, housing prices, for which the Bundesbank has so far not published any projections. The Bundesbank's macroeconomic projections for the German economy can be used to derive the data on housing prices in Germany which are required for these stress tests. These data are, however, of secondary importance from a monetary policy perspective. The incorporation of these data into the macroeconomic projections ensures that the derived estimates of housing prices, as were required in the stress tests, are consistent with the expected macroeconomic developments.[1]

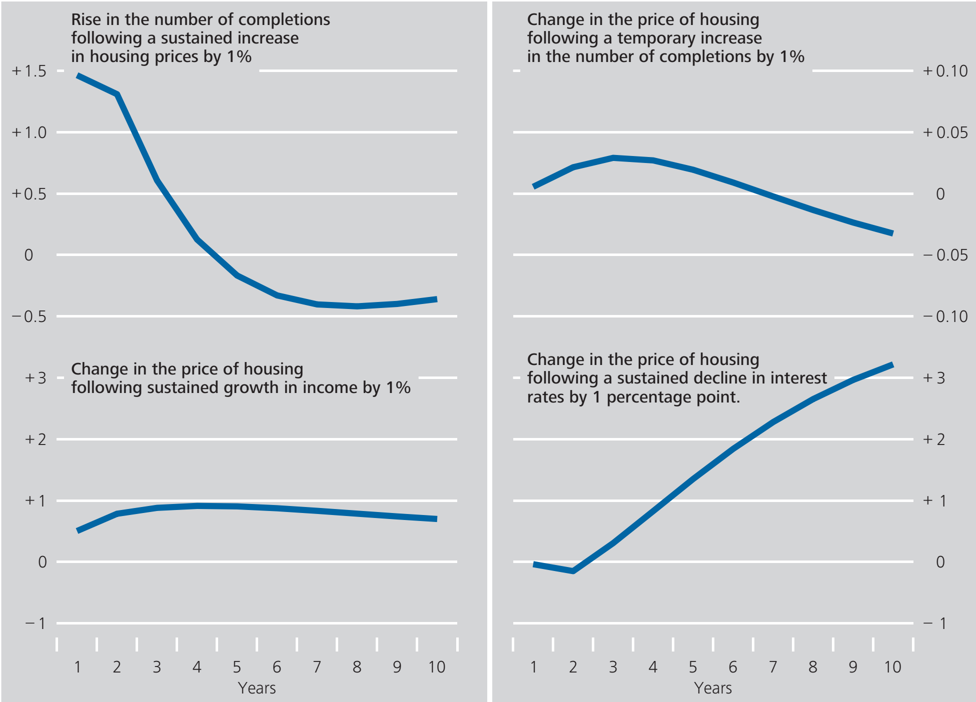
The extrapolation of housing prices in Germany is based on an econometric approach, the core component of which comprises a long-term equilibrium relationship between housing prices, households' disposable income and interest rate developments for mortgage loans. The error correction approach also covers the dynamics in short-term price adjustments towards the equilibrium relationship if housing prices temporarily deviate from it.[2] The long-term equilibrium can be interpreted as a price-income-relationship adjusted for interest rate developments. Here it is assumed that in the long term, and provided that changes in interest rates are also taken into account, housing prices will develop in line with incomes. In the short term, the interdependence between price changes and housing completions is also factored into the model. While growth in the housing stock is likely to have a dampening effect on prices, it can be assumed that price growth, when viewed in isolation, provides an incentive to expand the supply of housing.[3] Inflation for construction services is also factored into the short-term equations.[4]

The empirical approach is consistent with the theoretical concept of a stock-flow equilibrium in the housing market, according to which both prices and the housing supply can adjust themselves to balance supply and demand in the housing market.[5] The housing stock is thus derived in the long term from the cumulative changes in supply resulting from the number of housing completions and the number of housing units that are no longer available on the market.[6] In line with standard practice, the interaction of the various influencing fac-

1 See EBA, 2018 EU-wide stress test – Methodological note, 17 November 2017.
2 See C Leung (2014), Error correction dynamics of house prices: an equilibrium benchmark, Journal of Housing Economics 25, pp 75-95; S Malpezzi (1999), A simple error correction model of house prices, Journal of Housing Economics 8, pp 27-62.
3 See C Mayer and T Somerville (2000), Residential construction: using the urban growth model to estimate housing supply, Journal of Urban Economics 48, pp 85-109. The approach, which involves linking the rate of change in housing prices in the short term to housing investment or housing completions, corresponds with the view that the long-term equilibrium requires neither a price change nor an expansion of the housing supply.
4 Credit growth does not form part of the model at present, as it has so far not been possible to determine an economically and statistically significant relationship between housing prices and the granting of housing loans in a sufficiently clear-cut manner. This could be due, in part, to the fact that the quality-adjusted price index for housing, on which the estimates are based, refers to a hypothetical dwelling with – in terms of design – time-invariant characteristics such as age, size or location. By contrast, the available data on lending reflect the actual regional mix as well as the average characteristics from changing property types.
5 See D DiPasquale and W Wheaton (1994), Housing market dynamics and the future of house prices, Journal of Urban Economics 35, pp 1-27.
6 Changes in the vacant housing stock are not taken into consideration in this approach.

Estimated interrelationships in the housing market

Deviation from the baseline (in %)



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tors is determined in a first step on the basis of past data. In a second step, these results are used to assess future housing price developments.

Housing price developments are recorded in the empirical approach using the Association of German Pfandbrief Banks' (*Verband deutscher Pfandbriefbanken,* or vdp) price index for owner-occupied housing in Germany, for which quarterly data have been available since 2003.[7] The price-sensitive change in the housing supply refers to the number of housing completions, including construction work to existing buildings, whereas housing that has been withdrawn from the market, which results in a reduction of the housing supply, is assumed not to respond to price signals in the calculations.

According to the estimation results, income growth in the case of households has a positive long-term impact on housing prices, whereas higher interest rates tend to push prices down.[8] The estimated long-term interest rate effect also reflects the extremely sharp decline in interest rates in the

7 The vdp price index for owner-occupied housing, which is quality-adjusted using hedonic methods, reflects the development of prices for owner-occupied apartments and houses in Germany. See Deutsche Bundesbank, House prices in Germany in 2009, Monthly Report, February 2010, pp 58-59. No statistically consistent quarterly data on macroeconomic developments in housing prices in Germany are available which stretch back over a longer period of time. The temporal comparability of the Federal Statistical Office's house price index is only ensured following completion of the development phase from the reporting year 2014 onwards. See Federal Statistical Office, Qualitätsbericht Häuserpreisindex, 17 January 2017.
8 Nominal variables, adjusted for the general price level as measured by the GDP deflator, are factored into the estimates. An exception here are interest rates on housing loans, which were adjusted to take account of the survey-based data of Consensus Economics for longer-term inflation expectations. Moreover, in the calculations the variables referring to a quantity were placed in relation to the number of households. The estimate is based on the period from the first quater of 2003 to the third quarter of 2017.

years 2011 to 2016, which coincided with the recent upswing in prices in the German housing market. Housing prices were markedly higher of late than the estimates made on the basis of the long-term relationship.[9] Nevertheless, the estimation results for the short-term adjustment dynamics – including the delayed impact of price changes – suggest that price changes, in particular, will cause the housing market to approach its long-term equilibrium again in the future.[10]

The empirical results can be illustrated using model-based reactions of housing prices and completions to unexpected changes in the other factors (see the chart on page 11).[11] For example, rises in housing prices result in an expansion of completion numbers, which is consistent with price-induced investment incentives. According to the results, however, exogenous expansions of the housing stock result in rather minor price-dampening effects. By contrast, income growth or a reduction in interest rates are likely to have a comparatively large impact on housing prices in Germany. On the whole, the simulation results suggest that the German housing market adjusts rather sluggishly to exogenous developments.

The estimation results for the price dynamics of housing and housing completions derived from past data are used to extrapolate the prices of housing, taking the long-term relationship into account. In this context, conditioning on the projections for households' disposable income and construction price rises as well as the assumptions regarding interest rate developments ensure that the housing price forecast is consistent with the expected macroeconomic developments. Moreover, further price-related aspects, such as regional shifts in the demand for housing, which are not automatically captured by the model, can also be taken into account. Without them, the incorporation into the macroeconomic context would be incomplete.

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9 So far, this approach has not been readily suitable for evaluation purposes since, among other things, household income and mortgage interest rates do not necessarily reach their longer-term levels in the estimation period and may, in some cases, move only slowly closer towards them again. The Bundesbank's data on housing overvaluations are currently based on a different, regionally differentiated estimation model. They refer to an estimated fundamentally justified property price, which is conceptually based on the sustainable components of economic and socio-demographic factors. See F Kajuth, N Pinkwart and T Knetsch (2016), Assessing House Prices in Germany: evidence from a regional dataset, Journal of European Real Estate Research 9 (3), pp 286-307.
10 The estimated adjustment coefficient in the property price equation is negative. Furthermore, statistical tests show that, from a macroeconomic perspective, neither household income nor the interest rate level contribute to the equilibrium adjustment in the housing market.
11 The determination of the structural relationships is based on a recursive identification, according to which financial variables, such as housing prices or mortgage lending rates, are assumed to react more quickly to other shocks than real variables such as housing completions or household income. See K Tsatsaronis and H Zhu (2004), What drives housing price dynamics: cross-country evidence, Bank for International Settlements Quarterly Review; and C Goodhart and B Hoffmann (2008), House prices, money, credit and the macro-economy, Oxford Review of Economic Policy 24 (1), pp 180-205.

account of the fact that assistance is increasingly shifting to unemployment benefit II and related benefit payouts. This is curbing the increase in government consumption considerably, particularly this year. However, an acceleration can then be expected once more, contributing to the overall expansionary fiscal stance. A renewed increase in tangible goods purchases is likely to be followed by a continued building-up of staff levels, and healthcare and long-term care benefits should also continue to rise noticeably.

Strong rise in imports, particularly in the short term

In 2018, imports of goods and services to Germany will probably even slightly exceed the strong growth seen in 2017, but will then gradually lose momentum. In terms of exports and business investment, this time frame reflects the development of those demand components which are fuelled to a particularly great extent, directly and indirectly, by imports of intermediate goods. Alongside only moderately rising import prices based on international commodity price assumptions, imports are also bolstered by the fact that the German economy's international financial interconnectedness is expected to increase further, meaning that the import shares of all demand components should rise, too. Other EU member states are particularly likely to benefit from the high German demand for foreign products on account of their increasing price competitiveness. Yet fairly strong growth rates can be expected for the imports from trading partners outside the euro area as well.

Slight fall in current account surplus

The high current account surplus will probably fall only slightly over the projection horizon. This is due to offsetting price and volume effects in the trade balance and the expectation of only minimal changes in net primary and secondary income over the projection horizon. In spite of the strong expansion of exports, the trade surplus this year is likely to decline. Price effects play a key role here, as imports rise in price more quickly than exports on account of higher crude oil prices. The reverse will probably be true in 2019, when based on the assumptions made regarding international commodity prices and exchange rates, import prices will increase only moderately whilst export prices rise considerably more strongly owing to domestic labour cost pressures. However, this is offset by the fact that in the light of substantial domestic demand, imports would then increase more strongly than exports in real terms, with the result that the overall trade surplus could decline somewhat further. The same is true of the balance on the current account, which is nevertheless expected to remain high in 2019 at 7.7% of GDP.

Labour market

Further improvement of very positive labour market situation in second and third quarters as well as at turn of 2017/2018

Very favourable labour market developments continued in the second and third quarters of 2017. Although over the past six months employment growth lagged behind the extraordinarily strong increase in the final quarter of 2016 and the first quarter of 2017, it was nonetheless somewhat stronger than assumed in the June forecast. Registered unemployment declined to roughly the extent projected. The positive labour market developments are also likely to continue into the turn of 2017/2018. Leading indicators suggest that employment will see a further strong increase and that the number of unemployed persons will fall.

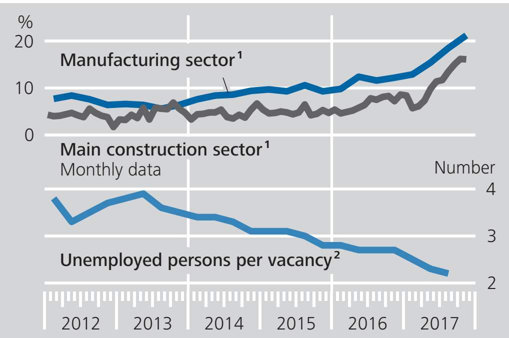
Labour market tensions to increase further as …

In the recent past, labour market tension has become amplified. Underemployment fell and the number of vacancies increased, meaning that in arithmetical terms, only about 2.3 unemployed persons applied for each vacancy during the first three quarters of 2017.[7] This trend will continue in the years ahead. While the demand for labour will continue to rise significantly on account of strong economic activity, the number of persons potentially available

7 Measured by the ratio of registered unemployed persons to the number of vacancies as determined by the Institute for Employment Research (IAB) Job Vacancy Survey. Although the indicator provides general information regarding the degree of labour market tension, it can only give an approximate reflection of mismatches between vacancy requirements and unemployed persons' qualifications.

Labour shortages

Quarterly data, seasonally adjusted



1 Percentage of firms reporting that their output is being hampered by a labour shortage. Source of unadjusted figures: Ifo Institute. **2** Persons registered unemployed according to Federal Employment Agency data divided by the aggregate supply of jobs as determined by the Institute for Employment Research (IAB).

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to the labour market is set to rise considerably more slowly in future.

… demographic trends dampen labour supply, …

Demographic trends are a key reason for increasingly subdued labour force growth over the next few years. Not only is the number of persons of working age declining at an increasing pace, but the age structure is also shifting, meaning that the age groups with the highest level of labour force participation will be smaller in future.[8]

… immigration recedes …

Moreover, it should be assumed that migration will contribute less significantly to the expansion of the labour supply in the years to come. The number of migrants had already decreased significantly last year, on balance. This concerned the number of refugees, for one thing. However, should refugees' asylum applications be approved, they will only gradually become active in the German labour market and therefore bolster the labour supply for a while. As most of the asylum application procedures for refugees who migrated to Germany between 2014 and 2016 have been completed and the overall recognition rate is only around 50%, a large number of persons are also obliged to leave the country and are therefore not entering the labour market. A crucial factor for the future labour supply is that substantially fewer persons from other EU member states are coming to Germany. Whereas the migration flow from central and eastern European countries to Germany was initially relatively one-sided shortly after the introduction of the free movement of workers, an increasing number of persons are now moving in the opposite direction, resulting in lower net migration rates. Income has recently increased in these countries significantly more strongly than in western Europe. In addition, unemployment and consequently migration probability are declining both in these countries and in southern EU member states. The United Kingdom's exit from the EU could trigger or divert migration flows towards Germany to a certain extent. However, at least the number of migrants coming from eastern Europe to Great Britain was no longer particularly high shortly before the "Leave" vote.

… and labour force participation increases more slowly

Labour force participation is likely to increase further as workplace conditions and opportunities for balancing work and family commitments improve. By international standards, however, it has already reached a very high level, and saturation effects are clearly identifiable in individual age groups. This means that in spite of the outstanding labour market situation in Germany at present, which is making it particularly easy to take up employment, it will be difficult to raise the participation rate to the same extent as in previous years.

Further moderate decline in unemployment, considerable slowdown in employment growth

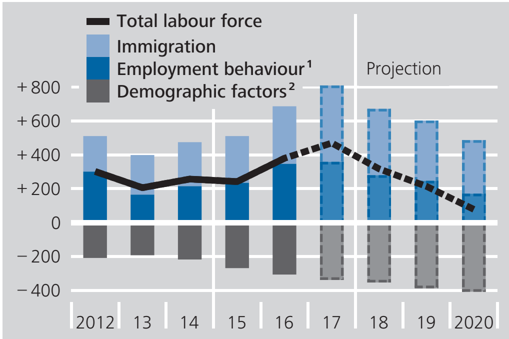
According to the projection, increasing labour market tension will result in the average duration of unemployment phases falling further and even persons with placement difficulties finding employment in more cases. The unemployment rate over the projection horizon could therefore sink to around 5%. Nonetheless, employment growth is set to decline from 1.5% in 2017 to around half of that by 2019, and will be considerably lower still in 2020. A primarily cyclically-induced increase in time worked per employed person could partly off-

8 See also Deutsche Bundesbank, Demographic change, immigration and the potential output of the German economy, Monthly Report, April 2017, pp 35-47.

set the total number of hours worked. The declining trend, based on the increasing share of part-time employees, was already reversed in 2017. In the next few years, too, it is likely that more overtime hours will be worked and fewer persons will be involuntarily working part-time, and that part-time employees' work time will continue to increase. All in all, however, the rise in the total number of hours worked will be curbed substantially over the course of the projection horizon on account of a limited labour supply.

Labour force

Year-on-year change, in thousands of persons



Sources: Federal Statistical Office and Bundesbank calculations. 2017 to 2020 Bundesbank projections. **1** Of domestic workers. **2** Contains the demographic effect of changes in the domestic labour force on labour force participation as well as changes resulting from shifts in the age structure of the domestic population.

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Labour costs and prices

Considerably increased negotiated wage adjustment from 2018

Negotiated rates of pay increased only modestly in 2017, too, given the high degree of labour market tension.[9] Low productivity growth and consumer price inflation coupled with high levels of immigration from other EU countries in previous years, which expanded the supply of available labour, contributed to the comparatively subdued wage development. It can be assumed that management and labour in the "large" wage round of 2018 will negotiate perceptibly higher rates than before. This is primarily due to the excellent economic situation, which is also reflected in stronger productivity gains and considerably increasing domestic labour market tension, but also because inflation rates have risen in the meantime. It is likely that the effects of high levels of labour market-induced migration in past years will continue to make themselves felt for a prolonged period and will, when viewed in isolation, also dampen wage developments over the projection horizon. However, staff shortages will probably become further exacerbated in 2019 and 2020, with the result that negotiated rates of pay will rise even more dynamically than in 2018.

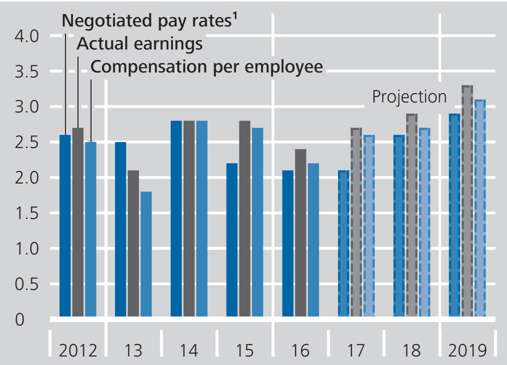
Steep rise in unit labour costs only temporarily subdued by high productivity growth

Actual earnings are likely to increase much more strongly than negotiated rates of pay over the entire projection horizon. The main drivers of the consistently positive wage drift will be cyclically induced increases in working hours, performance-based bonuses and more wages exceeding collectively agreed rates in areas with particularly pronounced labour shortages.[10] Average compensation per employee, which includes employers' social contributions on top of actual earnings, will thus also pick up perceptibly over the projection horizon. As in previous years, however, it will rise at slightly lower rates than actual earnings, especially as the contribution rate for the statutory pension insurance scheme will be falling slightly in the next two years. The steep surge in unit labour costs, which has persisted since 2012 and is strong by historical standards, will nonetheless be distinctly dampened in this year and the next, since the slight acceleration in labour cost growth will be outstripped by the exceptionally large increase in productivity growth induced by cyclical factors. Unit labour costs are likely to rise much more strongly again from 2019.

9 All past pay agreements included in the Bundesbank's negotiated pay rate statistics (around 500 collective wage agreements and regulations on civil servant pay) are factored into the projections of negotiated wage increases and extrapolated beyond their contractual term, taking into account the overall economic situation and industry-specific features.
10 Furthermore, the assumed increase in the statutory general minimum wage in 2019 is expected to exert upward pressure on wages in wage segments that are not captured in the negotiated pay rate statistics. It is therefore likely to be reflected in the wage drift. In 2018 and 2020, when the minimum wage will not be raised, a certain countermovement is expected.

Negotiated pay rates, actual earnings and compensation of employees

Year-on-year percentage change, monthly basis



Sources: Federal Statistical Office. 2017 to 2019 Bundesbank projections. **1** According to the Bundesbank's negotiated wage index.

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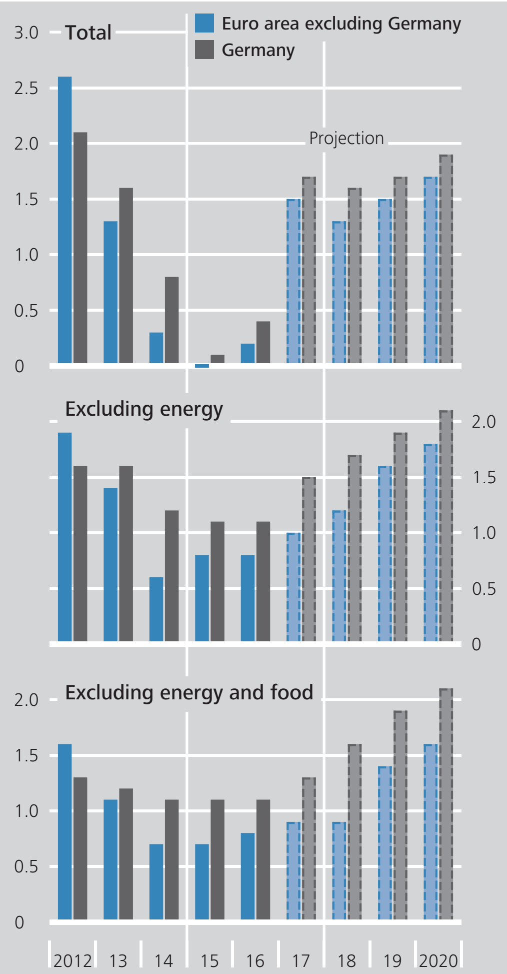
Price projection (HICP)*

Year-on-year percentage change



Sources: Federal Statistical Office, Eurostat and Bundesbank calculations. 2017 to 2020 Bundesbank projections (for Germany) and calculations based on Eurosystem projections (for the euro area excluding Germany). * Based on the Harmonised Index of Consumer Prices.

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Domestic inflation measured by GDP deflator considerably higher

The unit labour cost profile and the changes in aggregate profit margins together determine domestic inflation as measured by the GDP deflator. Given the healthy economic situation, the temporarily subdued increase in unit labour costs should, on its own, allow enterprises to widen their profit margins in the short term. However, this effect is being counteracted this year by the deterioration in the real terms of trade on account of resurgent energy prices. Barring a further deterioration in the real terms of trade, though, margins should widen considerably next year. Starting in 2019, profit margins will then broadly stabilise as unit labour costs rise more strongly again. Overall, domestic inflation as measured by the GDP deflator is likely to pick up from 1.5% this year to 2.1% by 2019 and to rise even further in 2020.

Inflation stronger than expected of late

Consumer prices rose more strongly from the third quarter of 2017 than was predicted in the June projection. This was down to higher crude oil prices, on the one hand, which drove energy prices up considerably. On the other hand, food prices exceeded the projection owing to more dynamic commodity prices and more expensive tobacco products. Excluding the two volatile components of energy and food, however, the rate increased a little less strongly than assumed in June. Services, in particular, experienced distinctly weaker-than-expected price rises recently. This was largely because October saw not only a marked reduction in premiums for motor vehicle insurance but also a noticeable decline in the prices of package holidays.[11] Finally, the slightly higher rates of increase in rents recorded when the June forecast was prepared tailed off. By contrast, the prices of non-energy industrial goods even rose somewhat more strongly than anticipated, despite the unexpected appreciation of the euro. Overall, annual inflation as measured by the Harmonised Index of Consumer Prices (HICP)

11 For specific details about the package holiday component in the Harmonised Index of Consumer Prices, see Deutsche Bundesbank, The volatility of the traditional core inflation rate in Germany, Monthly Report, November 2017, pp 49-51.

stood at 1.8% in November and was thus 0.3 percentage point higher than assumed in the June projection.

Exceptionally healthy economic setting leading to steady rise in inflation rate excluding energy and food …

Over the projection horizon, the extremely favourable economic setting is likely to enable enterprises to initially widen their profit margins and subsequently to pass on to consumers the increasing price pressures brought about chiefly by rising labour costs. The inflation rate excluding energy and food should therefore be going up steadily over the coming years. Already this year, the prices of non-energy industrial goods have risen more sharply than the average for the preceding years. However, inflation in non-energy industrial goods will probably tail off a little to begin with in 2018, before picking up again thanks to the cyclical effect. This is because the steep upward pressure on the prices of industrial goods this year also stemmed from a significant increase in commodity prices, which is not anticipated to continue in this manner. For services, the underlying upward tendency this year was still obscured by lower consumer prices owing to the reform of long-term care in January 2017, which means that the rate is likely to surge up in 2018 when this effect is no longer present. Overall, consumer price inflation excluding energy and food could climb incrementally from 1.3% in the current year to 1.9% in 2019. A further increase to 2.1% in 2020 is conceivable owing to significant overutilisation of economic capacity.[12]

… and pushing up headline rate despite dwindling energy inflation

The current significant price rises for food are likely to weaken slightly from 2018; prices should then more or less match the inflation rate excluding energy and food. By the end of this year, the steep rise in crude oil prices seen recently is likely to have largely been funnelled into consumer prices for energy, but the elevated price level should mean that energy continues to make a positive contribution to the headline rate on average in 2018. In the subsequent years, however, energy prices are unlikely to rise by much, primarily because of the assumption that crude oil prices will fall. Headline HICP inflation should therefore lag slightly behind the rate excluding energy (and food), putting inflation in the next few years at a similarly high level to this year. In 2020, consumer price inflation could reach 1.9%.

Revisions since the June 2017 projection

Year-on-year percentage change

Item	2017	2018	2019
GDP (real, calendar-adjusted)			
Projection from December 2017	2.6	2.5	1.7
Projection from June 2017	1.9	1.7	1.6
Difference in percentage points	0.7	0.8	0.1
Harmonised Index of Consumer Prices			
Projection from December 2017	1.7	1.6	1.7
Projection from June 2017	1.5	1.4	1.8
Difference in percentage points	0.2	0.2	− 0.1

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Public finances

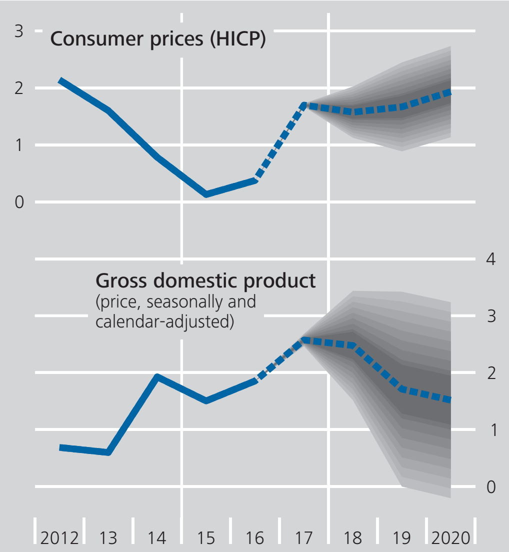
Baseline government budgets with growing surpluses in favourable setting

Public finances are benefiting in this projection from very favourable framework conditions. The general government surplus is still growing this year (2016 surplus: +0.8% of GDP), in spite of the repayment of nuclear fuel tax.[13] In the absence of any new measures, the surplus will then rise to just over 1½% of GDP in 2020. This improvement reflects both the cyclical upturn and declining interest expenditure. It will also be augmented in 2018, when the nuclear fuel tax repayment comes to an end. The baseline fiscal policy stance, as measured by the struc-

12 For the purposes of the projection, it is assumed that the infrastructure levy will be collected from 2020. This will increase the inflation rate slightly, despite the price-dampening effect of the motor vehicle tax relief, which will more than compensate German residents. This is because the HICP is based on the domestic concept, which means that domestic expenditure by non-residents is included in the basket of goods and is taken into account when measuring inflation.
13 Due to the Federal Constitutional Court's June ruling that this tax is invalid, payments in the amount of 0.2% of GDP had to be made.

Baseline and uncertainty margins of the projection*

Annual data, year-on-year percentage change



Sources: Federal Statistical Office and Bundesbank calculations. 2017 to 2020 Bundesbank projections. * Uncertainty margins calculated on the basis of the empirical forecast errors. For 2017 to 2019, the width of the band distributed symmetrically around the most probable value equals double the mean absolute forecast error. For 2020, the figure for 2019 is multiplied by a factor resulting from the estimation of a time series model which captures the margins of uncertainty over the forecast horizon.

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tural primary balance,[14] will be distinctly expansionary next year and slightly so thereafter. However, since budgetary policymakers are unlikely to aim for surpluses as high as those arrived at under this projection's assumptions, tax cuts and additional spending are expected, in particular, after the new government has been formed. As a result, the fiscal balances are likely to be much lower than described here, and the fiscal policy stance more expansionary.[15]

Clear growth in revenue, but primary expenditure also rising fairly strongly

The revenue ratio is likely to rise again slightly this year. In particular, revenue from profit-related taxes is continuing to grow strongly, but the favourable developments in wages and the labour market are also having a positive effect. On the whole, the ratio is expected to shrink somewhat next year, when, amongst other things, the contribution rates for the pension insurance scheme and health insurance will be lowered slightly. Moreover, the fast pace of revenue growth from profit-related taxes is unlikely to be maintained. Virtually no changes are expected from 2019, on the whole. The expenditure ratio is under strain from strong nominal GDP growth in the ratio's denominator, falling interest expenditure and, next year, from the lapsing of the nuclear fuel tax repayment.[16] Structural primary expenditure[17] is likely to increase fairly perceptibly, however. As regards public long-term care insurance and health insurance, dynamic growth is expected overall, as in the recent past. Furthermore, wage growth and the contribution rate cuts combined with more people entering retirement will lead to distinctly rising pension outlays, even if the sustainability factor is again expected to have a slightly restraining effect in future. In addition, the primary expenditure of central, state and local governments is likely to rise considerably given their growing surpluses. So far, there are plans to boost expenditure, particularly on child day-care, education, transport infrastructure, internal security and defence.

Debt ratio remains on downward path

The debt ratio is likely to continue its rapid descent (end-2016: 68.1%) and fall below the 60% threshold in 2019 – even in the event of budgetary burdens posed by newly agreed fiscal policy measures. Alongside the budget surpluses of central, state and local governments, growth in nominal GDP will depress the ratio (via its denominator). The positive economic development will thus make itself felt in two ways: through the significant cyclical increase in surpluses and through higher GDP growth. The ongoing resolution of the government-owned bad banks is accelerating the decline,

14 Fiscal balance plus interest expenditure (primary balance) less temporary and cyclical effects.
15 See p 8 for information on the measures included in the baseline. Aside from the uncertainties affecting economic growth that are described in the next section, public finances are exposed to risks stemming from the remaining state government guarantees issued for HSH Nordbank (by mid-year, roughly €3½ billion of the €10 billion in guarantees had been called).
16 In the national accounts, tax repayments stemming from court rulings are recorded as capital transfers.
17 Expenditure excluding interest payments as well as temporary and cyclical effects.

though developments here have sometimes been rather volatile in the past.

Risk assessment

Baseline scenario risks

Although this projection outlines the most probable scenario for economic growth and the inflation rate from today's perspective under the given assumptions, there are a multitude of risks and uncertainties that could cause economic developments to turn out differently than described here. All things considered, economic growth is predominantly facing upward risks stemming chiefly from the domestic economy; the risks facing consumer prices also appear to be tilted slightly to the upside on the whole.

No clear path for oil price risk

As regards future crude oil prices, which could have a major impact on the consumer price projection in particular, neither upside nor downside risk seems to have clearly gained the upper hand at present. A tightened oil supply – owing to political tensions in major oil-producing countries, for example – could result in considerably higher oil prices than assumed here on the basis of forward quotations. However, unconventional forms of oil production in the United States, in particular, could also see stronger growth and dampen prices, offsetting this risk.

External risks to economic growth broadly balanced

For an export-oriented economy like Germany's, the global environment sets key conditions for its economic prospects. A sudden tightening of global financing conditions, which would hit vulnerable emerging market economies especially hard, or a sharp downturn in China could put a heavy brake on global economic growth and adversely affect German exports and investment. While the likelihood of growing protectionism has subsided markedly since the June projection, new trade barriers would take a heavy toll on the German economy. These risks are countered by a potentially more expansionary fiscal policy in the United States, on the one hand. On the other, the eco-

Key figures of the macroeconomic projection – non-calendar adjusted

Year-on-year percentage change

Item	2016	2017	2018	2019
GDP (real)	1.9	2.3	2.5	1.7
GDP (real, calendar-adjusted)	1.9	2.6	2.5	1.7
Components of real GDP				
Private consumption	2.1	2.1	1.7	1.6
Memo item Saving ratio	9.7	9.8	10.1	10.1
Government consumption	3.7	1.3	1.8	1.9
Gross fixed capital formation	3.1	3.8	4.1	3.2
Business investment[1]	2.6	3.6	4.6	3.1
Private investment in housing construction	4.0	4.5	2.9	3.0
Exports	2.6	4.4	5.3	3.8
Imports	3.9	4.8	5.9	5.1
Memo item Current account balance[2]	8.2	7.9	7.9	7.7
Contributions to GDP growth[3]				
Domestic final demand	2.4	2.1	2.1	1.9
Changes in inventories	– 0.2	0.0	0.2	0.0
Exports	1.2	2.0	2.5	1.8
Imports	– 1.5	– 1.8	– 2.3	– 2.1
Labour market				
Total number of hours worked[4]	0.6	1.3	1.2	0.9
Employed persons[4]	1.3	1.5	1.1	0.7
Unemployed persons[5]	2.7	2.5	2.4	2.3
Unemployment rate[6]	6.1	5.7	5.3	5.1
Wages and wage costs				
Negotiated pay rates[7]	2.1	2.1	2.6	2.9
Gross wages and salaries per employee	2.4	2.7	2.9	3.3
Compensation per employee	2.2	2.6	2.7	3.1
Real GDP per employed person	0.6	0.8	1.4	1.0
Unit labour costs[8]	1.6	1.8	1.4	2.1
Memo item GDP deflator	1.3	1.5	1.8	2.1
Consumer prices[9]	0.4	1.7	1.6	1.7
Excluding energy	1.1	1.5	1.7	1.9
Energy component	– 5.4	3.1	0.7	0.0
Excluding energy and food	1.1	1.3	1.6	1.9
Food component	1.3	2.7	2.0	1.9

Sources: Federal Statistical Office; Federal Employment Agency; Association of German Pfandbrief Banks (vdp). 2017 to 2019 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).

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nomic upturn in the advanced economies could well persist longer than assumed here given continued favourable financing conditions, accelerating growth in the global economy. The attendant higher demand for German exports could buoy up commercial investment in Germany even more.

Expansionary fiscal policy could result in higher economic growth …

Fiscal policy could provide added domestic impetus. Once a new federal government has been formed, considerable expansionary fiscal measures are expected given the favourable budget position. Against the backdrop of the major overutilisation of aggregate capacity already included in the baseline, this could also exert additional distinct upward pressure on consumer prices.

… and sets the scene for, overall, slightly upward-tilted risks to prices

All in all, domestic factors therefore give rise to price risk that is tilted slightly to the upside. The possibility of the labour supply reacting more elastically than assumed to the sustained high demand for labour, causing both wages and prices to rise more weakly than projected, only partially offsets the countervailing risk of higher demand for goods. The impact of the above-described global price risks is considered to be broadly level. In addition, the switch to a new weighting scheme in the HICP, now envisaged for 2019, is likely to give rise to considerable uncertainty surrounding measured price developments, with an unknown direction of impact.[18]

18 The scheduled switch originally envisaged for January 2018 was postponed by one year. For more information, see the press release issued by the Federal Statistical Office: "Consumer prices in October 2017" (No 403, 14 November 2017).