



GERMANY: EXPANSIONARY MONETARY POLICY DRIVES GROWTH ABOVE POTENTIAL

I. OVERVIEW

1. The current situation
2. The business-cycle effects of the expansionary monetary policy
3. Outlook

II. DEVELOPMENTS IN DETAIL

1. Economic environment and assumptions for the forecast
2. Favourable exchange rate stimulates export demand
3. Significant impulses from consumption and construction
4. Moderate growth in corporate investment
5. Consumer price inflation remains weak
6. Growth in employment is ongoing
7. Fiscal surpluses persist despite expansionary fiscal policy

III. MEDIUM-TERM PROJECTION

APPENDIX TO THE CHAPTER

1. Slack growth in productivity and investment
2. Charts and Tables

References

This is a translated version of the original German-language chapter "Deutschland: Expansive Geldpolitik treibt Wachstum über Potenzial", which is the sole authoritative text. Please cite the original German-language chapter if any reference is made to this text.

SUMMARY

The German economy is expected to experience strong growth in the year 2016. The German Council of Economic Experts forecasts an increase of 1.9 % in real GDP. Output is therefore increasing at a faster pace than potential output, which will grow by 1.3 %. The utilisation of production capacities thus continues to increase and the upswing that began in early 2013 will continue. A number of indicators, such as the level of capacity utilisation in the manufacturing sector, suggest that the German economy is characterized by a positive output gap. The **upswing** is driven by significantly higher private and public consumption expenditure and by investment in residential construction. The heightened consumer confidence also reflects the favourable situation on the labour market, with the number of people in employment set to increase this year by roughly 500,000 to 43.6 million.

The upswing is likely to continue in the year 2017. While growth in real GDP is expected to decline to 1.3 %, 0.4 percentage points of the slowdown in growth can alone be attributed to a reduced number of work days. If it were not for this calendar effect, the German economy would continue to expand at virtually the same pace as in the year 2016. A continued increase in the utilisation of production capacities can therefore be expected. A **moderate development in exports**, however, indicates that stronger production expansion is unlikely. Germany's key trading partners have only experienced a muted recovery, and growth in global trade is weak.

The **expansionary monetary policy** of the European Central Bank (ECB) is probably a significant factor contributing to the upswing in the German economy. With its unconventional measures, the ECB has significantly improved the external environment for German exports since mid-2014 despite moderate global demand, as illustrated by Germany's strong price competitiveness. The positive impact on German exports goes hand in hand with significant effects on corporate investment and the labour market. If it were not for the expansionary monetary policy, exports would probably contribute less to the growth in GDP. In the absence of such monetary policy stimuli, German economic growth would probably not outstrip potential output.

Despite the good economic situation at present, the German economy is not immune to developments in the rest of the euro area. An appreciable downturn in the rest of the euro area and an unexpected appreciation of the euro could appreciably slow down the increase in production. The current upswing should not detract from the fact that **potential growth is low** and is probably not set to rise in the future. Therefore, many companies are preferring to invest abroad. This is evident from Germany's high current account surplus that reflects, inter alia, wasted business investment opportunities caused by local conditions in Germany that hamper investment.

I. OVERVIEW

1. The current situation

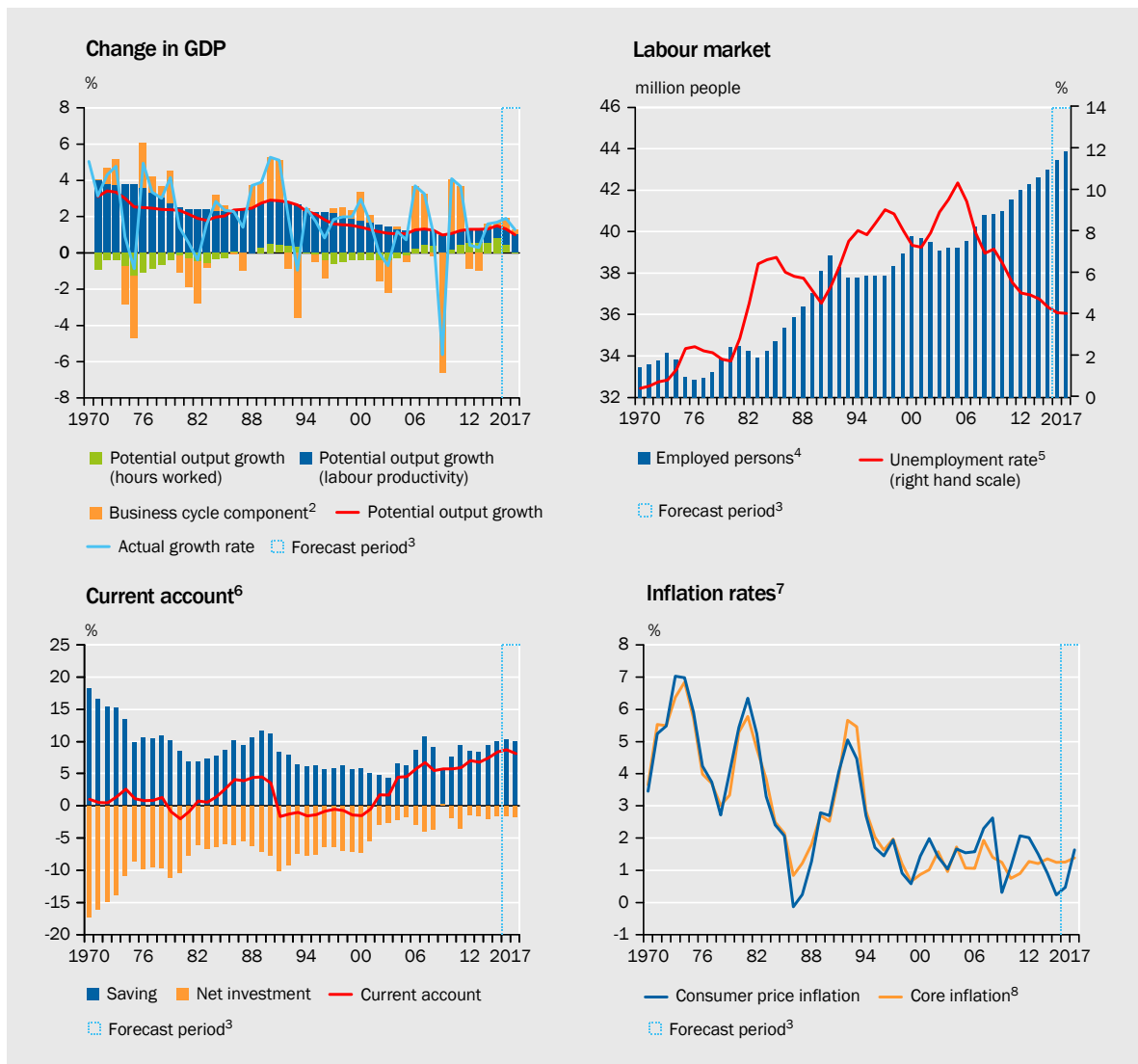
194. At first glance, the current economic development in Germany looks positive. The German economy is expected to expand with 1.9 % in the year 2016. Real gross domestic product (GDP) is therefore increasing at a faster pace than potential output, which will grow by 1.3 % this year according to calculations of the German Council of Economic Experts (GCEE). [↪ CHART 20 TOP LEFT](#) The utilisation of production capacities therefore continues to increase. A number of indicators, such as the level of capacity utilisation in the manufacturing sector or the strong performance of the labour market, suggest that the German economy is characterized by a positive output gap since the beginning of the year 2016. That said, estimates of the output gap, defined as the relative difference between GDP and potential output, are generally surrounded by a high degree of uncertainty. [↪ BOX 6](#)
195. However, even the uncertainty regarding the estimation of the output gap does not alter the statement that the German economy experiences an **upswing**. This upswing is caused by a significant increase in private and public consumption expenditure and by investment in residential construction. The expansion of consumer spending alone can explain 1.6 percentage points of the growth in GDP this year. [↪ TABLE 5](#) Consumer spending was a considerable factor last year as well, when it also contributed 1.6 percentage points to growth.
196. Heightened consumer confidence mirrors the favourable situation on the **labour market**. The number of employed people will again presumably increase by roughly 500,000 persons this year and reaches the level of 43.6 million persons. [↪ CHART 20 TOP RIGHT](#) However, more than 2.7 million people are still unemployed in the year 2016. German economic policy therefore faces the major challenge to integrate these unemployed persons and the large numbers of recognised asylum seekers into the labour market. [↪ ITEMS 708 FF., 738 FF.](#) Nonetheless, the development of the German labour market in recent years has been remarkable.
197. The positive picture of the German economy fades somewhat when we look at the development of **business investments** and exports. While they are going to increase, their expansion is moderate. Investment in machinery and equipment is likely to contribute roughly 0.1 percentage points to GDP growth in the year 2016, following 0.2 percentage points in the year 2015. [↪ TABLE 5](#) In addition, commercial construction investment is likely to decrease again this year.
198. Standing at 3.3 %, Germany's **export** growth rate in the year 2016 will also decline compared against last year's rate of 5.2 %. While exports will contribute 1.5 percentage points to GDP growth, the moderate increase in exports highlights the still quite subdued economic recovery experienced by Germany's key trading partners. Despite a surge in domestic demand and a moderate

increase in exports, net exports have contributed to GDP growth. In comparison to the development of exports the growth rate of imports was even weaker. With 0.2 percentage points the growth contribution of net exports in the year 2016 is likely to be of the same magnitude as in the year 2015.

199. One possible explanation for the positive growth contribution of net exports is the significant real depreciation of the euro between mid-2014 and spring of the year 2015. Since then the real exchange rate has generally hovered around the lower level. This development is closely linked to the expansionary monetary policy of the ECB. In response to the significant **fall in inflation rates** - also in Germany ↘ CHART 20 BOTTOM RIGHT - the ECB introduced a battery of measures to stabilise inflation expectations and boost aggregate demand. At the same time, the largely unconventional monetary policy measures have caused domestic

↘ CHART 20

Indicators of macroeconomic development¹



1 - Until 1990 former territory of the Federal Republic of Germany. 2 - Difference between the actual growth rate of output and potential output growth. 3 - Forecast by the GCEE. 4 - National concept; Numbers until 1990 obtained by backward chaining. 5 - Unemployed people as a share of the labour force. 6 - Net lending /net borrowing figure of the total economy. Numbers until the year 1991 are not directly comparable to those after the year 1991. 7 - Consumer price index, change on previous year. 8 - Consumer price index excluding food and energy; change on previous year.

Sources: Federal Statistical Office, own calculations

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demand in the rest of the euro area to pick up. With the consequence, however, that in these countries the bilateral current account balances vis-à-vis Germany have deteriorated.

▸ BOX 6

On the reliability of output gap estimates

The concept of the output gap – defined as the relative difference between real GDP and potential output – plays an important role in assessments of current monetary and fiscal policy and business cycle analysis. For example, the output gap is used in inflation forecasts and to determine the structural fiscal deficit (Mourre et al., 2013). However, identifying the output gap, particularly in "real-time", presents a major challenge (Elstner et al., 2016; Orphanides and van Norden, 2002). For example, Jarocinski and Lenza (2016) show that their models estimate the output gap for the euro area economy to be in the region of -6% to -2% for the years 2014 and 2015. The assessment of the current stance of monetary policy therefore varies depending on the estimated value. Economic policy thus faces a major information problem. It may come as no surprise, therefore, that the International Monetary Fund (IMF) and the Organisation for Economic Cooperation and Development (OECD) frequently revise their output gap estimates for large industrialised countries, sometimes even substantially (Deutsche Bundesbank, 2014).

In practice statistical filters are usually applied to break down the observed economic performance into a cyclical component and a growth trend. In this context it is found that the various univariate filters deliver similar results ex post. Nevertheless, there can occasionally be differences in the magnitude of the economic swings. ▸ CHART 21 TOP LEFT However, determining the current position in the business cycle in real-time poses a bigger problem. When one compares the real-time output gap estimates of the German Council of Economic Experts (GCEE) with the current estimate of earlier output gaps, the differences in the result are enormous. For example, a negative output gap of over 9% was identified in autumn 1975 ▸ CHART 21 TOP RIGHT A far smaller gap of around 3% is identified retrospectively, based on the output gap estimate from the year 2016. The substantial revision does not appear to be due to the change in the estimation technique to determine the output gap in the year 2014 (2014 Annual Report, Items 202 ff.) as the GCEE also identified a far smaller negative output gap for 1975 in its 1994 report.

There are two reasons for this need to revise estimates when univariate filters are used. First of all, data are sometimes revised substantially after their initial publication. Secondly, the filter methods have an end-of-sample problem - in other words the last value released disproportionately affects the estimate of the current position in the business cycle. Attempts are often made to reduce the end-of-sample problem by using forecasts to extend the observation period. However, calculations by the GCEE reveal that forecasting errors are generally high, irrespective of the institution (2015 Annual Report, Box 6). Multivariate filter methods attempt to alleviate the end-of-sample problem by incorporating additional information. However, the problem of estimation accuracy then occurs for the parameters in the model. Studies show that multivariate methods generally do not provide a better estimate of the current output gap (Orphanides and van Norden, 2002).

Using real-time data for the German GDP on a quarterly basis, it is possible to examine which factor produces the biggest need to revise the output gaps. Real-time data are understood to be a compilation of all the datasets that were available to the researcher at a given time. Using the Hodrick-Prescott filter, an output gap is estimated at a given time on the basis of the data available at that particular time. ▸ CHART 21 BOTTOM LEFT Other filter methods, such as the Baxter-King filter, return similar results.

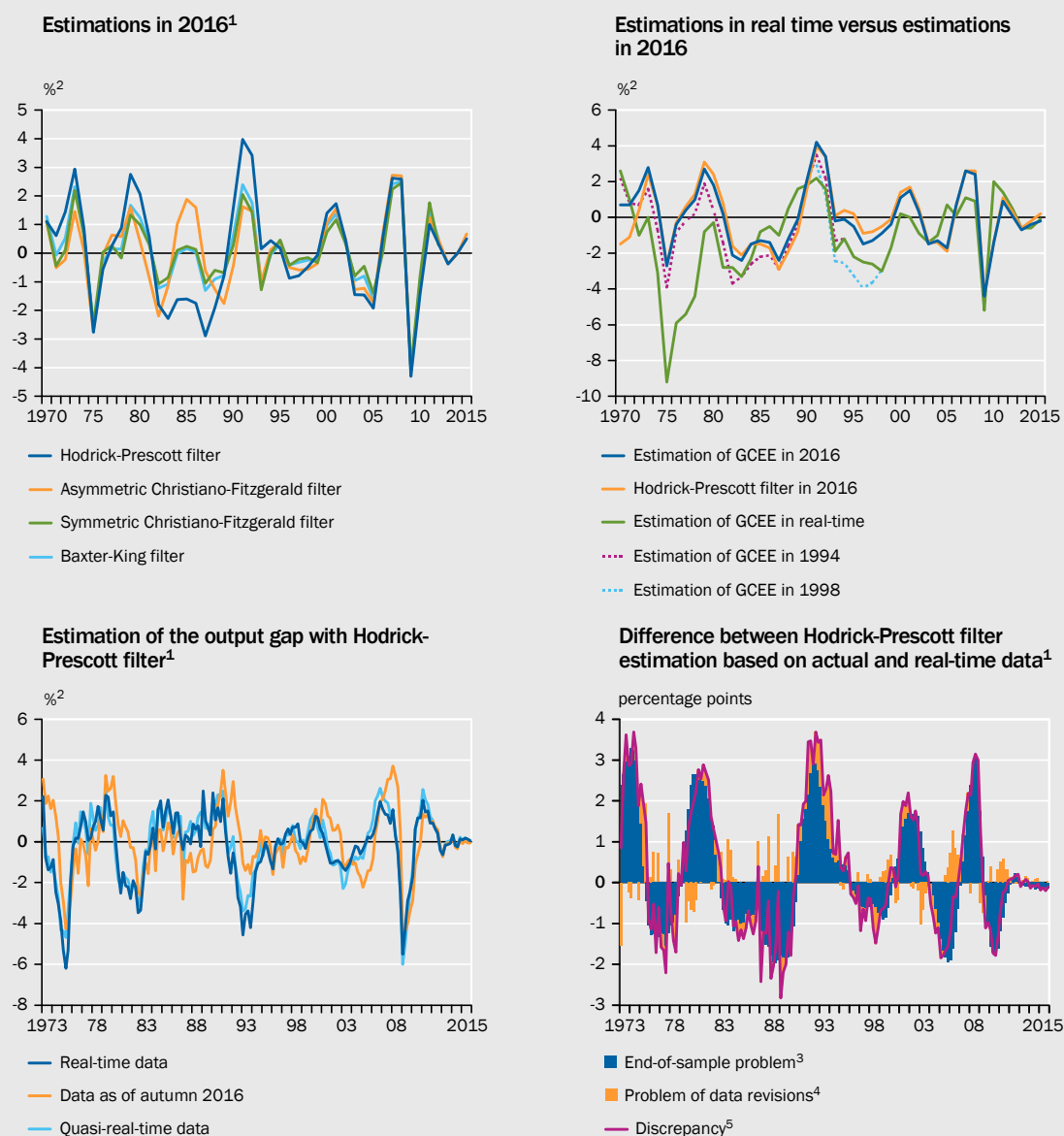
If we compare these estimated output gaps with the estimate from the pool of data available in autumn 2016, we see that the revisions range between -3 and +4 percentage points. ▸ CHART 21

BOTTOM RIGHT The discrepancies are therefore enormous and are just as volatile as the output gap itself (here ex-post estimate). They reveal the high degree of uncertainty associated with determining the current position in the business cycle. Furthermore, the revisions are highly persistent. This indicates that the filter method misjudges the level of potential. Put differently, a weaker development in actual GDP which later proves to be a protracted development is first associated with a negative output gap. The filter only adapts to the weaker economic development over time with the result that the negative output gap can become a positive gap afterwards. This example illustrates the major problem in identifying an economy's growth potential (identification problem). Abrupt changes, such as in times of disruptive shifts, usually cannot be captured adequately.

CHART 21

Comparison of procedures for the estimation of the output gap

Deviation from trend



1 – Without considering forecasts at the end-of-sample. 2 – Percentage deviation from potential output. 3 – Actual data minus quasi-real-time data. 4 – Quasi-real-time data minus real-time data. 5 – Actual data minus real-time data.

Sources: Federal Statistical Office, own calculations

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To estimate the relative importance of data revisions for the discrepancies observed, so called "quasi real-time data" can be used instead of real-time data. Quasi real-time data are the latest vintage of

data. Just as in the case of real-time data, however, the data series is truncated at the end of the sample at the specific point in time the estimate is to be made. A comparison of the values estimated on the basis of this data set with the current output gap again reveals major discrepancies. [↘ CHART 21 BOTTOM LEFT](#) However, these discrepancies are solely due to the end-of-sample problem because the "quasi real-time dataset" uses the latest vintage of data. The findings indicate that this end-of-sample-problem is the main reason for the revisions to the output gaps, with revised data and modified data definitions playing less of a role. [↘ CHART 21 BOTTOM RIGHT](#) Overall, all these calculations lead us to the conclusion that real-time estimates of the output gap are not very reliable. Any conclusions based on the concept of the output gap must therefore be interpreted with caution in an empirical implementation.

200. By improving the external environment, **expansionary monetary policy** has likely made a significant contribution to Germany's economy having grown faster than its potential output. Even though the German economy is already characterised by a slight overutilisation of production capacities (positive output gap), growth is expected to remain firmly above the potential growth rate in future. Monetary policy is therefore not helping to put the German economy onto a path of sustainable growth, and harbours the risk of an overheating of the economy. [↘ ITEMS 438 FF.](#) Furthermore, the ECB's expansionary monetary policy also threatens financial stability. It carries the risk of misallocation of production factors in the overall economy by partly rendering the price mechanism on the capital markets ineffective.
201. Potential growth is not very high by historical standards and is not expected to pick up in the future. Besides the ongoing demographic change, productivity growth has slowed in recent years. This is likely to lead to pessimistic return on investment projections among businesses, prompting many to invest abroad where they find investment conditions to be more attractive. This is reflected in **Germany's high current account surplus**. The sharp drop in commodity prices since mid-2014 has also contributed to the German current account surplus posting a record high this year, equivalent to 8.8 % of nominal GDP. [↘ CHART 20 BOTTOM LEFT](#)
202. The GCEE does **not** consider the high current account surplus to be the result of a **macroeconomic imbalance** (2014 Annual Report Items 480 ff.). However, the current account surplus could be lower if local conditions that hamper investment were addressed. A large proportion of the current account surplus can be explained by the very positive net lending/net borrowing balance of non-financial corporations. This is essentially the result of a decline in investment activity in Germany, coupled with increased corporate savings. These represent foreign investment of German companies to a sizable extent. The lacklustre corporate investment activity is heavily influenced by structural factors. The expansionary effects of monetary policy are therefore less apparent.

TABLE 5

Contributions to growth of gross domestic product by expenditure components¹

percentage points

	2011	2012	2013	2014	2015	2016 ²	2017 ²
Domestic demand	2.8	- 0.8	0.9	1.3	1.5	1.7	1.5
Final consumption expenditure	0.9	0.9	0.6	0.7	1.6	1.6	1.2
Private consumption ³	0.8	0.7	0.4	0.5	1.1	0.9	0.7
Government consumption	0.2	0.2	0.2	0.2	0.5	0.7	0.5
Gross fixed capital formation	1.4	- 0.1	- 0.2	0.7	0.3	0.5	0.4
Investment in machinery & equipment	0.5	- 0.2	- 0.1	0.4	0.2	0.1	0.1
Construction investment	0.8	0.1	- 0.1	0.2	0.0	0.3	0.2
Other products	0.2	0.0	0.0	0.1	0.1	0.1	0.1
Changes in inventories	0.4	- 1.6	0.5	- 0.1	- 0.5	- 0.4	- 0.0
Net exports	0.9	1.3	- 0.4	0.3	0.2	0.2	- 0.2
Exports of goods and services	3.5	1.3	0.9	1.9	2.4	1.5	1.8
Imports of goods and services	- 2.6	0.0	- 1.3	- 1.6	- 2.1	- 1.3	- 2.1
Gross domestic product (%)	3.7	0.5	0.5	1.6	1.7	1.9	1.3

1 – Real values; Deviations in sums due to rounding. 2 – Forecast by the GCEE. 3 – Including non-profit institutions serving households.

Source: Federal Statistical Office

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2. The business-cycle effects of the expansionary monetary policy

203. The monetary easing measures of recent years have essentially an effect by stimulating macroeconomic demand. However, for the German economy it is surprising that the **many years of low interest rates** and the favourable euro exchange rate are not reflected in a significant positive output gap. Apparently, expansionary monetary policy has only weak effects on demand growth in many sectors. For example, there has only been moderate growth in the volume of lending and investments, and the savings ratio has even increased recently. However, the impact of monetary policy on the real economy (transmission) may be masked by many other influencing factors, such as the weak economic situation in emerging markets.

Low interest rates and a slack economy in the euro area

204. In any analysis of the extent to which monetary policy is driving the upswing, it is instructive to distinguish between the systematic (endogenous) component and measures that go beyond this. The systematic component refers to the usual reaction of the ECB in the past to economic and inflationary developments in the euro area. This behaviour pattern is best illustrated by an interest rate rule. [▶ ITEMS 416 F](#). The systematic component responds to shocks that are reflected in growth and inflation, and therefore has a stabilising effect.

205. While **expansionary monetary policy** can be justified by the weak economic situation and weak price developments in the euro area, the level of quantitative easing introduced by the ECB cannot. [▶ CHART 55](#) Moderate economic development can be observed primarily in other Member States of the euro area

and less so in Germany. For Germany's export-oriented economy two contrary effects arise:

- On the one hand, weak economic development in many Member States has a dampening effect on export trade (**export effect**). The development in export trade then impacts business investment and the labour market.
- On the other hand, the endogenous cut in interest rates unlocks expansionary effects in the German domestic economy, e.g. with regard to private consumption or investment in construction (**systematic interest effect**). In addition, it stabilises the economy in the other Member States of the euro area. Expansionary stimuli through exchange rate effects also come into play.

206. It might well be that the **negative impact** of the export effect on German GDP currently **masks** the demand stimulated by the systematic interest effect. This does not mean that monetary policy does not have an expansionary effect on the German economy. On the one hand, it stabilises the economy in the other euro area Member States and on the other hand it stimulates domestic demand in Germany.

207. Identifying the **aggregate effect** of the dampening export and stimulating systematic interest effect on German GDP is not an easy undertaking. It depends largely on the factors that triggered the downturn in the other Member States. Nonetheless, macroeconomic model simulations (DSGE models) can be used to produce an overall assessment of the two effects.

These are models that have been specially developed for country-specific analyses in the euro area (Gadatsch et al., 2016; Rabanal, 2009; Quint and Rabanal, 2014), and incorporate two country groups. In the analysis below, these are Germany and the euro area excluding Germany. Dynamic processes of adjustment of the respective economies to 13 different negative macroeconomic shocks are analysed. These negative shocks only occur in the euro area excluding Germany and result over time in a negative output gap of one percent in this country group. [↘ CHART 22](#)

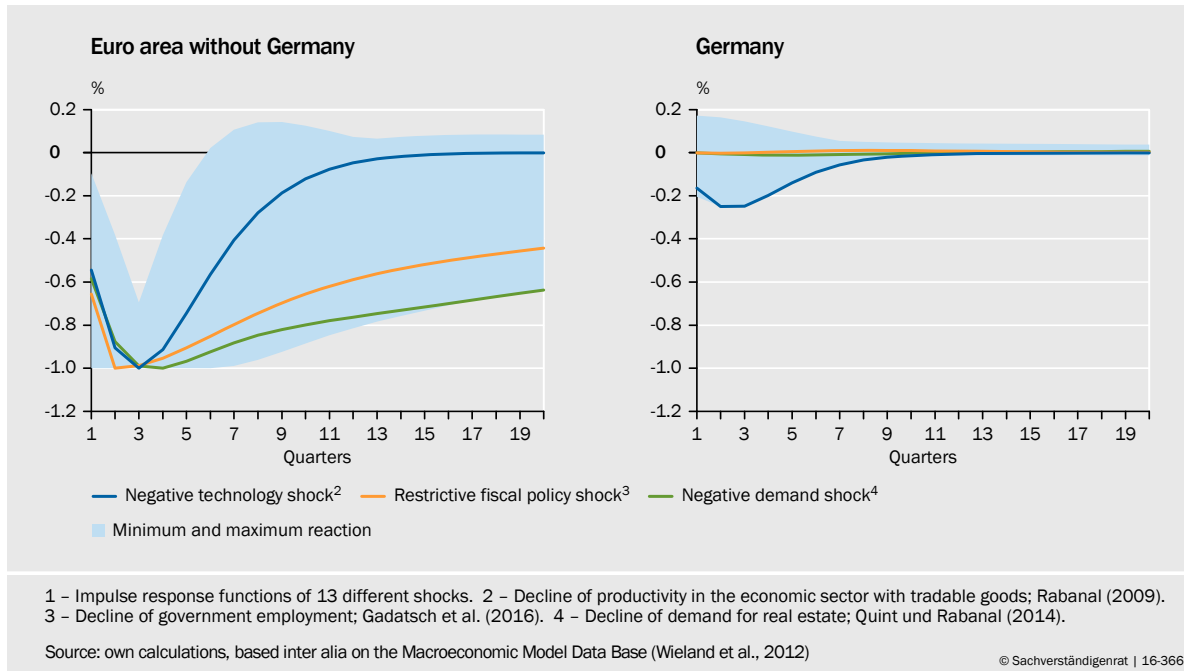
The Central Bank responds to this downturn and cuts interest rates, depending on the developments of inflation and the output gap. It is found that the aggregate effect on German GDP depends on the individual macroeconomic shocks and is quite minor in most cases. This analysis therefore supports the hypothesis that much of the expansionary effect of monetary policy on the German economy is masked by the weak foreign demand in the rest of the euro area.

The effects of discretionary monetary policy stimuli on the economy

208. All monetary policy measures of a central bank that go beyond a systematic response are termed **discretionary stimuli**. Academic literature defines them as monetary policy shocks (Christiano et al., 1999). The cyclical effects of these shocks are therefore induced by monetary policy. The GCEE considers many of the monetary measures introduced since mid-2014, in particular the purchase of securities, to be discretionary measures (2014 Annual Report Item 250; 2014

▸ CHART 22

Effects of shocks originating in the euro area without Germany on the GDP¹



Annual Report Item 290; 2015 Annual Report Item 351). ▸ ITEM 416 F. These discretionary measures have been a major factor contributing to the significant drop in interest rates in the euro area since the turn of the year 2014/2015 and to the sharp depreciation of the euro in real terms.

209. Despite these measures in place since mid-2014, the savings ratio has increased and the macroeconomic volume of credit in relation to nominal GDP has decreased. This therefore begs the question whether the discretionary measures have an expansionary effect on the real economy and, if so, **what are the primary transmission channels**.

210. Without going into the specific details of the individual transmission channels of monetary policy ▸ ITEMS 400 F., the main transmission effects for Germany can be divided into three main categories:

- Generation of **expansionary stimuli** for the German **domestic economy**;
- Creation of export demand as a result of the **exchange rate effect** for sales markets outside the euro area;
- Increasing export demand in the **rest of the euro area** by boosting the local economy, particularly through increased consumption and investment demand.

There are several aspects to the first point, including fiscal stimuli as a result of lower interest payments by the public sector, less effort to save among private households, increasing consumer demand induced by wealth effects, and construction activity stimulated by lower lending rates. In addition, lower opportunity costs for businesses should make investment projects increasingly attractive.

211. The discussion regarding the transmission channels of monetary policy puts a high weight on the expansionary effects on the German **domestic economy**. However, these effects are probably not as pronounced compared with the rest of the euro area. This can be explained by several factors. For one, real estate financing in Germany is characterised by a high equity component. In addition, the wealth effect on private consumption is likely to be smaller because of the lower rate of home ownership compared with other euro area Member States (European Commission, 2016). Further to this, the private debt ratio in Germany is below the euro area average which could result in less pronounced expansionary effects on private consumption originating from the effect of interest rate reduction on future income.

Compared with previous periods of recovery, it is also worth noting that while the economy is recovering at a similarly fast pace with regard to GDP, growth in consumption is far slower. This could be due to the fact that households that are saving for retirement and expecting a prolonged period of low interest rates must save more than in the past. This effect runs counter to the usual transmission of loose monetary policy. [▶ ITEM 404](#) [▶ CHART 51](#)

212. On the other hand, the **effects** on GDP as a **result of export demand** are likely to be more pronounced for Germany than in the rest of the euro area. This is due to Germany's strong focus on exports, clearly illustrated by a relatively high share of exports of roughly 47 % of nominal GDP in the year 2015. Calculations by the GCEE suggest that the considerable increase in Germany's price competitiveness deriving from the sharp depreciation of the euro since mid-2014 could, on its own, have contributed 1.5 to 3 percentage points to the growth in German exports in 2015 and between 0.5 and 2.0 percentage points in 2016. [▶ ITEM 235](#) In the absence of this price effect, exports would have increased by less than 5.2 % and 3.3 % in 2015 and 2016 respectively.
213. The higher demand for exports as result of price competitiveness has a stimulating effect on **business investment**, comprising investment in machinery and equipment, other fixed assets and commercial construction. The contributions to growth are likely to be in the order of 1.0 to 2.0 percentage points for the years 2015 and 2016. By comparison, the actual growth rates for business investment are 2.0 % and 1.4 % respectively for both years.
214. Further to this, the higher demand for exports is reflected in stronger **private consumer demand**. This is primarily the result of higher available income owing to rising employment in manufacturing, with the numbers of people employed in this sector having increased by 55,000 since mid-2014. The growth of 310,000 in the numbers employed in corporate services is also probably partly attributable to Germany's better price competitiveness. The aggregate effect on the gainfully employed population and on income is difficult to quantify.
215. So far, any assertions concerning the export demand have only referred to the **exchange rate effect** for sales markets outside the euro area. However, export demand from the **rest of the euro area** is also likely to have increased considerably as a result of the loose monetary policy. Studies conducted by the

German Bundesbank and the ECB reveal the effect of unconventional measures since mid-2014 on the growth of GDP in the euro area (including Germany) in the year 2015 to be in the order of 0.5 to 0.6 percentage points. The effects for the year 2016 are estimated at 0.5 to 1.5 percentage points (German Bundesbank, 2016). [↪ ITEMS 169 F](#). In all likelihood, these effects have also had a positive impact on business investment and private consumption. Therefore, the ECB's monetary policy makes a significant contribution to **Germany's high current account surplus**. For one, it has meant that the euro has significantly fallen in value and secondly the lower interest rates have a bigger impact on domestic demand in the rest of the euro area than in Germany. The upshot is a higher demand for German exports in these countries.

216. Much evidence suggests that the ECB's overly loose monetary policy made a significant contribution to German GDP growth in the years 2015 and 2016. Therefore Germany's economic situation is not as favourable as it may initially appear. While the German economy would have continued to grow in the years 2015 and 2016 in the absence of the ECB's expansionary monetary policy, the growth rate would probably not have exceeded the potential growth rate. Consequently, the utilisation of production capacities would not have increased.
217. The **continued upswing** in the German economy is subject to risks. The current economic situation benefits from a weaker currency. Germany's strong price competitiveness is therefore not sustainable. Added to this, the expansionary monetary policy stimuli are likely to abate over time.

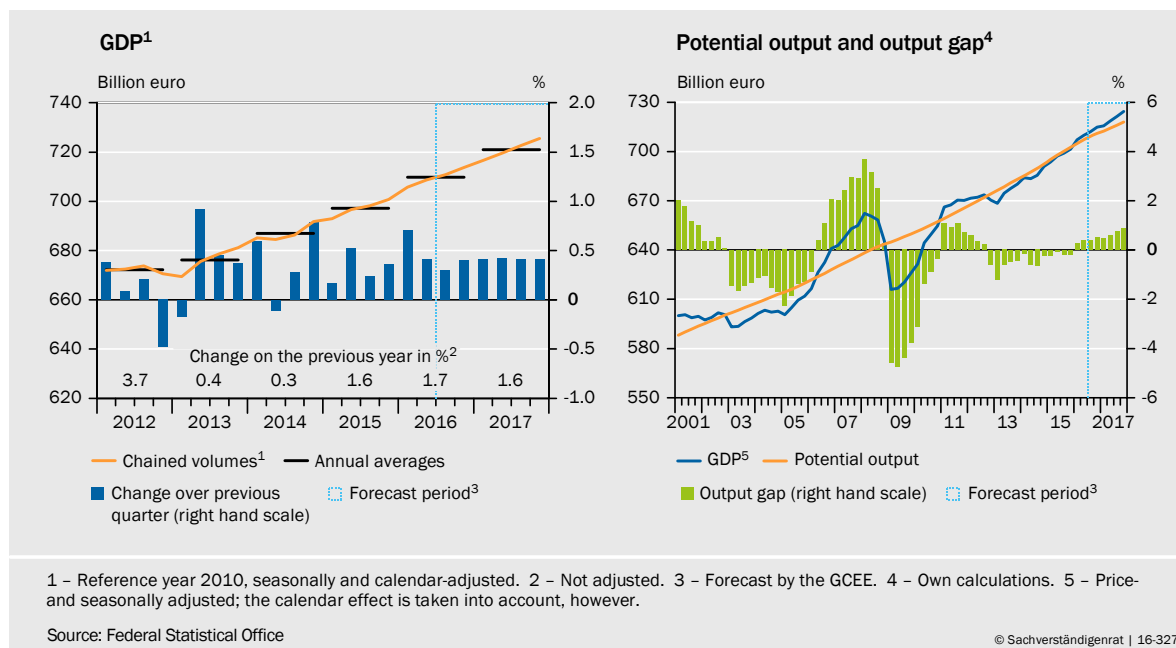
3. Outlook

218. Early indicators show signs of a weaker expansion in GDP for the second half of the year 2016. For example, so far the third quarter has seen a weak performance of **real economy indicators**, particularly in industry. On average, the index of production for manufacturing in July and August is 0.2 % below the average level for the second quarter of 2016. [↪ CHART 24 TOP LEFT](#) In contrast, new orders in the manufacturing sector increased by 0.6 % over this period. This is due to a growth in incoming orders from abroad. Domestic orders, on the other hand, are falling. [↪ CHART 24 TOP RIGHT](#)
219. The **survey-based indicators** present a more positive picture and point to an increase in GDP in the second half of the year 2016. The majority of businesses describe their production and orders as good. The ifo business climate for industry shows a positive balance. [↪ CHART 24 CENTRE RIGHT](#) Further to this, the **purchasing managers' indices** for the manufacturing and services sectors are well above the 50 point mark, which is a signal for growth. In particular, there has been a steady increase in the index for the manufacturing sector since the start of the year. [↪ CHART 24 CENTRE LEFT](#)

A **short-term forecast** based on the early indicators suggests that price-, seasonally- and calendar-adjusted GDP is expected to increase by 0.3 % and 0.4 % respectively in the third and fourth quarter. [↪ CHART 24 BOTTOM](#) Therefore the

↘ CHART 23

Expected economic development in Germany

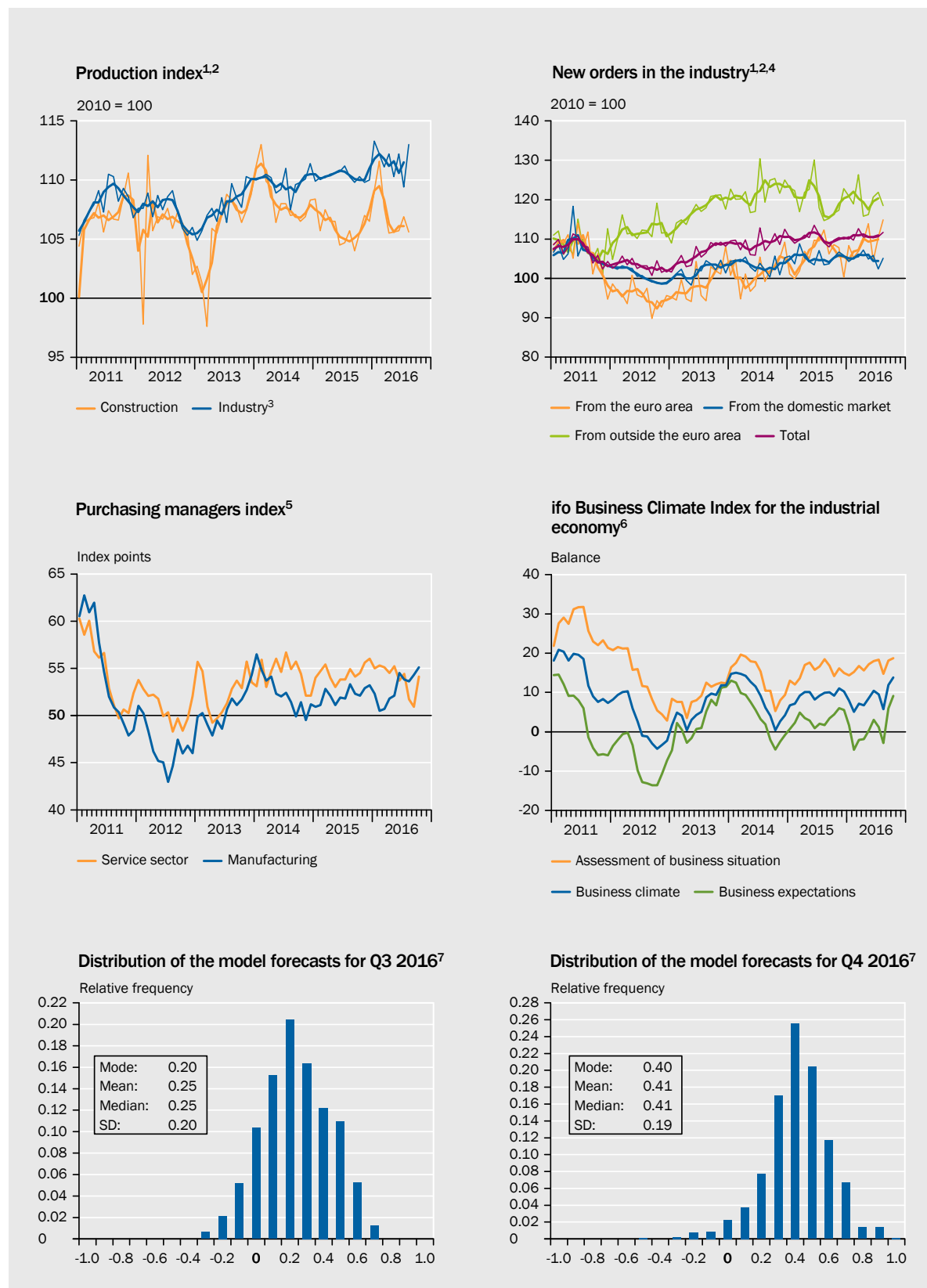


average annual growth in GDP for the **entire year 2016** is likely 1.9%.
 ↘ CHART 23 The GCEE's spring forecast therefore needs to be revised upwards by 0.4 percentage points. ↘ BOX 7 According to GCEE estimates, the output gap in Germany is slightly positive. Due to high net immigration, growth of real GDP per capita is with 1.1 % significantly lower than growth in total GDP.

220. For **the year 2017**, the conditions are met for GDP growth to continue to outstrip the rate of growth in potential output. ↘ CHART 23 The upswing will therefore continue. A major determinant for this development is the continuing expansionary monetary policy of the ECB. She helps to preserve favourable financing conditions for businesses and households. Moreover, her policy helps exporting companies to compete internationally on price. However, the expansionary effects of the strong depreciation of the euro since mid-2014 on German net exports are expected to ease off. Therefore, net exports are unlikely to make a positive contribution to GDP growth next year. ↘ TABLE 5
221. The ongoing upswing is driven by a **marked expansion in private consumption spending and housing construction**. This reflects the good situation on the labour market with a steady increase in employment. As the global economic recovery continues at only a moderate pace, no major acceleration in growth can be expected for exports. ↘ ITEM 120 The impact of the referendum on the UK's membership of the European Union (**Brexit**) on the German economy is likely to be minor. On the basis of current indicators for the coming quarters, the GCEE does not expect economic growth in Britain to contract. ↘ ITEMS 155 F.

CHART 24

Selected indicators for the economic forecast



1 – Thin line: monthly values; thick line: moving 3-months averages. 2 – Volume index; seasonally adjusted values. 3 – Production sector excluding construction and energy. 4 – Manufacturing sector excluding manufacture of food products, tobacco, coke, refined petroleum products and nuclear fuel. 5 – The purchasing manager index is based on a monthly survey in manufacturing with 500 participating purchasing managers and managing directors. 6 – Manufacturing, construction industry, retail and wholesale trade. 7 – Distribution of quarterly GDP growth rates is determined on the basis of a combination approach.

Sources: ifo, Federal Statistical Office, Markit, own calculations

TABLE 6

Key economic indicators for Germany

	Unit	2014	2015	2016 ¹	2017 ¹
Gross domestic product²	%	1.6	1.7	1.9	1.3
Final consumption expenditure	%	1.0	2.2	2.2	1.6
Private consumption ³	%	0.9	2.0	1.7	1.3
Government consumption	%	1.2	2.7	3.8	2.4
Gross fixed capital formation	%	3.4	1.7	2.5	2.0
Investment in machinery & equipment	%	5.5	3.7	1.6	1.8
Construction investment	%	1.9	0.3	3.0	1.9
Other products	%	4.0	1.9	2.6	2.9
Domestic demand	%	1.4	1.6	1.8	1.7
Net exports (growth contribution in percentage points)		0.3	0.2	0.2	- 0.2
Exports of goods and services	%	4.1	5.2	3.3	3.9
Imports of goods and services	%	4.0	5.5	3.4	5.4
Current account balance⁴	%	7.3	8.4	8.8	8.2
Persons employed (domestic)	thousand	42,662	43,057	43,554	43,952
Persons employed, covered by social security⁵	thousand	30,197	30,822	31,379	31,768
Registered unemployment, stocks⁵	thousand	2,898	2,795	2,701	2,713
Unemployment rate^{5,6}	%	6.7	6.4	6.1	6.1
Consumer prices⁷	%	0.9	0.3	0.5	1.6
General government balance⁸	%	0.3	0.7	0.6	0.4
Gross domestic product per capita⁹	%	1.2	0.8	1.1	1.2

1 – Forecast by the GCEE. 2 – Inflation-adjusted year-on-year change. Also applies to all listed components of GDP. 3 – Including non-profit institutions serving households. 4 – In relation to nominal GDP. 5 – Source for 2014 and 2015: Federal Employment Agency. 6 – Registered unemployed in relation to civil labour force. 7 – Year-on-year change. 8 – Regional authorities and social security according to national accounts; in relation to nominal GDP. 9 – Own calculations, year-on-year change.

Source: Federal Statistical Office

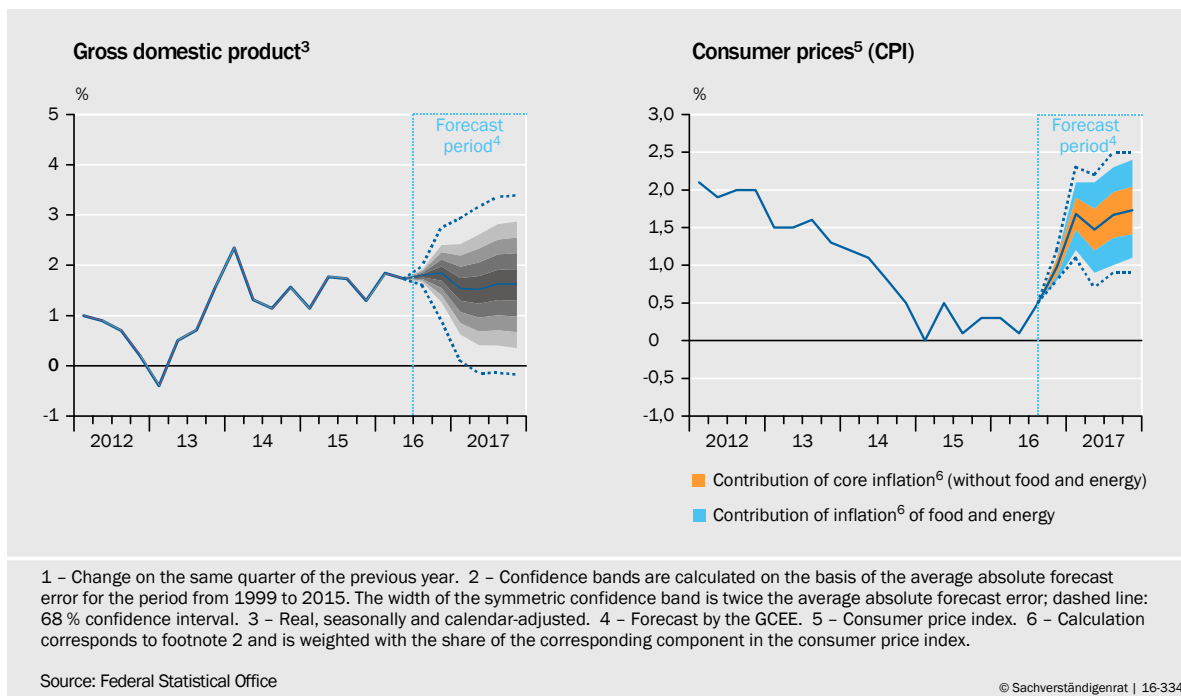
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222. Real GDP growth **in the year 2017** is very likely to stand at 1.3 %. TABLE 6 The drop of 0.6 percentage points in the growth rate from 1.9 % this year is not due to any significant slowdown in the economic upturn. 0.4 percentage points of the fall is attributable to the different number of working days in the two years (calendar effect). According to GCEE estimates, **output potential** is likely to increase by 1.3% and 1.0% respectively in the years 2016 and 2017.
223. In light of these favourable economic conditions, the situation on the **labour market** will continue to improve. Employment is set to increase in the year 2017 by roughly 400,000, with a total of 44.0 million employed people. The increase for the year 2016 amounts to around 500,000. The sharp drop in energy prices at the start of 2016 means that **consumer prices** will only increase by 0.5 %. However, a higher rate of inflation is expected for the year 2017 on account of the higher energy prices that are expected and a core inflation rate that is increasing slowly due to the rising utilisation of production capacity. An annual average rate of inflation of 1.6 % is expected for the year 2017. In all likelihood, **general government accounts** will post a positive fiscal balance of €18.2 billion and €12.4 billion in the years 2016 and 2017 respectively. Structural surpluses will likely account for roughly 0.6 % and 0.1 % of nominal GDP.

224. The economic forecast is **fraught with uncertainty**. This concerns unexpected changes in the external environment in particular. [↪ ITEMS 126 FF](#). An analysis of the forecasts by the GCEE reveals that roughly two-thirds of the variation of the forecast error for GDP can be explained by the forecast errors relating to exports. [↪ BOX 7](#) To take the forecasting uncertainty into account, the GCEE identifies confidence intervals in addition to point forecasts for the growth rates of real GDP. [↪ CHART 25](#) The 68% confidence interval calibrated using historical forecast errors (dating back to the year 1991) ranges from -0.2% to 2.9% for the GDP growth rate in the coming year.

[↪ CHART 25](#)

Confidence intervals for gross domestic product and consumer prices^{1,2}



[↪ BOX 7](#)

On the revision of the forecast for the year 2016

The German Council of Economic Experts (CGEE) is revising its spring forecast for growth in GDP in the year 2016 upwards by 0.4 percentage points to 1.9 % in total. The spring forecast assumed that the turbulences in international financial markets and the significant drop in the price of crude oil were indicators of an unfavourable external economic environment. Furthermore, the assessment made at that time was reinforced by slow growth in exports in the second half of the year 2015. This gave rise to the expectation that the net exports would provide a negative growth contribution to GDP growth. Therefore, the forecast predicted an increase of 0.35 % in GDP in each of the first two quarters of 2016. However, by autumn of the year 2016, it has become apparent that growth in GDP was stronger than expected, with growth rates of 0.7 % in the first quarter and 0.4 % in the second. Exports have been higher and imports lower than predicted in the spring forecast. As a result, and contrary to predictions formulated at that time, it is expected that net exports contribute 0.2 percentage points to GDP growth in the overall year 2016. [↪ TABLE 7](#)

TABLE 7

Comparison of the spring and the autumn forecasts for the year 2016

	Forecast by the German Council of Economic Experts					
	23. 03. 2016		Annual Report 2016/17		Difference	
	Year-on-Year change	Growth contributions ²	Year-on-Year change ¹	Growth contributions ²	Year-on-Year change ¹	Growth contributions ²
Gross domestic product²	1.5	x	1.9	x	0.4	x
Domestic demand	2.3	2.1	1.8	1.7	- 0.4	- 0.4
Final consumption expenditure	2.1	1.6	2.2	1.6	0.1	0.1
Private consumption ³	2.0	1.1	1.7	0.9	- 0.2	- 0.1
Government consumption	2.6	0.5	3.8	0.7	1.2	0.2
Investment in machinery & equipment	3.0	0.2	1.6	0.1	- 1.3	- 0.1
Construction investment	3.1	0.3	3.0	0.3	- 0.0	- 0.0
Net exports	x	- 0.6	x	0.2	x	0.8
Exports of goods and services	2.4	1.1	3.3	1.5	0.8	0.4
Imports of goods and services	4.5	- 1.8	3.4	- 1.3	- 1.1	0.4

1 - In %; Deviations in the differences due to rounding. 2 - In percentage points. 3 - Price-adjusted; also applies to all specified components of GDP. 4 - Including non-profit institutions serving households.

Source: Federal Statistical Office

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The more moderate growth in imports can be explained by both an underestimation of the effects of strong price competitiveness on net exports and a slower expansion in domestic demand. The growth contribution of domestic demand for this year is likely to be in the region of 1.7 percentage points, rather than the 2.1 percentage points predicted in the spring forecast. This revision of the forecast is due primarily to changes in inventories. In addition, growth in investment in machinery and equipment and in private consumer spending was not as strong during the first half of the year as had been predicted in the spring forecast. [↪ CHART 34 ANNEX](#) The smaller rise in private consumption can be explained by the slower growth in wages and salaries over the first half of the year. In contrast, real growth in government spending was stronger than predicted.

In last year's Annual Report, the GCEE evaluated the quality of its forecast (2015 Annual Report Box 6). The evaluation revealed that the mean absolute forecast error was a little over one percentage point. This fact begs the question of where this error in the GDP forecast originates. One key contributory factor may be sudden changes in the global economy, which are likely to be reflected primarily in errors in forecasting real exports. To test this hypothesis, a detailed analysis of the forecast quality of the GCEE was conducted for the individual expenditure components. The forecast in each case refers to growth of the component over the coming year. The value published in the subsequent year's annual report was used as the realised value in order to assess the degree to which the forecast materialized. Therefore the export forecast error for the year 1980 is calculated as follows: The forecast for the growth rate in real exports for the year 1980 is taken from the annual report from 1979, and the realised value for the year 1980 is then taken from the annual report from 1981. The forecast error is defined as the realised growth rate minus the forecast value. A positive error thus corresponds to a pessimistic forecast.

A descriptive evaluation shows that the forecast errors for GDP, exports and imports are strongly correlated with one another. [↪ TABLE 8](#) It is also striking that the export forecast errors show almost no statistical relationship with the forecast errors for private consumption. Overall, the statistics confirm the hypothesis that errors in forecasting GDP are influenced to a significant degree by shocks to the world economy. To determine the magnitude of this influence, a linear regression of the GDP forecast error on the export forecast error can be performed. A basic assumption here is that the

TABLE 8

Summary of forecast errors¹

Considered period: years between 1975 and 2015

	GDP	Private consumption	Government consumption	Investment in machinery and equipment	Construction investment	Exports	Imports
Mean error (percentage points)	0.24	0.20	- 0.26	1.41	0.86	- 0.28	- 0.36
Mean absolute error (percentage points)	1.02	0.83	0.82	4.32	2.49	3.55	3.00
Root mean squared error ² (percentage points)	1.54	1.09	1.07	5.55	3.20	4.83	3.85
Correlation coefficient GDP with ...	1.00	0.42	0.05	0.60	0.53	0.81	0.74
Correlation coefficient Exports with ...	0.81	0.03	- 0.05	0.50	0.24	1.00	0.81

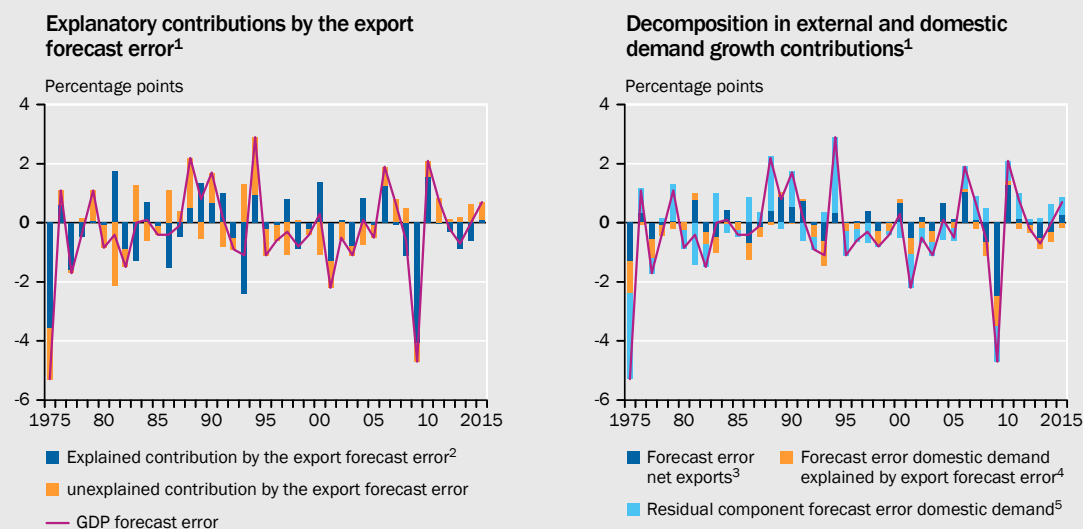
1 – Own calculations; until the year 1994 consideration of GDP forecast for West Germany, afterwards for total Germany. 2 – Root of the average quadratic forecast error.

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export forecast error is driven only by changes in the global economy which, for their part, are not influenced by the German economy (small open economy). However, this assumption is in particular problematic for the recession following the German reunification.

The regression shows that the export forecast error makes a considerable explanatory contribution to the GDP forecast error. [CHART 26 LEFT](#) Approximately two-thirds of the variation can be attributed to this. One can also go one step further and investigate in more detail the extent to which global influences on components of the domestic economy affect the GDP forecast error. For this purpose,

CHART 26

Explanatory contributions to the GDP forecast error

1 – Positive value represents an underestimation of GDP for the coming year (too pessimistic forecast). 2 – Explained contribution is defined as the explained variation of the GDP forecast error by the export forecast error with a linear regression. 3 – Defined as the difference between the export forecast error and the explained contribution of the import forecast error by the export forecast error (with a linear regression). 4 – Defined as the explained contribution of the corresponding forecast error by the export forecast error. The domestic demand components are investment in equipment, investment in construction, private consumption, government spending. 5 – Unexplained contribution of the GDP forecast error by the export forecast error.

Source: Own calculations

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the forecast errors of all components of domestic demand (including imports) are regressed on the export forecast error. The explanatory contributions of these regressions can be used to categorise the GDP forecast errors as those caused by factors in the domestic economy or those attributable to factors in the external economic environment. [↪ CHART 26 RIGHT](#) There are two components to these external economic factors. Firstly, the global influences are reflected in the balance of exports and imports. Secondly, the export forecast errors explain part of the forecast errors for components of domestic demand. In this more detailed analysis, over two-thirds of the GDP forecast error can once again be explained by the influence of the export forecast error. However, there are years in which other factors (residual component) make an important contribution to the GDP forecast error, for example, the years 1988 and 1990 or the weak economic development in the first half of the 2000s.

II. DEVELOPMENTS IN DETAIL

225. The GCEE expects GDP to rise by a yearly average of 1.9 % for the total year 2016. [↪ TABLE 9](#) The growth rate is likely to fall to 1.3 % for the total year 2017. The decelerated rise in production can, for the most part, be attributed to the calendar effect. While this effect made a slight positive contribution (0.1 percentage points) to the average rate of change for the year 2016, it will be clearly negative (0.3 percentage points) in the year 2017. The reason for this is that a greater number of public holidays will fall during the working week in the coming year. However, the underlying trend of economic development will continue to point upwards in the year 2017. This is indicated by the growth rate over the course of the year, i.e., the percentage change of the seasonally and calendar-adjusted GDP in the fourth quarter of this year from the same quarter of the previous year. This figure is with 1.7 % in the year 2017 almost as high as in the year 2016.

[↪ TABLE 9](#)

Components of the forecast for real GDP (in %)

	2011	2012	2013	2014	2015	2016 ¹	2017 ¹
Statistical overhang at the end of the previous year ²	0.3	- 0.2	0.7	0.7	0.5	0.6	0.6
Growth rate over the course of the year ³	2.4	0.2	1.6	1.6	1.3	1.8	1.7
Annual rate of change of GDP, calendar-adjusted	3.7	0.7	0.6	1.6	1.5	1.8	1.6
Calendar effect (in percentage points)	- 0.1	- 0.2	- 0.1	0.0	0.2	0.1	- 0.3
Annual rate of change of GDP ⁴	3.7	0.5	0.5	1.6	1.7	1.9	1.3

1 – Forecast of the GCEE. 2 – Percentage difference between the level of GDP in the last quarter of year t and the average level of quarterly GDP in the total year t (Annual Report 2005 Box 5). 3 – Percentage change of the fourth quarter on the fourth quarter of the previous year. 4 – Deviations in sums due to rounding.

Source: Federal Statistical Office

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1. Economic environment and assumptions for the forecast

226. The economic environment for the Germany economy are characterised by a continuing expansionary economic policy. The **financing conditions**, which have been favourable for quite some time, have improved even further. Interest

rates on the capital markets and interest on loans have continued to fall since the beginning of the year [↘ CHART 27 CENTRE LEFT](#) and lending conditions by banks are perceived as very favourable by companies. For the forecast period 2016 and 2017, this is likely to remain virtually unchanged due to the monetary policy stance of the ECB.

227. In July and August 2016, the volume of credit granted by banks to domestic companies and private households grew by 3.4 % and 3.3 % respectively, in each case compared with the same period of the previous year. This is due to an increase in building loans for residential properties and a rise in the volume of credit granted to non-financial corporations. At the same time, the **debt ratios** of private households and companies are continuing to fall. The credit volume in relation to nominal GDP is therefore decreasing slightly. The credit-to-GDP gap, which is an indicator of financial stability (Tente et al., 2015), remains negative and is not signalling any risks to financial stability. [↘ CHART 27 CENTRE RIGHT](#) However, even with moderate credit expansion, risks may arise in the banking sector at the current time, including in particular increasing interest rate change risks. [↘ ITEM 421, 509](#)

228. Fiscal policy remains **expansionary** in the forecast period. This year, the sum of discretionary fiscal policy measures (fiscal impulse) is expected to account for 0.3 % to 0.4 % of nominal GDP. Income tax relief and additional investment expenditure will play a particularly important role in this regard. In the year 2017, social security spending will increase notably in the areas of long-term care and health. In comparison to the previous year, the fiscal impulse will amount to roughly 0.2 % to 0.3 % of nominal GDP.

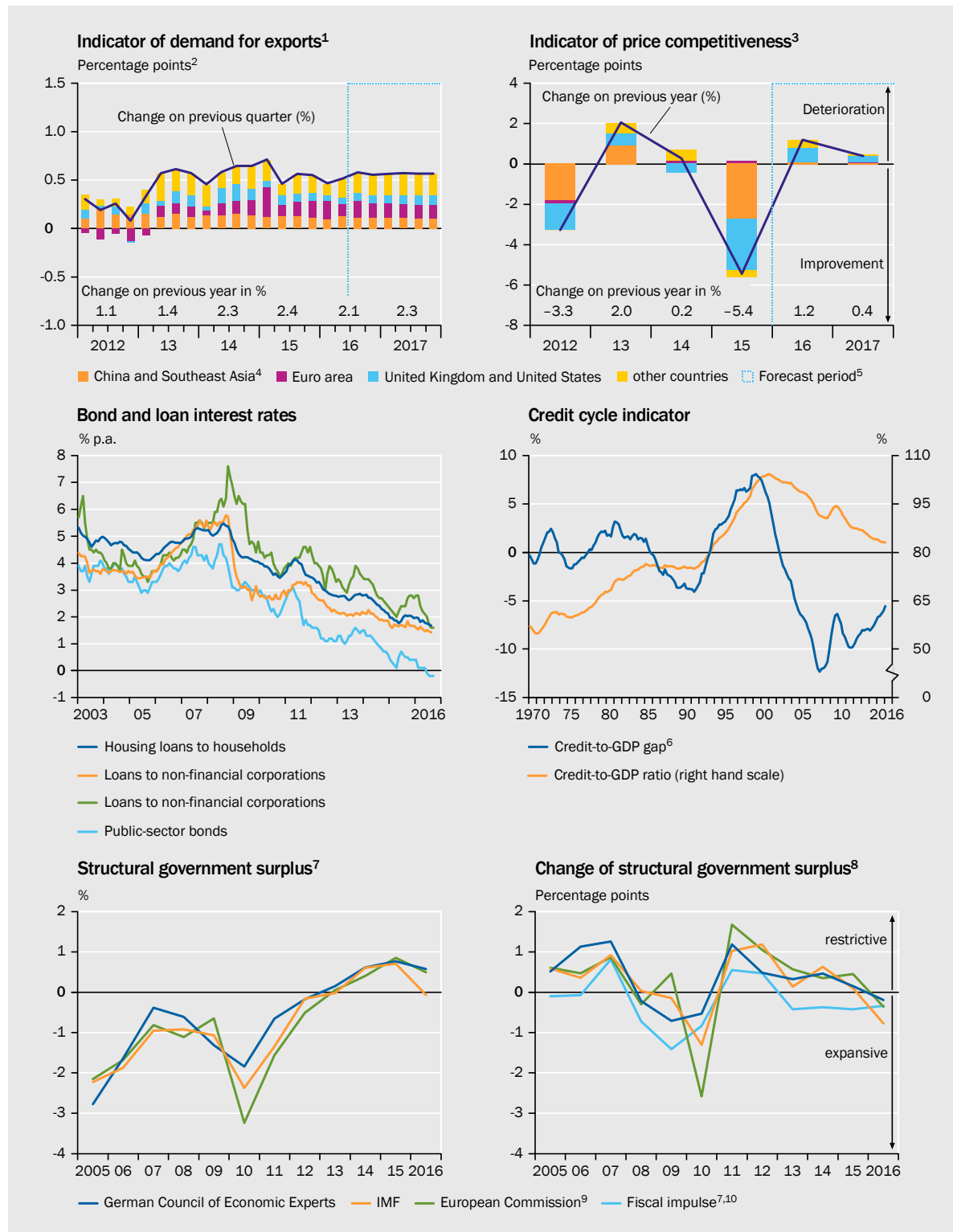
Moreover, additional spending on social benefits for asylum seekers in the order of 0.2 % of nominal GDP in the year 2016 will produce expansionary effects for the German economy. For the coming year, however, this spending may be reduced, and so this specific impulse will have a slightly negative effect. Nevertheless, public spending in the year 2017 will still be higher than in the year 2015. [↘ ITEM 267](#)

229. Fiscal policy can be assessed on the basis of two indicators – the **fiscal impulse** and the change in the **structural government balance**. [↘ CHART 27 BOTTOM](#) Both indicators tend to be highly synchronised. For example, an analysis of the period 2005 to 2016 shows that the change in the government structural balance – estimated using the method applied by the GCEE – and the fiscal impulse have a correlation of almost 0.9.

230. However, these two indicators have been sending largely **different signals** since the year 2013. While the fiscal impulse has been signalling an expansionary course, the structural government surplus increased at a steady rate up to the year 2015. The reason for this development is that an improvement in the structural government surplus is not only caused by discretionary measures. Thus, in the past years, an increase in the structural government surplus has been the result of declining interest expenditures due to the low-interest rate environment, as well as a significant drop in the structural unemployment rate. However, actual fiscal measures are decisive when evaluating fiscal influences on the German economy. The fiscal impulse should therefore be preferred when assessing fiscal policy.

CHART 27

External environment, interest rates, credit cycle and structural deficit



1 – The indicator comprises the developments of GDP of 48 trading partners. The weight of a single country corresponds to the German export share. 2 – Growth contributions of the respective regions. 3 – Against 37 selected countries; an increase shows a deterioration in price competitiveness. Calculation based on the approach of the Deutsche Bundesbank. 4 – Hong Kong, Japan, Republic of Korea and Singapore. 5 – Forecast of the German Council of Economic Experts. 6 – Calculated by BaFin. 7 – In percent of nominal GDP. 8 – Change on previous year. 9 – Actual general government balance minus a business cycle component. This component is the product of a country-specific elasticity of 0.56 times the output gap; source: Mourre et al. (2013). 10 – The fiscal impulse corresponds to the sum of fiscal discretionary measures as ratio to nominal GDP. The sources for the figures of the fiscal discretionary measures are the respective autumn reports of the Joint Economic Forecast.

Sources: BaFin, Deutsche Bundesbank, EU, IMF, national statistical offices, own calculations

231. The **external economic environment** is characterised by a high level of price competitiveness and moderate foreign demand. The latter reflects the cautious economic recovery that is underway in important export regions like the euro area. Only a slight improvement is expected in the coming year. While the economic performance of the United States is likely to expand at a faster pace, the economic recovery in the euro area is conversely expected to slow down somewhat. Growth in demand from emerging markets will not be any higher in the year 2017 than in the year 2016. Overall, the export-weighted economic performance of Germany's most important trade partners (export demand indicator) is expected to increase by 2.1 % this year and by 2.3 % in the coming year. [↘ CHART 27 TOP LEFT](#)
232. While the **price competitiveness** of the German economy has declined slightly since the end of the year 2015, it still remains on a high level. Compared with July 2014, the price competitiveness of Germany companies versus 37 trade partners and based on consumer prices, as defined by the indicator of the Deutsche Bundesbank, increased by 4.5%. Assuming constant exchange rates within the forecast period and taking account of the international inflation forecasts, the current high level should remain virtually unchanged in the coming year. [↘ CHART 27 TOP RIGHT](#) The prices of **raw materials** for the coming quarters are updated on the basis of forward rates. Based on this assumption, the oil price (UK Brent) may rise to a yearly average of 45 US dollars per barrel in the year 2016 and 55 US dollars per barrel in the year 2017.

2. Favourable exchange rate stimulates export demand

233. Following a weak development in the second half of the year 2015, German exports achieved considerable gains again in the first half of 2016 – the annualised growth rate was 3.9 % compared with the prior half year. A look at the individual trade partners reveals that nominal exports to China and Eastern Europe showed strong growth in the first half of the year 2016. Exports to the rest of the euro area also expanded. In contrast, the slowdown in corporate investment in the United States had detrimental effects; German exports to the United States fell considerably. A decline in exports to the United Kingdom was also evident, although the decrease was less dramatic than in the case of the United States. [↘ CHART 28 TOP LEFT AND RIGHT](#)
234. In the **second half of the year 2016**, exports are expected to increase at the same rate as in the first half year. Although nominal goods exports in July and August are, on average, slightly below the level of the previous quarter, additional early indicators such as non-domestic new orders and ifo export expectations point to a continued growth in exports.

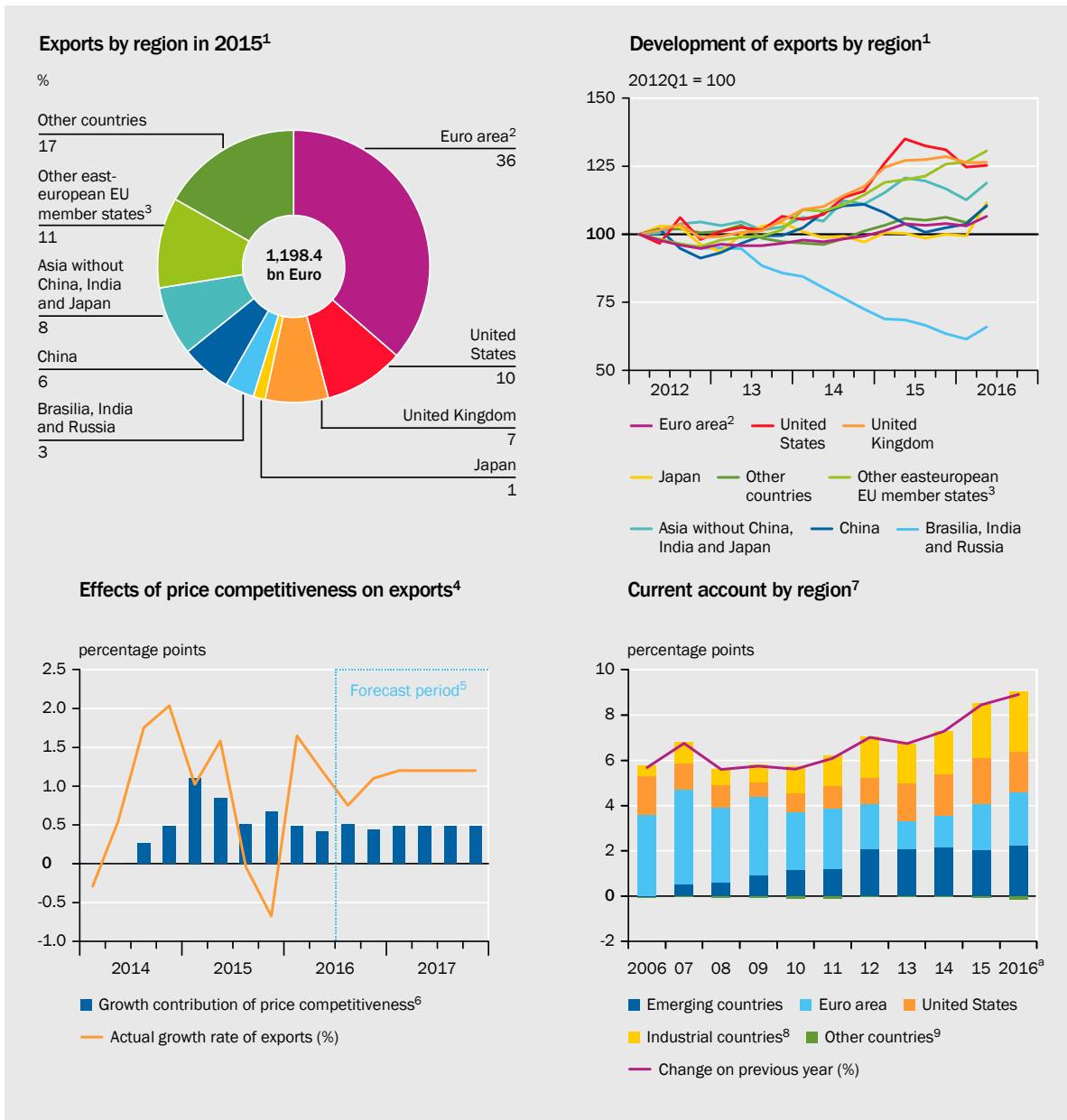
The predicted rise in exports will therefore amount to 3.3 % for the full year 2016. In the **coming year**, exports are likely to grow at a slightly faster pace, in line with the development of global trade, although the increase will be moderate by historical comparison. This is due to continuing sluggish growth in production in important sales regions, which is measured by the export demand

indicator of the GCEE. [ITEM 231](#) Exports are expected to rise by 3.9 % in the year 2017.

- 235.** The **improvement in price competitiveness** compared with Germany’s 37 most important trade partners since the middle of the year 2014 has exerted a significant effect on recent growth in exports. The GCEE calculates – on the basis of error correction models – that the long-term elasticity of export demand in response to a change in price competitiveness is around 0.6 to 0.7. Thus, an improvement of 1 % in price competitiveness is associated with a rise of 0.6 % to

▶ CHART 28

Indicators of German external trade



1 – Special trade. 2 – Territorial status: 01.01.2015. 3 – Bulgaria, Croatia, Poland, Romania, Czech Republic and Hungary. 4 – Effects of price competitiveness are determined with an error-correction model. This model contains real exports, world trade (OECD definition) and an indicator of price competitiveness against 37 trading partners, based on consumer price indices. 5 – Forecast of the German Council of Economic Experts. 6 – To determine the growth contribution of price competitiveness the actual development of exports is compared to a counterfactual situation in which price competitiveness has not changed since the second quarter of 2014. 7 – As a ratio of nominal GDP. 8 – Without euro area and United States. 9 – International organisations and unidentified countries. a – First half of the year 2016.

Sources: Deutsche Bundesbank, Federal Statistical Office, own calculations

0.7 % in exports. In the short term, the effects should be somewhat smaller. Other studies found similar results (Breuer and Klose, 2014; Grimme and Thürewächter, 2015). Empirical models estimate that the increased price competitiveness observed since mid-2014 has, taken alone, made a growth contribution to German exports in the region of 0.5 to 2.0 percentage points in the year 2016. These calculations also illustrate that an effective rise in the value of the euro represents a significant risk to export growth if it is not accompanied by an economic upswing in the rest of the euro area. [↘ CHART 28 BOTTOM LEFT](#)

236. After a strong start early in the year 2016, **imports** dropped slightly in the second quarter. This decline in imports coincides with weaker domestic demand. However, in the **forecast period**, it is expected that domestic demand increases again, underpinned by growing private consumption and a moderate expansion of corporate investment. These developments, coupled with the increase in exports, should result in renewed growth in imports. Overall, an increase in imports in the order of 3.4 % and 5.4 % is expected for this year and the coming year respectively.
237. For the remainder of the forecast period, the expansionary effects of price competitiveness on the balance of exports and imports will diminish. The low real exchange rate has played an important role in net exports, making a positive growth contribution of 0.2 percentage points to growth in real GDP this year. In the coming year, a slightly negative growth contribution of 0.2 percentage points is expected.
238. The **terms of trade**, which are defined as the ratio of the export deflator to the import deflator, are expected to improve again by 1.5 % this year after an improvement of 2.6 % in the previous year. This is caused by the sharp drop in the price of oil at the start of the year 2016. For the coming year, it is assumed that this development will be reversed. Due to the significant rise in the oil price in the forecast period, which is based on the current forward rates, the import deflator is likely to increase to a greater extent than the export deflator. As a result, the terms of trade will deteriorate by 0.7 % in the coming year.
239. The price effects resulting from the significant improvement in the terms of trade this year are leading once again to an increasing **current account surplus**, which is likely to amount to 8.8 % of nominal GDP for the year 2016. Calculations by the GCEE show that the improvement in the terms of trade arising from the falling oil price since mid-2014 has alone contributed two percentage points of the current account surplus this year. In addition, improved price competitiveness since July 2014 has contributed roughly one percentage point to this year's current account surplus. For the coming year, these effects will wane somewhat, though they will not disappear entirely. Therefore, it can be assumed that the current account surplus will amount to 8.2 % of nominal GDP in the year 2017. The economic recovery in the rest of the euro area – stimulated to a great extent by the expansive monetary policy – has shown up in an increasing regional contribution of the euro area in Germany's growing current account surplus. [↘ CHART 28 BOTTOM RIGHT](#)

3. Significant impulses from consumption and construction

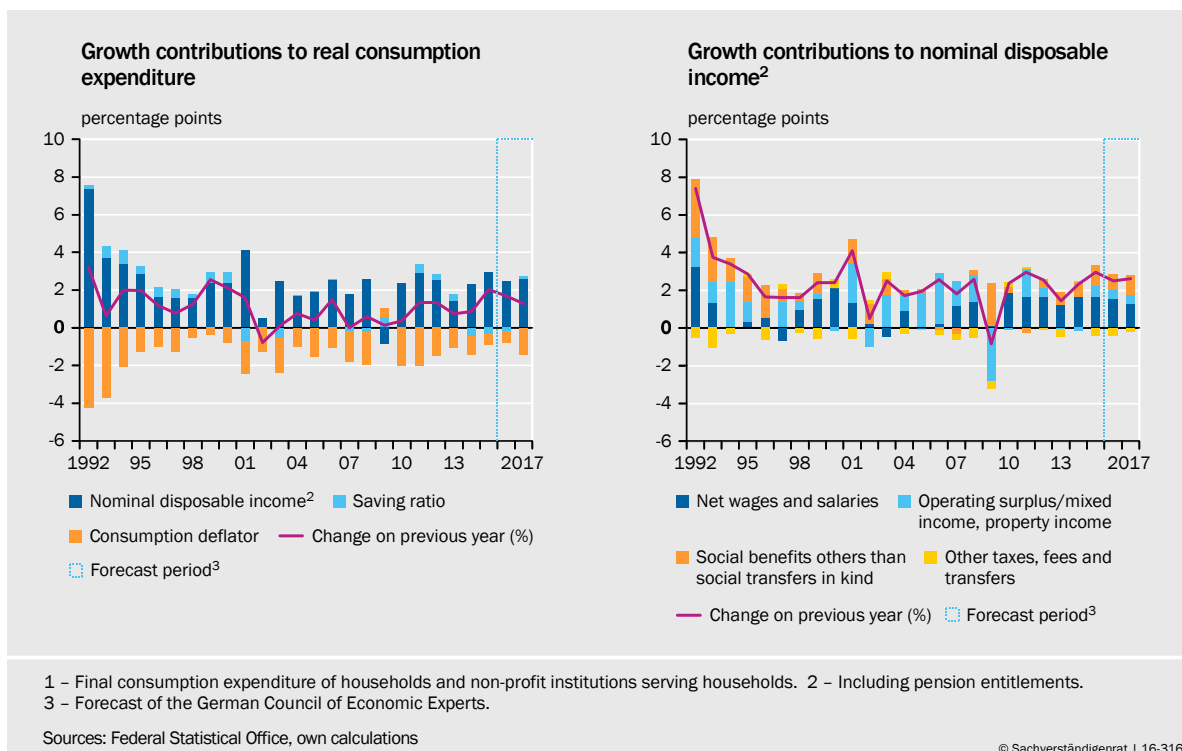
240. Increases in private consumption and construction investment will once again make a significant contribution to the **rise in domestic demand** in the year 2016. Nevertheless, growth in private consumption was noticeably slower in the first half of the year 2016, with an annualised rate of 1.3 %, than in the full year 2015 with 2.0 %. The reason for this is a slower increase in nominal disposable income. In contrast to this weak consumer price inflation has continued to bolster real disposable income. [↘ CHART 29 LEFT](#)

241. **Nominal disposable income** will nevertheless increase significantly by 2.5 % this year. The positive labour market situation plays an important role in this development. Year-to-date growth in employment has once again been strong. Effective wages are also rising, but at a slower rate than in previous years. The lower wage settlements may be related to persistently low inflation, the slower rise in labour productivity and a greater consideration of non-monetary aspects by the social partners (for example regulations on partial retirement in sectors such as the metal industry or the hiring of apprentices in the Public Service at both federal and municipal level).

In this year, the tax burden on the incomes of private households will also be reduced by means of an increase in the basic tax-free allowance and in the allowance for dependent children, as well as partial compensation for bracket creep. In addition, **social benefits other than social transfers in kind** are once again making a strong growth contribution towards the increase in

[↘ CHART 29](#)

Indicators for private consumption¹



disposable income. This trend reflects for example increases in old-age pensions.

↘ CHART 29 RIGHT

242. The **savings ratio** of private households will once again increase slightly this year. Since the year 2013, the savings ratio has risen by 0.8 percentage points to its current value of 9.8 % of disposable income. The effects of the expansionary monetary policy, which primarily seeks to reduce the savings ratio by means of a substitution effect – between current and future consumption demand – appear to be masked by other effects such as the income effect and demographics. Moreover, the latest increase in the savings ratio is likely to be attributable to a consumption-smoothing motive of private households in the context of energy prices. In other words, lower energy costs are being perceived as a temporary phenomenon and thus a portion of the gained real available income resulting from these low prices is being saved rather than spent.
243. Compared with the other Member States in the euro area, Germany’s private households stand out as having a **conspicuously high savings ratio**. For this reason, the European Commission’s 2016 report on the Macroeconomic Imbalance Procedure looked in detail at the patterns of saving and consumption among private households in Germany. The report concludes that this savings behaviour largely reflects a high degree of risk aversion and the reforms of the statutory pension system since the turn of the century.
244. Furthermore, the institutional characteristics of the German property market are likely to play a role in the patterns of saving and consumption. For example, the low home ownership rate diminishes the wealth effect of rising property prices on private consumption. Compared with other Member States, the positive stimuli of the expansionary monetary policy may have less of an impact on domestic demand in Germany. Despite this, it can still be assumed that the expansionary monetary policy stimulates private consumption and investment in housing construction. These expansionary effects are likely to originate to a large extent from an increase in **disposable income** in the export-oriented industries.
245. For the **forecast period**, one can assume that disposable income will continue to rise as a result of the continuing positive development on the labour market. In addition, the pension adjustments implemented in the middle of the year 2016 will contribute to a considerable increase in social benefits other than social transfers in kind in the year 2017. For the coming year, we can therefore expect to see **growth in private consumption** in the order of 1.3 %, following 1.7 % this year.
246. **Housing construction** is stimulated by the same factors as private consumption. In addition, the continuing favourable financing conditions have contributed to stronger growth in loans for housing construction over recent months. Furthermore, migration of refugees is still producing increased demand for reasonably priced housing, and this effect is set to last for some time to come. ↘ ITEM 723 FF. Investment in housing construction can be expected to rise by 4.3 % in the year 2016 and by 2.7 % in the year 2017. ↘ TABLE 15 ANNEX

4. Moderate growth in corporate investment

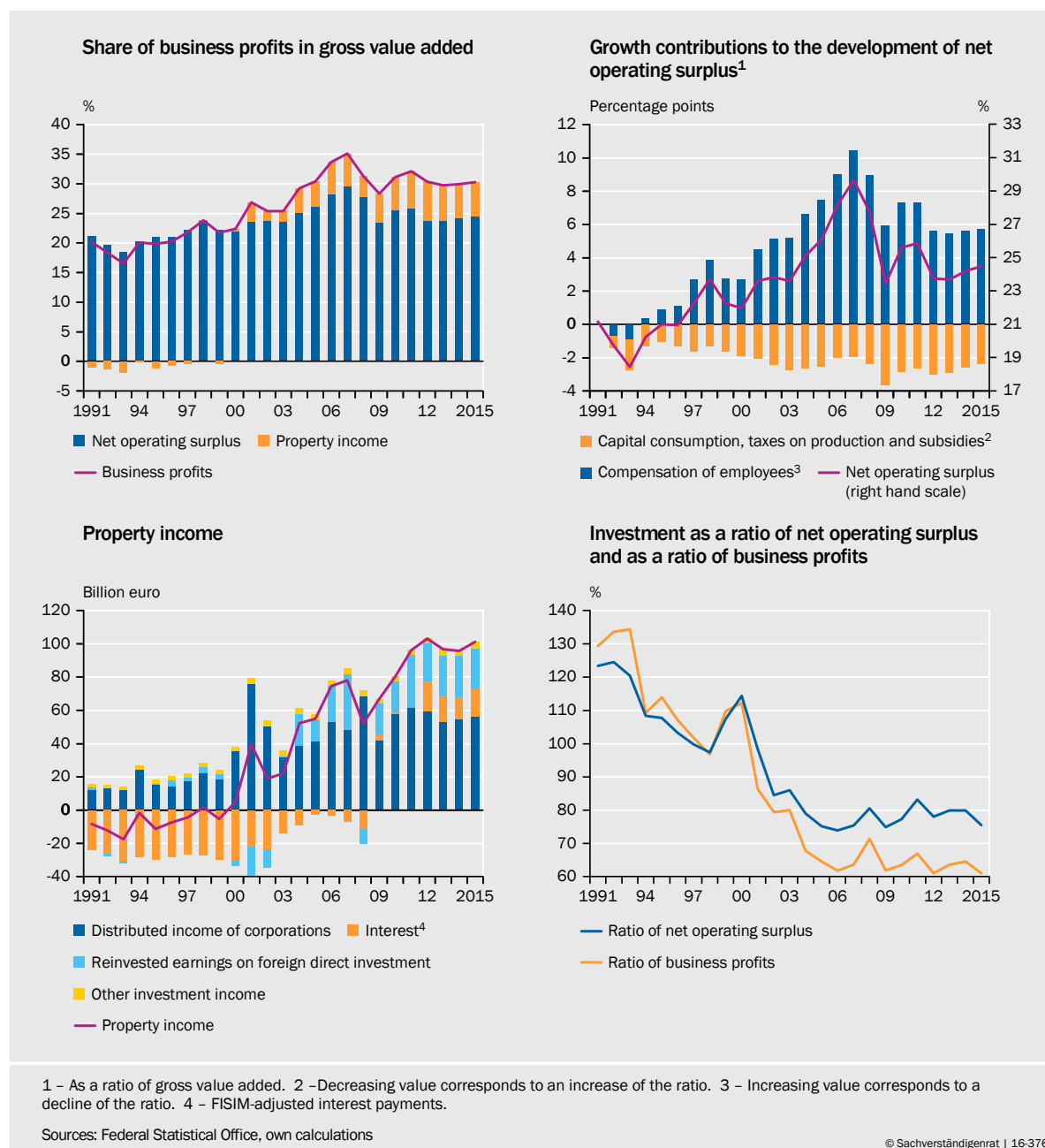
247. Corporate investment – measured as the sum of investment in machinery and equipment, other products and other fixed assets, and in commercial buildings (private buildings and other structures) – is projected to increase this year by a moderate 1.4 %. In the years 2014 and 2015 corporate investment grew by 3.8 % and 2.0 % respectively. [↘ TABLE 15 ANNEX](#)
248. The **investment environment** for businesses is benefitting from favourable financing conditions. However, the **moderate growth in exports** is holding back a stronger recovery in investment. Furthermore, a significant portion of the recently observed increase in exports is due to the low euro exchange rate. The sales outlook is therefore associated with uncertainty. There is currently less investment in the expansion of existing production facilities because production capacity in the industrial sector is only slightly overutilised. This is evident in the capacity utilisation in the manufacturing sector and in the Order-Capacity-Index.
249. The **high importance of export sales prospects** is particularly evident from investment in machinery and equipment. The ifo export expectations have a correlation coefficient of almost 0.7 with the quarterly growth rates in investment spending on machinery and equipment. However, since the start of the year, the ifo's marginally positive balance for export expectations has only shifted sideways. Likewise, an error correction model can also be used to demonstrate an empirical link between overall corporate investment and export trends. A demand elasticity of 0.3 for corporate investment can thus be determined in relation to foreign demand. Accordingly, a 1 % rise in exports would be associated with an increase of 0.3 % in corporate investment. It must therefore be assumed that the stimuli from abroad triggered by monetary policy have significantly contributed to the increase in corporate investment this year. [↘ ITEM 213](#)
250. No significant increase in corporate investment is expected over the **forecast period** since international sales prospects remain only moderate. [↘ ITEM 231](#) Overall, corporate investment in the year ahead is expected to rise by 1.6 %. Overall gross fixed capital formation, which also comprises investment in housing and public sector investment in addition to corporate investment, will increase by 2.5 % in the year 2017 after 2.0 % in the year 2016. [↘ TABLE 15 ANNEX](#)
251. Since the year 2009, the **business sector** (non-financial corporations) has featured low nominal net investment – nominal gross capital formation in relation to gross value added. The weak growth in nominal investment is essentially due to price effects (2014 Annual Report Item 435). However, even when adjusted for price changes, the gross fixed capital formation is barely sufficient to provide a clear boost to labour productivity growth through an increase in capital stock. [↘ ITEM 279 FF](#). At the same time, savings in the corporate sector have grown, largely fuelled by the increase in retained business profits. The resulting rise in the already positive **financial balance in the corporate**

sector has thus contributed considerably to the increase in the current account surplus.

252. In the case of business profits, it is important to distinguish between earnings from current production (net operating surplus) and property or entrepreneurial income (such as reinvested profits and profit distribution). ↘ CHART 30 TOP LEFT The second component in this case does not take into account the payments to business owners; it has risen from €5 billion in the year 2000 to €101 billion in the year 2015. ↘ CHART 30 BOTTOM LEFT The **2001 Corporate Tax Reform** appears to have contributed to the surge in property income. This reform eliminated the previous tax discrimination of dividends and capital gains of foreign subsidiaries (2014 Annual Report Item 427).

↘ CHART 30

Structural indicators for non-financial corporations



253. The increase in property income is also attributable to **declining interest expenditure** as the result of the falling leverage ratio of companies and rising profits generated by investment in other companies, especially abroad (2014 Annual Report Items 421 ff.). It seems plausible that the low interest rate environment in recent years has significantly contributed to the positive net interest income. Overall, companies have earned more on interest from the provision of capital to others than they have spent on loans.
254. The developments of property income and retained business profits have both followed a similar trend over time. In contrast, profit distribution to business owners has been more aligned with the development of net operating surpluses. However, these two indicators diverged slightly from each other in the years 2014 and 2015.

In terms of domestic investment activity, the development of net operating surpluses is likely to play a greater role than that of overall corporate revenue. [↘ CHART 30 BOTTOM RIGHT](#) This indicator more accurately reflects the sales prospects for domestic production. However, it is clear that the **earnings yield** – or share of net operating surpluses in relation to gross value added – from corporate production has not tended to increase over the past few years. [↘ CHART 30 TOP RIGHT](#) This primarily structural analysis therefore also does not indicate an upswing in investment.

5. Consumer price inflation remains weak

255. **Consumer price inflation** for the year to date has been low, once again; in September 2016, the Consumer Price Index (CPI) was just 0.7 % above the previous year's level. When energy and food prices, which are subject to greater price volatility, are excluded, consumer prices increased by 1.2 % (core inflation). The Harmonised Index of Consumer Prices (HICP) also only recorded a slight increase in September 2016 of 0.5 %.
256. The **modest rise in the core inflation rate** is in line with the long-term average. The rise in companies' labour costs – measured by nominal unit labour costs – has slowed from 1.7 % in 2014 to 1.3 % in 2016. [↘ CHART 31 TOP RIGHT](#) These costs have therefore not exerted strong pressure on consumer prices. One important reason for this is the weaker growth in actual earnings on an hourly basis. [↘ TABLE 10](#)
257. The increase in the **GDP deflator** will decelerate from an average of 1.9 % for the years 2013 to 2015 to 1.5 % in the year 2016. This drop can be explained by the development of the terms of trade. These will improve once again this year, although the improvement will be nowhere near as pronounced as last year. On the distribution side, there is likely to be a decline in the growth contributions made by employees' compensation and also by business profits and entrepreneurial income. [↘ CHART 31 TOP LEFT](#)
258. Assuming, based on forward rates, that the prices of raw materials will rise **in the forecast period**, significantly higher consumer prices are to be expected in

2017. ↘ CHART 31 BOTTOM RIGHT The GCEE expects the overall inflation rate to climb from 0.5 % this year to 1.6 % next year. ↘ CHART 31 BOTTOM LEFT The core inflation rate is expected to rise from 1.3 % in 2016 to 1.4 % in 2017. The reason for this is a slightly stronger increase in nominal unit labour costs next year caused by a bigger rise in gross wages and salaries per employee hour. However, the accelerated rise in the actual hourly-based wage from 2.3 % in the year 2016 to 2.4 % in the year 2017 will be caused primarily by the calendar effect. In contrast, the rise in actual earnings per employee will slip to roughly 2.0 % in the coming year, compared to 2.2 % this year. Hourly productivity is likely to edge up only slightly. ↘ TABLE 10 For the GDP deflator, the inflation rate for the coming year will be 1.3 %.

↘ CHART 31

GDP deflator, nominal unit labour costs and inflation

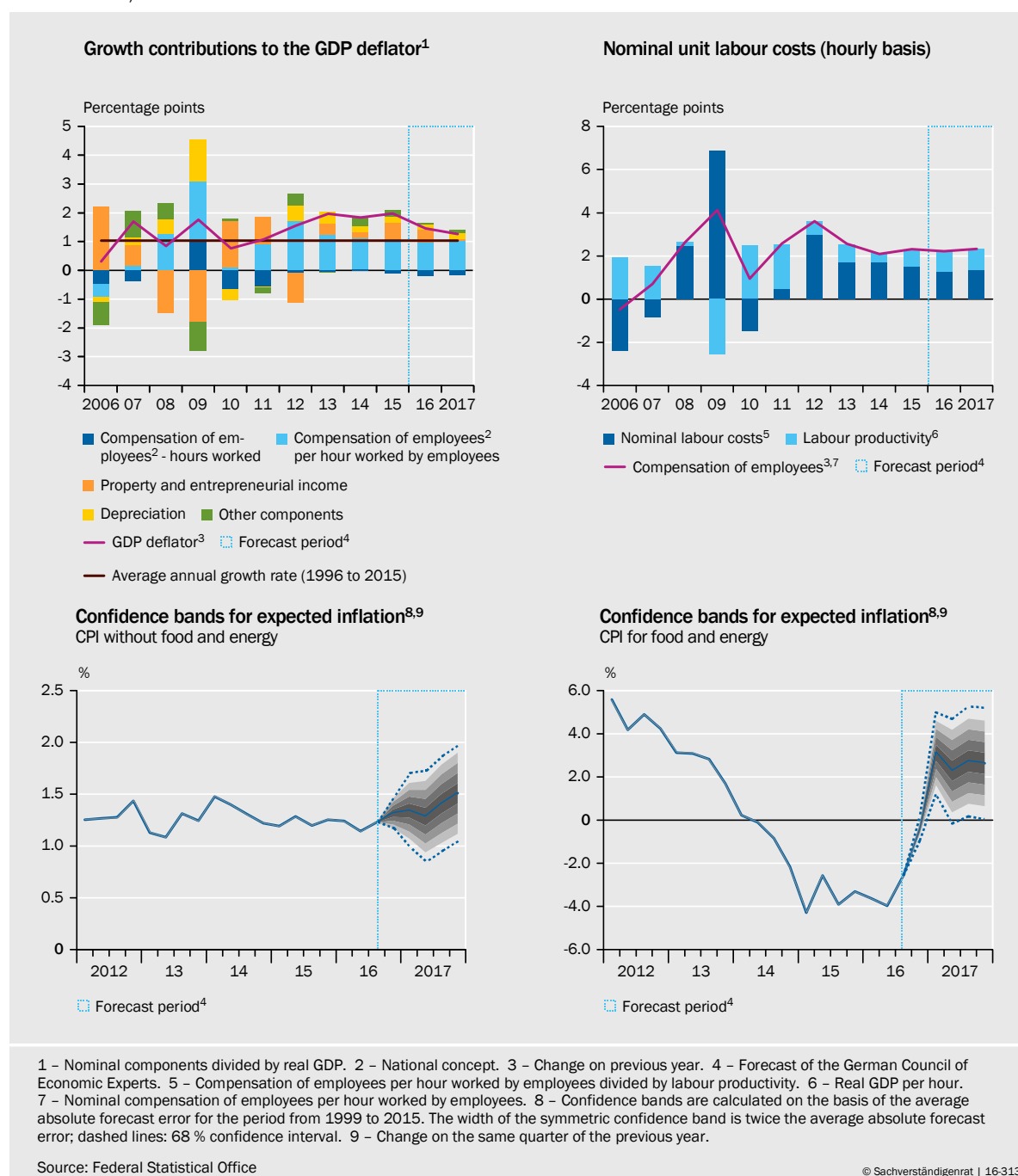


TABLE 10

Wage developments in Germany

Change compared on the previous year in %

	Collectively agreed wages (hourly concept)	Effective wages ¹	Wage drift ²	Compensation of employees per working hour	Labour productivity ³	Unit labour costs (nominal) ⁴	Unit labour costs (real) ⁵
2012	2.7	3.9	1.2	3.6	0.6	3.0	1.4
2013	2.5	2.8	0.3	2.6	0.8	1.7	- 0.2
2014	3.0	2.1	- 0.9	2.1	0.4	1.7	- 0.1
2015	2.4	2.5	0.1	2.3	0.8	1.5	- 0.4
2016 ⁶	2.2	2.3	0.1	2.2	0.9	1.3	- 0.2
2017 ⁶	2.2	2.4	0.2	2.3	1.0	1.4	0.1

1 – Gross wages and salaries (domestic concept) per employee's hour worked. 2 – Difference between the increase in effective wages and the increase in collectively agreed wages in percentage points. 3 – Real GDP per working hour (employed person concept). 4 – Compensation of employees per working hour (employee concept) in relation to real GDP per working hour (employed person concept). 5 – Compensation of employees per working hour (employee concept) in relation to nominal GDP per working hour (employed person concept). 6 – Forecast of the GCEE.

Source: Deutsche Bundesbank, Federal Statistical Office, own calculations

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6. Growth in employment is ongoing

259. The **surge in employment** on the labour market is set to continue. For the year 2016, the average annual number of people in employment is likely to increase by 500,000 to some 43.6 million persons. TABLE 11 The first half of 2016 saw particularly strong growth in employment. This growth slowed around the middle of the year. However, early indicators point to a continuing positive trend in employment.
260. In general, the **demand for labour** among employers is consistently high. This is evident in the growing number of job vacancies posted by the Federal Employment Agency. In this regard, the demand for labour coincides with a growing labour force. The number of potentially employable people is on the rise, not least because of high net immigration. This year, the number of potentially employable people is likely to increase by approximately 380,000 to approximately 46.4 million persons.
261. As in previous years, growth in employment has been driven by new **employment contracts subject to social insurance contributions**. It is expected, therefore, that around 550,000 additional jobs subject to social insurance contributions will be created this year. The overall employment figures for the year 2016 are expected to show 31.4 million employees subject to social insurance contributions and 7.4 million people in marginal employment. Although the number of **marginally employed** decreased significantly last year, due in part to the introduction of a minimum wage, it will rise again slightly this year. This is because more people working in a second job are pursuing marginal employment.
262. **Registered unemployment** continued to fall in the first three quarters of the year 2016. Due to the inflow of refugees, the number of unemployed people from the eight non-European countries of origin of asylum applicants Afghanistan, Eritrea, Iraq, Iran, Nigeria, Pakistan, Somalia and Syria will increase this year to

approximately 170,000. However, this increase will be more than balanced out by the fall in unemployment among the remainder of the population. At around 2.7 million persons, the annual average number of registered unemployed in the year 2016 is at its lowest level since Germany's reunification.

263. The GCEE expects further growth in the number of people employed in the **year 2017**. However, this increase, estimated at 400,000 people, will be slightly more modest than this year's. Based on the annual average figure, it is assumed that the number of people in employment will rise to nearly 44.0 million persons, of which around 31.8 million will be in jobs subject to social insurance contributions. As the labour market integration of recognised asylum applicants takes place, the downward trend in unemployment is expected to come to an end next year. Approximately 250,000 recognised asylum applicants are expected to be registered as unemployed by the end of the year 2017. [ITEM 690](#) This would

TABLE 11

Labour market in Germany

Thousand persons

	2014	2015	2016 ¹	2017 ¹	2016 ¹	2017 ¹
	yearly averages				change on previous year in %	
Labour force potential ²	45,791	45,991	46,368	46,731	0.8	0.8
Labour force ^{3,4}	44,692	44,929	45,302	45,699	0.8	0.9
Unemployed persons ⁵	2,090	1,950	1,831	1,831	- 6.1	- 0.0
Commuter balance ⁶	60	78	82	83	5.6	0.4
Employed persons ⁷	42,662	43,057	43,554	43,952	1.2	0.9
Self employed persons	4,402	4,336	4,305	4,277	- 0.7	- 0.7
Employees	38,260	38,721	39,249	39,675	1.4	1.1
Employees subject to social security contributions ⁸	30,197	30,822	31,379	31,768	1.8	1.2
Marginally employed persons (ILO concept) ⁹	5,668	5,518	5,472	5,509	- 0.8	0.7
Marginally employed persons (FEA concept) ^{8,10}	7,452	7,338	7,384	7,423	0.6	0.5
Exclusively marginally employed	5,029	4,856	4,821	4,855	- 0.7	0.7
Marginally employed in second job	2,423	2,482	2,563	2,568	3.3	0.2
Registered unemployed persons ⁸	2,898	2,795	2,701	2,713	- 3.4	0.4
Underemployment excluding short-time work ^{8,11}	3,803	3,631	3,579	3,613	- 1.4	0.9
Short-time workers (employment equivalence) ⁸	38	37	34	41	- 5.9	18.6
Volume of work (million hours) ¹²	58,343	58,895	59,447	59,657	0.9	0.4
Unemployment rate (FEA) ^{8,13,14}	6.7	6.4	6.1	6.1	- 0.3	- 0.0
Unemployment rate (ILO) ^{14,15}	5.0	4.6	4.3	4.2	- 0.3	- 0.1

1 – Forecast of the GCEE. 2 – Source: IAB. 3 – Persons in their working age with residence in Germany (national concept). 4 – As defined by the national accounts systems. 5 – ILO concept. 6 – Difference of employed workers commuting from foreign countries to Germany and those commuting from Germany to foreign countries. 7 – Employed workers in Germany independent of their residence (domestic concept). 8 – Source: Federal Employment Agency (FEA). 9 – Employees not fully subject to social security contributions but who are employed according to the ILO labour force concept, especially exclusively marginally employed workers and persons with employment opportunities („1-Euro-Jobs“). 10 – Employed workers with a wage up to 450 Euro (§ 8 Absatz 1 Nr. 1 SGB IV). 11 – According to the concept of underemployment by the FEA. 12 – Working hours of employed persons working in Germany. 13 – Registered unemployed persons in relation to civilian labour force. 14 – Change of yearly averages in %; change on previous year in percentage points. 15 – Unemployed persons in relation to the labour force, for persons in private households aged from 15 to 74 years. Source: Eurostat.

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mean that registered unemployed people who are recognised asylum applicants would account for almost 10 % of the total unemployment figure.

7. Fiscal surpluses persist despite expansionary fiscal policy

264. At €18.2 billion (0.6 % in relation to nominal GDP), the **general government balance** for the current year is expected to remain at a similarly high level to last year. Next year, it will fall to the slightly lower level of €12.4 billion (0.4 % in relation to nominal GDP). On the back of these surpluses, the debt-to-GDP ratio in the year 2017 is likely to fall to 65.7 %, thus gradually approaching the reference value of 60 % set out under the Maastricht criteria. In the year 2016, the government structural balance amounts to 0.6 % of nominal GDP. [↘ TABLE 12](#) As a special factor, the higher expenditure on asylum seekers compared to the year 2014 has not been fully considered in this regard. Next year, the government structural balance will continue to remain positive, at 0.1 % of nominal GDP. The marked reduction is caused by special factors associated with the auctioning of wireless licences and a fall in additional costs for asylum seekers.

265. The significant **fiscal surplus** in the year 2016 has been caused to a great extent by the positive economic development. High employment and strong corporate earnings have generated high revenue growth. Meanwhile spending on social benefits is at a relatively low level. In addition, public interest expenditure is continuing to fall. In the coming year, both employment growth and property and entrepreneurial income will lose momentum. Tax revenues and social insurance contributions will therefore increase less. However, the auction of wireless licences will generate one-off proceeds of €3.8 billion.

266. **General government revenues** will rise by 3.5 % in the year 2016. Tax receipts will be up by 3.7 %. This increase is somewhat lower than last year, due to changes in tax legislation. In particular, revenue will be dampened by the increase in the basic tax-free allowance and allowance for dependent children, plus compensation for bracket creep. However, the positive economic activity will yield comparatively high tax revenues from profit-related taxes, income tax and turnover tax. Social insurance contributions have escalated in the year 2016 due to high employment and wage settlements. The contribution rates were also increased. In the case of the statutory health insurance funds, the average additional contribution rose by 0.2 percentage points in the year 2016.

In the **year 2017**, the contribution rate to statutory long-term care insurance is expected to rise by 0.2 percentage points. Moreover, further measures are going to be introduced to reduce the burden on taxpayers. In total government revenues are expected to rise by 2.8 % in the year 2017.

267. **General government expenditure** will rise dynamically over the entire forecast period. Spending related to the inflow of refugees will amount to roughly €12.8 in the year 2016 and €10.2 in the year 2017. Compared to the year

TABLE 12

Public revenues and expenditures and fiscal indices¹

	2015	2016 ²	2017 ²	2016 ²	2017 ²
	Billion euro			Change on the previous year in %	
Total revenues	1,354.8	1,402.1	1,441.7	3.5	2.8
Taxes	700.0	726.2	744.8	3.7	2.6
Social contributions	500.8	520.6	539.2	4.0	3.6
Other revenues ³	154.0	155.3	157.7	0.8	1.5
Total expenditures	1,333.9	1,383.9	1,429.2	3.8	3.3
Intermediate consumption	139.5	148.4	152.4	6.3	2.7
Compensation of employees	228.6	235.5	241.3	3.0	2.5
Property income (including interest) payable	47.3	42.3	40.8	- 10.6	- 3.5
Subsidies payable	27.5	27.3	28.1	- 0.8	3.1
Social benefits other than social transfers in kind	471.0	486.5	505.4	3.3	3.9
Social benefits in kind	252.4	269.5	284.7	6.8	5.6
Gross capital formation	64.3	68.2	71.8	6.2	5.2
Other expenditures ⁴	103.3	106.2	104.8	2.9	- 1.4
Net borrowing/net lending	20.9	18.2	12.4	x	x
Fiscal indices (%)⁵					
Public spending ratio ⁶	44.0	44.1	44.4	x	x
Government consumption ratio	19.2	19.6	19.9	x	x
Social contributions ratio ⁷	15.4	15.5	15.6	x	x
Tax ratio ⁸	23.5	23.4	23.3	x	x
Tax and contribution ratio ⁹	38.8	38.8	39.0	x	x
Net lending/net borrowing	0.7	0.6	0.4	x	x
Structural balance ¹⁰	0.8	0.6	0.1	x	x
Debt-to-GDP ratio ¹¹	71.2	67.9	65.7	x	x
Interest-to-tax ratio ¹²	6.7	5.8	5.4	x	x

1 - National accounts (nominal values). 2 - Forecast by the GCEE. 3 - Sales, other subsidies on production, property income, other current transfers, capital transfers. 4 - Other current transfers, capital transfers, other taxes on production, and net acquisition of non-financial non-produced assets. The revenues from the allocation of mobile phone licences reduce the expenditures by lowering the net acquisition of non-financial non-produced assets. 5 - In relation to nominal GDP. 6 - Total expenditures. 7 - Social contributions without imputed social contributions. 8 - Taxes including inheritance tax and taxes to the EU. 9 - Taxes including inheritance tax and taxes to the EU, and actual social contributions. 10 - Cyclically adjusted budget balance net of temporary measures, see Annual Report 2007 appendix IV D. 11 - Government debt as defined in the Maastricht Treaty. 12 - Interest payable in relation to taxes including inheritance tax.

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2015, these figures represent increases of €5.1 billion and €2.6 billion respectively. Most of the outlay related to asylum applicants will be spent on preparatory services and social benefits in kind in the year 2016, since the number of new asylum seekers is expected to be lower in the year 2017. [ITEM 691](#) Next year will see a rise, in particular, in social benefits other than social transfers in kind, owing to the increased numbers of recognised asylum applicants.

Large increases were to be expected in social benefits in kind, even excluding the additional expenditure related to the inflow of refugees. These increases are related, for example, to the expansion of services in the area of long-term care

and hospitals. The same applies to social benefits other than social transfers in kind: these will rise by 3.3 % in the year 2016 and 3.9 % in the year 2017 following the expansion of services through the pension package, the considerable increase in pensions this year and the increase in child benefit. Given the high wage agreements in the public sector and the growth in the number of employed in the year 2016, the compensation of employees will also rise more strongly than in previous years. Investment is expected to grow appreciably as a result of the Federal Government's investment programme and the budgeted defence expenditure.

268. Overall, the public spending ratio will rise 0.4 percentage points from 44.0 % in the year 2015 to 44.4 % in the year 2017. **Fiscal policy** will thus continue to be **moderately expansionary**. This expansionary approach is also reflected in the sum of discretionary fiscal policy measures, which are likely to amount to 0.3 % to 0.4 % of the nominal GDP this year, and 0.2 % to 0.3 % next year.

III. MEDIUM-TERM PROJECTION

269. The GCEE expects **production potential to grow** in the years 2016 and 2017 by 1.3 % and 1.0 % respectively. For the period between 2015 and 2021 an annual average increase of 1.2 % is expected. According to the medium term projection, the material standard of living, as measured by the real GDP per capita, will rise at a slightly lower rate, that is, by an annual average of 1.0 % from 2015 to 2021. [↪ TABLE 13](#)
270. The biggest contribution to the increase in production potential will come from **total factor productivity** with 0.6 percentage points. However, its stimulus to growth will be relatively small by historical comparison. The growth rate trended downwards from 1.3 % in the year 1995 to 0.5 % in the year 2009 and has

↪ TABLE 13

Results of the medium-term projection¹

	1995 to 2015				2015 to 2021	
	actual		potential			
Gross domestic product (GDP)	1.3		1.3		1.2	
Capital stock	1.6	(0.6)	1.6	(0.6)	1.2	(0.4)
Solow-residual	0.7	(0.7)	0.7	(0.7)	0.6	(0.6)
Volume of labour	0.1	(0.1)	0.0	(0.0)	0.2	(0.1)
Working age population	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Participation rate	0.4	(0.3)	0.4	(0.2)	0.3	(0.2)
Unemployment rate	0.2	(0.1)	0.2	(0.1)	– 0.0	(– 0.0)
Average working time	– 0.6	(– 0.4)	– 0.5	(– 0.3)	– 0.1	(– 0.1)
For information purposes:						
GDP per capita	1.2		1.2		1.0	

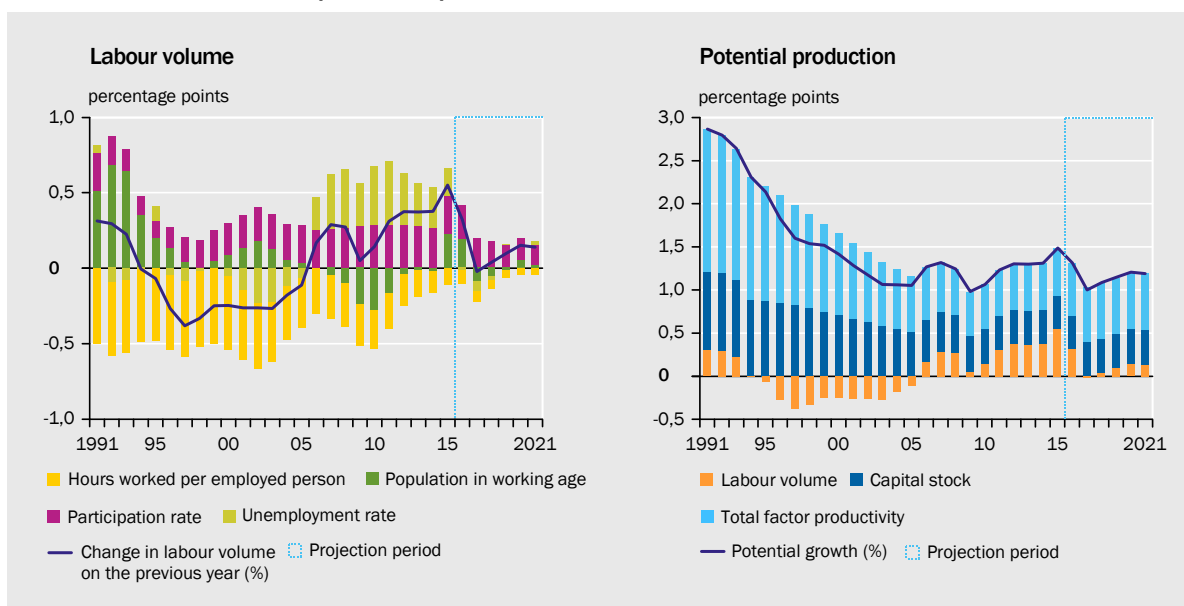
1 – Calculations of the German Council of Economic Experts; average annual changes in %. In brackets: growth contributions. Differences in sums are due to rounding.

hovered around this level ever since. There are several reasons for this: composition effects on the labour market; outsourcing processes within value chains being largely phased out; and various sector-specific developments (2015 Annual Report Items 590 ff.).

271. For the period until the year 2021, one can assume that the trend growth rate in total factor productivity will **only rise moderately**. While the decelerating increase in the number of less productive workers in the service sector is likely to have a smaller dampening effect on productivity, structural barriers in the manufacturing sector will prevent more dynamic growth. [↘ ITEM 282 FF.](#)
272. The slight acceleration in productivity growth is also expected to bring about a rise in gross fixed capital formation in the years ahead. However, the resulting increase in the growth rate in the **capital stock** will only be gradual over the forecast period. The rate will increase negligibly and the annual average will account for approximately 0.4 percentage points of the growth in production potential.
273. Following a marked increase in the year 2015 and subsequent stagnation in the year 2016, the potential **labour volume** will probably continue to expand slightly in the next few years. [↘ CHART 32](#) The labour volume will thus make a positive, albeit small, contribution of 0.1 percentage points to production potential over the projection period.
274. Compared to the results from the previous year, the **biggest revision** to the medium-term forecast is to labour volume (2015 Annual Report Items 254 ff.). This is because of greatly changed assumptions about net immigration, in particular in relation to the inflow of refugees. This inflow will affect the individual components of the labour volume: the population of working age, the

↘ CHART 32

Growth contributions of components to potential GDP¹



1 – Calculations by the German Council of Economic Experts.

Source: Federal Statistical Office

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participation rate, the unemployment rate and the average annual working time per employed person (2014 Annual Report Box 10).

275. The **population of working age** (people aged between 15 and 74) will be updated for the years ahead based on the standard assumptions of the 13th coordinated population projection carried out by the Federation and the *Länder*. However, this must be corrected to take account of the assumptions about **net immigration**. In this regard, the GCEE's medium-term projection assumes that there will be a marked decrease in net immigration of asylum seekers in the coming years, compared to the year 2015. [↘ TABLE 14](#) In fact, negative net migration is expected in the year 2017 because it is assumed that the number of rejected asylum seekers leaving the country will exceed the number of new asylum seekers entering. The drop in net immigration in the coming year largely explains the fall in the potential growth rate from 1.3 % this year to 1.0 % in 2017.
276. Overall the **inflow of refugees** is likely to have a **moderate** effect on labour volume. Firstly this is because, based on assumptions, the GCEE expects the overall number of asylum seekers of working age to account for just 1.5 % of the overall population of working age in the year 2021. Secondly, not every refugee will be able to take up employment immediately. This will be reflected in an initially low **participation rate**. However, this is expected to rise over time from 34 % in the year 2016 to 81 % in the year 2021, thus well exceeding the statistic for the economy as a whole. The reasons for this development are the relatively high proportion of men among asylum seekers and their lower average age compared to the overall population. The overall labour force participation rate will continue to rise in the coming years owing to the migration of refugees and, taken alone, will contribute to the growth in the potential volume of labour.

[↘ TABLE 14](#)

Projection of important figures for the potential labour volume¹

		2015	2016	2017	2018	2019	2020	2021
Population²								
Total net immigration	thousand	1,139	441	206	371	326	287	128
Including: refugees	thousand	767	101	- 84	131	136	147	38
Working-age net immigration	thousand	903	375	192	309	269	233	108
Including: refugees	thousand	575	76	- 63	98	102	110	29
Structural participation rate³								
Total	%	72.3	72.5	72.8	73.0	73.1	73.3	73.4
Refugees	%	10.4	34.4	64.8	71.5	74.1	75.7	81.4
Proportion of refugees ⁴ in population ⁵	%	0.9	1.1	1.0	1.1	1.3	1.5	1.5
Structural unemployment rate⁶								
Total	%	4.2	4.2	4.3	4.3	4.3	4.3	4.3
Refugees	%	80.0	74.6	65.9	56.4	48.5	42.6	37.4
Proportion of refugees ⁴ in labour force ⁷	%	0.1	0.5	0.8	1.1	1.3	1.5	1.7

1- Assumptions of the GCEE. 2 - Effective date: 31.12. of the respective year. 3 - Projection of the participation rate without refugees is done with a demographic model that represents age-, cohorts- and gender-specific developments. The trend adjustment is conducted with the HP-filter.

4 - Proportion of refugees is determined by accumulation of refugees (in working-age) since the year 2014. 5 - In working-age. 6 - State space models are used to calculate the structural unemployment rate. These models incorporate various measures of inflation and inflation expectations (NAIRU). 7 - Proportion of refugees is determined by accumulation of job-seeking refugees since the year 2014.

At the same time, however, the increases will probably taper off due to demographic trends.

277. Thirdly, many recognised asylum applicants may be unemployed for an initial period due to a lack of language skills and appropriate qualifications. For purposes of the medium-term projection, it is assumed that the unemployment rate among refugees will gradually decrease from 75 % in the year 2016 to a little below 40 % in the year 2021. Despite this fall in the unemployment rate, the structural **unemployment rate** in the economy as a whole (**NAIRU**) is expected to increase slightly in the coming years. In contrast to the years following 2005, it will therefore not contribute to an increase in production potential.
278. Once again, the growth rates of production potential estimated using the GCEE method are **significantly lower** than the results produced by the **European Commission’s method** (Joint Economic Forecast project group, 2016). With that approach the Joint Economic Forecast project group arrives at a medium-term potential growth rate of 1.6 %, a figure that can largely be explained by its different projecting forward of the participation rate. In contrast to the method applied by the European Commission, the GCEE forecasts the participation rate using a comprehensive population model, which takes age, cohort and gender-specific elements into account (2014 Annual Report Box 10).

APPENDIX TO THE CHAPTER

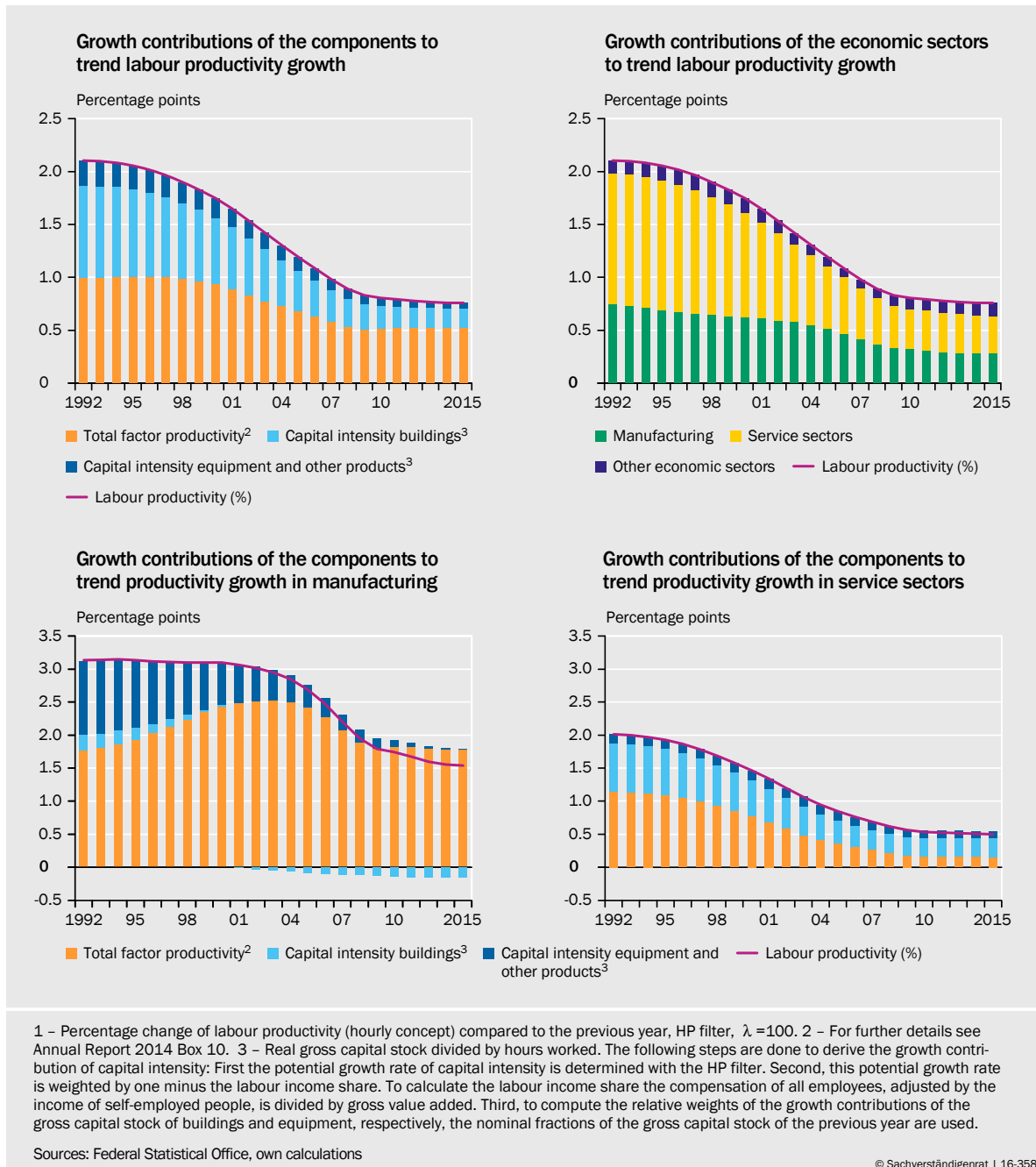
1. Slack growth in productivity and investment

279. The increase in Germany’s GDP over the past decades has mainly been generated by a rise in overall labour productivity. However, since the recession in the years 2008 and 2009 in particular, there has been a marked slowdown in Germany’s productivity advances. However, this is not just a recent development. The potential growth rate of labour productivity has fallen from over 2 % at the start of the 1990s to 0.8 % in 2009 and hovered around this level ever since.
280. The change in hourly productivity – assuming a Cobb-Douglas production function – can be split into two components: **total factor productivity (TFP)** and **capital intensity**. Total factor productivity is an indicator of the level of technological knowledge derived from product and process innovations. It also records the effects of reallocating production factors, improvements in the skills level of the active population and specialisation advantages brought about by a change in the vertical range of manufacture in the value chains (2015 Annual Report Boxes 8 and 22). Capital intensity refers to the allocation of capital such as machines or software to a single worker. In the following, capital intensity is defined as the gross stock of fixed assets per hour worked. Capital is subdivided into buildings and equipment including other products. Equipment and other

products comprise, for example, machines, tools, software and also research and development.

281. The capital intensity growth rates for buildings and equipment including other products have declined over time. [↘ CHART 33 TOP LEFT](#) Their overall share in the growth rate of hourly productivity has fallen from over one percentage point in the year 1992 to 0.3 percentage points in the year 2009 and has continued to dip slightly since. TFP growth rates have also followed a downward trend since the early 1990s. Their contribution to growth has fallen from a solid one percentage point in the year 1992 to 0.5 percentage points in the year 2009 and remained steady since then. In public discussions, the moderate rise in capital intensity is often linked to a lack of investment preventing a higher increase in productivity (2015 Annual Report Items 632 ff.). However, given the highly complex **interdependencies between investment and advances in productivity**, a disaggregated analysis is required to better understand the reasons for the weak growth in capital intensities and in TFP.
282. An examination of individual industries reveals weaker productivity increases in the service sectors and in manufacturing. [↘ CHART 33 TOP RIGHT](#) In this regard, the individual development of TFP and capital intensity differs significantly between the manufacturing sector and the service sectors. [↘ CHART 33 BOTTOM](#)
283. In the manufacturing sector, productivity development is characterised by relatively high growth rates in TFP. Apart from a boom in productivity growth rates around the turn of the century, the trend growth rate has remained stable at 1.8 %. However, there has been a clear fall in the growth rates for capital intensity, with overall capital intensity actually declining in the past few years. This reflects **weak investment** in the private sector.
284. From the year 2010 to the year 2014, capital intensity declined in nearly all key industries in the manufacturing sector, apart from car manufacturing. There are several possible reasons for this development:
- Since the 1990s to 2008, there was a **strong outsourcing process** in German manufacturing. This means that many businesses outsourced upstream value chains primarily abroad. This makes the existing capital stock for the affected production stages superfluous.
 - The **energy costs** in Germany are high in an international comparison and have a negative effect on German investment. [↘ BOX 30](#)
 - The domestic sales opportunities are expected to be dampened in the upcoming years due to **demographic change**. To satisfy demand it is therefore not necessary to expand the capital stock considerably.
 - Additionally, demographic change is presumably accompanied by a **reduction in the supply of young skilled workers**. Companies are already taking measures to adapt their capital stock today in order to reduce their need for skilled workers in the future.
 - Since the financial crisis, global trade and the **economy** in key markets abroad have only experienced moderate growth. This is likely to have had an

CHART 33

Trend labour productivity growth¹

influence on the sales forecasts of domestic export companies, thus leading to adjustments in production capacities.

It must be noted that the declining growth rate in capital intensity is due to structural as well as cyclical factors.

285. In contrast to the manufacturing sector, the problems in the **service industries** have less to do with investment and more to do with the **weak development of TFP**. That said, any statement about productivity developments in service sectors must be treated with caution as measuring value added in many areas is much less accurate than in the production sector.

286. One reason for the weak development in TFP is a **composition effect** induced by the labour market reforms implemented in the early 2000s (2015 Annual Report Items 599 ff.). This effect arises in the trade, transport, accommodation and food services sector in particular. It reflects a fall in average productivity caused by a less productive labour force entering the labour market. However, one can assume that the composition effect will have less of a dampening influence on productivity development in the years ahead - even if the composition effect is unlikely to disappear completely as refugees gain employment. [▶ ITEM 690](#) As things stand, the structural barriers to investment in the manufacturing sector will impede any clear acceleration in overall productivity growth.

2. Charts and Tables

▶ TABLE 15

Gross fixed capital formation, price-adjusted

Change to the previous year in %

	Share in the year 2015	2015	2016 ¹	2017 ¹
Gross fixed capital formation	100	1.7	2.5	2.0
Investment in machinery & equipment	33.2	3.7	1.6	1.8
Construction investment	48.9	0.3	3.0	1.9
Dwellings	29.5	1.5	4.3	2.7
Other buildings and structures	19.3	- 1.4	1.1	0.6
Industrial construction ²	13.7	- 1.8	- 0.6	- 0.4
Public construction ³	5.7	- 0.4	5.1	2.8
Other products ⁴	18.0	1.9	2.6	2.9
For information purposes:				
Business investment ⁵	64.8	2.0	1.4	1.6

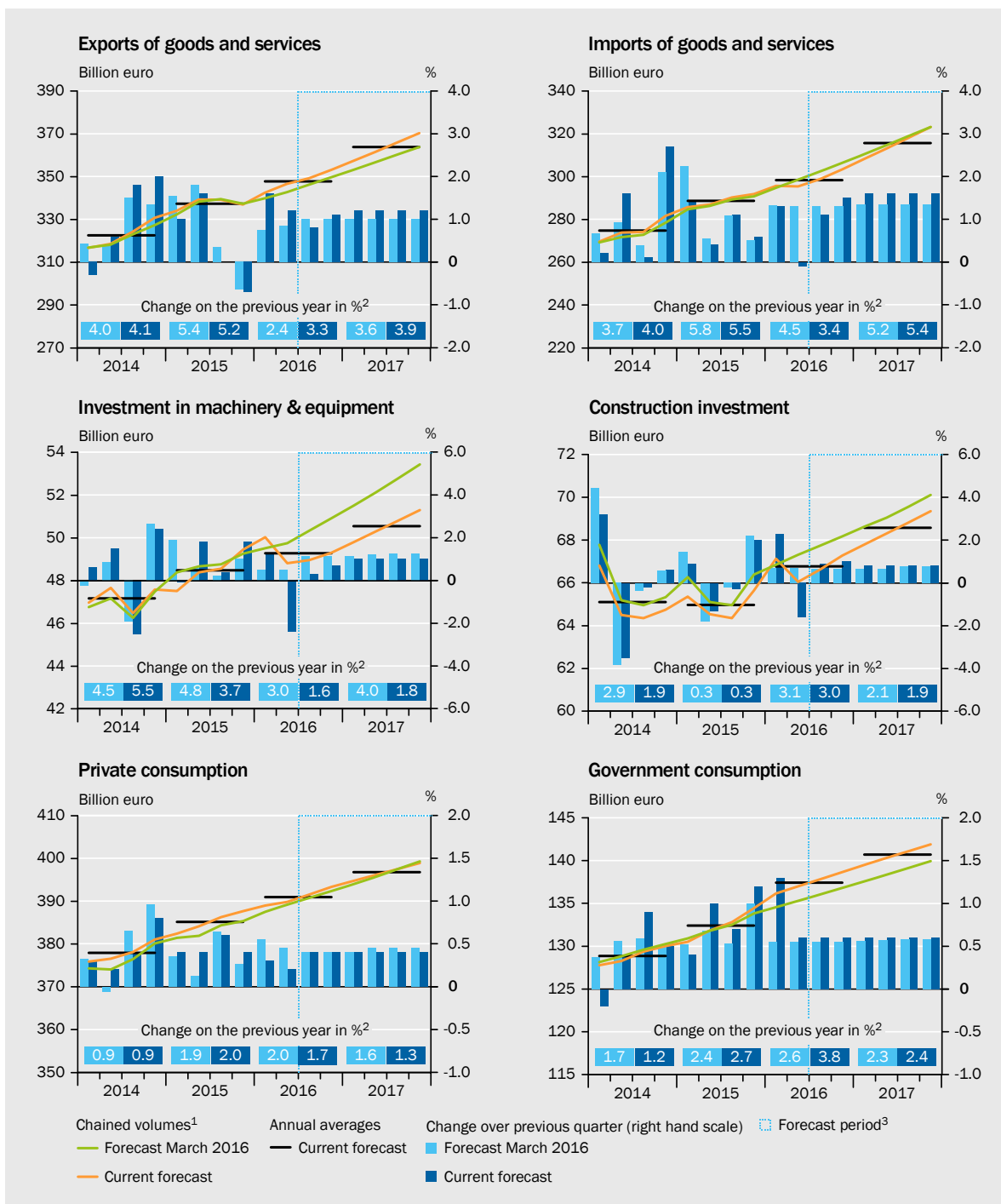
1 - Forecast by the GCEE. 2 - Investment of the non-governmental sectors in other buildings and structures. 3 - Investment of the general government in other buildings and structures. 4 - Intellectual property products and cultivated biological resources. 5 - Business investment incorporates investment in machinery and equipment, other products and investment of the non-governmental sectors in other buildings and structures.

Source: Federal Statistical Office

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CHART 34

Components of GDP



1 – Reference year 2010, seasonally and calendar-adjusted. 2 – Not adjusted. 3 – Forecast by the German Council of Economic Experts.

Source: Federal Statistical Office

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TABLE 16

Key figures of the national accounts

Absolute values

	Unit	2015	2016 ¹	2017 ¹	2016		2017 ¹	
					1. half-year	2. half-year ¹	1. half-year	2. half-year
Use of domestic product								
at current prices								
Final consumption expenditure	Billion euro	2 219.7	2 289.1	2 358.9	1 115.8	1 173.2	1 149.9	1 209.0
Private consumption ²	Billion euro	1 636.0	1 674.1	1 719.6	817.5	856.5	839.6	880.0
Government consumption	Billion euro	583.7	615.0	639.3	298.3	316.7	310.3	329.0
Gross fixed capital formation	Billion euro	603.8	627.9	650.9	302.9	325.0	313.4	337.5
Investment in machinery & equipment	Billion euro	200.2	205.2	210.0	98.7	106.5	100.5	109.6
Construction investment	Billion euro	295.0	309.8	323.2	149.1	160.7	155.6	167.5
Other products	Billion euro	108.6	112.9	117.7	55.1	57.8	57.3	60.4
Domestic demand	Billion euro	2 803.3	2 885.1	2 980.1	1 412.9	1 472.2	1 458.7	1 521.3
Exports of goods and services	Billion euro	1 418.8	1 449.2	1 518.0	714.2	735.0	750.6	767.4
Imports of goods and services	Billion euro	1 189.3	1 199.1	1 282.2	583.5	615.6	623.6	658.6
Gross domestic product	Billion euro	3 032.8	3 135.2	3 215.9	1 543.5	1 591.7	1 585.8	1 630.1
Chained volumes								
Final consumption expenditure	Billion euro	2 069.8	2 116.3	2 150.2	1 038.5	1 077.8	1 055.7	1 094.4
Private consumption ²	Billion euro	1 540.1	1 566.3	1 586.6	767.2	799.1	777.6	809.0
Government consumption	Billion euro	529.6	549.6	563.0	271.1	278.5	277.8	285.2
Gross fixed capital formation	Billion euro	555.2	569.0	580.5	274.9	294.1	280.0	300.5
Investment in machinery & equipment	Billion euro	194.7	198.0	201.5	94.7	103.3	95.9	105.6
Construction investment	Billion euro	260.4	268.3	273.4	129.9	138.5	132.4	141.0
Other products	Billion euro	100.4	103.0	105.9	50.4	52.6	51.7	54.2
Domestic demand	Billion euro	2 596.6	2 644.7	2 689.1	1 307.2	1 337.5	1 328.0	1 361.1
Exports of goods and services	Billion euro	1 353.0	1 397.1	1 451.9	689.7	707.4	719.6	732.3
Imports of goods and services	Billion euro	1 157.1	1 196.7	1 260.9	585.2	611.4	615.6	645.3
Gross domestic product	Billion euro	2 791.1	2 843.9	2 881.0	1 410.8	1 433.2	1 431.6	1 449.4
Price Development (deflators)								
Final consumption expenditure	2010=100	107.2	108.2	109.7	107.4	108.9	108.9	110.5
Private consumption ²	2010=100	106.2	106.9	108.4	106.6	107.2	108.0	108.8
Government consumption	2010=100	110.2	111.9	113.5	110.0	113.7	111.7	115.3
Gross fixed capital formation	2010=100	108.8	110.4	112.1	110.2	110.5	111.9	112.3
Investment in machinery & equipment	2010=100	102.8	103.6	104.2	104.2	103.1	104.7	103.8
Construction investment	2010=100	113.3	115.5	118.2	114.8	116.0	117.5	118.8
Other products	2010=100	108.2	109.6	111.2	109.4	109.9	110.9	111.4
Domestic demand	2010=100	108.0	109.1	110.8	108.1	110.1	109.8	111.8
Terms of Trade	2010=100	102.0	103.5	102.8	103.9	103.2	103.0	102.7
Exports of goods and services	2010=100	104.9	103.7	104.6	103.6	103.9	104.3	104.8
Imports of goods and services	2010=100	102.8	100.2	101.7	99.7	100.7	101.3	102.1
Gross domestic product	2010=100	108.7	110.2	111.6	109.4	111.1	110.8	112.5
Production of domestic product								
Employed persons (domestic)	thousand	43,057	43,554	43,952	43,284	43,824	43,666	44,238
Labour volume	Million hours	58,895	59,447	59,657	29,250	30,197	29,383	30,274
Labour productivity (per hour)	2010=100	104.7	105.7	106.7	106.6	104.9	107.7	105.8
Distribution of net national income								
Net national income	Billion euro	2 263.2	2 344.2	2 404.9	1 141.2	1 203.0	1 173.0	1 231.9
Compensation of employees	Billion euro	1 539.9	1 592.4	1 641.1	763.2	829.3	785.3	855.7
Gross wages and salaries	Billion euro	1 260.6	1 305.3	1 345.5	624.4	680.9	642.7	702.9
among them: net wages and salaries ³	Billion euro	836.6	865.5	890.1	409.4	456.1	420.1	470.0
property and entrepreneurial income	Billion euro	723.4	751.8	763.8	378.0	373.8	387.7	376.1
Disposable income of private households ²	Billion euro	1 763.1	1 808.0	1 856.0	896.6	911.4	918.8	937.2
Savings rate of private households ^{2,4}	%	9.7	9.8	9.7	11.2	8.5	11.0	8.5
For information purposes:								
nominal unit labour costs ⁵	2010=100	108.7	110.1	111.6	106.3	113.8	107.6	115.6
real unit labour costs ⁶	2010=100	100.0	99.8	100.0	97.2	102.5	97.1	102.8
Consumer prices	2010=100	106.9	107.4	109.1	106.9	107.9	108.6	109.7

1 – Forecast by the GCEE. 2 – Including non-profit institutions serving households. 3 – Compensation of employees minus social contributions of employers and employees and in-come of employees. 4 – Savings relative to disposable income. 5 – Compensation of employees per working hour (employee concept) in relation to real GDP per working hour (employed person concept). 6 – Compensation of employees per working hour (employee concept) in relation to nominal GDP per working hour (employed person concept).

Source: Federal Statistical Office, own calculations

TABLE 16

Key figures of the national accounts

Change on the previous year in %

2015	2016 ¹	2017 ¹	2016		2017 ¹		
			1. half-year	2. half-year ¹	1. half-year	2. half-year	
Use of domestic product							
at current prices							
3.0	3.1	3.1	3.4	2.9	3.1	3.0	Final consumption expenditure
2.6	2.3	2.7	2.5	2.1	2.7	2.7	Private consumption ²
4.0	5.4	4.0	5.8	5.0	4.0	3.9	Government consumption
3.2	4.0	3.7	5.2	2.9	3.5	3.9	Gross fixed capital formation
4.6	2.5	2.4	5.2	0.1	1.8	2.9	Investment in machinery & equipment
2.2	5.0	4.3	5.6	4.5	4.3	4.3	Construction investment
3.5	3.9	4.3	3.9	4.0	4.0	4.5	Other products
2.6	2.9	3.3	3.3	2.5	3.2	3.3	Domestic demand
6.3	2.1	4.7	1.9	2.3	5.1	4.4	Exports of goods and services
3.9	0.8	6.9	0.2	1.4	6.9	7.0	Imports of goods and services
3.7	3.4	2.6	3.9	2.9	2.7	2.4	Gross domestic product
Chained volumes							
2.2	2.2	1.6	2.6	1.9	1.7	1.5	Final consumption expenditure
2.0	1.7	1.3	2.1	1.4	1.4	1.2	Private consumption ²
2.7	3.8	2.4	4.1	3.4	2.5	2.4	Government consumption
1.7	2.5	2.0	3.7	1.4	1.8	2.2	Gross fixed capital formation
3.7	1.6	1.8	4.2	- 0.6	1.3	2.3	Investment in machinery & equipment
0.3	3.0	1.9	3.9	2.3	1.9	1.8	Construction investment
1.9	2.6	2.9	2.6	2.6	2.6	3.1	Other products
1.6	1.9	1.7	2.5	1.2	1.6	1.8	Domestic demand
5.2	3.3	3.9	3.2	3.3	4.3	3.5	Exports of goods and services
5.5	3.4	5.4	3.8	3.1	5.2	5.5	Imports of goods and services
1.7	1.9	1.3	2.3	1.5	1.5	1.1	Gross domestic product
Price Development (deflators)							
0.7	0.9	1.4	0.7	1.0	1.4	1.5	Final consumption expenditure
0.6	0.6	1.4	0.5	0.8	1.3	1.5	Private consumption ²
1.3	1.5	1.5	1.6	1.5	1.5	1.4	Government consumption
1.5	1.5	1.6	1.4	1.5	1.6	1.6	Gross fixed capital formation
0.9	0.8	0.6	1.0	0.7	0.5	0.6	Investment in machinery & equipment
1.9	1.9	2.4	1.7	2.2	2.3	2.4	Construction investment
1.6	1.3	1.4	1.3	1.3	1.4	1.4	Other products
0.9	1.0	1.6	0.8	1.2	1.6	1.5	Domestic demand
2.6	1.5	- 0.7	2.3	0.7	- 0.8	- 0.5	Terms of Trade
1.1	- 1.1	0.8	- 1.3	- 0.9	0.7	0.9	Exports of goods and services
- 1.4	- 2.5	1.5	- 3.5	- 1.6	1.6	1.4	Imports of goods and services
2.0	1.5	1.3	1.6	1.4	1.2	1.3	Gross domestic product
Production of domestic product							
0.9	1.2	0.9	1.3	1.1	0.9	0.9	Employed persons (domestic)
0.9	0.9	0.4	1.7	0.2	0.5	0.3	Labour volume
0.8	0.9	1.0	0.5	1.3	1.0	0.9	Labour productivity (per hour)
Distribution of net national income							
3.8	3.6	2.6	4.3	2.9	2.8	2.4	Net national income
3.7	3.4	3.1	3.7	3.1	2.9	3.2	Compensation of employees
3.9	3.5	3.1	4.0	3.2	2.9	3.2	Gross wages and salaries
among them: net wages and salaries ³							
3.6	3.5	2.8	4.0	3.0	2.6	3.0	property and entrepreneurial income
4.2	3.9	1.6	5.5	2.4	2.6	0.6	Disposable income of private households ²
3.1	2.5	2.7	2.7	2.4	2.5	2.8	Savings rate of private households ^{2,4}
For information purposes:							
1.5	1.3	1.4	1.1	1.4	1.1	1.6	nominal unit labour costs ⁵
- 0.4	- 0.2	0.1	- 0.4	0.1	- 0.2	0.4	real unit labour costs ⁵
0.3	0.5	1.6	0.2	0.7	1.6	1.7	Consumer prices

1 – Forecast by the GCEE. 2 – Including non-profit institutions serving households. 3 – Compensation of employees minus social contributions of employers and employees and in-come of employees. 4 – Savings relative to disposable income. 5 – Compensation of employees per working hour (employee concept) in relation to real GDP per working hour (employed person concept). 6 – Compensation of employees per working hour (employee concept) in relation to nominal GDP per working hour (employed person concept).

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