02

ECONOMIC SITUATION: SIGNIFICANT SLOWDOWN

This is a translated version of the original German-language chapter "Konjunktur: Deutliche Abkühlung", which is the sole authoritative text. Please cite the original German-language chapter if any reference is made to this text.

KEY MESSAGES

↘ Global economic growth has slowed noticeably. The prevailing high level of uncertainty seems to weigh on international trade and on investment demand. ↘ ITEMS 1 FF.

↘ Economic momentum has weakened in the euro area. Monetary policy is already very expansionary. It would have been better if the ECB had refrained from new purchases of government bonds. ↘ ITEMS 41 FF.

↘ The German economy, especially its industry, is in a downturn. A slow recovery can be expected over the course of 2020 at the earliest. An economic stimulus package is currently not necessary. ↘ ITEMS 67 FF.

SUMMARY

Global economic growth has **slowed** noticeably. This is largely due to the weakness of industry. At the same time, there has been a decline in the volume of world trade. **Increased uncertainty**, triggered not least by the trade conflicts, is dampening investment growth. **Economic momentum** is likely to remain **subdued** over the forecast period. One of the **risks** for further development is a renewed escalation of the trade conflicts. On the other hand, well-designed political agreements would offer a **chance** of higher growth.

Growth in gross domestic product (GDP) has also **slowed in the euro area**. Investment and exports in particular displayed a weaker development. At the same time, the experience of member states is heterogeneous. The German Council of Economic Experts (GCEE) expects euro area GDP growth rates of 1.2 % in 2019 and 1.1 % in 2020. The inflation rate of the Harmonised Index of Consumer Prices has fallen with the lower energy prices. Against this backdrop, the European Central Bank (ECB) has further loosened its already expansionary monetary policy. However, this entails risks, e.g. for financial stability. It would have been better to refrain from re-starting bond purchases.

Germany is particularly affected by the global growth slowdown, especially in industry: The German economy displays a high degree of openness and a strong focus on capital goods. Economic growth has slowed markedly compared to previous years and is below the potential rate. The situation shows an **economic dichotomy**: while **industry** is in **recession**, the **service sectors** have so far proved **robust**. However, there are initial signs of a slowdown on the labour market. The strong employment growth of recent years is likely to come to a temporary end. However, a broad economic recession is not expected at present.

The GCEE expects 0.5 % GDP growth in the euro area in 2019. It will probably increase to 0.9 % in the coming year. Discounting the positive calendar effect, though, growth for 2020 will only be 0.5 %. This means that the GCEE has **significantly lowered its projection** compared to March. The main reason for this is the particularly weak economic development in the summer half-year of 2019. The **economy** is expected to **pick up** only **slowly** in the coming year. In view of pessimistic business expectations, a difficult situation as regards orders and a high degree of uncertainty, **investment in machinery and equipment** in particular is **unlikely to grow** significantly. No stimuli are to be expected from foreign trade either. Yet, consumption is likely to develop positively, especially due to the positive wage dynamics. The **output gap** is likely to be **closed** in 2020. At present, there is no need for fiscal policy action to support the economy beyond the working of the automatic stabilisers. In any case, the orientation of fiscal policy is already expansionary.

I. INTERNATIONAL ECONOMY: LOSING MOMENTUM

1. The **growth momentum of the global economy has weakened** noticeably, particularly in the advanced economies. However, growth has also slowed in the emerging economies. World trade has declined and the development of manufacturing has been especially weak. Cyclical and structural factors are likely to have contributed to this situation. The German Council of Economic Experts (GCEE) expects only relatively subdued growth in the global economy over the forecast period. The trade conflicts and the resulting uncertainty are likely to continue having a negative impact.
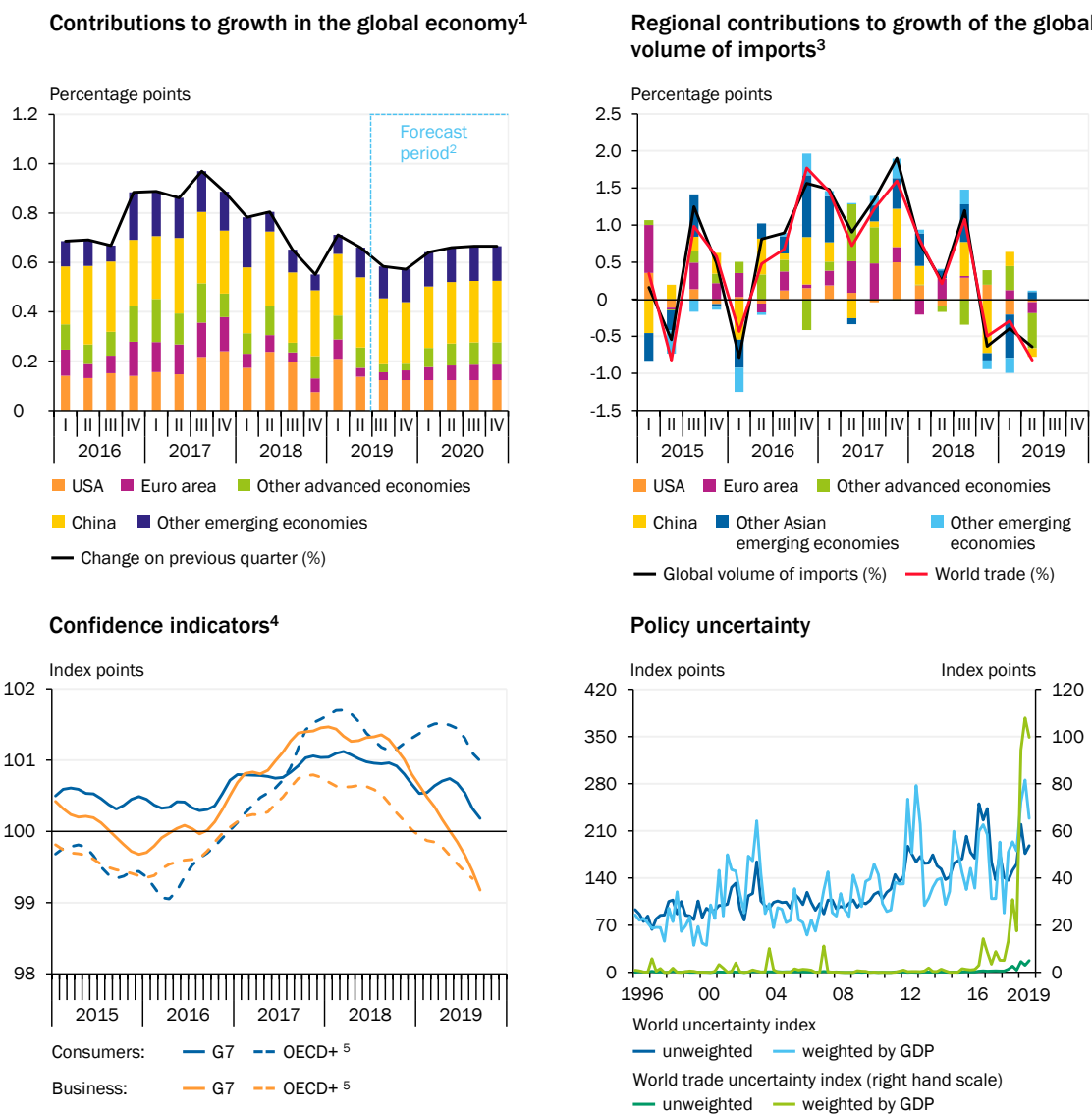
1. Waning dynamics in the global economy

2. Following the decline in growth in the course of 2018, the global economy remains very subdued, and the **pace of growth** of global gross domestic product (GDP) has **slowed** noticeably. This development can be seen in both the advanced and the emerging economies. ↘ CHART 1 TOP LEFT Although a cyclical slowdown in growth, especially in the advanced economies, was not unexpected after the upswing of the previous years (GCEE Annual Report 2018 items 214 ff.), the increasing downturn in future prospects is a cause for concern. The **continuing uncertainty** regarding the ongoing trade conflicts is probably playing an important role in this context. ↘ CHART 1 BOTTOM RIGHT

3. Especially the development of **world trade** is **very weak**. ↘ CHART 1 TOP RIGHT The global volume of trade has been falling noticeably for three consecutive quarters. A regional breakdown of these figures shows that especially China and the other Asian emerging economies contributed to the decline in the volume of imports. This was compounded by a significant fall in the other advanced economies, including the United Kingdom (UK), in the second quarter of 2019. At the same time, however, growth in the other regions also came to a virtual standstill. The development of world trade has become decoupled from that of global GDP. This corresponds with the observation that the poor economic development has hitherto mainly reflected a **weakness in industry** across countries. ↘ ITEMS 7 FF. At the same time, companies in many countries have been increasingly reluctant to invest. If this development continues, it is to be feared that it will spread to other sectors of the economy. Up to now, the marked **decline in sentiment indicators** for companies in the manufacturing sector has been partly offset by the good mood among consumers, although the latter has also worsened recently. ↘ CHART 1 BOTTOM LEFT

4. The **trade conflict** between the United States (USA) and China **intensified** further up until September of this year. Last year, several **tariff hikes** had already led to an increase in the average rate of United States tariffs on imports from China – from 3.1 % in January 2018 to 12 % from September 2018 (GCEE Annual Report 2018 item 8). Following further increases throughout this year, it

has stood at 21 % since September 2019 (Bown, 2019a). As a result of the Chinese government's **countermeasures**, the corresponding average Chinese tariff rate on United States exports is now also around 21 %. In January 2018 it had been 8 %.

On 11 October, President Trump (2019) announced **a preliminary agreement** with the Chinese delegation on some areas of the conflict. At the same time, further tariff hikes were postponed for the time being. It remains unclear, however, to what extent this will lead to a more comprehensive agreement in the trade dispute and what scope such an agreement might have. It should also be borne in mind that this current conflict is only the most serious example of a

↘ CHART 1

Indicators on the economic situation of the global economy

Contributions to growth in the global economy[1]

Regional contributions to growth of the global volume of imports[3]

Confidence indicators[4]

Policy uncertainty

1 – Global GDP (weighted total of national economies listed). Country definitions according to Table 1. 2 – Forecast by the GCEE. 3 – Change on previous quarter, quarterly averages of seasonally adjusted monthly data. Data and country definitions of the Dutch Centraal Plan Bureau (CPB). 4 – Standardised OECD confidence indicators. The business confidence index represents the manufacturing sector. 5 – The aggregate "OECD+" includes the member states of the OECD as well as the non-member states Brazil, China, India, Indonesia, Russia and South Africa (Major Six NME).

Sources: CPB, Economic Policy Uncertainty, IMF, national statistical offices, OECD, own calculations

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tendency towards more protectionist measures that has existed since the financial crisis (GCEE Annual Report 2017 items 642 ff.).

5. Both the **tariffs** levied to date by the USA and China in the trade conflict **and** the **uncertainty** associated with the conflict are **probably** already **burdening** the **global economy**. In an update of its analysis from last year, the IMF (2019a) estimates that, taking into account confidence and productivity effects as well as market reactions to the tariff increases to date, GDP is likely to be up to 0.6 % lower in the USA and up to 2 % lower in China in 2020. In this particularly negative scenario, the rest of the world would also be noticeably affected. In the euro area, for example, GDP would be 0.4 % below the level to be expected without the measures.

6. In view of the weaker economic development and lower inflation rates and expectations, the phase of a **slight tightening of monetary policy** that was just beginning to emerge has come **to an end** for the time being. In July, the US Federal Reserve (Fed) lowered its key policy rate for the first time since 2009, following gradual increases in recent years. ↘ ITEM 26 In September, the European Central Bank (ECB) adopted a comprehensive package of monetary easing measures. ↘ ITEMS 49 FF.
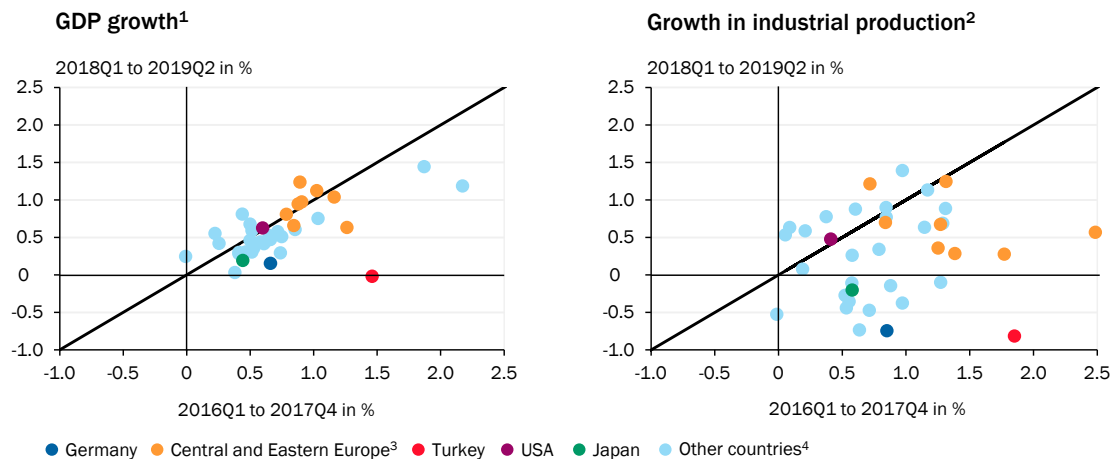
Global downturn in industry

7. Economic growth has slowed compared to 2016 and 2017 in many countries. ↘ CHART 2 LEFT On the output side, this is mainly due to the **weaker development in industry**. ↘ CHART 2 RIGHT In addition to manufacturing, industry includes mining and utilities supplying energy and water, but not construction. Among the G7 countries, the decline in growth has been particularly pronounced in Germany and Italy, with industrial production in Germany falling most sharply.

Growth in industrial production has also slowed noticeably in many central and eastern European EU member states. This is probably a reflection of their close ties with German industry, especially with vehicle construction (European Commission, 2019a). However, the **weakness of industry** has **not** yet been reflected **to the same extent in GDP growth** due to the relatively robust domestic economy. In the USA, a comparison of the two periods shows no visible slowdown in growth, either in GDP or in industrial production. Furthermore, production there increased until the beginning of 2019.

8. There are several reasons for the continuing weakness of industry. First, a **cyclical downturn** is probably taking place. Traces of it can be found, for example, in the semiconductor and automotive industries. ↘ BOX 1 In addition, structural changes might be interacting with these cyclical fluctuations and intensifying them in individual sectors. One example is the **high level of uncertainty**, which is a burden on industry, above all in the context of trade disputes and the associated **concerns about the integrity of international value chains**, but also in relation to technological change and regulations on climate-change mitigation and environmental protection. When companies hold

↘ CHART 2

Fall in growth of GDP and industrial production in selected countries

GDP growth[1]

2018Q1 to 2019Q2 in %

Growth in industrial production[2]

2018Q1 to 2019Q2 in %

● Germany   ● Central and Eastern Europe[3]   ● Turkey   ● USA   ● Japan   ● Other countries[4]

1 – Average quarterly growth in real GDP in the periods from 2016Q1 to 2017Q4 and 2018Q1 to 2019Q2 respectively, seasonally adjusted.
2 – Average quarterly growth of industrial production in the periods 2016Q1 to 2017Q4 and 2018Q1 to 2019Q2, respectively, seasonally adjusted.
3 – Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia. 4 – OECD (excluding Iceland and Mexico) and Brazil, Colombia, India and Russia.

Sources: OECD, own calculations

back on investments in equipment, for example because of the increase in uncertainty, this leads to lower demand for mechanical and plant engineering.

9. At the same time, **investment reacts relatively strongly to cyclical fluctuations** and frequently reinforces them (King and Rebelo, 1999; Stock and Watson, 1999). Because imports make up a large share of investment, a cyclical downturn usually leads to a synchronisation of investment and trade volumes. For example, the decline in trade growth between 2017 and 2019 is largely attributable to fluctuations in investment activity (ECB, 2019a). Due to the close interaction between trade, investment and production, it is difficult to distinguish between the different factors behind industry's weakness. However, the trade conflicts are likely to have at least intensified the cyclical downturn and will still be weighing on industry.

↘ BOX 1

Industry-specific factors for industrial weakness

Certain areas are particularly seriously affected by the general weakness of economic activity in industry. For example, demand for capital and intermediate goods reacts relatively strongly to a decline in economic momentum. In addition, special factors are also likely to play a role in developments in the individual sectors. Germany, for example, experienced production restrictions last fall as a result of new car-registration standards and the low water level in the river Rhine (GCEE Economic Update 2019). Such **idiosyncratic shocks can have macroeconomic effects**, not least when there are close input-output linkages (Acemoglu et al., 2012).

Since the end of 2017, there has been a weak cyclical phase in parts of the electrical industry, e.g. in semiconductors and the manufacture of consumer electronics. The **technology cycle** in these sectors may have peaked in 2018 and have now entered a phase of weakness (ECB, 2019b). This cycle is driven by product launches, e.g. on the smartphone market, or by technological innovations such as the 5G standard (BoJ, 2019; ECB, 2019b). The global centre of this industry lies in Asia. More than

two thirds of global technology exports come from there (ECB, 2019b). Important indicators recently showed that the semiconductor industry in particular might be bottoming out, at least to some extent.

The **declining trend in vehicle construction** is also likely to be **partially cyclical** in origin. Cyclical factors generally play an important role in this sector. On the one hand, this has to do with the durability of cars. When households' incomes deteriorate, e.g. as a result of unemployment, they are more likely to postpone the purchase of durable goods than to limit their spending on non-durable consumer goods. On the other hand, car purchases are often loan-financed and therefore react sensitively to changes in financing terms (Haugh et al., 2010). A simple empirical model of car sales including as proxies for all cyclical influences the unemployment rate, consumer confidence and the term spread, leads to a coefficient of determination of over 0.7. This illustrates the cyclical sensitivity of the automobile market, especially in the USA. ↘ CHART 3 Such cyclical factors probably played only a minor role in the recent weaker development in Germany and the euro area, but they are likely to be significant for the global automobile market.

↘ CHART 3

Determinants of car sales in the USA and the euro area[1]
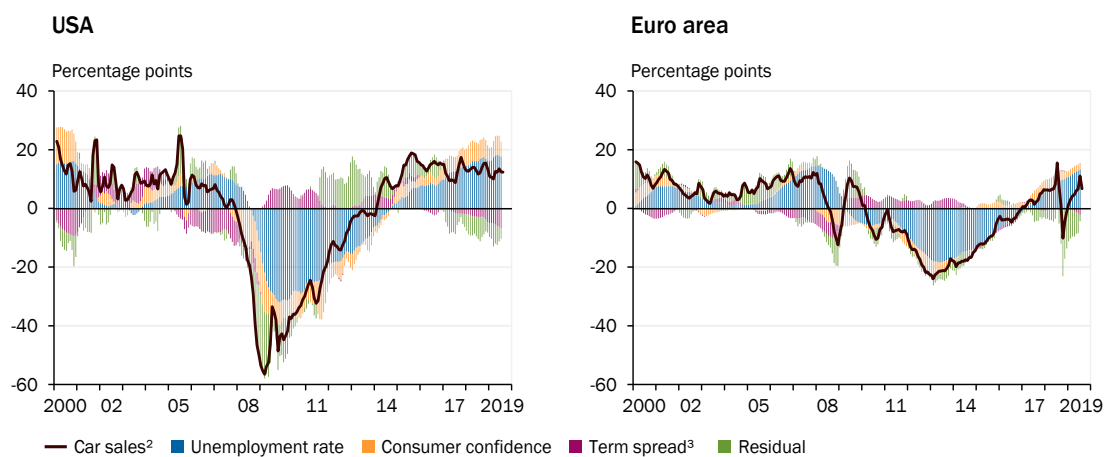
1 – Estimation period: January 2000 to August 2019. Car sales regressed on: unemployment rate, consumer confidence term spread. All data mean adjusted. Moving three-month average. 2 – Deviation from average in %. USA: total vehicle sales. Euro area: new passenger car registrations. 3 – Difference between long-term and short-term yields.

Sources: ECB, Eurostat, Fed, OECD, own calculations

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In the **USA**, vehicle sales have already been stagnating since 2015, having risen steadily in the years immediately following the financial crisis. In the euro area, demand for such durable goods as cars recovered from the effects of the financial and euro crisis and rose further until 2018, not least thanks to improved consumer sentiment and favourable financing conditions (ECB, 2018a). In the past few months, however, problems with converting to new registration standards have had a negative impact on the car market in the European Union (EU). Another factor influencing the purchase of durable consumer goods is uncertainty (Romer, 1990; Hassler, 2001). For example, the increase in political uncertainty in many places ↘ ITEM 2, for example with respect to the trade conflicts or new regulations on climate-change mitigation and environmental protection, might have dampened consumers' willingness to buy a car. At present, however, car sales in the USA and the euro area are still above the long-term average.

In the world's largest car market, **China**, the number of cars sold fell by just under 3 % last year, after sales had quadrupled in the period from 2005 to 2017. There are probably numerous reasons for this **weak development**. In addition to new exhaust regulations, the ending of tax breaks on car purchases and declining subsidies for e-cars, the deterioration in consumer sentiment likely played a part in this situation (BBC, 2019; IMF, 2019a; Nikkei, 2019; Reuters, 2019). The latter reflects, among other things, **temporarily tighter monetary and fiscal policies** (GCEE Annual Report 2018 item 229), which probably reduced the households' propensity to buy. All in all, a **decline in sales** is

expected in 2019 in the major automotive markets of the USA, Europe and China (ACEA, 2019; CNBC, 2019; VDA, 2019). The cyclical influences in the automotive industry are additionally overshadowed by **structural factors**, which may lead to a certain reluctance on the part of customers. These include stricter fleet standards on carbon emissions, the development of alternative drive technologies and changes in consumer habits (sharing economy).

Other industries are also affected by the automotive industry's weakness as a result of the links along the value chain. This applies, for example, to the chemical and metal industries. The **steel industry**, in addition, has had to deal with last year's tariff increases in the USA. Global excess capacity represents a more structural problem in this field (BMWi, 2017; OECD, 2019a).

Outlook

10. Over the forecast period, GDP growth rates are likely to lag behind the levels reached in 2018 in most economies. This **economic slowdown** is particularly evident in the advanced economies. However, lower growth rates can also be expected in the emerging economies. ⬂ TABLE 1

11. While the USA was the only major **advanced economy** to report a higher growth rate in 2018 than in 2017, the pace of growth can now be expected to decline during the forecast period. ⬂ ITEMS 20 FF. Lower growth rates are also expected in Japan and the other Asian industrialised countries. The subdued economic momentum is likely to continue in the euro area. ⬂ ITEMS 41 FF. By contrast, quite strong growth is expected in the central and eastern European member states of the European Union (EU) in the forecast period, although the pace is likely to slow down there during the same period. The development in the United Kingdom continues to be overshadowed by the possibility of Brexit. As a result, growth rates are likely to be rather low over the forecast period. ⬂ ITEMS 33 FF.

12. In the **group of emerging economies**, GDP growth is also likely to fall short of the levels reached in 2018. The expected decline in growth in China will make a significant contribution to this. ⬂ ITEMS 28 FF. In addition, growth in India is likely to be lower in the current year. However, a slight recovery is expected there again in 2020. The more relaxed monetary policy and tax cuts should contribute to this. Although Turkey has shown positive GDP growth again in the course of this year, the annual growth rate is very low. Should the economic stabilisation continue, the growth rate is likely to turn out noticeably higher again in 2020. Growth rates in the Latin American emerging economies are also expected to rise again slightly in 2020.

13. Overall, the GCEE expects **global economic output to rise** by 2.6 % in both 2019 and 2020, respectively. Recently, the growth in world trade has become noticeably decoupled from GDP growth rates. ⬂ ITEM 3 For the current year, the GCEE expects the **volume of world trade to fall** by 0.5 % based on the system of measurement applied by the Dutch Centraal Planbureau (CPB). If, as assumed in the projection, there is no further escalation in the trade conflicts, world trade should recover somewhat in the further course of the forecast

period. However, world trade growth is likely to remain very low compared to previous years with an expected increase of 1.6 % in 2020.

14. The development of the crude oil price, which has fallen markedly compared to the previous year, is a contributory factor in the expectation that **inflation rates** are likely to be **somewhat lower** in many economies during the forecast period than in 2018. This applies in particular to the advanced economies.

↘ TABLE 1

Gross domestic product and consumer prices of selected countries

Country/country group	Weight in %[1]	Gross domestic product[2]			Consumer prices		
		Change on previous year in %					
		2018	2019[3]	2020[3]	2018	2019[3]	2020[3]
Europe	**29.7**	**2.1**	**1.3**	**1.4**	**2.4**	**2.1**	**1.9**
Euro area	18.2	1.9	1.2	1.1	1.8	1.2	1.3
United Kingdom	3.8	1.4	1.2	1.0	2.5	1.9	2.0
Russia	2.2	2.2	0.7	1.3	2.9	4.6	3.8
Central and Eastern Europe[4]	1.8	4.4	3.9	3.1	2.1	2.7	2.5
Turkey	1.0	2.9	0.4	3.7	16.3	14.9	9.0
Other countries[5]	2.7	2.2	1.3	1.6	1.6	1.2	1.2
America	**35.3**	**2.6**	**2.0**	**1.8**	**3.3**	**3.0**	**2.8**
United States	27.4	2.9	2.3	1.8	2.4	1.8	2.0
Latin America[6]	3.2	1.3	0.3	1.8	10.8	14.1	10.9
Brazil	2.5	1.1	1.0	2.0	3.7	3.6	3.3
Canada	2.3	1.9	1.5	1.4	2.3	2.0	1.8
Asia	**35.0**	**5.0**	**4.4**	**4.3**	**2.1**	**2.0**	**2.2**
China	17.8	6.6	6.2	5.8	2.1	2.5	2.4
Japan	6.6	0.8	0.8	0.4	1.0	0.7	1.3
Asian advanced economies[7]	4.0	2.8	1.5	1.8	1.4	0.7	1.1
India	3.6	7.3	5.4	6.6	3.9	3.3	4.1
Southeast Asian emerging economies[8]	2.9	5.0	4.6	4.8	2.7	2.2	2.6
Total	**100**	**3.3**	**2.6**	**2.6**	**2.6**	**2.4**	**2.3**
Advanced economies[9]	66.8	2.3	1.7	1.5	2.0	1.5	1.6
Emerging economies[10]	33.2	5.2	4.5	4.8	3.8	4.3	3.8
memorandum:							
weighted by exports[11]	100	2.9	2.2	2.1	.	.	.
following IMF concept[12]	100	3.7	3.3	3.4	.	.	.
World trade[13]		3.4	– 0.5	1.6	.	.	.

1 – GDP (US dollar) of the listed countries or country groups in 2018 as a percentage of total GDP. 2 – Price-adjusted. 3 – Forecast by the German Council of Economic Experts. 4 – Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania. 5 – Denmark, Norway, Sweden, Switzerland. 6 – Argentina, Chile, Colombia, Mexico. 7 – Hong Kong, Republic of Korea, Singapore, Taiwan. 8 – Indonesia, Malaysia, Philippines, Thailand. 9 – Asian advanced economies, euro area, Central and Eastern Europe, Canada, Denmark, Japan, Norway, Sweden, Switzerland, United Kingdom, United States. 10 – Latin America, Southeast Asian emerging economies, Brazil, China, India, Russia, Turkey. 11 – Total of all listed countries. Weighted by the respective shares of German exports in 2018. 12 – Weights according to purchasing power parities and extrapolated to the countries covered by the IMF. 13 – As measured by the Dutch Centraal Planbureau (CPB).

Sources: CPB, Eurostat, IMF, national statistical offices, OECD, own calculations

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2. Opportunities and risks

15. There are numerous **risks** relating to the economic outlook for the global economy which, if they occur, could mean that growth will deviate significantly from our baseline projection. They include in particular an escalation of the ongoing trade disputes, a further weakening of the investment cycle, industrial weakness spreading more quickly to the economy as a whole via the labour market, risks to financial stability and geopolitical risks.

    There are also **opportunities** for a more positive development than in the baseline scenario. This could occur, for example, if the cyclical downturn in industry ends earlier than expected, or if good political solutions reducing uncertainty, especially in international trade, generate positive stimuli.

16. A renewed **escalation of the trade conflicts** leading to further marked reciprocal increases in tariffs between the USA and China, **would most likely** have a **noticeable negative impact** on growth in the **global economy**. The same applies to a resumption of trade disputes, for example between the USA and the EU. In addition to the direct effects, the associated additional political uncertainty and the decline in economic confidence would probably dampen investment further.

17. The economic slowdown is hitting many economies in a situation where **public and private debt** is **still high**. On the one hand, this could intensify the downturn, were the slowdown in real economic growth to be compounded by negative developments on the financial markets. On the other hand, the high level of public debt limits states' room for manoeuvre if the downturn is more serious (GCEE Annual Report 2017 items 520 ff.).

    Risks to financial stability play a major role, not least in view of the high level of private debt. These risks could stem in particular from abrupt price corrections of the very high asset prices or an increasing number of defaults by creditors in view of the economic slowdown. ↘ ITEMS 62 FF. If the financing terms for households and companies deteriorate as a result, this could have negative repercussions on further economic development.

18. For the baseline scenario it is assumed that there will be no major distortions as a result of the **United Kingdom leaving the EU** during the forecast period. However, should the preparations made by companies and public authorities turn out to be insufficient in the event of an exit, larger **disruptions in the value chains** could lead to a more pronounced decline in growth in Europe. This applies especially to the United Kingdom, but also to the other European countries. At the same time, **distortions** on the financial markets cannot be ruled out, which would in turn probably have negative repercussions on the real economy (GCEE Economic Update 2019). Following the agreement between the UK government and the EU member states, the risk of disorderly Brexit seems to have receded. ↘ ITEMS 37 FF.

19. In the **euro area**, furthermore, there is also still a risk that political uncertainty will burden the monetary union. Particularly in view of the economic slowdown, the high level of debt and unresolved structural problems could lead to new political conflicts which, in turn, could impair further economic development.
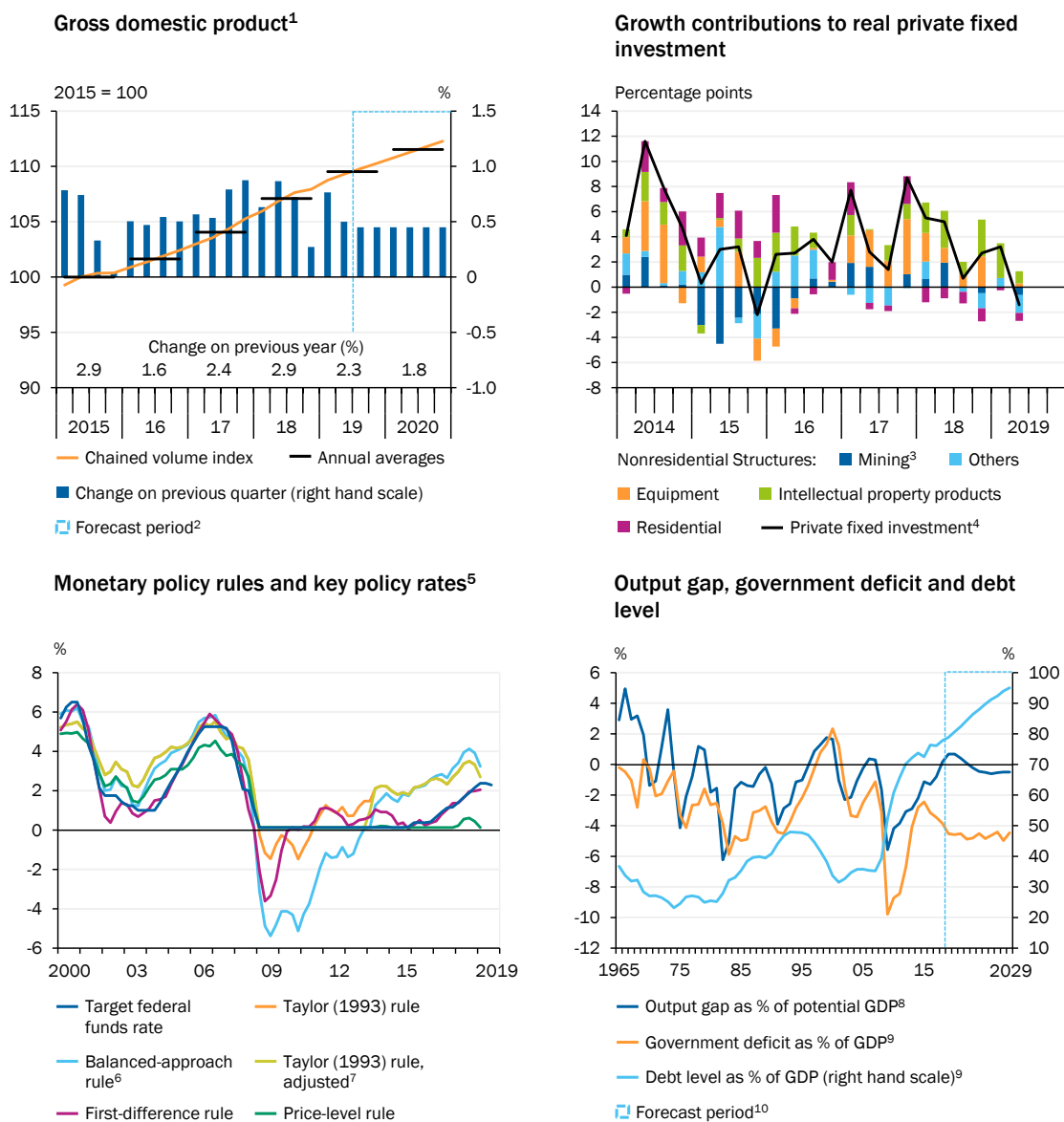
3. USA: temporary end of the economic boom

20. Following the very strong growth seen in 2017 and 2018, **economic momentum slowed** somewhat in the USA. ↘ CHART 4 TOP LEFT In the first half of 2019, GDP grew at an annualised rate of only 2.3 %, down from the annual average growth of 2.9 % experienced in 2018. Moreover, the revised GDP data make the development in 2018 appear somewhat less strong than had initially been assumed. While the annual average growth rate remained unchanged at 2.9 % in 2018, well above the level reached in 2017, the **growth rate between the fourth quarter and the fourth quarter of the previous year**, which reflects the dynamics during the year better, was revised downwards by 0.6 percentage points to 2.5 %; in **2018** it was thus noticeably **lower than the previous year's figure** of 2.8 %.

21. After a weaker increase in **private consumption** in the quarters around the turn of the year, it again made a very strong contribution to GDP growth in the second quarter of 2019. There was a marked **decline in exports** in the second quarter, following a sharp rise in the first quarter. Since imports declined at the same time, the USA recorded a positive growth contribution from net exports in the first quarter. Tariffs on imports from China were raised further in the course of the year. Taken together with the Chinese countermeasures and the continuing trade-policy uncertainty, this is likely to have burdened the US economy. ↘ ITEMS 4 F. In its latest forecast, the Congressional Budget Office (CBO, 2019) estimates that US GDP will probably be 0.3 % lower in 2020 as a result of the trade-policy measures taken since January 2018. In addition to lower exports, this is due to weaker investment and consumption by private households.

22. Against this background, **growth of private gross fixed capital formation continued to decline** similarly to the previous year. ↘ CHART 4 TOP RIGHT Investment in equipment and non-residential structures has been particularly weak recently. A further explanatory factor here could be the weak development of the oil price. With the growing importance of oil drilling (fracking) for the US economy, associated investment has gained in importance and there is a strong correlation between the development of the oil price and investment dynamics (Arnon, 2019). Investment in intellectual property, on the other hand, continued to grow strongly and thus made positive contributions to investment growth throughout the year. Investment in residential construction has been declining since the first quarter of 2018.

23. In the first two quarters of 2019, government expenditure on consumption and investment made positive contributions to GDP growth. The **increase in expenditure** and the **tax cuts** under the tax reform have significantly widened

the government deficit and increased the level of debt. ↘ CHART 4 BOTTOM RIGHT In contrast to developments in recent decades, this expansion occurred **procyclically** during a very good economic phase. In the forecast period, **fiscal policy** is likely to remain **expansionary** following the budget agreement in July 2019.

Against this background, the CBO predicts a marked **increase in the debt ratio** at the federal level. According to the figures of the International Monetary Fund (IMF), the general government debt ratio was already 104 % of GDP in 2018. According to the IMF, it is likely to rise to about 116 % by 2024.

↘ CHART 4
Economic indicators for the United States

Gross domestic product[1]

2015 = 100

Change on previous year (%)
2.9   1.6   2.4   2.9   2.3   1.8

— Chained volume index   — Annual averages
■ Change on previous quarter (right hand scale)
⊡ Forecast period[2]

Growth contributions to real private fixed investment

Percentage points

Nonresidential Structures: ■ Mining[3]   ■ Others
■ Equipment   ■ Intellectual property products
■ Residential   — Private fixed investment[4]

Monetary policy rules and key policy rates[5]

%

— Target federal funds rate   — Taylor (1993) rule
— Balanced-approach rule[6]   — Taylor (1993) rule, adjusted[7]
— First-difference rule   — Price-level rule

Output gap, government deficit and debt level

%

— Output gap as % of potential GDP[8]
— Government deficit as % of GDP[9]
— Debt level as % of GDP (right hand scale)[9]
⊡ Forecast period[10]

1 – Seasonally and calendar adjusted. 2 – Forecast by the German Council of Economic Experts. 3 – Mining exploration, shafts, and wells. 4 – Annualised change on previous quarter. Seasonally adjusted. 5 – Figures published in the Monetary Policy Report of the Board of Governors of the Federal Reserve System (Fed, 2019a). 6 – Greater emphasis on the unemployment rate. 7 – Adjusted to control for deviations due to the zero lower bound. 8 – Estimate by the CBO. 9 – Federal budget. 10 – Forecast by the CBO.

Sources: BEA, CBO, Fed, own calculations

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24. The development on the labour market remains positive. Although employment growth has slowed somewhat compared to the strong increases of the previous year, with average monthly increases of around 160,000 persons in the course of the year to date, employment continued to increase significantly, and the employment rate rose to 61 %. The **rate of unemployment** is at its **lowest level since the late 1960s** and fell to 3.5 % in September. The good development of employment and rising wages are boosting the incomes of private households.

25. At the same time, **inflation rates have fallen**. As measured by the Consumer Price Index (CPI), inflation has been between 1.5 % and 2 % so far this year. Falling energy prices played a major role in this decline. According to the price index for Private Consumer Expenditures (PCE), to which the Fed pays particular attention, the inflation rate was between 1.3 % and 1.5 % over the same period. However, excluding energy and food prices the index rose more strongly; core inflation measured in this way was 1.8 % in August.

26. The Fed had begun tightening its **monetary policy** in 2016 and has raised the target range for the Federal Funds Rate to between 2.25 % and 2.5 % in the meantime. This brought its interest rate policy closer to the interest rate rules that it publishes regularly in its Monetary Policy Report, particularly the variants of the Taylor rule (Fed, 2019a). ↘ CHART 4 BOTTOM LEFT A rule-oriented policy allows a more effective formation of expectations in the private sector about the development of monetary policy (Cochrane et al., 2019; Orphanides, 2019).

    In July 2019, the Fed eased monetary policy slightly for the first time in some time. The **target range** was **lowered** by 0.25 percentage points to between 2 % and 2.25 %. This was justified by the possible negative effects of global developments, the uncertain economic outlook and inflationary pressure, which was regarded as subdued. In September, the target range was again lowered by a further 0.25 percentage points. At the beginning of October, the Fed furthermore decided to **buy short-term government bonds** – initially about 60 billion US dollars worth per month – in view of the previous tense situation on the money market. In this way, the supply of reserves is being maintained at a high level (New York Fed, 2019). The aim is for monetary policy to continue to be implemented primarily via setting interest rates and not through active balance-sheet management (Fed, 2019b; GCEE Annual Report 2018 items 380 ff.). Securities repurchase agreements (repos) are intended to prevent monetary policy implementation from being compromised. To this end, future and overnight repos are to be concluded at least until January 2020 (New York Fed, 2019).
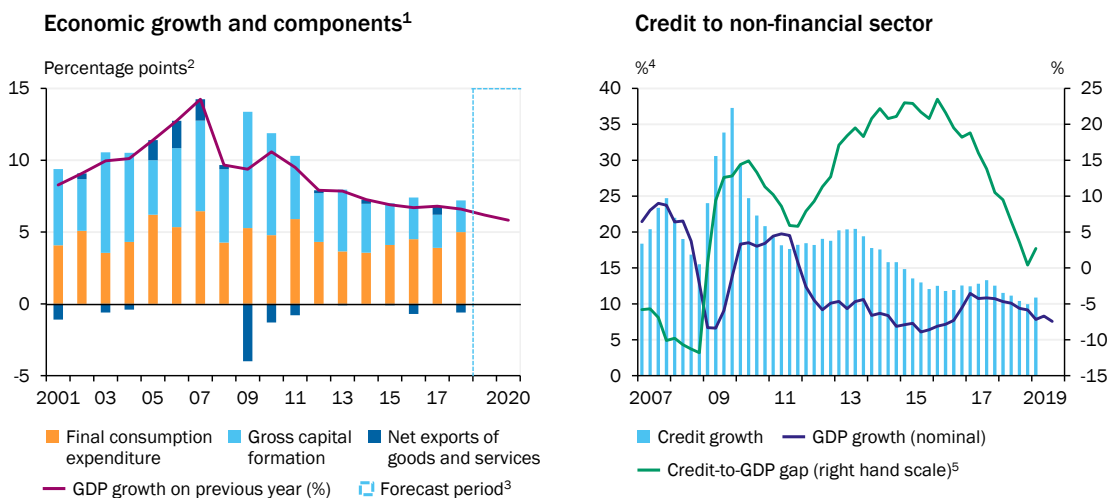
27. The indicators available to date point to a slightly weaker second half-year compared to the first. The GCEE expects 2.3 % **annual average GDP growth** over the year 2019 as a whole. In 2020, the GDP growth rate is likely to be slightly lower again at 1.8 %.

4. China: growth under pressure

28. The **growth rates of the Chinese economy** have **fallen further**. ↘ CHART 5 LEFT Average annual GDP growth published for 2018 was 6.6 %. In the third quarter of 2019, growth fell to only 6.0 % compared to the same quarter of the previous year. Alongside the trend towards a slowdown in the pace of growth (GCEE Annual Report 2016 items 925 ff.), cyclical factors, policy measures by the Chinese government and the trade conflicts are likely to be responsible for the lower growth rates.

29. China is still in the **focus of** the United States government's **trade policy**. ↘ ITEMS 4 F. The additional tariffs levied since September 2019 mean that over two thirds of United States imports from China are now affected by special tariffs (Bown, 2019b). The tariffs and the uncertainty associated with the trade conflict are likely to have a palpable impact on the Chinese economy.

30. At the same time, fiscal and monetary **policy measures** and financial market regulation are determining current growth dynamics. Following a quite restrictive orientation in these areas in recent years, policy in the current year is likely to be more expansionary again. For example, tax cuts and additional infrastructure expenditures are leading to an expansion of the (extended) government deficit (IMF, 2019b). At the same time, lending to companies is set to be expanded. The **development of credit growth** in particular illustrates the Chinese government's conflict of objectives. After their measures to tighten regulation and reduce risk probably contributed to lower credit growth in 2018, ↘ CHART 5 RIGHT the weaker foreign-trade environment is increasing the pressure to support economic growth through short-term measures.

↘ CHART 5
Economic indicators for China

Economic growth and components[1]

Percentage points[2]

Credit to non-financial sector

- Final consumption expenditure
- Gross capital formation
- Net exports of goods and services
- GDP growth on previous year (%)
- Forecast period[3]

- Credit growth
- GDP growth (nominal)
- Credit-to-GDP gap (right hand scale)[5]

1 – Price-adjusted. 2 – Contributions to growth. 3 – Forecast by the German Council of Economic Experts. 4 – Change on the same quarter of the previous year. 5 – Deviation of the credit-to-GDP ratio from its long-term trend.

Sources: BIS, National Bureau of Statistics of China, own calculations

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31. Doubts repeatedly arise as to the accuracy and credibility of the growth figures published by the Chinese statistical office (GCEE Annual Report 2016 page 469). In a detailed **analysis of the Chinese data**, Chen et al. (2019) find that **GDP growth** was probably considerably **overstated by the officially reported figures** for the period from 2010 to 2016. According to the authors' calculations, nominal GDP growth over this period was 1.8 percentage points lower on average than the official data. Not least, it follows from these calculations that the true debt ratio is probably much higher than the officially reported figure. Other statistics on the development of the Chinese economy paint a similar picture. Böing and Müller (2016, 2019), for example, point out that looking at patent quality puts the significance of the sharp increase in Chinese patent applications into better perspective.

32. Apart from the short-term burdens on GDP growth, there are structural reasons for a further **medium-term slowdown** in Chinese growth. Apart from demographic trends, a lower level of productivity growth is likely to reduce growth rates. This is not least due to the structural shift from industrial to the less productive services sector. China's productivity gap in this field is still much wider than in industry (IMF, 2019b).
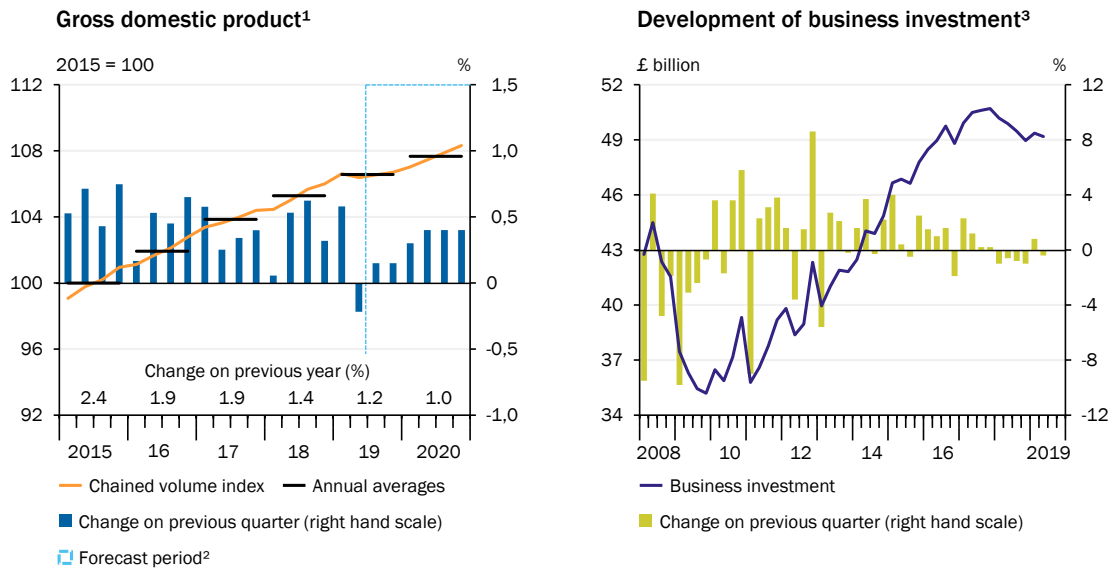
The GCEE expects a further decline in GDP growth rates in the forecast period. At 6.2 %, however, the officially reported **growth** in 2019 is probably in line with the government's target. In 2020 it is then **likely to fall below the 6 % mark** and be just 5.8 %.

5. United Kingdom: Zigzag route to Brexit?

33. **Growth momentum** in the United Kingdom was again only **moderate**. After annual average GDP growth had fallen to 1.4 % in 2018, the annualised growth rate in the first half of 2019 was only 1.3 % compared to the previous half year. The different dynamics in the individual quarters were probably largely determined by the Brexit date originally scheduled for the end of March. ⬎ CHART 6 LEFT For example, the increased inventory build-up in the first quarter contributed positively to GDP growth of 0.6 %. In the second quarter, by contrast, inventory development dampened growth and GDP fell by 0.2 %.

34. The production figures similarly reflect the highly volatile development. For example, the strong increase in production in the first quarter is likely to be partly attributable to **preponement effects** prior to the interim exit date. This in turn probably further reduced growth in the second quarter. Also significant here were not least the early plant holidays in the automotive industry, which contributed to the significant decline in production (ONS, 2019a). Overall, the development of production remains very weak. Apart from the first quarter of 2019, production was below the level reached in the fourth quarter of 2017 in each quarter. In addition to the weak performance of manufacturing, **growth in the services sector**, which is particularly important for the United Kingdom economy, has also **slowed** recently.

↘ CHART 6

Economic indicators for the United Kingdom

Gross domestic product[1]

2015 = 100 %

Change on previous year (%)
2.4 1.9 1.9 1.4 1.2 1.0

2015 16 17 18 19 2020

— Chained volume index   — Annual averages
■ Change on previous quarter (right hand scale)
⌐⌐ Forecast period[2]

Development of business investment[3]

£ billion %

2008 10 12 14 16 2019

— Business investment
■ Change on previous quarter (right hand scale)

1 – Seasonally and calendar adjusted. 2 – Forecast by the German Council of Economic Experts. 3 – Chained volumes, seasonally adjusted.

Sources: ONS, own calculations

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35. The **level of capacity utilisation** on the **labour market** is quite **high**. At 3.8 %, the unemployment rate remains at a very low level and below the equilibrium figure of 4.25 % estimated by the Bank of England (BoE, 2019). Rising wages and **weak productivity growth** are causing unit labour costs to rise sharply. Employment growth was somewhat weaker recently; this may reflect the weaker economic development, while at the same time it is probably difficult for companies to find suitable personnel. Whereas net immigration from non-EU countries has been rising since 2013, net immigration from other EU member states has been declining since 2015 (ONS, 2019b).

36. **Business investment** in the United Kingdom has been very weak in recent years. In 2018, for example, it declined in every quarter. ↘ CHART 6 RIGHT Whereas a slowdown in investment momentum has recently been observed in many economies, ↘ ITEM 9 such a development has persisted already for some time in the United Kingdom. Studies indicate that the **high level of uncertainty** and the **deterioration in growth expectations** after the Brexit vote probably played a major role in this context (Gornicka, 2018; Bloom et al., 2019; Born et al., 2019; Breinlich et al., 2019).

37. Negotiators from the United Kingdom and the EU agreed on a **revised withdrawal agreement** in mid-October this year (European Commission, 2019b). In particular, amendments were made to the backstop regulation for Northern Ireland aimed at preventing a hard border between the Republic of Ireland and Northern Ireland. This is now to be achieved by Northern Ireland complying with key rules of the European Single Market and imposing EU customs duties on goods to be imported into the Single Market. Northern Ireland's parliament can review this agreement every four years after the end of the transitional period and terminate it if it wishes.

The Council of the European Union has approved the new agreement. However, Prime Minister Johnson has **not yet achieved a majority in the British Parliament** for leaving the EU on these terms. To allow sufficient time for the legislative process, the United Kingdom has asked the other EU member states to extend the deadline again. The EU has agreed to an extension until 31 January 2020 at the latest.

38. Given the lack of agreement in the British Parliament, **a disorderly Brexit** still **cannot be ruled out**. Such a move would likely have considerable economic consequences, particularly for the United Kingdom. Although the exact effects are difficult to quantify, model analyses of various scenarios can nevertheless provide information on possible effects (GCEE Annual Report 2018 items 38 ff.). In particular, a severe **restriction of economic relations** between the United Kingdom and the rest of the EU, as would be likely in the event of a disorderly Brexit, **could have** a **significant negative impact on economic development**. According to surveys (BoE, 2019), the majority of British companies expect falls in production, employment and investment in the event of a hard Brexit without an agreement.

39. While, in the event of the agreement, a **transition period** will maintain the status quo for the time being, the scale of the impact of a hard Brexit in particular is likely to depend greatly on **how well** all the economic actors have **prepared**. In view of the progress that has since been made in this respect, the Bank of England now points to a somewhat smaller impact on GDP in an update of its scenario analyses (BoE, 2018; Carney, 2019). However, at -5.5 % compared to the baseline scenario, this impact is nevertheless considerable, although this figure should not be understood as a forecast, but as an illustration of possible developments (Carney, 2019).

   Model analyses by international organisations (IMF, 2019c; OECD, 2019b) also find **marked declines in GDP** in the United Kingdom as a result of a disorderly Brexit. The euro area would also be negatively affected. At the same time, there are risks of major distortions, not least on the financial markets, should unforeseen problems arise in the wake of a disorderly Brexit (GCEE Economic Update 2019 box 1).

40. For its projection, the GCEE follows the technical assumption that a solution will be found that largely maintains the status quo of trade regulations during the **forecast period** and prevents distortions. At the same time, the uncertainty about the shape of future trade relations is likely to persist. Under this scenario, only relatively low growth is expected for the second half of 2019. For the current year, the GCEE expects GDP to grow at an average annual rate of 1.2 %. In our baseline scenario, in which there will be neither major distortions nor a final averting of Brexit, growth is likely to be somewhat lower next year at 1.0 %.
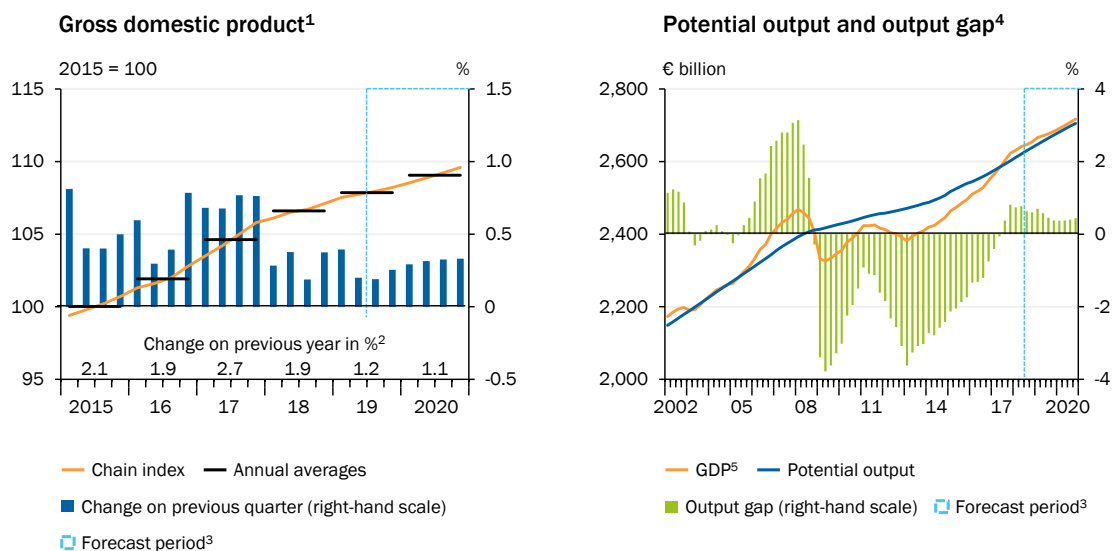
II. EURO AREA: ECONOMIC SLOWDOWN, EASING OF MONETARY POLICY

41. The **subdued economic momentum** that could already be observed in 2018 continued in the first half of 2019 in the euro area. This has in particular been due to the weaker development of investment and exports. In light of the positive development on the labour market to date, however, private consumption should continue to provide positive stimuli for growth. Furthermore, on 12 September 2019 the Governing Council of the ECB again **noticeably eased** its **monetary policy**, which had already been very expansionary for years. The central bank's balance sheet is to be expanded through bond purchases, and negative interest rates maintained, until the inflation forecast remains robustly in line with the medium-term target of below, but close to, 2 %.

The real GDP **growth rate** in the euro area in 2019 is at 1.2 % likely to be well below the 1.9 % achieved in the previous year. ⬊ CHART 7 This brings it **closer to** the European Commission's estimate of **potential growth** of around 1.3 %, approaching it from above, and it is expected to be slightly below this figure over the forecast period.

⬊ CHART 7

Expected development in the euro area

Gross domestic product[1]

2015 = 100

Change on previous year in %[2]
2.1 1.9 2.7 1.9 1.2 1.1

— Chain index — Annual averages
■ Change on previous quarter (right-hand scale)
⬚ Forecast period[3]

Potential output and output gap[4]

€ billion

— GDP[5] — Potential output
■ Output gap (right-hand scale) ⬚ Forecast period[3]

1 – Reference year 2015, seasonally and calendar adjusted. 2 – Calculation based on quarterly seasonally and calendar adjusted values. 3 – Forecast by the GCEE. 4 – Own calculations base on the estimation of potential output by the European Commission for the euro area member states and the estimation of potential output by the GCEE for Germany. 5 – Real seasonally and calendar adjusted values; reference year 2010.

Sources: European Commission, Eurostat, own calculations

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1. Economic situation

42.   Real GDP in the euro area rose by 0.4 % and 0.2 % respectively in the first two quarters of this year. Temporary factors – such as catch-up effects after the registration problems in the automotive industry last year and preponement effects before the original Brexit date at the end of March – may have contributed to the temporary acceleration of growth in the first quarter. ⭨ ITEMS 73, 75 Overall, however, the economic momentum remains subdued. On the output side, this is in particular due to the **weak development in the manufacturing sector**. ⭨ ITEMS 7 FF. There, real gross value added continued to decline. Accordingly, the decline in growth since the upturn in 2016 and 2017 has tended to be particularly pronounced in member states where manufacturing accounts for a comparatively large share of economic output (European Commission, 2019a).

The large member states show a **heterogeneous development**. Germany and Italy recorded the lowest quarterly GDP growth of all member states in the second quarter. At the same time, GDP growth compared to the same quarter of the previous year fell markedly. In Spain, France and the Netherlands, in contrast, growth was largely stable.

43.   Of the GDP expenditure components, private and public consumption in particular made positive contributions to growth. As regards private households, the **good situation on the labour market** probably supported this development. The ongoing growth in employment and rising wages and salaries are leading to an increase in employee compensation. ⭨ CHART 8 RIGHT At the same time, consumer price inflation is only moderate, not least due to lower energy prices. ⭨ ITEM 53 Taken together, this leads to a renewed strong increase in the real disposable income of private households.

44.   The aggregate **unemployment rate** in the euro area has continued to **approach pre-crisis levels**. ⭨ CHART 8 LEFT Although the labour shortage reported in business surveys has recently declined somewhat, it is still at a very high level. On the one hand, this indicates a high degree of utilisation on the labour market, with a relatively high degree of heterogeneity. On the other hand, an outward shift of the Beveridge curve could indicate structural problems and reduced labour-market efficiency (Consolo and Da Silva, 2019; Deutsche Bundesbank, 2019a). The decline in the unemployment rate has slowed down recently, and the employment expectations reported by companies in European Commission surveys have also fallen slightly (European Commission, 2019c).

45.   Growth in **exports from the euro area** was **comparatively weak** in the first half of 2019, with an annualised growth rate of 2.9 %. Following exceptionally strong growth in 2017, the slowdown can in part be seen as a normalisation (GCEE Annual Report 2018 item 249). At that time, exports reached growth rates of over 6 %. In addition, the economic crisis in Turkey also played a certain role. Exports of goods from the euro area to Turkey fell markedly in the course of 2018, and in the second quarter of 2019 were still
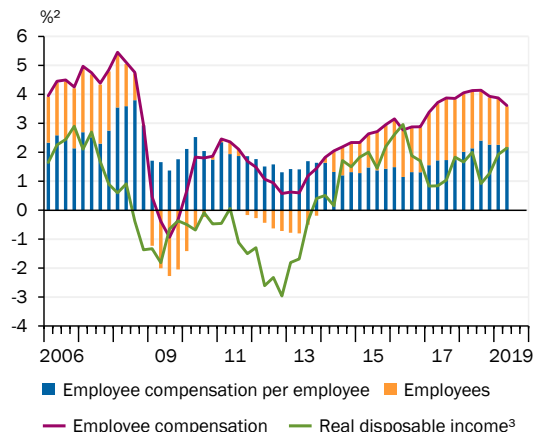
⊿ CHART 8

Development of employment and wages in the euro area

Beveridge curve for the euro area
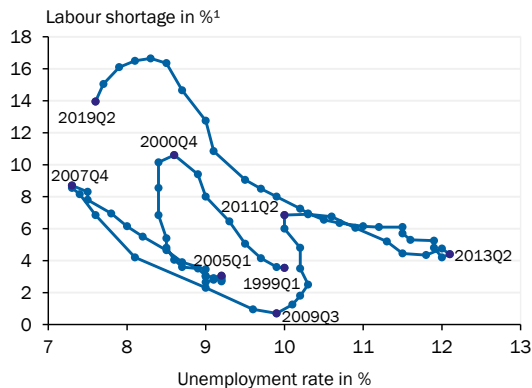
Employee compensation and real disposable income

1 – In manufacturing. According to European Commission's business survey. Seasonally adjusted quarterly figures, based on Deutsche Bundesbank (2019a): Average of the first month of the respective quarter and of the first month of the following quarter.   2 – Change on previous year.
3 – Private households including non-profit institutions serving households.

Sources: Deutsche Bundesbank, European Commission, Eurostat, own calculations

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approximately 14 % below the level reached in the same quarter of the previous year.

After the effective **exchange rate of the euro** had risen significantly up to September 2018 (GCEE Annual Report 2018 items 247 ff.), there was a noticeable depreciation in the first few months of 2019, reaching a temporary low in April. At the same time, the euro continued to depreciate against the US dollar, a trend that has persisted since the beginning of 2018. In September 2019, the exchange rate was 5.6 % down on the same month of the previous year. This development probably reflects not least the different economic and monetary policy developments in the two economies.

46. Although **gross fixed capital formation** continued to make positive contributions to growth in the first half of the year, its rate of growth slowed noticeably. In the first half of the year, aggregate growth in the euro area reached only an annualised rate of 2.4 %. As with exports, the high growth rates of the 2016 and 2017 upturn will no longer be reached. In addition to the worsened economic outlook, the ongoing political **uncertainty**, mainly due to the trade conflicts, is likely to burden the development of investment. ⊿ ITEM 2 The decline in economic confidence among businesses will probably be reflected in weaker investment dynamics. For example, a model analysis by the ECB (2019c) shows that investment growth in 2019 is likely to be noticeably curbed by negative confidence shocks, unlike in 2017 and 2018 when confidence shocks had made a noticeable positive contribution to investment growth.

47. By contrast, **financing conditions** remain **favourable** in view of the very low interest rates. However, surveys recently conducted by the ECB point to a somewhat more restrictive lending policy by banks in view of a worsened economic outlook (ECB, 2019d). The large member states Germany and France
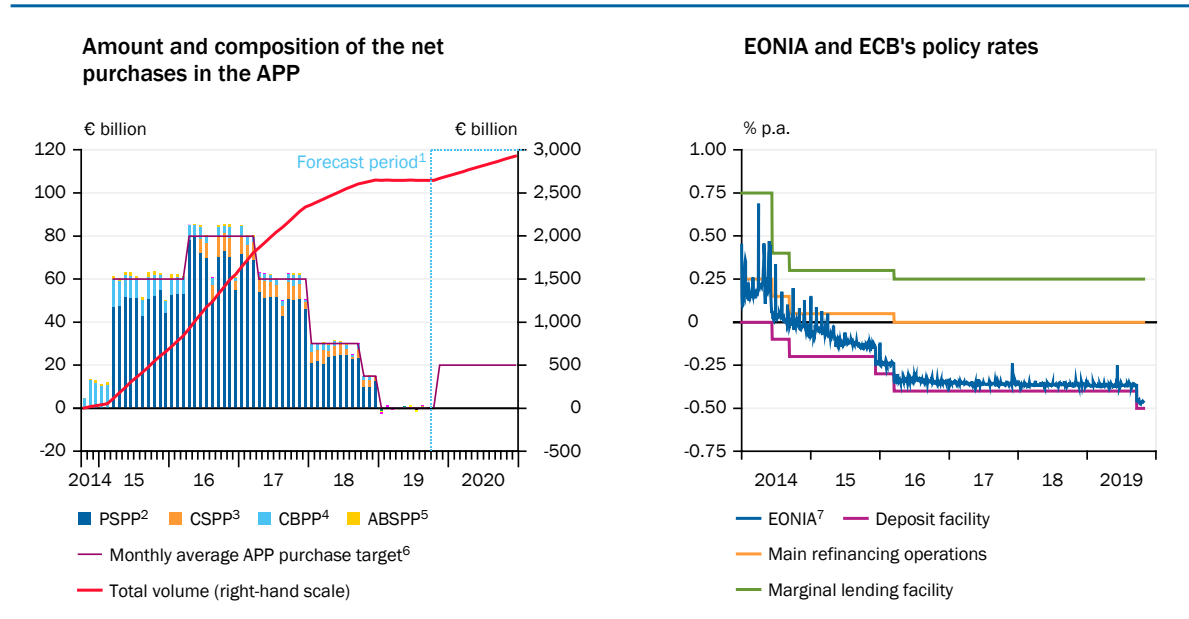
are making positive contributions to **credit growth** in the euro area. In France especially, the indebtedness of the private non-financial sector has increased markedly in recent years. According to data from the Bank for International Settlements (BIS), it amounted to 202.2 % of GDP in the first quarter of 2019. In Germany, the debt ratio also rose, but is still much lower at 111.6 %. In Spain and above all Italy, on the other hand, the volume of lending fell further. Looking at the euro area as a whole, aggregate credit growth remains below that of nominal GDP, so that the debt ratio is falling slightly.

2. Considerable easing of monetary policy

48. At the end of 2018, the ECB had **initially suspended** the active **expansion of the central bank's balance sheet**. The **net purchases** under the Asset Purchase Programme (**APP**) by the Eurosystem had been **terminated**, as announced. ↘ CHART 9 LEFT At this time, the total volume of assets acquired amounted to more than €2,500 billion. This was one of the main reasons why the Eurosystem's balance sheet total rose to about 41 % of euro area GDP. The Public Sector Purchase Programme (PSPP), under which government bonds of the member states were acquired, is the largest component, accounting for around 82 % of the total volume. Since then, the ECB has kept the portfolio volume constant by continuing to **reinvest the principal payments from maturing securities** bought under the APP. It has announced that the reinvestments will continue far beyond the date of an initial increase in interest rates.

49. The **Governing Council of the ECB** adopted new monetary policy measures in the course of 2019. In the first half of the year, it already extended the expected period until the next interest rate hike as part of **forward guidance**. This was a reaction to the emerging slowdown in economic growth and weaker inflation expectations thus caused. The ECB Governing Council gave more details in March, stating that it expected central bank interest rates to remain at the same level at least until after the end of 2019. In June, this period was extended to summer 2020, and in July the possibility of an interest rate cut was included in the forward guidance.

50. At its **September meeting**, the ECB Governing Council **lowered** the **interest rate on deposits** by 10 basis points **to -0.5 %** ↘ CHART 9 RIGHT and switched from a calendar-based forward guidance to a **state-contingent forward guidance**. Key policy rates are to remain at the current or a lower level until the **inflation forecast over the projection horizon** moves much closer to a level that is **sufficiently close to, but below, 2 %**. Moreover, this convergence should be reflected in the underlying inflation dynamics. At the same time, the ECB Governing Council decided to purchase €20 billion worth of securities each month in addition to the reinvestments, until this situation is reached. **Net purchases will** therefore **resume** and the central bank balance sheet be increased further as from 1 November 2019. This means that the degree of quantitative easing is increasing again **in an open-ended process**.

ECB's Asset Purchase Programmes (APP) and policy rates and EONIA

Amount and composition of the net
purchases in the APP

EONIA and ECB's policy rates

PSPP[2] CSPP[3] CBPP[4] ABSPP[5]
— Monthly average APP purchase target[6]
— Total volume (right-hand scale)

— EONIA[7] — Deposit facility
— Main refinancing operations
— Marginal lending facility

1 – Forecast of the total volume, based on the monthly average purchase target of €20 billion . 2 – Public Sector Purchase Programme. 3 – Corpo-rate Sector Purchase Programme. 4 – Covered Bond Purchase Programme. 5 – Asset-Backed Securities Purchase Programme. 6 – Monthly average purchase target has been first determined by the ECB's Governing Council at the start of PSPP in March 2015. 7 – Euro Overnight Index Average.

Sources: ECB, own calculations

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51. As early as March 2019, the ECB announced a third programme of **targeted longer-term refinancing operations** (TLTRO-III) for the banking sector. This programme was adopted in July 2019 (ECB, 2019e). ↘ BOX 2 The aim is to maintain banks' favourable lending conditions and the smooth transmission of monetary policy. The modalities were adjusted in September. A decision was also taken to introduce a two-tier system for interest rates on reserve holdings in order to free some of the banks' excess liquidity from the negative deposit rate.

Monetary policy measures and the banking sector

In the course of 2019, the ECB Governing Council adopted new, far-reaching measures that particularly affect the banking sector. In addition to **lowering the deposit interest rate** to -0.5 %, this includes the introduction of a two-tier system (**tiering**) for interest rates on reserve holdings at the central bank. As a result, a part of the banks' excess liquidity is excluded from the negative interest rates. The package of measures also includes the third programme of targeted longer-term refinancing operations (**TLTRO-III programme**). The aim is to maintain favourable bank lending conditions and to support the accommodative monetary policy stance (Draghi, 2019a).

In the **tiering of interest rates on reserve holdings**, the part excluded from the negative deposit rate is calculated in proportion to the respective bank's reserve requirement (ECB, 2019f). The ECB Governing Council sets the multiplier uniformly for all credit institutions and takes into account possible repercussions on short-term money-market interest rates. The part of the excess liquidity exempted from the negative interest rate is subject to an interest rate of currently 0 %. The remaining part will continue to bear interest at the deposit rate. Tiering begins on 30 October 2019. It is intended to help mitigate the negative impact of interest rate policy on bank profitability and to achieve an effective monetary policy transmission (Draghi, 2019a; Schumacher and van Robays, 2019). The possible adjustments to the multiplier, which was initially set at six, or to the interest rate

for the exempted part, will provide further instruments for future decisions by the ECB Governing Council.

The TLTRO-III programme comprises seven refinancing operations for which a maturity of two years was initially set (ECB, 2019e). The operations are conducted on a quarterly basis, from September 2019 to March 2021. The ECB Governing Council amended the **modalities of the TLTRO-III programme** at the September meeting (ECB, 2019g). The maturity was extended from two to three years. Similar to the TLTRO-II programme, the interest rate is linked to lending by the participating credit institutions. To obtain more favourable conditions, net lending to businesses and households must exceed a certain threshold (real-estate loans are excluded). Initially, the interest rate was to be tied during the maturity to the average interest rate on the main refinancing operations. This was changed in September 2019. Instead of a premium of 10 basis points on the average main refinancing rate, the average **interest rate on the deposit facility** is now the **lower limit**. This means that a negative interest rate on long-term refinancing transactions is again possible. The possibility of voluntary early repayments after two years was also introduced in September 2019 (ECB, 2019g).
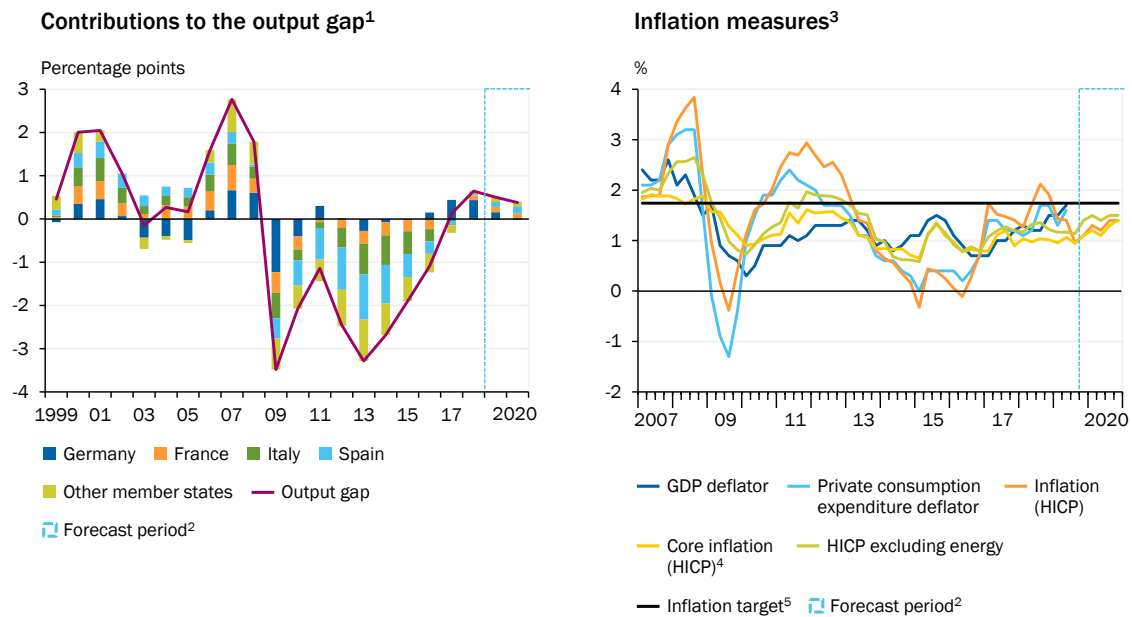
3. Assessment of the monetary policy measures

52. With its monetary policy decisions, the ECB carried out a comprehensive, additional and sustained **easing of monetary policy** in the fourth quarter of this year. These measures need to be assessed with respect to whether they are suitable given the macroeconomic developments and whether the possible side effects have been sufficiently taken into account. The main macroeconomic indicators are the output gap, ⊿ CHART 10 LEFT i.e. the gap between GDP and potential output, and the deviation of inflation from its target. ⊿ CHART 10 RIGHT The ECB does not publish an estimate of potential output. According to the European Commission's estimate, economic output in the euro area is approaching potential levels from above as a result of weak growth. This **decline** will result in a lower boost to inflation, but no downward pressure, given **the continued positive output gap**.

53. The ECB's mandate lays down **price stability as its objective** without specifying a specific measure for it. The ECB has chosen the Harmonised Index of Consumer Prices (HICP) for its monetary policy strategy and stated that an increase of below, but close to, 2 % should still be interpreted as price stability. However, given the ECB's mandate, the GCEE considers it appropriate to incorporate other measures into the interpretation of price stability.

    Due to the fall in energy prices, **inflation** as measured by the HICP **fell** from slightly above 2 % in August 2018 to 0.8 % in September 2019. Core inflation, on the other hand, is stable. The HICP inflation rate excluding energy prices was almost unchanged at 1.1 % in September 2019. If food, alcohol and tobacco prices are also subtracted out, core inflation was 1.0 % in September after 0.9 % in August. Furthermore, a **statistical special effect** on the Index for Package Holidays noticeably **dampened the rise in the HICP** in the summer of 2019. ⊿ ITEM 83

↘ CHART 10
Output gap and inflation measures in the euro area

Contributions to the output gap[1]

Percentage points

Inflation measures[3]

%

Germany ■ France ■ Italy ■ Spain
■ Other member states — Output gap
⌐ Forecast period[2]

— GDP deflator — Private consumption — Inflation
expenditure deflator (HICP)

— Core inflation — HICP excluding energy
(HICP)[4]

— Inflation target[5] ⌐ Forecast period[2]

1 – Real GDP less potential output in relation to potential output. 2 – Forecast by the GCEE. 3 – Change in the relevant index on previous year.
4 – Excluding energy, food, alcohol and tobacco. 5 – Following the estimation of Bletzinger and Wieland (2017) the estimated value of the inflation target is 1.74 %.

Sources: European Commission, Eurostat, own calculations

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Measured against the deflator of consumer spending, which the Fed has set as its target, second-quarter inflation in the euro area was 1.4 %, an increase of 0.1 percentage points on the previous quarter. The annual rate of change in the **GDP deflator** – the broadest price measure – was 1.6 % in the second quarter of 2019. It has risen by 0.4 percentage points since the third quarter of 2018.

54. The **ECB Governing Council's target** for the HICP is **not precisely quantified**. The estimates by Bletzinger and Wieland (2017) based on the interest rate policy in the period from 2001 to 2013 are 1.74 %. At the press conference held on 25 July, ECB President Draghi (2019b) said that the target of below, but close to, 2 % was "in a sense" 1.9 %. However, there has been no decision by the ECB Governing Council on a specific numerical figure. Overall, **consumer price inflation** is currently slightly below the target. The gap amounts to between approximately 60 and 110 basis points, depending on the measure and the target. This **suggests** an **accommodative**, **but not extremely loose monetary policy**.

55. To justify the additional easing, at the September press conference ECB President Draghi (2019a) referred in particular to **weaker inflation forecasts** for the coming years. The forecast for the HICP based on the Survey of Professional Forecasters (SPF), a survey regularly conducted by the ECB, was 1.3 % for 2019, 1.4 % for 2020 and 1.5 % for 2021 – 0.1 percentage points lower in each case than in the previous quarter's survey. The **longer-term expectations for** 2024 remained basically unchanged at 1.7 %. The ECB staff's September 2019 projection for the HICP was 1.2 % for 2019, 1.0 % for 2020 and 1.5 % for 2021. For 2020, the resultant deviation from the inflation target is thus
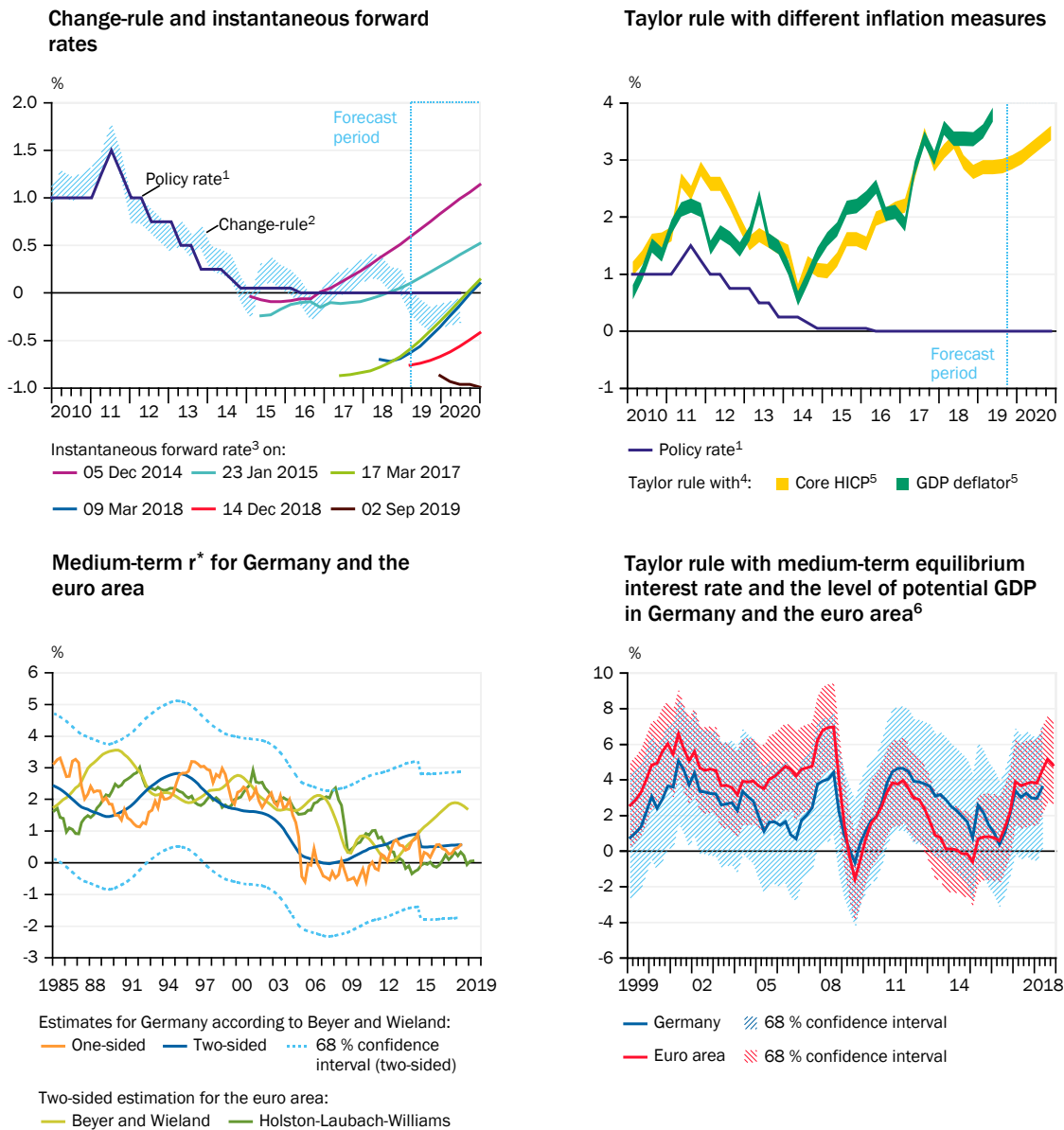
between approximately 30 and 90 basis points, depending on the projection and the target.

56. **Interest rate rules** serve to translate the macroeconomic developments into a reaction by monetary policy instruments. In the United States, the **Fed** regularly publishes the recommendations of several interest rate rules. Its policy and these recommendations have converged in recent years. ↘ ITEM 26 The **GCEE has used** such **rules** for years, primarily to **assess** the ECB's **monetary policy**. It concentrates here on a variant of the Taylor rule (Taylor, 1993) ↘ CHART 11 TOP RIGHT and a variant of the interest-rate change rule by Orphanides and Wieland (2013). ↘ CHART 11 TOP LEFT Variations of both rules are considered by the Fed (Fed, 2019a).

57. The Taylor rule sets the (real) interest rate level depending on the deviation of the inflation rate from the target and the output gap. If inflation is below the target value, it implies a deduction from the nominal interest rate, resulting in a real interest rate below the real equilibrium interest rate. A higher interest rate is posted in the case of a positive output gap, a lower interest rate in the case of a negative gap. The **Taylor rule** currently **recommends** an **accommodative monetary policy of** around 1.2 percentage points below the nominal equilibrium interest rate when the core inflation rate is used. If the long-term real equilibrium interest rate is based on Taylor's (1993) original estimate of 2 %, the rule recommends an interest rate level of around 2.8 %. ↘ CHART 11 TOP RIGHT Even with a much lower real equilibrium interest rate of 0 %, the Taylor rate remains positive at around 0.8 %. The **ECB's policy** is thus **considerably looser** than indicated by the Taylor rule.

58. Current **estimates of time-varying medium-term equilibrium interest rates** are currently close to 0 % in some cases (Holston et al., 2017; Beyer and Wieland, 2019). ↘ CHART 11 BOTTOM LEFT However, the estimated values are subject to a very high degree of uncertainty, so that the decline cannot be reliably proven. Moreover, lower estimates of the equilibrium interest rate are accompanied by lower estimates of potential GDP. This currently leads to a positive output gap. The equilibrium interest rate and the potential level thus have opposite effects on the Taylor interest rate. As a result, the ECB's policy is still much looser than indicated by the rule. ↘ CHART 11 BOTTOM RIGHT

59. The **interest-rate change rule** ignores the (equilibrium) interest rate level and prescribes cuts in interest rates if the SPF inflation forecast is below target or the growth rate is below potential growth. ↘ CHART 11 TOP LEFT It has been **describing the ECB's interest rate policy since 1998 quite well**. Only recently it was used for this purpose by Hartmann and Smets (2018). In some macroeconomic models, such interest-rate change rules provide good stabilisation results (Cochrane et al., 2019). In **2017 and 2018** it would have suggested **a tightening of monetary policy**. However, the ECB stepped up quantitative easing during this period. This is reflected, for example, in the implicit forward rates, which the ECB calculates from the yield curve, which were shifted further into the negative range. **Currently**, the rule recommends a **slight easing**, as the SPF inflation forecast is below the target rate. A target

range of 1.5 % to 2 % is used. **Cumulating** the deviations in the interest rate rule since 2017 **still** results in **a slight tightening** overall. According to this criterion, the ECB's monetary policy would have been too expansionary overall. On the contrary, the ECB is implementing a stronger easing of monetary policy, particularly through its continued expansion of the central bank balance sheet.

↘ CHART 11

Comparison of monetary policy rules

Change-rule and instantaneous forward rates

Instantaneous forward rate[3] on:
— 05 Dec 2014   — 23 Jan 2015   — 17 Mar 2017
— 09 Mar 2018   — 14 Dec 2018   — 02 Sep 2019

Taylor rule with different inflation measures

— Policy rate[1]

Taylor rule with[4]:   ▩ Core HICP[5]   ▩ GDP deflator[5]

Medium-term r* for Germany and the euro area

Estimates for Germany according to Beyer and Wieland:
— One-sided   — Two-sided   ⋯ 68 % confidence interval (two-sided)

Two-sided estimation for the euro area:
— Beyer and Wieland   — Holston-Laubach-Williams

Taylor rule with medium-term equilibrium interest rate and the level of potential GDP in Germany and the euro area[6]

— Germany   ▨ 68 % confidence interval
— Euro area   ▨ 68 % confidence interval

1 – Interest rate on main refinancing operations. 2 – Equation: $i_t = i_{t-1} + 0.5(\pi^P - \pi^*) + 0.5(\Delta q^P - \Delta q^*)$. i_t denotes the estimated ECB's policy rate, it depends on the policy rate of the previous period, i_{t-1}, on the deviation of the inflation forecast, π^P, from the central bank's inflation target, π^*, and on the deviation of the growth forecast, Δq^P, from the estimated growth potential, Δq^*. The estimates of growth potential are based on real-time data from the European Commission. The forecasts are based on data of the Survey of Professional Forecasters: for inflation it is the forecast for three quarters ahead, for growth it is the forecast for two quarters ahead. 3 – Instantaneous Forward Rates based on euro area AAA-rated government bonds with maturity of 3 months and longer. 4 – Equation: $i = 2 + \pi + 0{,}5(\pi - \pi^*) + 0{,}5(y)$. i denotes the estimated money market interest rate; it depends on the long-term real equilibrium interest rate (estimated to be 2 %), on the current inflation rate, π, in deviation from the central bank's target, π^*, and on the output gap, y. 5 – Based on ECB's real-time database and AMECO: for inflation, the value of the current quarter and for the output gap, the value of the previous quarter is used. 6 – Depends on the medium-term equilibrium rate, r* (two-sided estimation), based on Laubach-Williams/Garnier-Wilhelmsen method and the respective output gap, y.

Sources: Beyer and Wieland (2019), European Commission, Eurostat, ECB, Holston et al. (2017), Federal Statistical Office, own calculations

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60. Accordingly, the **ECB** has recently **pursued** a **rather asymmetrical policy**. It did not react to the higher economic growth in the last few years, the closing output gap or the rise in inflation by tightening monetary policy; rather, it further loosened its policy. Now it is responding to the weaker growth and slower-than-expected rise in inflation with a marked additional easing.

The **GCEE**, however, was in favour of a **symmetric policy** (GCEE Annual Report 2018 items 360 ff.; GCEE Annual Report 2017 items 381 ff.). According to this view, the ECB could have terminated bond purchases earlier without endangering the upswing. This would have given it room for manoeuvre for a later loosening. Since it instead first increased the degree of expansion and then later maintained it, it could have first waited in September 2019. At least it would have been better to **avoid** a **return to bond purchases**, as this policy entails considerable side effects and risks (GCEE Annual Report 2018 items 347 ff.). The bond purchases in particular were the subject of criticism by members of the ECB's Governing Council during and after the September meeting (ECB, 2019h; Weidmann, 2019). Not least, the resumption of net purchases in the PSPP increases the risk that the ECB may come up against the upper limits it has set for individual bonds or issuers (GCEE Annual Report 2017 item 341).

61. The renewed lowering of the deposit rate furthermore stimulates the discussion on whether there is a '**reversal rate**', i.e. a value for the central bank interest rates below which further interest rate cuts have a contractionary effect on the economy as a whole. The existence of cash as an alternative for savers plays a role in this context. Liu (2017) and Brunnermeier and Koby (2019) argue that a cut in the key policy rate can have a reverse effect on bank lending. Banks are subject to regulatory and economic capital requirements. Their profitability therefore impacts on lending. A cut in interest rates results both in capital gains, which increase the value of the bank and its lending, and in a decline in net interest income, which tends to reduce bank profitability and lending. If the latter effect dominates, the effect of an interest rate cut would reverse.

According to Brunnermeier and Koby (2019), this is particularly true when a period of low or negative interest rates lasts a very long time. Rogoff (2017) and Lilley and Rogoff (2019), on the other hand, propose regulatory and institutional changes, so that negative nominal interest rates become possible without restriction. This is, they say, the most elegant and stable solution to ensure the effectiveness of monetary policy. For example, a dual currency system, i.e. an exchange rate between cash and electronic money, would make sense in order to make it easier for banks to **pass on negative nominal interest rates** to customers. Strongly negative nominal interest rates would help to greatly shorten the duration of recession and deflation phases and would thus have less harmful side effects than a long-lasting low interest rate policy (Agarwal and Kimball, 2019). However, the broad availability of cash has a number of advantages that are not taken into account in this analysis (Wieland, 2016).

62. The long-lasting low interest rate environment is accompanied by an **increase in asset prices**. Estimates suggest that **residential property prices** may be

Estimates of the over/undervaluation of residential property prices and risk premiums on corporate bonds in the euro area

Estimates of the over/undervaluation of residential property prices (2018Q4)[1]

Risk premiums on corporate bonds[2]
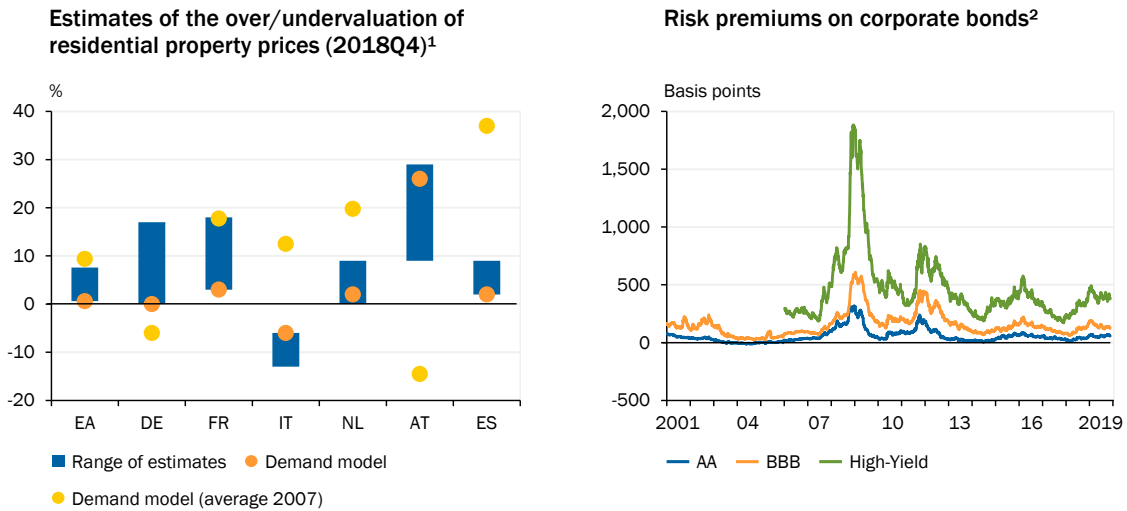
1 – EA-euro area, DE-Germany, FR-France, IT-Italy, NL-Netherlands, AT-Austria, ES-Spain. The blue bars indicate the range of estimates for each country using four valuation methods. The valuation methods include the price-to-rent ratio, the price-to-income ratio, an asset-pricing approach and a Bayesian-estimated inverted demand model. For details on the asset-pricing approach, see the ECB Financial Stability Review, June 2011, Box 3. For details on the Bayesian-estimated inverted demand model, see the ECB Financial Stability Review, November 2015, Box 3. 2 – Corporate bond spreads with different ratings on Germany's 10-year government bonds.

Sources: ECB, Refinitiv Datastream, own calculations

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overvalued in many euro area member states. ↘ CHART 12 LEFT Due to significant systemic risks in the medium term, in September 2019 the European Systemic Risk Board (ESRB) issued recommendations to six, and warnings to five, member states, including Germany, regarding risks in the residential real-estate sector. ↘ ITEMS 408 F. The high valuations of asset prices involve the **risk of abrupt corrections** (ECB, 2017, 2018b, 2019i). Such a correction would worsen financing terms for companies and households and reduce aggregate demand.

63. In 2017, the risk premiums on **corporate bonds** were at the level that prevailed before the financial crisis. ↘ CHART 12 RIGHT They have risen again since then. It transpires that the risk premiums of less creditworthy companies (high yield) reacted more strongly to changes in the risk appetite of financial market participants caused by the trade conflict (IMF, 2019d).

64. Furthermore, the low interest rate policy and the bond purchases have repercussions on the **indebtedness of the private and public sectors**. They could create false incentives, especially for highly indebted member states. They run the risk of becoming more and more dependent on the continuation of low interest rates instead of consolidating their public debt. The **prolonged period of low interest rates** creates **considerable challenges for banks and insurance companies** (GCEE Annual Report 2015 items 381 ff.). In addition, the weaker economy could lead to an increasing number of defaults among households and companies. Individual banks that have previously taken on higher risks may not be sufficiently prepared for this. ↘ ITEMS 403 FF. Furthermore, an unexpected, abrupt rise in interest rates could present banks with challenges.

In the short term, such a scenario is likely to have a negative impact on profitability, although the latter will probably increase in the medium term (Deutsche Bundesbank, 2019b).

4. Outlook

65. Aggregate GDP growth in the euro area is likely to remain subdued in the second half of 2019. This is due not least to the expected weak development in Germany. ↘ ITEMS 84 FF. The monetary policy stance will probably remain very expansionary during the forecast period. At the same time, the fiscal policy of the member states is likely to generate slightly expansionary stimuli in the forecast period. Against this background, **GDP growth** will probably return to **potential growth** of around 1,3 % in the further course of the forecast period. ↘ CHART 13 LEFT The GCEE expects average annual GDP growth rates of 1.2 % in 2019 and 1.1 % in 2020. ↘ TABLE 2

66. The **development of inflation** will be largely determined by the development of energy prices. After a 1.8 % increase in the HICP in 2018, the GCEE expects a rise of only 1.2 % in 2019 and of 1.3 % in 2020. ↘ CHART 13 RIGHT Core inflation is likely to gradually increase against the background of persistently high labour

↘ TABLE 2

Gross domestic product, consumer prices and unemployment rate in the euro area

Country/ country group	Weight in %[1]	Gross domestic product (calender-adjusted)[2]			Consumer prices (HICP)[3]			Unemployment rate[4]		
		Change on previous year in %						%		
		2018	2019[5]	2020[5]	2018	2019[5]	2020[5]	2018	2019[5]	2020[5]
Euro area[6]	100	1.9	1.2	1.1	1.8	1.2	1.3	8.2	7.5	7.2
including:										
Germany	29.0	1.5	0.5	0.5	1.9	1.3	1.3	3.4	3.2	3.2
France	20.4	1.7	1.3	1.2	2.1	1.3	1.5	9.1	8.5	8.3
Italy	15.2	0.7	0.1	0.5	1.2	0.7	0.9	10.6	9.8	9.3
Spain	10.5	2.4	2.1	1.9	1.7	0.8	1.1	15.3	13.9	13.0
Netherlands	6.7	2.5	1.7	1.6	1.6	2.7	1.9	3.8	3.3	3.3
Belgium	3.9	1.4	1.2	1.0	2.3	1.3	1.6	6.0	5.5	5.5
Austria	3.3	2.3	1.5	1.2	2.1	1.5	1.7	4.9	4.6	4.6
Ireland	2.8	8.3	5.8	3.6	0.7	0.8	0.4	5.8	5.2	5.3
Finland	2.0	1.7	0.9	0.8	1.2	1.2	1.2	7.4	6.7	6.7
Portugal	1.8	2.4	2.0	1.7	1.2	0.3	0.8	7.0	6.4	5.7
Greece	1.6	1.9	1.6	2.1	0.8	0.5	1.0	19.3	17.2	15.6
memorandum:										
Euro area without Germany	71.0	2.1	1.5	1.4	1.7	1.2	1.3	9.9	9.1	8.6

1 – GDP in the year 2018 as a percentage of the GDP of the euro area. 2 – Price-adjusted. Values are based on seasonal and calendar-adjusted quarterly figures. 3 – Harmonised index of consumer prices. 4 – Standardised according to the ILO concept. For the total euro area and euro area without Germany weighted by the labour force of 2018. 5 – Forecast by the German Council of Economic Experts. 6 – Weighted average of the 19 euro area member states.

Sources: Eurostat, own calculations

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Forecast intervals for gross domestic product and consumer prices in the euro area¹

Gross domestic product²

Consumer prices⁴
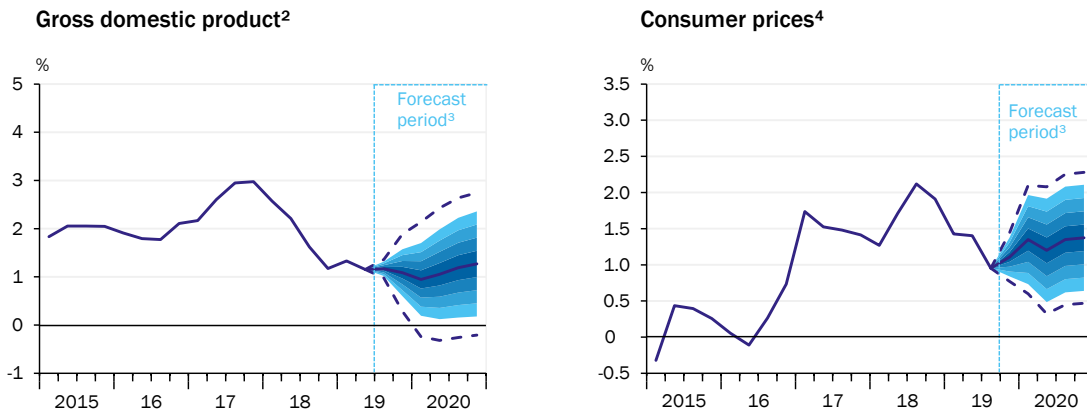
1 – Change on previous year's quarter; Confidence bands are calculated on the basis of the average absolute forecast error for the period from 1999 to 2018. The width of the symmetric confidence band is twice the average absolute forecast error; dashed line: 68 % confidence interval.
2 – Price-, seasonally and calendar-adjusted. 3 – Forecast by the German Council of Economic Experts. 4 – Harmonised index of consumer prices.

Sources: Federal Statistical Office, own calculations

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market utilisation and rising wages. In the euro area it should increase from 1.0 % in 2019 to 1.2 % in 2020. Despite the weaker economic development, the **unemployment rate** is likely to decline further. This is partly due to the fact that those member states whose unemployment levels are still high tend to be less affected by the current economic slowdown.

III. GERMAN ECONOMY: IN A DOWNTURN

67. The German economy is currently experiencing a downturn, which has hit industry particularly hard. **Production** in the sector has been in **decline** for around one and a half years now. There is little hope of a speedy recovery given the difficult situation regarding incoming orders and a bleak outlook for business. Both the continued high international risks and the uncertainty regarding scope and duration of the cyclical downturn will likely result in **increased caution on the part of businesses as regards investment and recruitment**.

68. However, the **domestic economy** has shown itself to be **robust to date**. Persistently strong wage increases and favourable financing conditions are boosting demand, with gross fixed capital formation in construction along with private consumption likely to continue stimulating growth. The same applies to government consumption. The longer the weakness in industry persists, the more likely it is to spread to the overall economy. There are already initial signs of weakening. Unemployment seems to have reached a plateau, and the number of registered job vacancies is shrinking. Moreover, the expectations of companies in the service sector have fallen.

↘ TABLE 3

Key economic indicators for Germany

	Unit	2017	2018	2019[1]	2020[1]
Gross domestic product[2]	%	**2.5**	**1.5**	**0.5**	**0.9**
Final consumption expenditure	%	1.6	1.3	1.6	1.4
Private consumption[3]	%	1.3	1.3	1.4	1.2
Government consumption	%	2.4	1.4	2.1	2.1
Gross fixed capital formation	%	2.4	3.5	2.7	1.7
Investment in machinery & equipment[4]	%	4.0	4.4	1.6	0.8
Construction investment	%	0.7	2.5	3.6	2.2
Other products	%	4.2	4.3	2.3	2.1
Domestic demand	%	2.4	2.1	1.2	1.5
Net exports (growth contribution in percentage points)		0.3	– 0.4	– 0.7	– 0.5
Exports of goods and services	%	4.9	2.1	0.7	1.5
Imports of goods and services	%	5.2	3.6	2.5	3.0
Current account balance[5]	%	**8.1**	**7.3**	**6.9**	**6.4**
Persons employed (domestic)	1,000	**44,248**	**44,854**	**45,225**	**45,360**
Persons employed, covered by social security	1,000	**32,234**	**32,964**	**33,424**	**33,641**
Registered unemployment, stocks	1,000	**2,533**	**2,340**	**2,272**	**2,317**
Unemployment rate[6]	%	**5.7**	**5.2**	**5.0**	**5.1**
Consumer prices[7]	%	**1.5**	**1.8**	**1.5**	**1.6**
General government balance[8]	%	**1.2**	**1.9**	**1.4**	**0.5**
Gross domestic product per capita[9,10]	%	**2.1**	**1.2**	**0.2**	**0.7**
Gross domestic product, calendar-adjusted[10]	%	**2.8**	**1.5**	**0.5**	**0.5**

1 – Forecast by the GCEE. 2 – Price-adjusted. Change on previous year. Also applies to all listed components of GDP. 3 – Including non-profit institutions serving households. 4 – Including military weapon systems. 5 – In relation to GDP. 6 – Registered unemployed in relation to civil labour force. 7 – Change on previous year. 8 – Regional auhorities and social security according to national accounts; in relation to GDP. 9 – Population development according to medium-term projection of the GCEE calculations. 10 – Price-adjusted. Change on previous year.

Sources: Federal Employment Agency, Federal Statistical Office, own calculations

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69. Economic output in Germany grew by 1.5 % in 2018 - in line with potential. There has also been a **marked slowdown** in economic momentum already that year. Growth is actually slightly negative at present, and is not likely to increase significantly again until sometime in 2020. The GCEE expects **annual average GDP growth rates of 0.5 % and 0.9 %** for **2019 and 2020**, respectively. ↘ TABLE 3 Adjusting for the higher number of working days in 2020 results in growth of again only 0.5 %. The weak, and in some cases actually declining development in gross fixed capital formation in machinery and equipment and exports is having an adverse effect on growth. In contrast, positive contributions to growth are still to be expected from consumption.

1. Economic dichotomy continues

70. GDP growth of 0.4 % in the first quarter of 2019 was quite strong compared to that of the fourth quarter 2018, which was likely due in part to catch-up effects following the production difficulties of the second half of 2018. However, **economic output decreased** by 0.1 % in the **second quarter** of 2019.
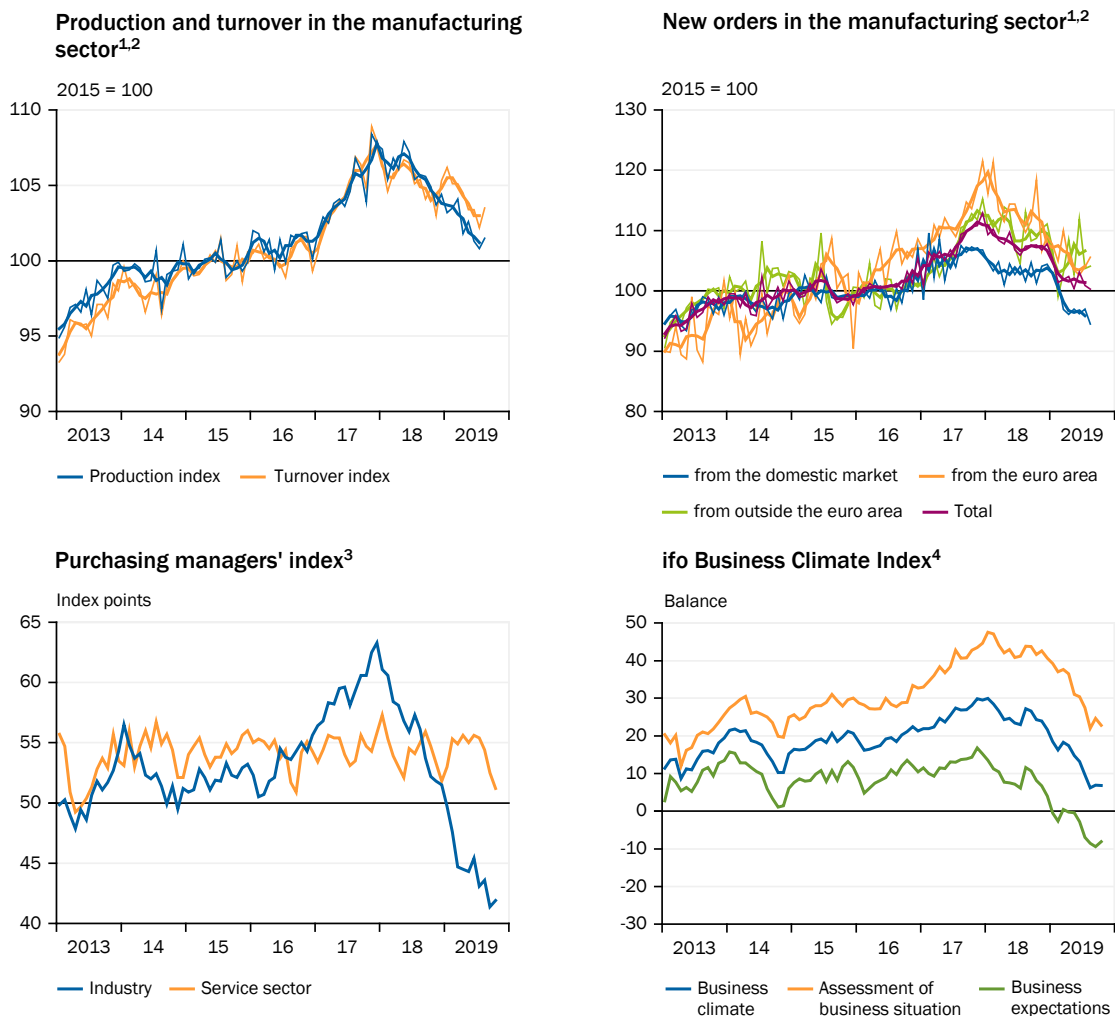
Adjusted for calendar effects, GDP growth in this quarter was only 0.4 % as against the same quarter of the previous year.

Industrial recession

71. The **downward trend in industrial production** that began in the winter of 2017/2018 has **continued**. Production in the manufacturing sector has fallen by 2.8 % in year-to-date 2019 alone. ↘ CHART 14 TOP LEFT Turnover is also trending downwards after a brief recovery at the end of 2018. Exceptional factors that hampered production in the autumn of 2018 are no longer likely to be relevant since the beginning of this year (GCEE Economic Update 2019). These affected in particular the chemicals industry and automotive manufacture. Economic weakness has meanwhile reached other areas, including engineering, where production in August was 4.5 % below the prior-year level.

↘ CHART 14
Selected indicators for the economic development

Production and turnover in the manufacturing sector[1,2]

2015 = 100

— Production index — Turnover index

New orders in the manufacturing sector[1,2]

2015 = 100

— from the domestic market — from the euro area
— from outside the euro area — Total

Purchasing managers' index[3]

Index points

— Industry — Service sector

ifo Business Climate Index[4]

Balance

— Business climate — Assessment of business situation — Business expectations

1 – Thin line: monthly values; thick line: 3-month moving averages. 2 – Volume index; seasonally and calendar adjusted values. 3 – The purchasing managers' index is based on a monthly survey with purchasing managers and managing directors. 4 – Manufacturing, service sector, trade and construction.

Sources: ifo, IHS Markit, Federal Statistical Office, own calculations © Sachverständigenrat | 19-004

Production in **energy supply** is also experiencing a sharp decline, falling by almost 12 % between December 2018 and August 2019. In the same period, German electricity exports also declined strongly, meaning that in June, more electricity was imported than exported for the first time in five years (BDEW, 2019). This was influenced in part by price developments, particularly the increase in the price of CO_2 in European emissions trading, which increased the cost of electricity generation at coal-fired plants (GCEE Special Report 2019 items 61 ff.).

72. The weakness in German industry is particularly pronounced compared to other countries. ⬊ ITEM 7 The manufacture of intermediate and capital goods is relatively important in Germany, so the worldwide decline in investment growth has hit the German economy particularly hard. At least in some areas, such as the automotive industry, the decline in production is also likely to be of a structural nature and a reflection of far-reaching upheavals. **Incoming orders are not an indication of a speedy recovery** in industry. ⬊ CHART 14 TOP RIGHT They have indeed stabilised, but this is largely due to the slight recovery in foreign orders, while domestic demand continues its downward trend. Although the volume of orders is still fairly high, it has been falling since the beginning of the year as a result of declining incoming orders.

Orders continue to downtrend particularly for capital goods. The increased uncertainty and deteriorating prospects will likely have a negative effect on companies' willingness to invest. **Business expectations** are negative on balance, and currently at the **lowest level since the euro area crisis**. ⬊ CHART 14 BOTTOM RIGHT The Purchasing Managers' Index for the manufacturing industry is also far below the expansion threshold of 50 points. ⬊ CHART 14 BOTTOM LEFT
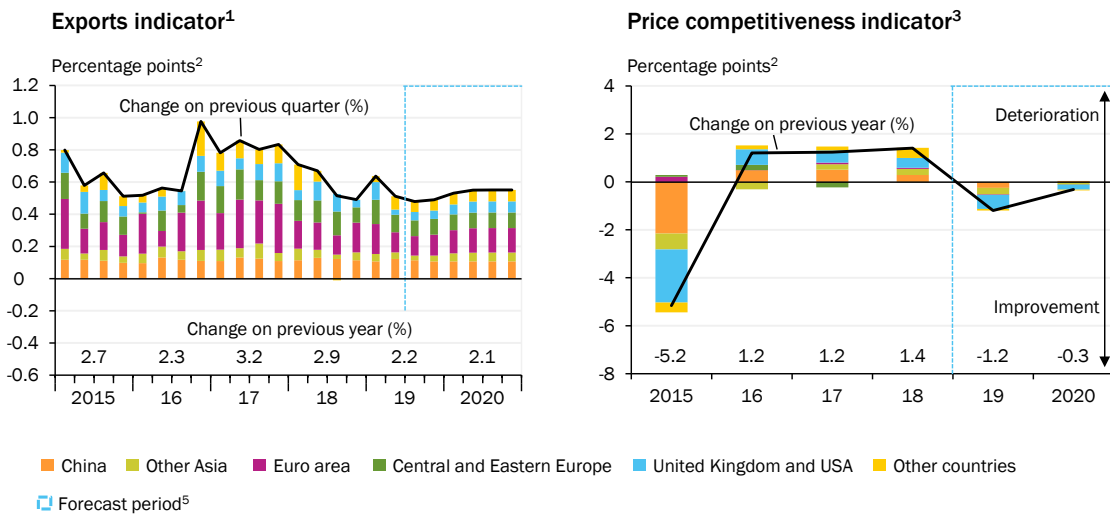
Headwinds in foreign trade

73. On the expenditure side, the difficult situation in industry is reflected in weak **exports**. After exports rose by 1.8 % in the first quarter as against the previous quarter, they fell again in the second quarter by 1.3 %. Imports also declined, by 0.3 %. The growth contribution from **net exports was negative overall in the second quarter**, at -0.5 percentage points, which was a key reason for the decline in GDP.

Exports to the **United Kingdom** decreased significantly, accounting for around three quarters of the decline in the value of total exports in the second quarter, following a sharp increase in the first quarter. Preponement effects likely played a role here, as evidenced among other things in increased stockpiling around the then Brexit date at the end of March. Conversely, this is likely to have dampened UK import demand in the second quarter. For instance, businesses in the United Kingdom brought their summer shut-downs forward to April to prevent possible supply bottlenecks. Exports to **Turkey** have recently stabilised again after falling almost 30 % during the country's economic crisis and currency depreciation (Deutsche Bundesbank, 2019c).

↘ CHART 15
Expected development of the external environment

Exports indicator[1]

Percentage points[2]

Change on previous quarter (%)

Change on previous year (%)

2.7	2.3	3.2	2.9	2.2	2.1

2015   16   17   18   19   2020

Price competitiveness indicator[3]

Percentage points[2]

Change on previous year (%)

Deterioration

Improvement

-5.2	1.2	1.2	1.4	-1.2	-0.3

2015   16   17   18   19   2020

■ China ■ Other Asia ■ Euro area ■ Central and Eastern Europe ■ United Kingdom and USA ■ Other countries

▢ Forecast period[5]

1 – The indicator is based on the GDP development of 49 trading partners. The weighting of each country corresponds to its share of German exports. Country definitions as in Table 1. 2 – Growth contributions of the respective regions. 3 – Against 37 selected countries; an increase shows a deterioration in price competitiveness of German products. Calculation and country definitions based on the approach of the Deutsche Bundesbank. 4 – Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania. 5 – Forecast by the GCEE.

Sources: Deutsche Bundesbank, national statistical offices, own calculations

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74. The GCEE's **export indicator**, which tracks the economic development of 49 trading partners, **does not point to a strong recovery in export demand** during the forecast period. ↘ CHART 15 LEFT Although growth may be revived somewhat in the industrialised Asian countries and some crisis-hit emerging markets, it is set to slow down in economies that have thus far exhibited robust growth, such as China, and Central and Eastern European countries. ↘ ITEMS 10 FF.

Price competitiveness can be expected to lend slightly positive momentum to foreign trade this year. CHART 15 RIGHT Following the German economy's loss of price competitiveness between 2016 and 2018, it is **likely to improve somewhat** in 2019. The euro's depreciation against the US dollar during this year is the main contributing factor here. ↘ ITEM 45

75. **Gross fixed capital formation** did not provide any growth impetus in the second quarter after its contribution of 0.3 percentage points to GDP growth in the first quarter. Gross fixed capital formation in machinery and equipment increased by 0.6 % in the second quarter, following a climb of 1.4 % in the first quarter due in large part to the high demand for commercial vehicles. The number of registered company cars rose sharply at the beginning of the year after the problems with the registration of vehicles that followed the new emission standards in the autumn of the previous year had gradually been solved (IfW, 2019). However, the second quarter saw a 2.4 % **decline** on the previous quarter **in non-governmental investment in machinery and equipment**. The government's unusually high investment activity caused gross fixed capital formation in machinery and equipment to rise in the second quarter.
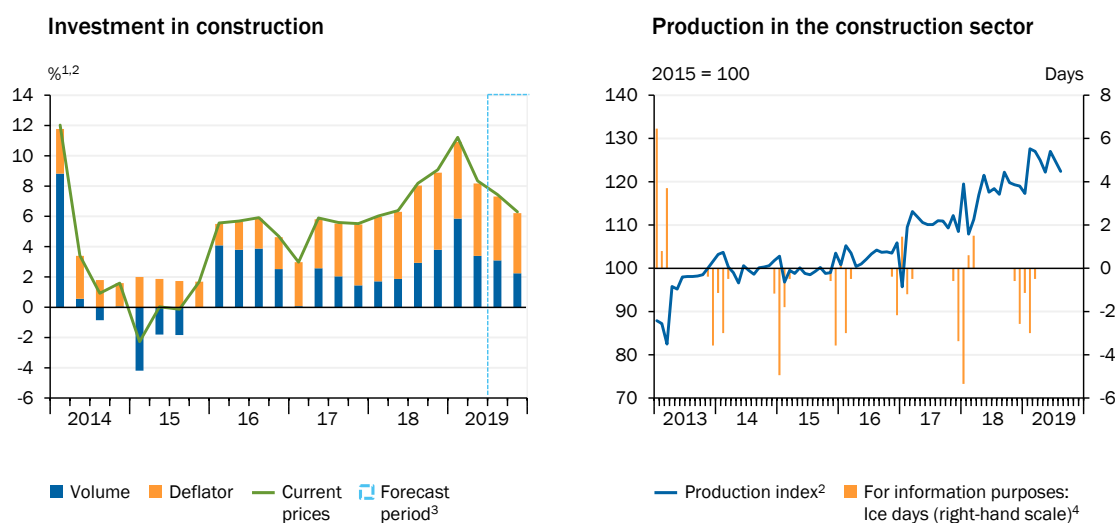
Robust domestic economy

76. The relatively **mild winter should be considered** with regard to **construction investment**. The number of frost days – days with a maximum temperature of below zero degrees Celsius – was unusually low for the time of year. This extraordinary weather-related effect is not included in the seasonal adjustment (Deutsche Bundesbank, 2014) and is likely to have been a factor in the particularly high seasonally-adjusted construction output reported for the winter quarters. ↘ CHART 16 RIGHT Econometric estimates put this positive weather-related effect on construction output in the first quarter at around one to two percent. The increase in economic output in the first quarter due to this weather-related special effect is thus likely to have been boosted by up to 0.1 percentage points given the almost 5 % share in GDP of construction output.

    There may have been at least a partial rebound effect in the spring months, as construction output did not expand as much as usual at this time of year. In general, the **capacity bottlenecks** are likely to have **prevented greater expansion of construction output and gross fixed capital formation in construction**, as indicated by the price momentum in this area. CHART 16 LEFT

77. Despite the weakness in industry, business activity in the **service sector** has been quite robust to date. However, the outlook in this sector has recently also become less favourable (IHS Markit, 2019). ↘ CHART 14 BOTTOM LEFT The ifo business expectations in the service sector have deteriorated significantly since the beginning of the year, and are now slightly negative on balance (ifo Institute, 2019a).

↘ CHART 16
Construction investment and production of the construction sector

Investment in construction

Production in the construction sector

Volume   Deflator   Current prices   Forecast period[3]

Production index[2]   For information purposes: Ice days (right-hand scale)[4]

1 – Change on previous year. 2 – Seasonally and calendar adjusted. 3 – Forecast by the GCEE. 4 – Numbers of days in a month with maximum air temperature below zero degrees Celsius. Average over 5 cities (Berlin, Cologne, Frankfort, Hamburg, Stuttgart). Deviation from the monthly average in the period from 1991 to 2018.

Sources: Federal Statistical Office, Integrated Climate Data Center, own calculations

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78. There are **signs** on the labour market **that the employment growth** of the past few years **may be coming to an end for the time being**. ↘ ITEMS 101 FF. The unemployment rate has been moving sideways since mid-2018, and the number of registered job vacancies has been on the decline for the past seven months. This is consistent with survey results showing restraint in recruitment by companies (ifo Institute, 2019b). Employment growth in the manufacturing sector has levelled off, and employment in business services has been decreasing since the second quarter of 2018.

    A correlation analysis shows that this is **not an unusual cyclical pattern**. For example, employment in the manufacturing sector reacts to changes in gross value added in that sector with a lag of two to four quarters, whereas employment in business services shows more of a reaction after just one quarter.
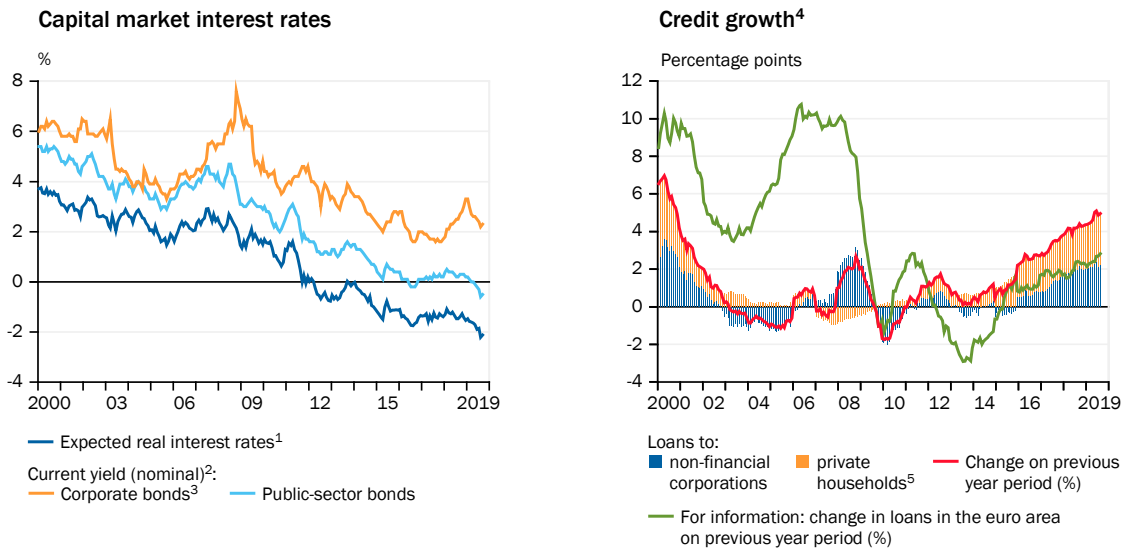
79. At the same time, a **shortage of skilled workers** will likely **still predominate** in many sectors. Surveys show that companies currently see their greatest business risk in the availability of skilled workers (Grömling and Matthes, 2019). Given the declining number of employed people in the future, companies may refrain from cutting jobs despite the deteriorating economic environment (labour hoarding), even though this reduces their profitability. Although slower employment growth is predicted for the forecast period, ↘ ITEM 105 a major increase in unemployment as has generally been the case in recessions ↘ ITEM 90 is not currently expected.

Favourable environment for consumption

80. **Consumption** growth remains **positive**. As in the past few years, private consumption made the largest contributions to growth. ↘ TABLE 10 APPENDIX Consumption demand has been buoyed primarily by the **healthy labour market situation** and associated **growth in disposable income**. Private and government consumption spending each grew by 0.8 % quarter on quarter in the first quarter, but only by 0.1 % and 0.5 %, respectively, in the second quarter. Catch-up effects in car purchases in the first quarter following production-related lags in the autumn of 2018 are likely to have given an additional boost to private consumption. Various fiscal relief measures also provided strong stimulus for private consumption in the first half of 2019.

81. The ECB's accommodative monetary policy ↘ ITEMS 48 FF. is a contributing factor to the historically low interest rate level. The current return on public-sector bonds recently fell back to below zero, while that of corporate bonds has fallen by one percentage point since the beginning of the year following a climb to just over 3 %. ↘ CHART 17 LEFT The **expected real interest rate** has been **negative** for several years now. Lending is buoyant, with the volume of loans currently around 5 % above the prior-year level. ↘ CHART 17 RIGHT Strong growth in loans to non-financial corporations and private households has continued to contribute to the closing of the credit-to-GDP gap, which has been slightly positive since the third quarter 2018. ↘ ITEM 408

↘ CHART 17
Capital market interest rates and credit growth in Germany

Capital market interest rates

%

— Expected real interest rates[1]

Current yield (nominal)[2]:
— Corporate bonds[3]   — Public-sector bonds

Credit growth[4]

Percentage points

Loans to:
■ non-financial corporations   ■ private households[5]   — Change on previous year period (%)

— For information: change in loans in the euro area on previous year period (%)

1 – Calculated from the current yields of German Federal securities with 10-year maturity and from weighted inflation expectations (Consensus Fore-cast). 2 – Yields on domestic debt securities; monthly averages 3 – Non-financial corporations. 4 – Loans (including bills of exchange). 5 – Including non-profit institutions serving households.
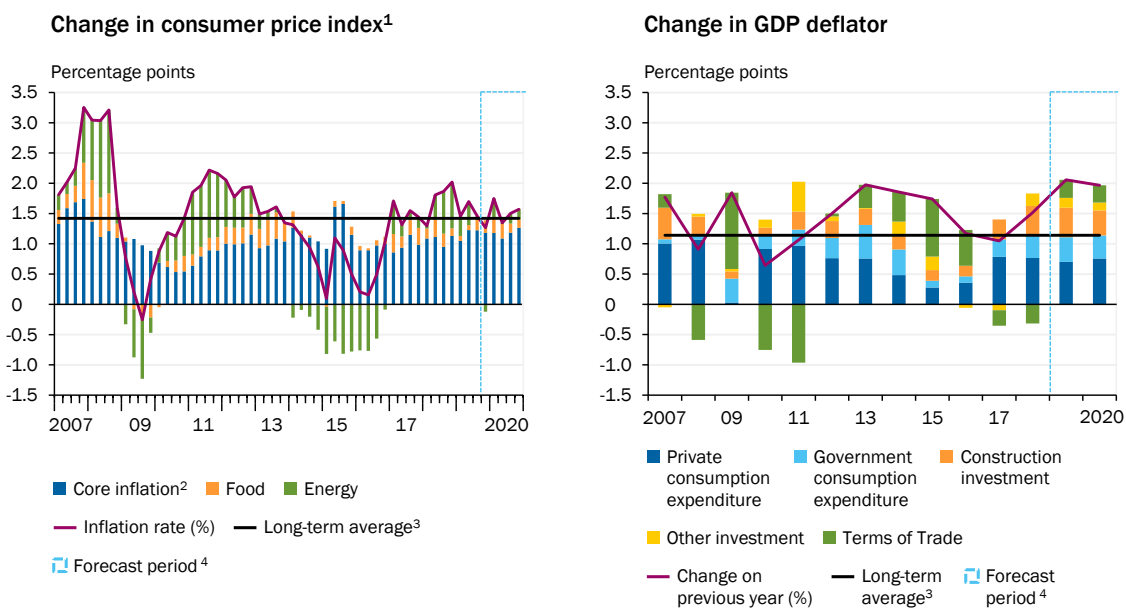
Sources: Deutsche Bundesbank, ECB, own calculations

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82. The results of the **bank lending survey** indicate that the surveyed banks in Germany have returned to somewhat stricter internal guidelines (lending standards) in corporate client business because of the poorer rated credit risk in the third quarter of 2019 (ECB, 2019j). However, the lending standards for private housing loans and consumer and other loans remained unchanged.

↘ CHART 18
Measures of inflation and their components

Change in consumer price index[1]

Percentage points

■ Core inflation[2]   ■ Food   ■ Energy
— Inflation rate (%)   — Long-term average[3]
⬚ Forecast period [4]

Change in GDP deflator

Percentage points

■ Private consumption expenditure   ■ Government consumption expenditure   ■ Construction investment

■ Other investment   ■ Terms of Trade

— Change on previous year (%)   — Long-term average[3]   ⬚ Forecast period [4]

1 – Based on seasonally and calendar adjusted data. 2 – Overall index excluding food and energy. 3 – Average over the period from 1999 to 2018.
4 – Forecast by the GCEE.

Sources: Deutsche Bundesbank, Federal Statistical Office, own calculations

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Against the backdrop of cyclical risks, the Federal Financial Supervisory Authority (BaFin) **increased** the rate for the **countercyclical capital buffer to 0.25 %** on 28 June 2019. The buffer is to be used from 1 July 2020. ITEM 406 As the banks are currently expected to exceed their capital requirements on average, there is currently no reason to believe that the countercyclical capital buffer requirement will unduly restrict banks' ability to lend. However, it is likely that the slowing economy will cause an **increase** in banks' **risk provisioning** as well as the risk weights they use in internal models. Although better capitalisation could increase the banks' resilience, it would be difficult for banks to increase their capital at present. It therefore cannot be ruled out that the banking system will restrict lending and in so doing, create pro-cyclical effects that would exacerbate an economic slowdown. ↘ ITEMS 403 FF.

83. As in recent years, the **development of the consumer price index** is heavily influenced by the movement of the oil price. The inflation rate at the end of 2018 was around 2 %, and fell in the course of this year to its long-term average of around 1.4 %, largely **due to the dampening effect of the energy component**. CHART 18 LEFT The GDP deflator rose by 1.5 % in 2018. Upward price pressures emerge regarding construction investment. ↘ CHART 18 RIGHT

+

At the beginning of 2019 the German Federal Statistical Office revised the base year of the consumer price index to 2015. This included methodological **changes**, particularly concerning **package holidays**, for which price developments throughout the year were difficult to interpret due to flexible weights of holiday destinations (Deutsche Bundesbank, 2019d; Federal Statistical Office, 2019). The revised index shows a more pronounced seasonal pattern. The index values are now higher in the summer and lower in the winter. This produces a much higher consumer price index inflation rate for the summer half-year of 2015. ↘ CHART 18 LEFT The revision of the package holiday sub-index has also caused a dampening special effect in the HICP, as the changed method resulted in a drop in the weight of package holidays from 4.1 % in 2018 to 2.7 % in 2019. Because the HICP weighting pattern was not adjusted retrospectively, this led to a **negative distortion of around 0.5 percentage points in the German HICP inflation rate** in the summer of 2019 (Deutsche Bundesbank, 2019e). The year-over-year HICP rates for Germany and the euro area will therefore remain difficult to interpret until this statistical special effect expires at the end of the year.

2. Outlook: No prospect of a speedy recovery

84. Given the decline in production and the gloomy business prospects for companies, one has to ask whether the downturn will lead to a recession. Economic output fell in the second quarter. If it fell again in the third, the economy would formally be in a **technical recession**. This does not have the same meaning as the term "recession" used by the GCEE in its chronology of Germany's business cycles, for example (Breuer et al., 2018; GCEE Annual Report 2017 box 7).

A recession in this sense describes a significant decline in macroeconomic activity which affects broad sections of the economy. However, the downturn to date has been shaped by the dichotomy between industry and the service sector, which is more closely oriented to the domestic economy. As long as the labour market and consumption can hold up despite the weakness in industry, one **need not expect a broad macroeconomic recession**. Moreover, real GDP only fell slightly in the second quarter (by 0.1 %).
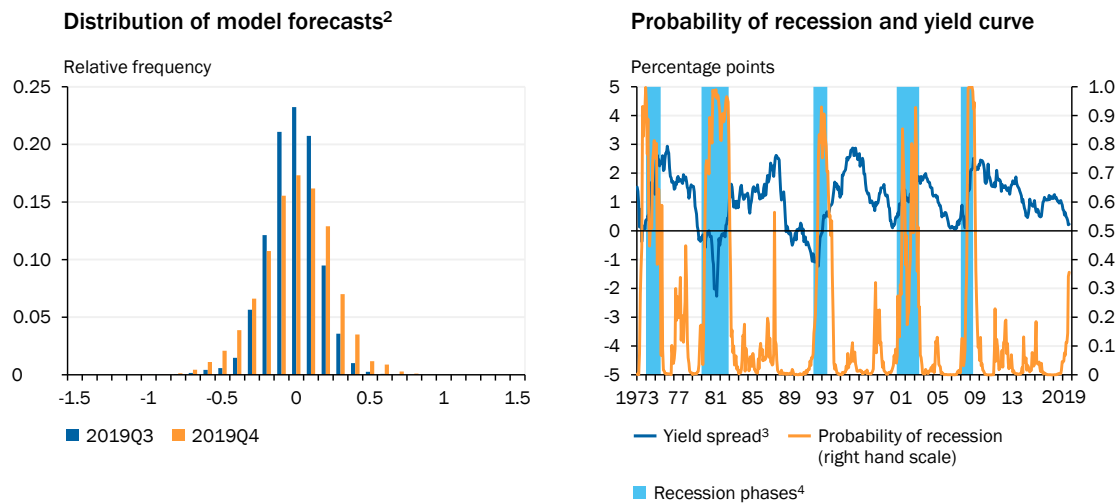
Much higher probability of a recession

85. The standard indicators for the short-term forecast point to a **slight decline in economic output in the third quarter**. CHART 19 LEFT Production, incoming orders and turnover in industry indicate negative GDP growth of around -0.1 %. There are currently no signs of a major revival in the fourth quarter.

    The GCEE uses **various models** for its **short-term forecasts**, with single equation models playing an important role. These estimate the statistical relationship between the variable to be forecast, such as GDP, and the relevant indicator, such as industrial production. The resulting forecast values are then usually weighted based on the predictive power of each indicator (Döhrn, 2014; Deutsche Bundesbank, 2018). The GCEE also uses factor analysis models, which condense information from a large number of indicators into a common score. Another possible way to produce short-term forecasts might be to use machine learning approaches. ↘ BOX 3

86. However, the reservation must be made that the indicators, which are generally based on industrial data, may currently somewhat underestimate GDP growth due to the economic dichotomy. The service sector, which accounts for more than two-thirds of value added, has remained very robust to date, whereas most business cycle indicators have been pointing downwards for some time. However, the poor development in **production** is cause for concern, as this segment was in the past a **good indicator for short-term economic development**. It is not unusual for the overall economy to have a delayed reaction to weakness in industry.

87. The likelihood of a recession can be estimated using econometric models, which apply various economic indicators such as industrial production together with financial market indicators like the yield curve. The probit model, which is based on the GCEE's business cycle chronology, currently produces an **increased probability of recession** of almost 36 % – a level last seen in August 2009. IMK (2019) and Kiel Economics (2019) calculate a recession probability of as much as 59 % and 57 %, respectively. False alarms from the models are possible. For instance, the GCEE's calculations show that the probit model would have produced a much higher probability of recession for the euro area crisis of 2011 to 2013 in real time (GCEE Annual Report 2018 box 3). In retrospect, it showed a rather low probability based on current data. ↘ CHART 19 RIGHT

88. One indicator that quite reliably predicted a recession in the past is the yield curve. This was a very close correlation for the United States (GCEE Annual

↘ CHART 19
Short-term forecasts for GDP[1] and probability of recession

Distribution of model forecasts[2]

Relative frequency

■ 2019Q3 ■ 2019Q4

Probability of recession and yield curve

Percentage points

— Yield spread[3] — Probability of recession (right hand scale)
■ Recession phases[4]

1 – Change in GDP on the previous quarter in %. 2 – Distribution of forecasts resulting from a combination approach. 3 – Yield spread between 10-year and 2-year government bonds as estimated by Deutsche Bundesbank. 4 – GCEE chronology.

Sources: Deutsche Bundesbank, own calculations

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Report 2018 item 225). Past **recessions** in Germany were also associated with a **reduced or even negative yield spread** between long and short-term bonds. ↘ CHART 19 RIGHT When the spread is negative, the **yield curve** is referred to as **inverted**. This spread has declined again in recent months in Germany, falling to the lowest level since the financial crisis. However, as the ECB's unconventional monetary policy measures increasingly target long-term yields, it is not clear how informative the yield curve still is regarding economic development.

89. A **comparison of current developments with past periods of recession** shows some similarities. ↘ CHART 20 It shows the development of each of the monthly indicators compared with the cyclical peak. In a technical recession, the peak is the middle month of the quarter in which economic output has not yet declined. If a technical recession for the summer half-year of 2019 is assumed, the peak would be in February 2019. Instead of this mechanical procedure, the GCEE uses several criteria to determine cyclical peaks in its cyclical chronology (GCEE Annual Report 2017 box 7). Industrial production, incoming orders and business expectations have been declining for more than a year now. In the past, these were good indicators of later reductions in economic output.

Foreign trade was often an **important channel**. The decline in exports was extraordinarily sharp during the recession of 2008/2009. German exports have declined in a total of six years since 1970. The GCEE identified recessions in four of these years (GCEE Annual Report 2017 box 7). However, the weak export performance of 1983 can still be deemed largely attributable to the recession of 1980-1982. Only in 1986 was there a year-on-year reduction in exports of 1.2 %, without there being a recession or decline in GDP. On the other hand, there was not a decline in exports associated with every recession. Although Germany was
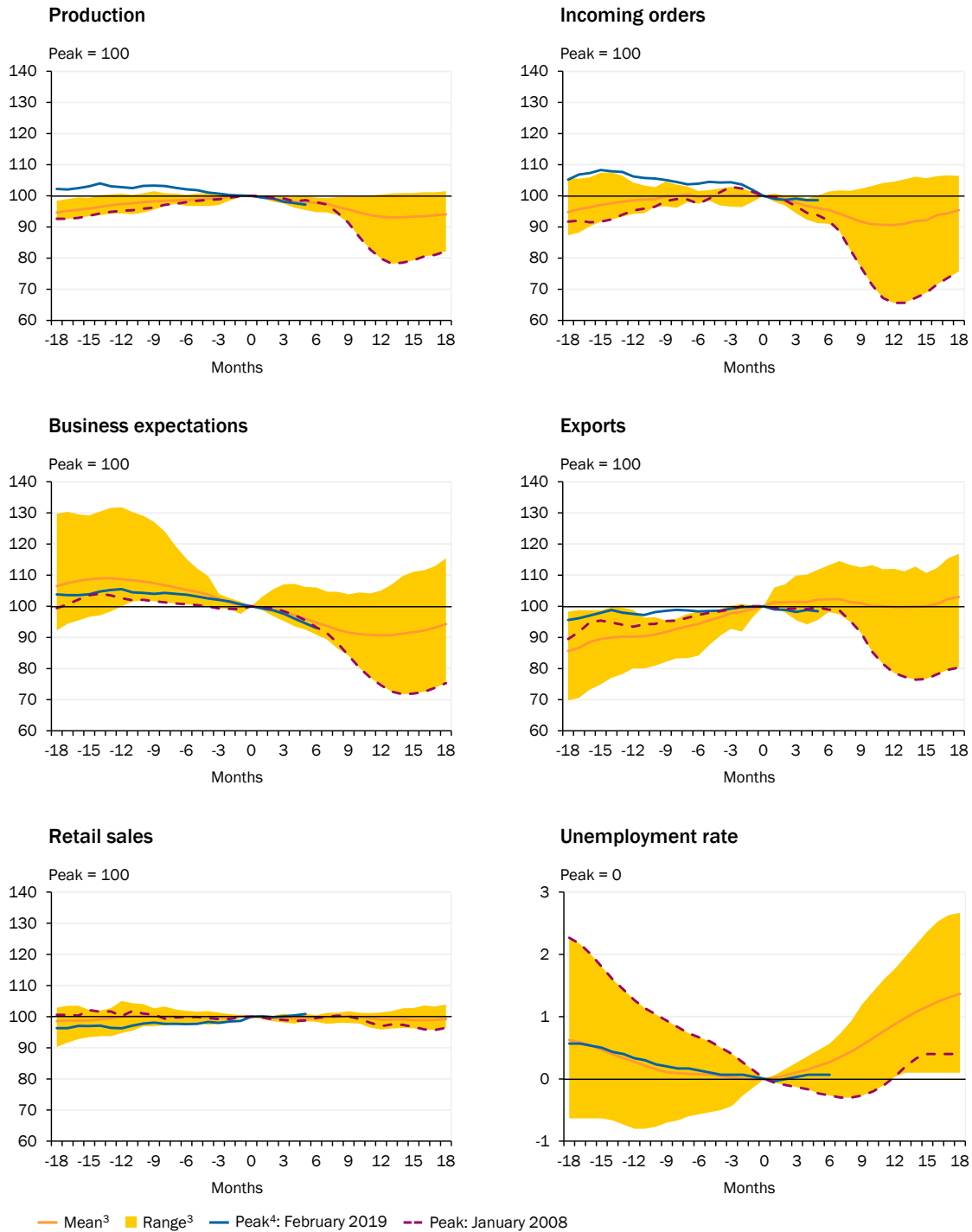
in recession from 2001 to 2003, exports continued to rise. Exports in the first half of 2019 were still more than 1 % above the average rate for 2018.

↘ CHART 20

Characteristic developments during recession periods[1]
Relative to the peak of the business cycle (t=0)[2]

Production

Peak = 100

Incoming orders

Peak = 100

Business expectations

Peak = 100

Exports

Peak = 100

Retail sales

Peak = 100

Unemployment rate

Peak = 0

Months

── Mean[3]   ■ Range[3]   ── Peak[4]: February 2019   ‑‑ Peak: January 2008

1 – 3-month moving averages. Germany from 1991, previously former West Germany. 2 – Unemployment rate: difference in percentage points.
3 – A total of six recessions according to GCEE chronology (peaks: March 1966, January 1974, January 1980, February 1992, February 2001, January 2008) and two technical recessions (peaks: August 1995, August 2012). In a technical recession, the peak is the middle month of the quarter in which economic output has not yet declined. 4 – Assuming that the German economy has been in a technical recession since Q2 2019.

Sources: Deutsche Bundesbank, ifo, own calculations

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90. Retail sales continue to show stable performance, although this was often the case in previous recessions too. However, unemployment usually climbs sharply during a recession, although the 2008/2009 recession was an exception. At that time the **labour market** was barely affected by the temporary slump of more than 5 % in economic output. The unemployment rate in Germany is currently stagnating.

A **sustained decline in investment** is a key characteristic of past recessions (Breuer et al., 2018). Gross fixed capital formation fell on average for six to eight consecutive quarters in the recessions identified by the GCEE, whereas, in "technical" recessions, a shorter decline of one to two quarters was observed.

↘ BOX 3

Nowcasting GDP growth with neural networks and random forests

Given that **machine learning methods** are becoming increasingly powerful, the question is to what extent they can complement established econometric models and thereby improve economic forecasting. In theory, machine learning methods have several strengths that make them attractive for forecasting purposes. One advantage is that they do not require any specifications about the possibly non-linear, functional relationship of the variables of interest. They can also process different types and large volumes of information. As for disadvantages, however, some of the results produced by these models are limited in terms of traceability and interpretation, as the relationships, particularly in the case of neural networks, remain hidden in a sort of "black box". Neural networks involve a network of nodes processing information contained in the input data and summarising it to produce a forecast value. In the case of random forests, decision trees are used to classify the input data.
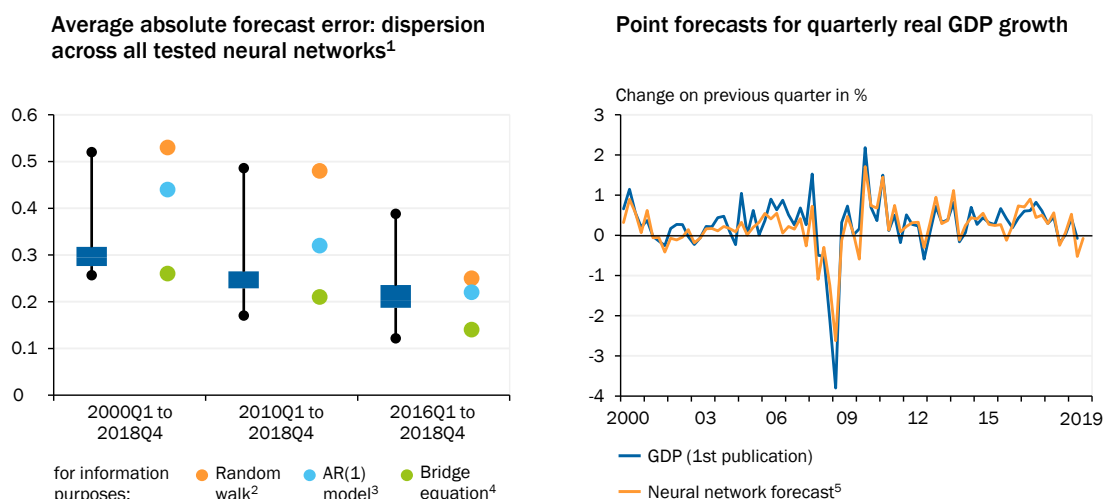
There have only been a **few published papers** in the **literature** to date that examine the suitability of machine learning methods to forecast GDP. Jung et al. (2018) test various neural networks to forecast GDP growth in seven major economies. Woloszko (2019) and Biau and D´Elia (2012), on the other hand, use random forests for their growth forecasts. The results of these analyses suggest relatively good forecasting qualities of the machine learning methods applied.

Nowcasting is a largely unexplored field of application for machine learning methods. Nowcasting means making predictions of the present, very near future and very recent past, such as of GDP. These actually often concern the past, because GDP figures are **officially published with a delay**. For instance, the German Federal Statistical Office has traditionally not announced quarterly GDP until 45 days after the end of the quarter. Therefore in economic forecasting, it is not only the future that has to be predicted, as there is also uncertainty regarding developments in the recent past. **Nowcasting methods** address this problem by forecasting the missing GDP figures using monthly indicators that are already available. In technical terms, these predominantly use bridge equation models, factor models or vector autoregressive (VAR) models (Deutsche Bundesbank, 2018).

In an applied study, Breuer et al. (2019) examine the predictive power of machine learning methods in nowcasting GDP growth in Germany. A range of model types and specifications are tested using rolling out-of-sample predictions and **real-time data** where available. They use **neural networks** and **random forests**. The predictive power is determined for the period from the first quarter of 2000 to the fourth quarter of 2018 and compared with naïve (random walks) and established models. A uniform information set is used for all models, comprising standard indicators for economic analysis such as production data, incoming orders and survey data, as the focus of the analysis is the forecasting qualities of each method.

↘ CHART 21

Forecasting GDP growth with artificial neural networks

Average absolute forecast error: dispersion across all tested neural networks[1]

Point forecasts for quarterly real GDP growth

Change on previous quarter in %

for information purposes: ● Random walk[2]   ● AR(1) model[3]   ● Bridge equation[4]

── GDP (1st publication)
── Neural network forecast[5]

1 – Points at the end of the line represent the minimum or maximum of the observed average absolute forecast errors. The box represents the middle 50 % of the data, showing the distance from the 25th to the 75th percentile. 2 – Forecast is the GDP growth of the previous quarter. 3 – Autoregressive model with GDP growth of the previous period and a constant as explanatory variables. 4 – Forecast with an econometric model that takes into account the contemporary development of production and revenue. 5 – Recurrent neural network with gated recurrent units (GRUs). Quarterly averages of various monthly indicators serve as input.

Sources: Breuer et al. (2019), Deutsche Bundesbank, own calculations

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Initial results show that the best neural networks have a similarly high level of predictive power as established econometric bridge equation models, and in some periods actually perform better than them. ↘ CHART 21 LEFT By contrast, the tested random forests cannot compete with the established models. Many model experiments also showed that the predictive power of neural networks is affected by a large number of issues, and that there is a wide range between the various machine learning models in terms of predictive power. Particular emphasis must therefore be placed on the selection and specification of the models. Overall, the results indicate that neural networks could be a promising addition to the toolkit of methods used for economic forecasting. Including additional information could further improve the forecasting qualities of neural networks.
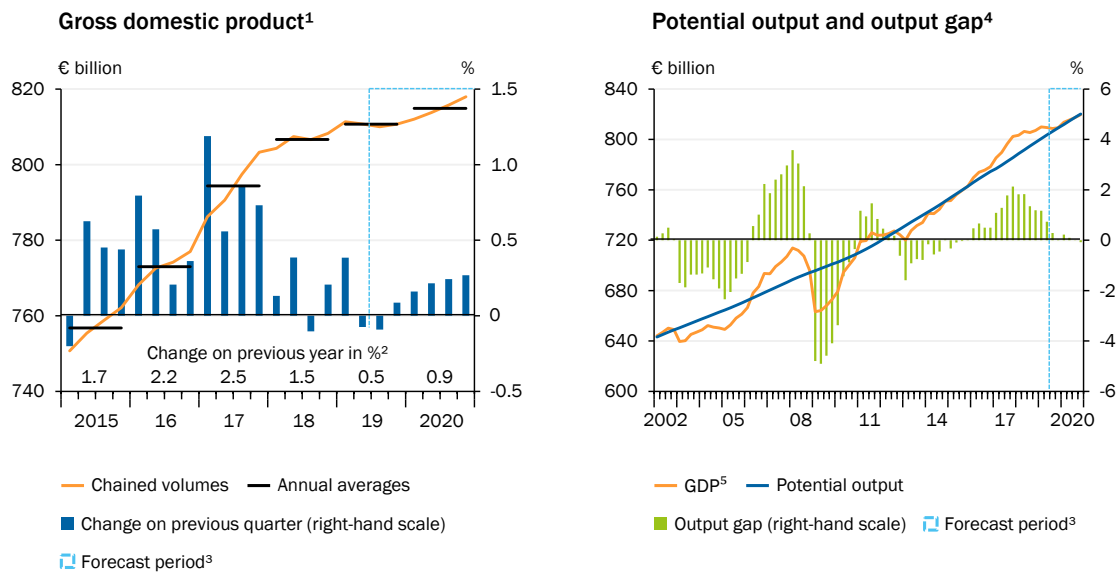
The particular neural network, which has the comparably best predictive power, predicts a decline of around 0.1 % in GDP in Q3 2019. ↘ CHART 21 RIGHT This result is in line with the results of the short-term forecasts based on econometric models. ↘ ITEM 85

Recovery expected eventually in 2020

91. The **upswing** in the German economy has **come to an end**, with a downturn now in place since the beginning of 2018. Although the output gap is still positive, it is now closing. ↘ CHART 22 RIGHT The slowdown is currently most obvious in the decline in industrial production. A **normalisation** and movement towards potential output were **to be expected** at some point given the positive output gap. Capacity utilisation in the manufacturing industry is currently slightly below the average for the period from 1991 to 2018. The output gap is likely to close during the forecast period before the economy returns to grow close to its potential rate by the end of 2020. ↘ CHART 22 LEFT A clearly

Expected economic development in Germany

Gross domestic product[1]

Potential output and output gap[4]

Chained volumes — Annual averages
Change on previous quarter (right-hand scale)
Forecast period[3]

GDP[5] — Potential output
Output gap (right-hand scale)   Forecast period[3]

1 – Reference year 2015, seasonally and calendar adjusted. 2 – Not adjusted. 3 – Forecast by the GCEE. 4 – Estimate by the GCEE. 5 – Real seasonally adjusted values; the calendar effect is taken into account, however.

Sources: Federal Statistical Office, own calculations

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92. The GCEE still expected GDP growth rates of 0.8 % and 1.7 % as of March 2019. ↘ BOX 4 The **considerable downward revision** primarily reflects the unexpected economic deterioration in the summer half-year of 2019, which is likely to persist into 2020. The GCEE **expects** an annual average GDP growth rate of 0.5 % for 2019, and 0.9 % for 2020.

However, two effects must be considered. Firstly, the **calendar effect** of 0.4 percentage points overstates the growth momentum for next year because of the higher number of working days. This translates into calendar-adjusted expected growth of merely 0.5 %. ↘ TABLE 4 And secondly, the statistical overhang does not contribute to the annual average growth for 2020. The growth rate for the year, which measures the change in GDP between the fourth quarter of the previous year and the fourth quarter of the year under review, is 0.9 % for 2020.

negative output gap would be likely, for example, if the stated risks ↘ ITEMS 15 FF. arose and a deep and broad-based recession were to occur across all sectors.

Components of the forecast for real GDP growth (in %)

	2014	2015	2016	2017	2018	2019[1]	2020[1]
Statistical overhang at the end of the previous year[2]	0.8	0.9	0.7	0.5	1.1	0.2	0.0
Growth rate over the course of the year[3]	2.3	1.3	1.9	3.4	0.6	0.3	0.9
Annual rate of change of GDP, calendar adjusted	2.2	1.5	2.1	2.8	1.5	0.5	0.5
Calendar effect (in percentage points)	0.0	0.2	0.1	– 0.3	0.0	0.0	0.4
Annual rate of change of GDP[4]	2.2	1.7	2.2	2.5	1.5	0.5	0.9

1 – Forecast by 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.

Sources: Federal Statistical Office, own calculations

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↘ CHART 23 LEFT The economy is therefore likely to record growth of well below its potential rate next year.

93. **Private consumption is expected to deliver the largest growth contribution** of all the expenditure components once again, particularly because positive income development is expected to continue. Government spending is likely to provide additional growth momentum. The GCEE expects fiscal stimulus of 0.6 % and 0.5 % of GDP for 2019 and 2020, respectively. ↘ ITEM 110 The estimated structural surplus is likely to fall during the forecast period, from 1.3 % in 2018 to 0.8 % in 2019 and 0.2 % in 2020.

94. Consumer price development has been subdued. ↘ CHART 23 RIGHT The GCEE expects inflation rates of the consumer price index of 1.5 % for 2019 and 1.6 % for 2020. Core inflation, excluding the volatile energy and food components, is likely to be 1.4 % this year and 1.5 % next year. Inflation rates of 2.1 % and 2.0 % are to be expected for the GDP deflator.

Wage development remains buoyant. However, the weaker economic development is likely to be reflected in somewhat lower wage increases next year than in recent years. Labour productivity can also be expected to stagnate or only show insignificant growth this year and next, causing **unit labour costs** to continue to **rise sharply**, with growth rates of 3.3 % in 2019 and 2.1 % in 2020. ↘ TABLE 11 APPENDIX

95. On the other hand, **investment momentum** is likely to **remain weak**. The indicators for this are low capacity utilisation, reduced profitability and the continued high level of uncertainty. A decline is expected for investment in machinery and equipment for the third and the fourth quarter of 2019, before a probable gradual uptick in investment momentum during the course of 2020. However, a return to much higher growth rates is unlikely any time soon, given the increased uncertainty and muted export prospects.

↘ CHART 23

Forecast intervals for gross domestic product and consumer prices[1]
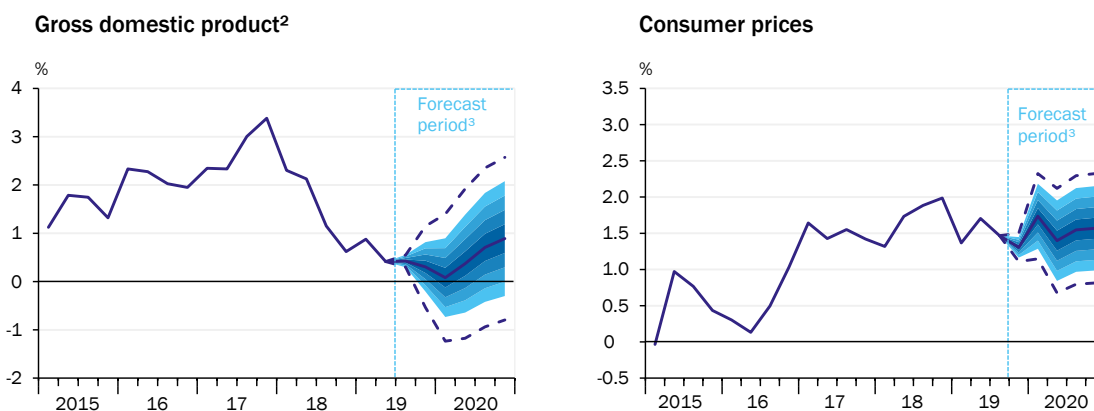
1 – Change on the same quarter of the previous year. Confidence bands are calculated on the basis of the average absolute forecast error for the period from 1999 to 2017. The width of the symmetric confidence band is twice the average absolute forecast error; dashed line: 68 % confidence interval. 2 – Price-, seasonally and calendar-adjusted. 3 – Forecast by the GCEE.

Sources: Federal Statistical Office, own calculations

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Only moderate growth is expected in gross fixed capital formation in construction due to bottlenecks in the construction industry. Given the persistent high demand for residential property and additional government construction plans, however, **construction activity** is likely to continue its **uptrend**. Mirroring the trend in machinery and equipment investment, however, commercial construction is expected to be affected by the weak economy.

Foreign trade risks

96. The weak **world economy is likely to further dampen German exports**. Therefore no impetus from foreign trade during the forecast period is to be expected. At the same time, trade policy risks are considerable. The base scenario assumes that they will not materialise. The risk of a potential disorderly Brexit is difficult to gauge.

   Emergency measures of the EU and the United Kingdom will likely cushion the **impact of a no-deal Brexit** (Gemeinschaftsdiagnose, 2019; IMF, 2019c), but adverse effects on trade will be almost unavoidable. In case of a no-deal Brexit, the United Kingdom would become a third country from an EU point of view. Tariffs would have to be levied on exports into the EU until further notice, and in some areas, access to the European market would be restricted or completely prevented due to regulatory requirements (GCEE Economic Update 2019).

97. Germany recorded a trade in goods surplus of around €45 billion with the United Kingdom in 2018, although the positive balance declined as a result of the economic slowdown in the United Kingdom and the depreciation of the pound. The trade balance with the United Kingdom therefore accounted for around 1.3 % of German GDP in 2018. Assuming a **decline in bilateral trade in goods** of 25 % following a no-deal Brexit, this would subdue growth by a little over 0.3 percentage points. This calculation assumes, for simplification purposes, that imports and exports would decrease equally.

98. Studies on the possible impact of a no-deal Brexit consider potential macroeconomic adjustments in addition to linkages along international value chains. The **most dramatic effects** within the euro area are **expected to hit countries dependent on industry and export** that have close trade relations with the United Kingdom (Brautzsch and Holtemöller, 2019; DIW, 2019). These include Germany, in particular. The Joint Economic Forecast Project Group (Gemeinschaftsdiagnose, 2019) estimates that a no-deal Brexit could lead to a loss in German GDP growth of between 0.3 and 0.4 percentage points in 2020.

   However, these **estimates depend heavily** on **assumptions**, such as that regarding the extent of the decline in growth for the United Kingdom (Brautzsch and Holtemöller, 2019). There is also uncertainty as regards the effects of a disorderly Brexit on financing conditions and trade costs, and the political reactions it may provoke.

99. **In the event of a no-deal Brexit**, the 0.3 percentage-point mark-down on the GCEE's forecast would mean **GDP growth of just 0.6 % next year**. The calendar-adjusted calculation sees the German economy growing by just 0.2 % as opposed to the assumed 0.5 %. In terms of use, this is likely to be reflected in weaker exports. It would also be expected in this case that the weakness in machinery and equipment investment would continue.

On the adjustment to the 2019 forecast

The GCEE still assumed a GDP growth rate of 0.8 % for the year as a whole in its forecast of March 2019. It also expected relatively constant quarterly growth rates of 0.3 % for the year. The **annual forecast for 2019** is likely to prove somewhat **too optimistic**. In particular, the weak development in the summer half-year of 2019 was not expected. Economic output fell by 0.1 % quarter-on-quarter in the second quarter, and is likely to have declined slightly further in the third quarter, significantly dampening growth in 2019. This is offset by the revision of the national accounts data, leading to **better economic development in the last two quarters of 2018 than originally reported**, particularly in private consumption. This resulted in a small positive overhang of 0.2 % on annual average GDP growth in 2019, which was still 0 % as of March 2019. The GCEE has revised its forecast for the year down by 0.3 percentage points overall. ↘ TABLE 5

Comparison of the spring and the autumn forecasts for the year 2019

| | Forcast by the German Council of Economic Experts | | | | | |
| | March 2019 | | Annual Report 2019 | | Difference | |
	Year-on-Year change[1]	Growth contri-butions[2]	Year-on-Year change[1]	Growth contri-butions[2]	Year-on-Year change[1]	Growth contri-butions[2]
Gross domestic product	**0.8**	**x**	**0.5**	**x**	**– 0.3**	**x**
Domestic demand	1.6	1.5	1.2	1.2	– 0.3	– 0.3
Final consumption expenditure	1.2	0.9	1.6	1.1	0.3	0.3
Private consumption[3]	1.0	0.5	1.4	0.7	0.4	0.2
Government consumption	2.0	0.4	2.1	0.4	0.1	0.0
Investment in machinery & equipment[4]	1.6	0.1	1.6	0.1	0.1	0.0
Construction investment	3.3	0.3	3.6	0.4	0.3	0.0
Net exports	x	– 0.7	x	– 0.7	x	0.0
Exports of goods and services	1.9	0.9	0.7	0.3	– 1.2	– 0.6
Imports of goods and services	3.9	– 1.6	2.5	– 1.0	– 1.4	0.5

1 – Price-adjusted. In %. 2 – Contributions to growth of price-adjusted GDP. In percentage points; Deviations in the differences due to rounding.
3 – Including non-profit institutions serving households. 4 – Including military weapon systems.

Source: own calculations

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On the expenditure side, the **momentum of foreign trade** in particular was **overestimated**. However, as this applies equally to imports and exports, the net export forecast needs little adjustment. The same applies to domestic use. The March forecast already included a weakening of gross fixed capital formation in machinery and equipment. Actual development in the first six months of the year was slightly better than predicted in March. However, now that a decline is expected for the second half of the year, there will be no need to adjust gross fixed capital formation in machinery and equipment for the year as a whole. The difference between the current GDP forecast and that of March is due to **changes in inventories**, which are likely to weigh unexpectedly heavily on annual growth for 2019 with a **negative contribution of −0.6 percentage points**. By contrast, private consumption is expected to make a somewhat larger contribution to growth than predicted in March.

The GCEE **evaluates** the quality of its **forecasts** on a regular basis (GCEE Annual Report 2015 box 6), which includes comparisons with forecasts by the International Monetary Fund (IMF), the Organisation for Economic Co-operation and Development (OECD), the European Commission and the Joint Economic Forecast Project Group. All of these forecasts were made in the autumn for the following year. The forecasting errors result from the difference between the forecast value and the first published GDP figure.

A comparison between institutions reveals a very similar predictive power. ↘ TABLE 6 It should be noted in these comparisons, that differences in forecast quality may in some cases be due to **differing publication dates**. The later the forecast, the more likely current indicators can be used. The institutions' forecasts are of much higher quality than naïve forecasts, which for example simply repeat the growth of the previous year.

↘ TABLE 6

Accuracy of selected autumn forecasts for gross domestic product[1]

Forecasts from 1991 to 2018 for the following year in each case

	IMF	Joint Economic Forecast	European Commission	OECD	GCEE
	Publication month				
	September	October	November		
Mean error (percentage points)	0.43	0.35	0.22	0.22	0.25
Mean absolute error (percentage points)	1.20	1.02	1.00	0.97	0.93
Root mean square error (percentage points)	1.75	1.47	1.46	1.33	1.40
Theil's coefficient of inequality[2] (1) Assuming an unchanged level of GDP	0.78	0.66	0.66	0.60	0.63
(2) Assuming unchanged GDP growth	0.68	0.57	0.57	0.52	0.54

1 – Own calculations. GDP forecasts for West Germany until 1994, thereafter for Germany as a whole. 2 – Sqare root of the quotient of the mean square forecast error and the mean square forecast error of an alternative model.

Sources: European Commission, IMF, Joint Economic Forecast Project Group, OECD, own calculations   © Sachverständigenrat | 19-393

3. Subsiding labour market momentum

100.   The labour market continued its positive trend in the first half of 2019, albeit at a more moderate pace than in previous years. Seasonally adjusted **employment subject to social security contributions** recorded in July 2019 around 520,000 workers more than in the same month of the previous year. However, this development is primarily attributable to the last half of 2018 and the first quarter of 2019. The monthly increase in employment has decreased noticeably since spring.

Workers **without German citizenship** continue to constitute a considerable proportion of the sustained **increase in employment** (GCEE Annual Report 2018 item 287). This group mainly includes individuals from countries of the EU eastern enlargement as well as from the most important non-European asylum-seeker countries of origin (Asyl8 countries: Afghanistan, Eritrea, Iraq, Iran, Nigeria, Pakistan, Somalia and Syria). ↘ ITEM 597 Monthly net migration stood at a

low level for the first half of 2019 in comparison to previous years. It averaged just under 28,000 persons.

101. Signs of subsiding labour market momentum can also be seen in **unemployment**. Although the unemployment rate dropped below the 5 % mark for some time, seasonally adjusted figures imply that the **temporary low** has likely been **reached**. The seasonally adjusted unemployment rate climbed slightly in May. Since then, it has been moving sideways, resulting on the one hand side from a decrease in the number of unemployed receiving benefits in accordance with Book II of the German Social Code (*Sozialgesetzbuch II –* SGB II) and on the other hand from an increase in the number of unemployed receiving benefits in accordance with Book III of the German Social Code (*Sozialgesetzbuch III –* SGB III). The weaker economy thus appears to be having an impact on labour demand with the typical lag.

102. Other labour market indicators reflect the same picture. The number of registered **job vacancies** seems to have reached its peak for the time being. The sideways movement that began in summer of last year has given way to a negative trend since spring 2019. Vacancies, however, remain at a high level. **Skilled worker shortages** still seem to be impeding employment growth.

The ifo Employment Barometer continues its negative trend in 2019, which began in mid-2018. Particularly in the manufacturing sector, the companies surveyed expect **declining labour demand** in the future. Service sector companies continue to expect a net increase in personnel, but this expectation has recently declined quite significantly. The labour market barometer of the Institute for Employment Research (*Institut für Arbeitsmarkt- und Berufsforschung –* IAB) also points to a downward trend, albeit the level still indicates positive trend in employment.

103. The **increase in short-time work** also suggests a slowdown in labour market momentum. Manufacturing companies in particular appear to have availed themselves of this opportunity to **bridge the decline in new orders without major staff reductions**.

The extent to which short-time work will **actually prevent or merely delay staff reduction** for business cycle reasons is unclear. International literature and positive experiences in Germany during the economic downturn in 2008 indicate the former (Balleer et al., 2016; Cooper et al., 2017). In times of increasing **skilled labour shortages**, it can make sense for companies to employ staff beyond difficult economic times, although this may involve financial losses in the event of soft order books. Ultimately, however, the duration and intensity of an economic slowdown determine the potential effect of short-time work. It will not – nor should – prevent structurally necessary changes.

104. The **decline in temporary employment** may also reflect the labour market slowdown. The number of temporary workers dropped by nearly 13 % in July 2019, compared to July 2018. This trend could be partly attributed to the reform of the German Temporary Employment Act, which limits the duration of

temporary employment (GCEE Annual Report 2017 item 783). However, companies can also use temporary work for variable staff capacity that can be adapted to the economic situation. The reduction noted could therefore, at least partly, be a reaction to the lower order levels, similar to the case of short-time work (Hutter et al., 2019).

105. Due to the increasing signs of flagging labour market momentum the GCEE expects **employment growth** in 2020 to be positive, yet relatively small. It is being upheld by labour demand in the service sector. Employment rose in this sector in the first half of 2019 despite the weak economy. As this momentum is unlikely to immediately stall in the near future, for instance, because demand for some types of services is independent of the economy (Klinger and Weber, 2019), employment in this sector can be expected to further increase regardless of economic downturn.

↘ TABLE 7

Labour market in Germany
1,000 persons

	2017	2018	2019[1]	2020[1]	2019[1]	2020[1]
	Yearly averages				Change on previous year in %	
Labour force potential	46,923	47,435	47,650	47,692	0.5	0.1
Labour force[2]	45,748	46,177	46,441	46,585	0.6	0.3
Unemployed persons[3]	1,621	1,468	1,373	1,389	– 6.5	1.2
Commuter balance[4]	121	145	157	165	8.2	5.0
Employed persons[5]	44,248	44,854	45,225	45,360	0.8	0.3
Self employed persons	4,272	4,223	4,171	4,191	– 1.2	0.5
Employees	39,976	40,631	41,054	41,169	1.0	0.3
Employees subject to social security contributions	32,234	32,964	33,424	33,641	1.4	0.6
Marginally employed persons (ILO concept)[6]	5,360	5,277	5,187	5,093	– 1.7	– 1.8
Marginally employed persons (FEA concept)[7]	7,436	7,498	7,550	7,588	0.7	0.5
Exclusively marginally employed	4,742	4,671	4,607	4,543	– 1.4	– 1.4
Marginally employed in second job	2,694	2,826	2,943	3,045	4.1	3.5
Registered unemployed persons	2,533	2,340	2,272	2,317	– 2.9	2.0
Underemployment excluding short-time work[8]	3,517	3,285	3,220	3,329	– 2.0	3.4
Short-time workers (Employment equivalence)	45	43	50	46	15.4	– 7.7
Labour volume (million hours)[9]	61,564	62,344	62,659	63,070	0.5	0.7
Unemployment rate (FEA)[10,11]	5.7	5.2	5.0	5.1	– 0.2	0.1
Unemployment rate (ILO)[11,12]	3.8	3.4	3.2	3.2	– 0.2	0.0

1 – Forecast by the GCEE except labour force potential (Source: IAB). 2 – Persons in their working age with residence in Germany (national concept); as defined by the national accounts systems. 3 – ILO concept. 4 – Difference of employed workers commuting from foreign countries to Germany and those commuting from Germany to foreign countries. 5 – Employed persons in Germany independent of their residence (domestic concept). 6 – 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"). 7 – Employed workers with a wage up to 450 Euro (§ 8 Absatz 1 Nr. 1 SGB IV). 8 – According to the concept of underemployment by the FEA. 9 – Working hours of employed persons working in Germany. 10 – Registered unemployed persons in relation to civilian labour force. 11 – Yearly averages in %; change on previous year in percentage points. 12 – Unemployed persons in relation to the labour force, in each case persons in private households aged from 15 to 74 years.

Sources: Eurostat, Federal Employment Agency (FEA), Federal Statistical Office, Institute for Employment Research (IAB), own calculations

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An average of **around 135,000 more people are expected to be employed in 2020** than in the current year. ↘ TABLE 7 The trend in marginal employment will continue next year, which implies that the number of people who hold a "minijob" only will further decrease. **Unemployment** is expected to increase slightly next year adding around 45,000 people as a result of the economic situation.

106. In the **revision of the national accounts**, gross wages and salaries were revised upwards retroactively. According to the revised national accounts, workers received significantly higher wage increases in recent years than previously assumed. As nominal GDP was revised downwards at the same time, the current wage share is almost 2 percentage points higher due to the revision. Accordingly, real unit labour costs were also revised upwards.

107. **Unit labour costs** are expected to **rise sharply** in 2019 and 2020. Productivity per hour worked rose only marginally in 2018. Given the slower overall economic development and the still quite positive employment momentum, labour productivity is unlikely to increase in 2019 and only slightly in 2020. ↘ TABLE 11 APPENDIX

4. Budget surplus despite economic downturn

Expansionary fiscal policy stance

108. During the past eight years, the **general government budget surplus** has been increasing continuously. Economic slowdown and an expansionary fiscal policy, however, should now induce these surpluses to decline in this and the next year. Public spending is expected to increase at a faster pace than GDP for both years and revenue momentum to wane. The budget surplus should still amount to €49.2 billion (1.4 % of GDP) in 2019. ↘ TABLE 8 A decline to €16.4 billion (0.5 % of GDP) is expected for 2020. By the end of this year, the debt ratio is likely to fall below the 60 % of GDP ceiling enshrined in the Maastricht Treaty.

109. Several **one-off effects** come into play this year. Automobile manufacturers and suppliers are again paying fines, for one. Although, at around €1.5 billion, these amount to less than the fines imposed on other companies last year. The auction of the 5G frequency blocks generated revenue of some €6.6 billion. However, this is posted in the national accounts over several periods.

+

A scheduled **major revision of the national accounts** was performed in 2019 after the last review five years ago. This was accompanied by major structural changes affecting the period from 1991 onwards. Public broadcasting companies have been included in the government sector for the entire period, for instance. The revenue they generate from broadcasting fees is now recorded as consumption-related tax. Moreover, a greater portion than before of publicly owned vehicles are treated as investment goods. In combination with further changes and revision of underlying data sources, this results in changes in the levels of key indicators. With the nominal gross domestic product revised downwards at the same time, the tax ratio and the public spending ratio increase significantly.

110. **Fiscal policy is likely to remain expansionary** in 2019 and 2020. Discretionary fiscal policy measures amounting to 0.6 % of GDP are envisaged for 2019. On the expenditure side, these include, in particular, expenditures for the new pension package for mothers (*Mütterrente* II) and other financial burden on the statutory pension scheme, additional expenditure on defence, and investment measures. Weighing on the income side of public finances are the reduction in the contribution rate to statutory unemployment insurance and tax relief measures introduced by the Family Relief Act (*Familienentlastungsgesetz*). This pressure is offset by additional income generated by the increased contribution rate to statutory social long-term care insurance.

Discretionary measures amounting to 0.5 % of GDP are expected in **2020**. Compared with earlier estimates, this represents an **increase in the degree of**

↘ TABLE 8

Public revenues and expenditures as well as fiscal indices[1]

	2018	2019[2]	2020[2]	2019[2]	2020[2]
	Billion euro			Change on previous year in %	
Total revenues	**1,552.9**	**1,599.2**	**1,638.0**	**3.0**	**2.4**
Taxes	800.9	821.9	839.4	2.6	2.1
Social contributions	572.5	594.9	613.3	3.9	3.1
Other revenues[3]	179.5	182.4	185.3	1.7	1.6
Total expenditures	**1,490.5**	**1,550.1**	**1,621.7**	**4.0**	**4.6**
Intermediate consumption	169.4	178.0	187.3	5.1	5.2
Compensation of employees	259.3	268.8	277.8	3.7	3.3
Property income (including interest) payable	31.7	29.0	27.4	– 8.6	– 5.5
Subsidies payable	29.6	31.2	32.0	5.6	2.4
Social benefits other than social transfers in kind	520.2	546.1	570.9	5.0	4.5
Social benefits in kind	285.9	297.6	309.4	4.1	4.0
Gross capital formation	78.4	84.6	89.5	8.0	5.8
Other expenditures[4]	116.1	114.7	127.4	– 1.2	11.1
Net borrowing/net lending	**62.4**	**49.2**	**16.4**	**x**	**x**
Fiscal indices (%)[5]					
Public spending ratio[6]	44.6	45.2	45.9	x	x
Government consumption ratio	19.9	20.2	20.5	x	x
Social contributions ratio[7]	16.0	16.2	16.2	x	x
Tax ratio[8]	24.3	24.3	24.1	x	x
Tax and contribution ratio[9]	40.3	40.5	40.4	x	x
Net lending/net borrowing	1.9	1.4	0.5	x	x
Structural balance[10]	1.3	0.8	0.2	x	x
Debt-to-GDP ratio[11]	61.9	59.0	56.7	x	x
Interest-to-tax ratio[12]	3.9	3.5	3.2	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. 5 – In relation to 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. 11 – Forecast by the GCEE for the general government gross debt as defined in the Maastricht Treaty. 12 – Interest payable in relation to taxes including inheritance tax.

Sources: Federal Statistical Office, own calculations

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fiscal policy expansion, and is attributable not least to additional expenditures resulting from **resolutions adopted by the climate cabinet**. Additional expenditure is planned for investments, and family, pension and long-term care policy measures. Tax relief is to be provided for in income tax, among other areas.

111. The economic environment no longer supports public finances in the forecast period as strongly as in previous years. In view of this fact and net of one-off effects, the GCEE expects a **structural budget balance** of 0.8 % of GDP for 2019. This figure should amount to 0.2 % of GDP in the coming year.

Fiscal policy implications

112. At present, the German Council of Economic Experts does not anticipate an economy-wide recession, which would also affect the domestic economy, nor does it anticipate a significant decline in economic output. The economy can be expected to slowly pick up during the forecast period. The output gap is likely to close in 2020 and economic growth to gradually approach its potential level. With regard to business cycle stabilisation, there is thus **no current need to take fiscal policy action**, particularly given that fiscal policy is already expansionary. ↘ ITEM 110

There are nonetheless considerable downside risks to the outlook, therefore raising the question of what measures would be appropriate in the event a recession would occur. First and foremost, politicians should **let the automatic stabilisers take effect**. In particular, unemployment insurance and the progressive tax system aid in stabilising incomes.

113. Also, the **short-time work allowance for economic reasons** (*Kurz-arbeitergeld* – KuG) proved an effective labour market policy tool during the 2008 and 2009 crisis period (Cooper et al., 2017). This instrument was gradually expanded for a limited period of time. For example, entitlement requirements were temporarily relaxed, maximum utilisation was extended and acquisition of qualifications was more heavily promoted (GCEE Annual Report 2009 box 13). The short-time working allowance could be put to use again and readapted to fit the current economic situation in a similar manner.

However, it is questionable to what degree adjustments to the short-time work allowance could actually improve its effectiveness. Balleer et al. (2016) see the **strength of short-time work in its institutional, rule-based design**, which gives employers planning security. The success of the short-time work allowance in the recession of 2008 and 2009 also needs to be viewed in conjunction with other institutional components, such as working time accounts, or collective bargaining autonomy (Boeri and Brücker, 2011; Burda and Hunt, 2011). If a decline in economic activity is more a result of structural problems, expanding short-time work could, moreover, be an obstacle to necessary structural change by keeping employees bound to a company and thus impeding their mobility. In such a case, it would be better to consider financing measures aimed at skills acquisition. The **Skills Development**

Opportunities Act (*Qualifizierungschancengesetz*), which took effect in January 2019 and intends to **facilitate access to on-the-job training**, is already a first step in this direction.

114. The **reserve of the Federal Employment Agency** (*Bundesagentur für Arbeit* – BA) is expected to amount to almost €26 billion in 2019 (Boss, 2019). This reserve was created in particular to finance increased insurance benefits in times of rising unemployment. Having such a reserve can avoid raising the contribution rate and causing a procyclical effect. However, these funds could also be used to finance an expansion of the short-time work allowance, although this allowance could be classified as a non-insurance benefit (Münstermann, 2012). In such case, financing via the federal budget would be appropriate.

115. In a period of economic downturn, the **debt brake** and European fiscal rules allow for net borrowing exceeding that of normal periods. ITEM 439 This creates **leeway** for the automatic stabilisers to take effect. In the event of a broad, deep recession, of which however there are no indications at present, an exemption from the debt brake would also be possible. A distinction must be made between the debt brake and the political goal of a gross balanced budget (*"Schwarze Null"*). Continuing to strive for this goal could hamper operation of the automatic stabilisers in the event of a more severe downturn.

116. In addition to automatic stabilisers, **further expansionary fiscal measures** are under discussion in order to achieve greater business cycle smoothing in case of a sharper deterioration of the economy. One strategy is to undertake **temporary** measures to be implemented in a **timely** and **targeted** manner ("timely, targeted, temporary", Elmendorf and Furman, 2008; GCEE Annual Report 2008 item 417) in order to counteract the negative effects of shocks on economic performance in the short term. Implementation of measures should be targeted to where they quickly have a strong impact. **In practice**, however, these **requirements** are **difficult to meet at the same time**.

Studies on the **impact of discretionary fiscal policy measures on GDP** do not yield a clear result (Gechert, 2015). In a summary article, Ramey (2019) examines the results of structural models in addition to empirical analyses and gives a range of fiscal multipliers of expenditure measures from 0.3 to 2.0. Christiano et al. (2011) show that the multiplier can be very high under the conditions of the effective zero lower bound. Various studies have examined the effectiveness of the measures during the 2008 and 2009 recession years. Cogan et al. (2010), for instance, find no strong increase in the multiplier at the effective zero lower bound for the **American Recovery and Reinvestment Act** (**ARRA**), which included measures amounting to 5 % of GDP. A comprehensive comparative study by Coenen et al. (2012a) confirms this finding. Chodorow-Reich (2019), in contrast, estimates the ARRA multiplier at 1.7 and higher. Survey-based analyses of fiscal transfers, however, suggest that private households predominantly saved the funds they received or used them to repay debt (Sahm et al., 2012). Taylor (2011) found that various discretionary fiscal measures in the United States also had a limited impact on consumption and public spending. The US federal government increased its spending only slightly. For the most part, private households saved the tax refunds and transfers granted to them. Cogan and Taylor (2012) demonstrate that hardly any of the funds transferred by the US federal

government to the states and local government levels at that time were spent on additional purchases for consumption or investment. They were primarily used instead for transfer payments and reducing net borrowing. Cwik and Wieland (2011) use several New Keynesian structural models to evaluate the 2009 and 2010 **European Economic Recovery Plan (EERP)**, which combined the stimulus packages of the EU Member States. Taking the effective zero lower bound into account, they identify multipliers of predominantly less than one and an overall small contribution to GDP stabilisation in the euro area. Coenen et al. (2012b) investigate the effect of the EERP in a model that takes into account complementary effects between public and private consumption. The estimate of the stimulus effect of the EERP is somewhat higher than in Cwik and Wieland (2011). Drygalla et al. (2018) use a New Keynesian model for **Germany** and estimate that the fiscal shocks in 2008 and 2009 made a positive but relatively small contribution to stability. Holtemöller et al. (2015) use two macroeconometric structural models (the IWH model and the D* model) to gauge the impact of the individual measures of the German economic stimulus packages. These forecasting models, however, do not include in their analyses the behavioural responses of households and businesses to policy changes in the same microeconomically founded manner as the studies in the international literature described here do. They are therefore less suitable for calculating how differently the economy would have developed with or without the stimulus packages. The D* model, in particular, yields extremely high fiscal stimulus effects compared to the microeconomically founded models cited above.

117. A challenge for this active economic policy strategy is **promptly separating the cyclical and structural factors** of economic development (Elstner et al., 2016). Accurately assessing the current position in the economic cycle is difficult, particularly in the case of moderate deviations from potential output, which can lead to **procyclical fiscal policy** and limit its effectiveness. The Federal Government introduced accelerated depreciation in 2006 and 2007, for example. This policy measure turned out to be procyclical at the time given the positive output gaps (GCEE Annual Report 2008 item 438).

118. Measures that can meet the **"timely" and "temporary" criteria** include **tax reductions** and **transfer payments**. They can be implemented at short notice for a limited period. However, meeting the additional requirement that such funds reach those households that would go on to spend considerably more is difficult. The **additional funds** are often **saved** or used to reduce (new) debt (Taylor, 2011; Sahm et al., 2012; GCEE Annual Report 2013 items 219 ff.).

119. **Further measures** that were implemented **on time and for a limited period** in 2009 in the United States and Germany are the **Car Allowance Rebate System** and the **scrapping premium** ("Cash for Clunkers", Abrams and Parsons, 2009; "Scrapping premium", Holtemöller et al., 2015). Both measures resulted in an increase in new car registrations in 2009, followed by a similarly strong or even stronger decrease. Hence there was considerably greater spending on vehicles in 2009.

A number of studies intensively analysed the **US programme**, in particular. The results they found were largely negative. Subsequent studies found major reversal effects in vehicle purchases in cities where the programme was widely used, while **neither employment nor house prices rose** nor did household

default rates fall (Mian and Sufi, 2012). Abrams and Parsons (2009) and Gayer and Parker (2013) rate the programme as **very unfavourable** in terms of the **costs of the stabilisation contribution**. Hoeckstra et al. (2017) estimated the deadweight effect at more than half of the programme costs and found overall that the stimulus effect on new vehicle purchases was negative due to the programme's restrictions.

In contrast, the study by Holtemöller et al. (2015) determined very positive effects from the **German scrapping premium (*Abwrackprämie*)**. Particularly a simulation of the D* model they used shows that the scrapping premium expenditure of €5 billion increased consumption in Germany by a total of €29.43 billion. Yet this analysis takes no account of the behavioural responses and the deadweight effect on consumers estimated in the above studies. The current state of scientific literature on the evaluation of economic policy interventions suggests, however, that such factors must be taken into account in order to deliver a conclusive estimate of the scrapping premium's impact.

120. For other measures, such as **investment projects**, which can have a lasting positive impact in the longer term, the time required for planning, approval and implementation impedes or even prevents a timely stimulus. Additional government construction projects are currently likely to have only limited success, at least in the short term, given existing **capacity constraints**, and will further increase inflation **in the construction sector**.

121. **Another strategy** of active economic policy is to undertake measures that **combine short-term stimulus with boosting growth potential**. A deep, broad recession resulting in significant employment losses is normally due not only to temporary shocks but also to structural changes. Such changes require comprehensive reallocation processes. Temporary fiscal stimuli are only of little use. Instead, measures that improve **general conditions** for companies in order to permanently increase the national economy's growth potential are helpful. This suggests that, in the event of such a recession, measures should be taken that are **permanent** and **pervasive** and that **predictably** change the general conditions in the long term ("permanent, pervasive, predictable", Taylor, 2008).

122. The aim of this strategy is not only a short-term stimulus over a few months or quarters but also sustainable improvement of **incentives for employment, capital accumulation and innovation**. At the very least, policymakers should avoid tax increases that impair such incentives. Temporary tax cuts that may appear erratic are unlikely to generate any major incentives for better use of existing production factors. **Permanent tax cuts**, such as a reduction of income tax (complete abolishment of the solidarity surcharge), corporate tax or electricity tax, can, on the other hand, boost potential output. If such measures are **predictably sustainable**, they promote investment activity and job creation (GCEE Annual Report 2013 items 227 ff.; GCEE Annual Report 2018 items 581 ff.). Tax cuts can be quickly implemented. They can also have a short-term positive effect, particularly if it is possible to increase the use of existing

capital without great delay (Lieberknecht and Wieland, 2019; GCEE Annual Report 2018 items 584 ff.) This is likely to be the case in a deeper recession.

123. **Government spending on education, research and infrastructure** are some other government measures that can deliver a sustainable positive impact. **Good planning** is imperative in this respect. An appropriate prioritisation must be in place to ensure, in particular, that there are no negative effects on medium-term sustainability of public finances. Planning and approval processes for sensible investment projects should be advanced so that, were construction industry capacities actually freed up, such projects could be pulled forward.

A differing opinion

124. Two members of the Council, Isabel Schnabel and Achim Truger, cannot fully endorse the majority position of the German Council of Economic Experts on the fiscal policy implications of the diagnosis of the current economic state. The **dissenting view** concerns the assessment of the possible **design of a discretionary countercyclical fiscal policy** in the event the economy were to further slow its pace. The question of the debt brake as a potential limitation of automatic stabilisers is discussed elsewhere. ↘ ITEM 574

125. Although no economy-wide recession can yet be diagnosed, the **risk of such a recession has noticeably increased** – to around 36 % according to the estimates of the German Council of Economic Experts. It is even considerably higher by other estimates. ↘ ITEM 87 First signs of the slowdown spilling over to services and the labour market are already visible. It would therefore make sense for fiscal policymakers at federal, state and local level to jointly **identify the existing scope for countercyclical measures** within the framework of the debt brake so that these can be implemented in time if necessary.

126. While the problems of discretionary countercyclical fiscal policy described by the majority are certainly significant, the **problems** of such measures should be **weighed against their benefits** in the event of a sharper economic downturn. First and foremost, temporary measures that could be swiftly implemented and thus have a targeted, markedly stabilising effect – as was the case with individual measures in the 2009 economic stimulus packages – could make sense.

   Accelerated depreciation could be temporarily reintroduced as a means of sparking corporate investment to be pulled-forward. Companies could use this method of depreciation to take advantage of the opportunities afforded by Industry 4.0 or for more energy-efficient production, for instance. As there is already a marked slowdown in **corporate investment**, activating such a measure early on could make sense, in order to **achieve** the desired **pull-forward effects** and avoid a procyclical impact. Possible income transfers such as a **child bonus** would not be counted towards the basic minimum income support and could thus stimulate private consumption if current economic

weakness were to affect it. **Bringing forward** the **partial abolishment of the solidarity surcharge** scheduled for 2021 or offering temporary income tax reductions would also be conceivable measures. Finally, specific measures such as premiums for low-emission cars could be considered.

127. Despite its particularly high multiplier, **public investment** is **less suitable as an instrument of business cycle policy** because of the long lead time in implementation. This is true at least as long as the Federal Government and the Länder do not have a ready stock of investment projects the implementation of which can be pulled forward. Nevertheless, a **longer-term investment strategy** could be launched in a timely manner, which could at best boost the economy as a side effect.↘ ITEMS 575 FF.

128. **Permanent tax cuts** may make sense under some conditions. This is true regardless of the economic state, as is the case with a long-term public investment strategy. In contrast, employing permanent tax cuts **as a discretionary countercyclical policy instrument** ↘ ITEMS 121 F. is **questionable** at least. It is doubtful that structural measures, including the creation of an appropriate general framework, can replace discretionary countercyclical fiscal policy.

129. **Timely** implementation of such measures would also be difficult. For example, lowering corporate tax would require supplementary corporate tax measures in order to avoid "distortions in the corporate taxation system" (Advisory Board to the Federal Ministry of Finance, 2019), thus rendering it a technically and politically complex task. If the solidarity surcharge were to be completely abolished, account would need to be taken of the fact that only a limited impact on consumption in high income classes could be expected. Bearing this in mind, one could ask how **targeted** such a measure would be. The structural fiscal pressure resulting from permanent tax cuts also entails **risks to public finances**. Fiscal policy could be forced to raise taxes considerably elsewhere or cut spending in order to comply with the debt brake. This could be **at the expense of urgently needed investments**. ↘ ITEMS 575 FF.

5. Medium-term projection: subdued outlook

130. The German Council of Economic Experts estimates the average growth rate of the **potential output of the German economy** for the years 2018 to 2024 at 1.3 %. Potential growth is currently just under 1.5 %, but is expected to fall over the forecast period to only around 1.1 % in 2024. ↘ CHART 24 LEFT The main reason for this is **labour volume**. This factor is likely to contribute less and less growth in the coming years. In the past 15 years, it was above all the rising labour force participation rate along with the decline in the non-accelerating inflation rate of unemployment (NAIRU) that ensured continuous expansion of labour potential. ↘ CHART 24 RIGHT

The **labour force** also grew again in the 2010s, despite the trend of demographic change. This is mainly due to heightened migration during this

Growth contributions of components to potential GDP[1]

Potential output

Labour volume
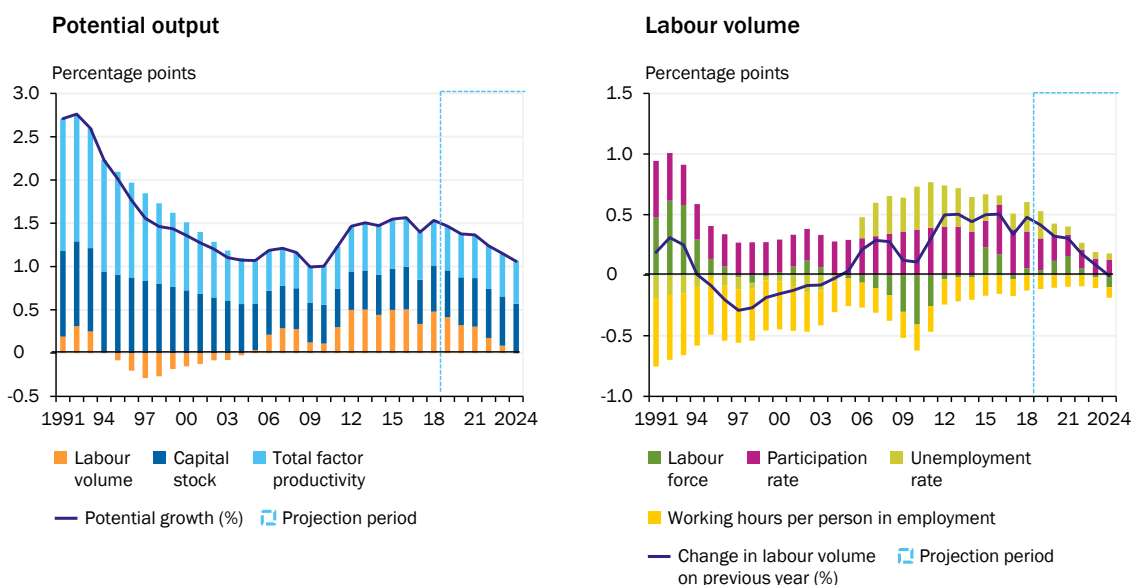
1 – Calculations by the GCEE.

Sources: Federal Statistical Office, own calculations

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period. According to the German Federal Statistical Office's 14th coordinated population projection, the working-age population is likely to **increase** again **slightly due to immigration**. However, this trend will reverse and decrease again towards the end of the projection period. The increase in the participation rate is likely to slow at the same time, with the unemployment rate unlikely to leave much room for further declines. ↘ ITEMS 141 F.

131. The labour factor is expected to grow at an average rate of 0.3 % for the 2018 to 2024 projection period. ↘ TABLE 9 The corresponding contribution to potential growth is 0.2 percentage points. **Capital employed** and **total factor productivity** are likely to contribute 0.6 and 0.5 percentage points respectively.

Results of the medium-term projection[1]

	1995 to 2018				2018 to 2024	
	actual		potential			
Gross domestic product (GDP)[2]	**1.4**		**1.3**		**1.3**	
Capital stock	**1.7**	**(0.6)**	**1.7**	**(0.6)**	**1.7**	**(0.6)**
Solow-residual	**0.7**	**(0.7)**	**0.6**	**(0.6)**	**0.5**	**(0.5)**
Volume of labour	**0.3**	**(0.2)**	**0.2**	**(0.1)**	**0.3**	**(0.2)**
Working age population	0.0	(0.0)	0.0	(0.0)	0.1	(0.0)
Participation rate	0.5	(0.4)	0.5	(0.3)	0.3	(0.2)
Unemployment rate	0.2	(0.1)	0.2	(0.1)	0.1	(0.1)
Average working time	– 0.4	(– 0.3)	– 0.4	(– 0.3)	– 0.1	(– 0.1)
For information purposes: GDP per capita[2]	1.3		1.3		1.1	

1 – Calculations by the German Council of Economic Experts; average annual changes in %. In brackets: growth contributions in percentage points. Differences in sums are due to rounding. 2 – Price-adjusted.

Sources: Federal Statistical Office, own calculations

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There are no marked changes in this respect compared to the 1995 to 2018 period. According to medium-term projections, German per capita GDP is expected to increase by an average of 1.1 % between 2018 and 2024.

APPENDIX

Contributions to growth of gross domestic product by expenditure components[1]
Percentage points

	2014	2015	2016	2017	2018	2019[2]	2020[2]
Domestic demand	**1.6**	**1.5**	**2.8**	**2.2**	**2.0**	**1.2**	**1.4**
Final consumption expenditure	0.9	1.6	2.0	1.2	1.0	1.1	1.0
Private consumption[3]	0.6	1.0	1.2	0.7	0.7	0.7	0.6
Government consumption	0.3	0.5	0.8	0.5	0.3	0.4	0.4
Gross fixed capital formation	0.6	0.4	0.8	0.5	0.7	0.6	0.4
Investment in machinery & equipment[4]	0.3	0.3	0.2	0.3	0.3	0.1	0.1
Construction investment	0.2	– 0.1	0.4	0.1	0.3	0.4	0.2
Other products	0.1	0.2	0.2	0.2	0.2	0.1	0.1
Changes in inventories	0.1	– 0.4	0.1	0.5	0.3	– 0.6	– 0.0
Net exports	**0.6**	**0.2**	**– 0.6**	**0.3**	**– 0.4**	**– 0.7**	**– 0.5**
Exports of goods and services	2.2	2.5	1.1	2.3	1.0	0.3	0.7
Imports of goods and services	– 1.6	– 2.3	– 1.7	– 2.0	– 1.5	– 1.0	– 1.2
Gross domestic product (%)	**2.2**	**1.7**	**2.2**	**2.5**	**1.5**	**0.5**	**0.9**

1 – Contributions to growth of price-adjusted GDP. Deviations in sums due to rounding. 2 – Forecast by the GCEE. 3 – Including non-profit institutions serving households. 4 – Including military weapon systems.

Sources: Federal Statistical Office, own calculations

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Wage developments in Germany
Change on the previous year in %

	Collectively agreed wages (hourly concept)[1]	Effective wages[2]	Wage drift[3]	Compensation of employees per working hour	Labour productivity[4]	Unit labour costs (nominal)[5]	Unit labour costs (real)[6]
2015	2.1	2.7	0.5	2.5	0.8	1.8	0.0
2016	2.1	2.8	0.7	2.6	1.4	1.1	0.0
2017	2.5	2.5	– 0.1	2.6	1.3	1.2	0.1
2018	2.9	3.1	0.2	2.7	0.3	2.5	1.0
2019[6]	2.7	3.0	0.3	3.2	0.0	3.3	1.2
2020[6]	2.3	2.3	0.0	2.3	0.2	2.1	0.1

1 – Gross wages and salaries (domestic concept) per employees 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 GDP per working hour (employed person concept). 6 – Forecast by the GCEE.

Sources: Federal Statistical Office, own calculations

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↘ CHART 25

Components of GDP[1]

Exports of goods and services

2015 = 100   %

Change on the previous year in %[2]

| 4.6 | 4.9 | 2.0 | 2.1 | 1.9 | 0.7 | 3.9 | 1.5 |
| 2017 | | 2018 | | 2019 | | 2020 | |

Imports of goods and services

2015 = 100   %

Change on the previous year in %[2]

| 4.8 | 5.2 | 3.3 | 3.6 | 3.9 | 2.5 | 4.3 | 3.0 |
| 2017 | | 2018 | | 2019 | | 2020 | |

Investment in machinery & equipment[3]

2015 = 100   %

Change on the previous year in %[2]

| 3.7 | 4.0 | 4.2 | 4.4 | 1.6 | 1.6 | 2.5 | 0.8 |
| 2017 | | 2018 | | 2019 | | 2020 | |

Construction investment

2015 = 100   %

Change on the previous year in %[2]

| 2.9 | 0.7 | 2.4 | 2.5 | 3.3 | 3.6 | 3.0 | 2.2 |
| 2017 | | 2018 | | 2019 | | 2020 | |

Private consumption[4]

2015 = 100   %

Change on the previous year in %[2]

| 1.8 | 1.3 | 1.0 | 1.3 | 1.0 | 1.4 | 1.4 | 1.2 |
| 2017 | | 2018 | | 2019 | | 2020 | |

Government consumption

2015 = 100   %

Change on the previous year in %[2]

| 1.6 | 2.4 | 1.0 | 1.4 | 2.0 | 2.1 | 1.8 | 2.1 |
| 2017 | | 2018 | | 2019 | | 2020 | |

Chained volume index (2015 = 100)[5]   Annual averages
— Forecast March 2019   — Current forecast
— Current forecast

Change on previous quarter (right hand scale)   ▒ Forecast period[6]
▪ Forecast March 2019
▪ Current forecast

1 – All components of GDP reported price-adjusted. 2 – Not calendar adjusted. 3 – Including military weapon systems. 4 – Including nonprofit institutions serving households. 5 – Seasonally and calendar-adjusted. 6 – Forecast of the GCEE.

Sources: Federal Statistical Office, own calculations

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↘ TABLE 12

Key figures of the national accounts

Absolute values

	Unit	2018	2019[1]	2020[1]	2019		2020[1]	
					1st half-year[1]	2nd half-year	1st half-year	2nd half-year
Use of domestic product								
at current prices								
Final consumption expenditure	billion euro	2,409.3	2,485.0	2,562.0	1,212.7	1,272.3	1,250.5	1,311.5
Private consumption[2]	billion euro	1,743.7	1,791.8	1,839.4	876.1	915.7	899.4	939.9
Government consumption	billion euro	665.6	693.2	722.7	336.7	356.6	351.1	371.6
Gross fixed capital formation	billion euro	707.7	747.3	778.4	359.1	388.2	370.9	407.4
Investment in machinery & equipment[3]	billion euro	235.3	241.3	245.1	115.7	125.5	116.0	129.1
Construction investment	billion euro	344.3	372.8	395.0	180.1	192.8	189.2	205.9
Other products	billion euro	128.1	133.2	138.3	63.3	69.9	65.8	72.4
Domestic demand	billion euro	3,138.3	3,235.9	3,343.7	1,576.7	1,659.2	1,625.9	1,717.8
Exports of goods and services	billion euro	1,585.8	1,606.7	1,636.9	807.0	799.7	810.0	826.9
Imports of goods and services	billion euro	1,379.7	1,413.1	1,451.0	696.9	716.2	705.8	745.2
Gross domestic product	**billion euro**	**3,344.4**	**3,429.5**	**3,529.6**	**1,686.8**	**1,742.7**	**1,730.0**	**1,799.5**
Chained volumes								
Final consumption expenditure	billion euro	2,322.5	2,359.2	2,393.3	1,162.3	1,196.8	1,178.9	1,214.5
Private consumption[2]	billion euro	1,681.7	1,705.2	1,725.4	838.2	867.1	847.9	877.5
Government consumption	billion euro	640.8	653.9	667.9	324.1	329.8	331.0	336.9
Gross fixed capital formation	billion euro	666.6	684.8	696.5	330.6	354.2	333.5	363.0
Investment in machinery & equipment[3]	billion euro	231.4	235.2	237.0	112.7	122.5	112.0	124.9
Construction investment	billion euro	312.2	323.5	330.6	157.5	166.0	159.6	171.0
Other products	billion euro	123.2	126.0	128.7	60.2	65.8	61.6	67.1
Domestic demand	billion euro	3,017.7	3,054.7	3,100.2	1,499.5	1,555.2	1,518.1	1,582.2
Exports of goods and services	billion euro	1,557.2	1,568.6	1,592.2	788.6	780.0	789.7	802.5
Imports of goods and services	billion euro	1,353.6	1,387.2	1,428.3	683.0	704.2	696.4	732.0
Gross domestic product	**billion euro**	**3,222.5**	**3,237.5**	**3,266.3**	**1,605.4**	**1,632.1**	**1,612.0**	**1,654.3**
Price Development (deflators)								
Final consumption expenditure	2015=100	103.7	105.3	107.1	104.3	106.3	106.1	108.0
Private consumption[2]	2015=100	103.7	105.1	106.6	104.5	105.6	106.1	107.1
Government consumption	2015=100	103.9	106.0	108.2	103.9	108.1	106.1	110.3
Gross fixed capital formation	2015=100	106.2	109.1	111.8	108.6	109.6	111.2	112.2
Investment in machinery & equipment[3]	2015=100	101.7	102.6	103.4	102.6	102.5	103.5	103.4
Construction investment	2015=100	110.3	115.2	119.5	114.3	116.1	118.6	120.4
Other products	2015=100	104.0	105.7	107.4	105.1	106.2	106.9	107.9
Domestic demand	2015=100	104.0	105.9	107.9	105.2	106.7	107.1	108.6
Terms of Trade	2015=100	99.9	100.5	101.2	100.3	100.8	101.2	101.2
Exports of goods and services	2015=100	101.8	102.4	102.8	102.3	102.5	102.6	103.0
Imports of goods and services	2015=100	101.9	101.9	101.6	102.0	101.7	101.4	101.8
Gross domestic product	**2015=100**	**103.8**	**105.9**	**108.1**	**105.1**	**106.8**	**107.3**	**108.8**
Production of domestic product								
Employed persons (domestic)	1000	44,854	45,225	45,360	45,049	45,402	45,161	45,560
Labour volume	million hours	62,344	62,659	63,070	30,803	31,856	31,077	31,993
Labour productivity (per hour)	2015=100	103.0	103.0	103.2	104.0	102.1	103.4	103.1
Distribution of net national income								
Net national income	billion euro	2,503.1	2,572.8	2,646.6	1,249.5	1,323.3	1,280.8	1,365.8
Compensation of employees	billion euro	1,771.3	1,846.1	1,901.9	883.7	962.4	914.1	987.8
Gross wages and salaries	billion euro	1,460.9	1,520.0	1,565.6	725.9	794.1	750.7	814.9
among them: net wages and salaries[4]	billion euro	975.5	1,018.5	1,045.2	482.0	536.5	497.6	547.6
Property and entrepreneurial income	billion euro	731.8	726.6	744.7	365.8	360.8	366.8	377.9
Disposable income of private households[2]	billion euro	1,898.5	1,956.7	2,009.5	971.5	985.2	997.8	1,011.6
Savings rate of private households[2,5]	%	11.0	11.2	11.2	12.5	9.9	12.5	9.9
For information purposes:								
nominal unit labour costs[6]	2015=100	104.9	108.3	110.6	104.7	111.9	108.4	112.8
real unit labour costs[7]	2015=100	101.1	102.3	102.4	99.7	104.8	101.1	103.7
Consumer prices	2015=100	103.8	105.3	107.0	104.6	105.7	106.5	107.3

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

Sources: Federal Employment Agency, Federal Statistical Office, own calculations

Key figures of the national accounts

Change on the previous year in %

2018	2019[1]	2020[1]	2019		2020[1]		
			1st half-year[1]	2nd half-year	1st half-year	2nd half-year	
							Use of domestic product
							at current prices
2.9	3.1	3.1	3.0	3.3	3.1	3.1	Final consumption expenditure
2.8	2.8	2.7	2.6	2.9	2.7	2.6	Private consumption[2]
3.3	4.2	4.2	4.0	4.3	4.3	4.2	Government consumption
6.3	5.6	4.2	6.4	4.9	3.3	5.0	Gross fixed capital formation
4.9	2.5	1.6	3.0	2.1	0.2	2.8	Investment in machinery & equipment[3]
7.3	8.3	6.0	9.3	7.3	5.1	6.8	Construction investment
5.9	4.0	3.8	4.5	3.4	3.9	3.7	Other products
4.1	3.1	3.3	3.4	2.8	3.1	3.5	Domestic demand
3.1	1.3	1.9	1.8	0.8	0.4	3.4	Exports of goods and services
5.5	2.4	2.7	4.0	0.9	1.3	4.0	Imports of goods and services
3.1	**2.5**	**2.9**	**2.4**	**2.7**	**2.6**	**3.3**	**Gross domestic product**
							Chained volumes
1.3	1.6	1.4	1.4	1.7	1.4	1.5	Final consumption expenditure
1.3	1.4	1.2	1.2	1.5	1.2	1.2	Private consumption[2]
1.4	2.1	2.1	1.9	2.2	2.1	2.2	Government consumption
3.5	2.7	1.7	3.3	2.2	0.9	2.5	Gross fixed capital formation
4.4	1.6	0.8	2.1	1.2	– 0.6	2.0	Investment in machinery & equipment[3]
2.5	3.6	2.2	4.2	3.1	1.3	3.0	Construction investment
4.3	2.3	2.1	2.9	1.8	2.2	2.0	Other products
2.1	1.2	1.5	1.5	1.0	1.2	1.7	Domestic demand
2.1	0.7	1.5	0.6	0.8	0.1	2.9	Exports of goods and services
3.6	2.5	3.0	3.0	1.9	2.0	4.0	Imports of goods and services
1.5	**0.5**	**0.9**	**0.4**	**0.5**	**0.4**	**1.4**	**Gross domestic product**
							Price Development (deflators)
1.6	1.5	1.6	1.6	1.5	1.9	**1.6**	Final consumption expenditure
1.5	1.3	1.5	1.4	1.3	1.5	1.4	Private consumption[2]
1.8	2.1	2.1	2.1	2.1	2.1	2.0	Government consumption
2.7	2.8	2.4	3.0	2.6	2.4	2.4	Gross fixed capital formation
0.5	0.9	0.8	0.9	0.8	0.8	0.8	Investment in machinery & equipment[3]
4.7	4.5	3.7	4.9	4.1	3.7	3.7	Construction investment
1.6	1.6	1.6	1.6	1.7	1.6	1.6	Other products
2.0	1.9	1.8	1.9	1.8	1.9	1.8	Domestic demand
– 0.9	0.7	0.6	0.2	1.0	0.9	0.4	Terms of Trade
0.9	0.6	0.4	1.1	0.0	0.2	0.5	Exports of goods and services
1.8	– 0.1	– 0.3	0.9	– 1.0	– 0.7	0.1	Imports of goods and services
1.5	**2.1**	**2.0**	**2.0**	**2.1**	**2.1**	**1.9**	**Gross domestic product**
							Production of domestic product
1.4	0.8	0.3	1.1	0.6	0.2	0.3	Employed persons (domestic)
1.3	0.5	0.7	0.7	0.3	0.9	0.4	Labour volume
0.3	0.0	0.2	– 0.3	0.2	– 0.6	0.9	Labour productivity (per hour)
							Distribution of net national income
3.0	2.8	2.9	2.8	2.8	2.5	3.2	Net national income
4.5	4.2	3.0	4.5	4.0	3.4	2.6	Compensation of employees
4.8	4.0	3.0	4.3	3.8	3.4	2.6	Gross wages and salaries
4.7	4.4	2.6	4.8	4.1	3.2	2.1	among them: net wages and salaries[4]
– 0.5	– 0.7	2.5	– 1.0	– 0.4	0.3	4.7	property and entrepreneurial income
3.5	3.1	2.7	2.7	3.4	2.7	2.7	Disposable income of private households[2]
.	.	.	.	.	.	.	Savings rate of private households[2,5]
							For information purposes:
2.5	3.3	2.1	3.7	3.0	3.5	0.8	nominal unit labour costs[6]
1.0	1.2	0.1	1.6	0.9	1.4	– 1.0	real unit labour costs[7]
1.8	1.5	1.6	1.5	1.2	1.8	1.6	Consumer prices

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

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