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ECONOMIC OUTLOOK MASSIVELY BURDENED BY ENERGY CRISIS

This is a translated version of the original German-language chapter "Konjunktureller Ausblick durch Energiekrise massiv belastet", which is the sole authoritative text. Please cite the original German-language chapter if any reference is made to this text.

KEY MESSAGES

↘ High energy prices reduce purchasing power and weigh on private consumption. A stable labour market and easing supply bottlenecks are supporting the economy.

↘ The GCEE expects real gross domestic product in Germany to increase by 1.7 % this year and to decline by 0.2 % in 2023. For consumer price inflation, it forecasts rates of 8.0 % and 7.4 % respectively.

↘ The forecast is subject to considerable downside risks. Should a shortage of natural gas occur in Germany, a deep recession and even higher inflation can be expected.

SUMMARY

The **global economic outlook has deteriorated** significantly compared to the spring forecast. High production costs are burdening companies, and passing them on to consumers is reducing the **purchasing power of private households**. In addition, **monetary policy tightening** in many currency areas is worsening financing conditions. In the USA, an economic slowdown is likely due to the significant interest rate hikes. The ongoing **disruption of international supply chains** continues to dampen industrial production. Recently, however, there are signs of an easing due to less disruption in transport logistics, but also due to a global decline in demand.

In the euro area, the consequences of the Russian war of aggression against Ukraine have significantly worsened the economic situation and especially the outlook. **The reduction in Russian gas supplies** and the resulting **uncertainty** have led to sharp price increases. However, due to the different structure of energy supply and value added as well as different fiscal policy responses, EU member states are not affected to the same extent. A **robust labour market** and an easing of supply chains should have a supporting effect. Overall, the GCEE expects **real gross domestic product in the euro area** to **grow at rates of 3.3%** and **0.3%** in 2022 and 2023, respectively. **Inflation** is expected to reach **8.5 %** in 2022, the highest level since the monetary union was founded in 1999. In 2023, the inflation rate is expected to decline somewhat, but remain high at **7.4 %.**

Germany is particularly affected by the energy crisis due to its previous **heavy dependence on Russian natural gas**. **Industry**, already affected by supply chain disruptions, is now additionally **confronted with substantially higher energy costs**. A **high order backlog** in the manufacturing sector, on the other hand, should have a stabilising effect on growth. **The gradual passing on of energy prices to consumers will weigh heavily on private consumption** in the forecast period. The planned relief packages for households and companies are expected to stabilise purchasing power and the labour market. In addition, **private households** are expected to **dissave**, which would dampen the decline in real final consumption expenditure. Overall, the GCEE expects **real growth** in German gross domestic product of **1.7 %** this year and **-0.2 %** next year. According to the GCEE's forecast, **consumer price inflation** will be **8.0 %** in 2022 and **7.4 %** in 2023. The forecast is subject to considerable downside risks. If there is a shortage of natural gas in Germany in the forecast period, a deep recession and even higher inflation can be expected.

I. INTERNATIONAL GLOBAL ECONOMY

1. Since the beginning of 2022, the **global economy** has **cooled noticeably**. This is mainly due to the significant rise in energy prices, which has further fueled the already increased production costs of firms and the persistently high consumer price inflation. Moreover, the Russian war against Ukraine has led to high economic uncertainty. Due to high inflation rates, many central banks have raised policy rates. In addition, the increased number of coronavirus infections and the associated **production losses**, especially in China, have dampened the world economy in spring 2022 and led to new supply bottlenecks.

2. These factors cloud the **global economic outlook**, which has **deteriorated significantly** compared to spring 2022 (GCEE Economic Outlook 2022, items 1 ff.). Energy prices are likely to remain high in the winter half year 2022/23, especially in Europe and Asia, and only fall slowly next year. This is likely to further increase production costs and lead to a progressive pass-through to consumer prices, due to which consumer price inflation will remain high over the forecast period. Sustained inflation reduces the purchasing power of private households, which weighs on private consumption. Financing conditions are likely to become less favourable than in previous years as a result of global monetary policy tightening, and they likely dampen demand. With a time lag, this is likely to counteract the upward trend in prices. Overall, supply-side bottlenecks are expected to ease at a high level, not least due to weakening global demand. At the same time, the still high level order backlog of many firms is expected to support production if the supply-side bottlenecks continue to ease. Overall, the GCEE expects global economic growth of 2.8 % for 2022 and 1.9 % for 2023.

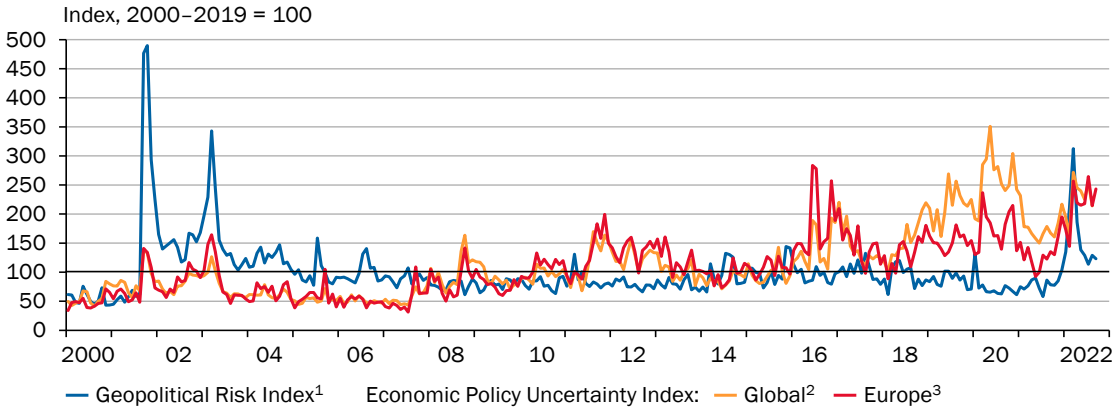
1. Global economic slowdown – high inflation and monetary policy tightening

The development of the global economy until autumn 2022

3. The Russian attack on Ukraine has led to a **sharp increase in both geopolitical risk and economic policy uncertainty**. ↘ CHART 1 This is suggested by indices that measure the relative frequency of certain keywords associated with geopolitical risk and economic policy uncertainty, respectively, in newspaper articles. Since March 2022, the geopolitical risk measured in this way has been higher than the average of the past 20 years. At the beginning of the war, it was comparable to the level at the start of the Iraq war in March 2003. Uncertainty about economic policy measures and their effects has also increased significantly since March 2022, but globally it is lower than in the first year of the coronavirus pandemic. In Europe, on the other hand, measured economic policy uncertainty was only higher in the summer of 2016 after the Brexit referendum. High uncertainty negatively affects the investment and consumption decisions of firms and households (Bloom et al., 2007; Ben-David et al., 2018; Coibion et al., 2021; Caldara and Iacoviello, 2022).

↘ CHART 1

High geopolitical and economic policy uncertainty, especially in Europe



1 – The Geopolitical Risk Index reflects the results of automated text searches in ten newspapers in the USA. It is calculated from the ratio of articles on negative geopolitical events to the total number of articles in each newspaper for each month (see Caldara and Iacoviello, 2022). 2 – The Global Economic Policy Uncertainty (EPU) Index reflects the results of automatic text searches in articles of newspapers in 21 countries which contain keywords related to politics, economics and uncertainty. It is calculated by dividing the number of articles containing keywords on the three topics by the total number of articles in each newspaper for each month and it is weighted by the countries' purchasing power parity adjusted GDP (see Davis, 2016). 3 – The EPU Index for Europe reflects the results of automatic text searches in ten European newspapers. The index calculation is analogous to the global index.

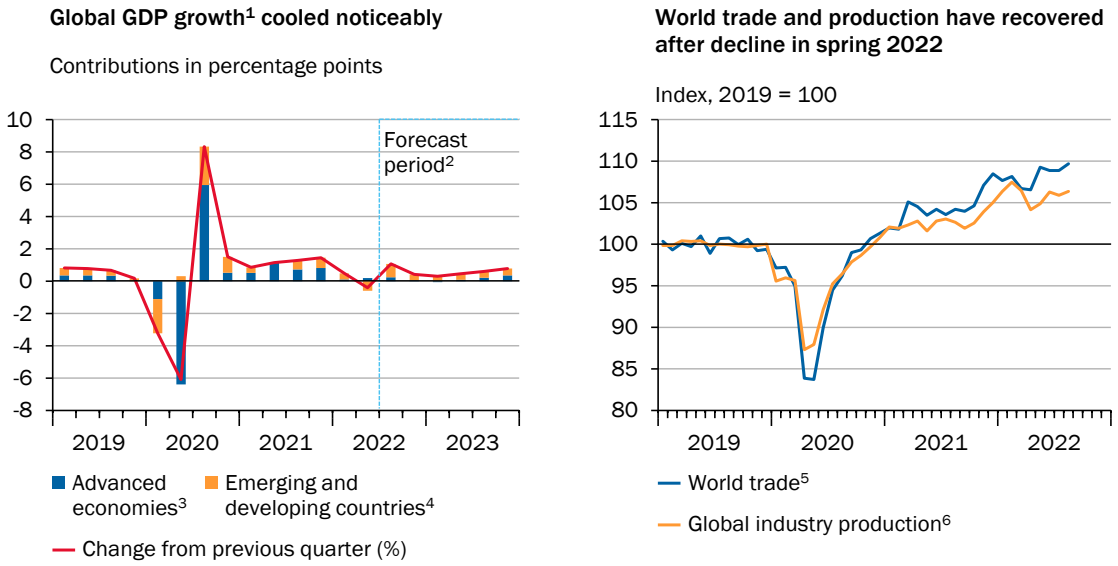
Sources: Baker et al. (2016), Caldara and Iacoviello (2022), Davis (2016), own calcualtions

4. **The growth of the global gross domestic product (GDP)** ↘ GLOSSARY **slowed substantially in H1 2022** compared to the strong growth in H2 2021. ↘ CHART 2 LEFT High inflation, high uncertainty and ongoing supply chain disruptions worked against economic expansion in advanced economies ↘ GLOSSARY and emerging markets ↘ GLOSSARY. They were associated with a decline in global GDP in Q2 2022. In many advanced **economies**, GDP growth was **still positive** in H1 2022 but slowed substantially compared to the end of 2021, driven by sharp increases in energy prices and, particularly in Japan, the spread of the highly contagious Omicron variants in Q1 2022. ↘ CHART 20 In the euro area, the easing of coronavirus containment measures revived economic activity in Q2 2022 and contributed to positive growth in H1 2022. ↘ ITEM 24 FF. Among advanced economies, only the US experienced negative GDP growth in H1 2022. ↘ CHART 15 In **emerging markets**, overall GDP growth was also **negative** in Q2 2022, driven by negative growth in China. ↘ CHART 17 In contrast, economic activity grew strongly in other emerging markets, such as Latin and Central America and Asia. ↘ CHART 21

5. From the production side, the decline in global GDP in Q2 2022 is especially due to lower **global industrial production**. ↘ CHART 2 RIGHT In particular, China's zero-COVID policy, which involved strict measures to contain the coronavirus and, especially from March 2022 to May 2022, closures of shops and production facilities, weighed on production and downstream international supply chains. In addition, the Russian war against Ukraine led to shortages of some intermediate goods and thus partly to production losses. With the easing of strict containment measures in China, global industrial production recovered. Reduced Russian natural gas supplies to Europe significantly increased energy prices in Europe and

↘ CHART 2

Global growth, world trade and industry production



1 – Averages fo seasonally adjusted quarterly values. Global GDP is approximated by the sum of the countries in Table 1 (total). 2 – Forecast of the GCEE. 3 – Definition as in footnote 10 in Tabel 1. 4 – Coverage of trade balances in 81 countries and about 99 % of global trade balances. 5 – Coverage of industry production in 85 countries and about 97 % of global industry production.

Sources: CBP, Eurostat, IMF, national statistical offices, OECD, own calculations
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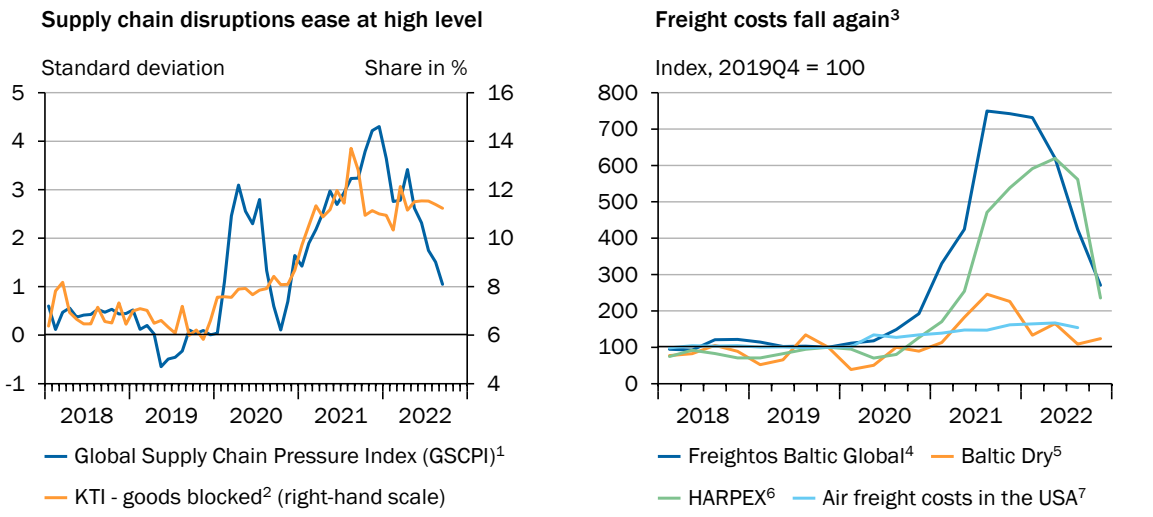
Asia and affected the production of energy-intensive industries. ↘ ITEMS 25 AND 60 Despite these dampening factors and the rather volatile development, global industrial production in June 2022 was still 1.1 % above the level in December 2021.

6. **Global trade developed** much more **weakly** in the first half of 2022 than in the 2nd half of 2021 and only grew by just under 1 % compared to the 2nd half of 2021. ↘ CHART 2 RIGHT The weaker growth is likely to be attributed mainly to Chinese metropolitan lockdowns and exacerbated supply chain problems. Various indicators have shown **significant disruption** in global supply chains from the start of 2021 to spring 2022. ↘ CHART 3 LEFT For example, during this period, the share of goods on container ships that were unmoved worldwide and the Global Supply Chain Pressure Index were in some cases higher than at the start of the coronavirus pandemic. This is particularly evident in increased freight costs on major trade routes. ↘ CHART 3 RIGHT Recently, there were signs of a gradual easing at a **high level**. For the **forecast, the GCEE assumes** that the **easing of supply chains will continue** over the forecast horizon.

7. **Business sentiment indicators and consumer confidence** have recently **declined globally**. ↘ CHART 4 In advanced economies, purchasing managers' indices in manufacturing and services have deteriorated since March 2022. In the emerging markets group, their trend has been downward since Q1 2022. They traded below the growth threshold of 50 index points from March to May 2022 in light of China's measures to contain the coronavirus pandemic. With the easing of measures, they rose back into positive territory in June 2022. Manufacturing sentiment in emerging markets falls just below the growth threshold at the current

↘ CHART 3
Supply chain bottlenecks and freight costs



1 – The GSCPI combines various indicators of transport costs and supply shortages into one index. The Index is normalized to a mean of zero. The deviation from the mean value are measured in standard deviation are shown. 2 – The shown Kiel Trade Indicator (KTI) reports the proportion of goods that are on waiting container ships. Calculations are based on real-time global vessel position data and include effective utilization of container ships from information on loaded draught. 3 – Value for 2022Q4: Average calculated from available values in October (except for air freight costs in the USA) as of 28. October 2022. 4 – Freight rates on the spot market of 40-foot containers for twelve trade routes. 5 – Freight rates of different ship classes for bulk goods on 26 trade routes. 6 – The Harper Petersen Charter Rate Index (HARPEX) measures container freight rates on the time charter market for periods of 3 to 48 months for seven ship classes with a defined minimum speed of 17 to 24 knots. 7 – Calculated as average of the transport cost price indices for exported and imported air freight.

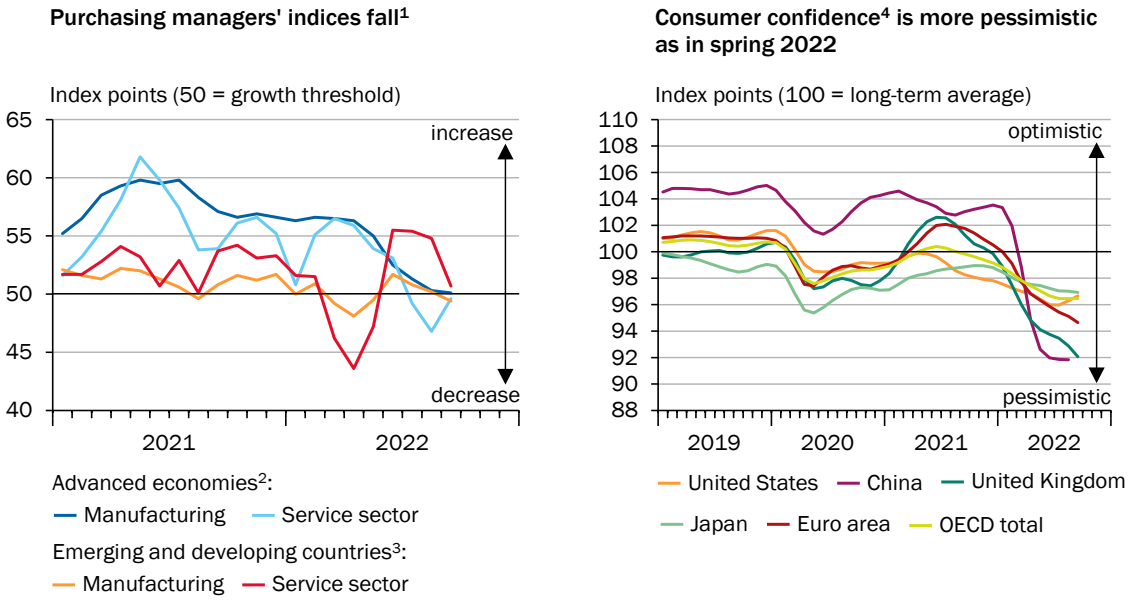
Sources: Baltic Exchange, Benigno et al. (2022), BLS, Freightos, Harper Petersen & Co., IfW Kiel, own calculations

margin, while in advanced economies it remains slightly above it. The gradual decline in sentiment indicators is likely to reflect the weakening of global demand and continue in the coming months.

8. The **prices of important energy sources** have continued to rise in 2022. ↘ CHART 5 LEFT The price of natural gas in Europe has already risen since September 2020 from 11 euros per megawatt hour (MWh) to an average of 114 euros in December 2021. Between the beginning of 2022 and September 2022, it almost doubled as a result of the reduction in Russian supplies and is currently very volatile. In contrast, prices for liquefied natural gas (LNG) in Northeast Asia and for natural gas on the east coast of the USA have risen by less than a quarter. Gas prices vary regionally due to the high cost of liquefaction and limited transport capacity (EIA, 2020). ↘ ITEMS 300 FF. Nevertheless, increased LNG demand in Europe has led to price increases and associated consumption cuts, especially in emerging and developing countries in Asia (IEA, 2022a). In contrast, the **price of Brent crude oil has been below 100 US dollars per barrel** again since August 2022, after it has temporarily been around 130 US dollars in March 2022. ↘ CHART 5 LEFT While negative oil supply shocks are likely to have driven oil prices in spring and summer 2022, ↘ BACKGROUND INFO 3 the decline since August 2022 is related to weaker global demand, according to EIA (2022). At the same time, the reduction in production quotas by OPEC+ ↘ GLOSSARY in October 2022 is likely to have stabilized oil prices. The cut in production is likely to be up to 50 % smaller than the reduction

↘ CHART 4

Purchasing managers' indices and consumer confidence



1 – Based on a monthly survey of purchasing managers and managing directors. 2 – As defined by S&P Global: Australia, Austria, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, Netherlands, Republic of Korea, Singapore, Spain, Taiwan, United Kingdom, USA. 3 – As defined by S&P Global: Brazil, China, Czechia, Egypt, India, Indonesia, Kenya, Lebanon, Malaysia, Mexico, Nigeria, Philippines, Poland, Russia, Saudi Arabia, South Africa, Thailand, Turkey, United Arab Emirates, Vietnam. 4 – Standardised OECD confidence indicator.

Sources: OECD, S&P Global

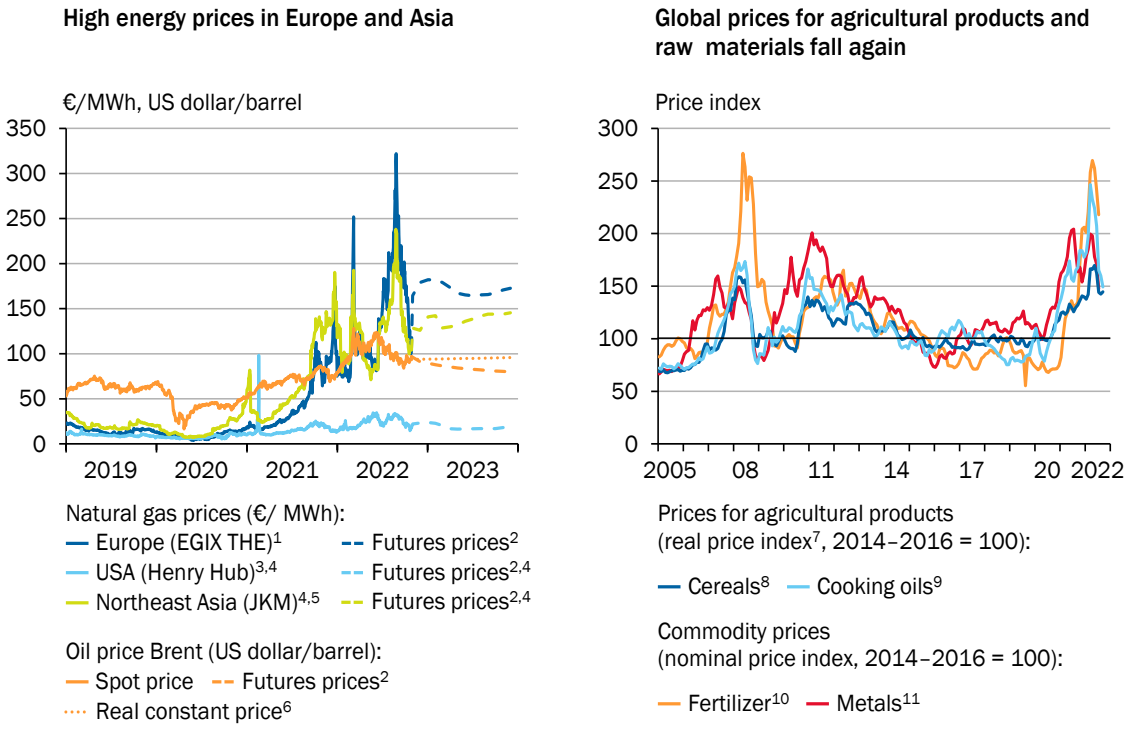
in production quotas (EIA, 2022; Wang and Griffin, 2022). One reason for this could be that some OPEC+ members have not yet met their production quotas due to a lack of capacity (Wang and Griffin, 2022).

9. In the winter of 2022/23, **prices for crude oil and natural gas** are likely to remain **elevated**. However, with the same OPEC+ production volume, the oil price is likely to fall slightly in the further forecast period due to lower demand. In the futures markets for **natural gas in Europe and Asia**, however, there are **no signs of price declines** in the medium term. ↘ CHART 302 Natural gas prices in Europe and Asia are therefore likely to remain at a high level and very volatile – with a slight seasonal easing in summer 2023. There are upside risks to the price of natural gas in the forecast period. ↘ ITEM 47

10. **Non-energy commodity prices** also **increased significantly** in spring 2022. ↘ CHART 5 RIGHT Prices of agricultural products have increased since 2020 due to failed harvests and lack of harvest workers related to coronavirus containment measures (CBI, 2022). In addition, the Russian war of aggression has tightened the supply of sunflower oil in particular - an important export commodity for Ukraine and Russia. Prices of fertilizers continued to rise sharply in spring 2022 as a result of high natural gas prices. **Most recently, prices of non-energy commodities eased**, but **remain** substantially **higher than in 2021**. Thus, cost pressure in food production is likely to remain high. The expected pass-through to consumer prices will weigh heavily on emerging and developing countries in particular. ↘ BOX 1 As a result of the global economic slowdown, the price

↘ CHART 5

Prices for energy, agricultural products and raw materials



1 – The European Gas Index (EGIX) is based on exchange trades which are concluded in the respective current front month contracts (THE). 2 – Average futures prices of the last 30 trading days for November 2022 and the following months as of 28. October 2022. 3 – Prices are based on delivery at the Henry Hub in Louisiana. Official daily closing prices at 2:30 p.m. from the trading floor of the New York Mercantile Exchange (NYMEX) for a specific delivery month. 4 – Price in US dollar/MMBtu (1 million British thermal units) converted into €/MWh. For the conversion of futures prices, the last available daily rate is used. 5 – Japan Korean Marker (JKM) is the Northeast Asia spot price index for LNG delivered ex-ship to Japan und Korea. 6 – Oil price extrapolated with an annual inflation rate of 2 %. 7 – Nominal price index deflated by the World Bank's Manufactures Unit Value (MUV) Index. 8 – Includes prices for barley, maize, millet, rice and wheat. 9 – Includes prices of ten different vegetable cooking oils. 10 – Includes prices for phosphate fertilizer, potash fertilizer and urea fertilizer. 11 – Includes prices for aluminium, cobalt, copper, iron ore, lead, molybdenum, nickel, tin, uranium and zinc.

Sources: ECB, EEX, EIA, FAO, ICE, IMF, NYMEX, Refinitiv Datastream, own calculations

decline for industrial commodities such as metals was particularly pronounced. The slight price decline for cereals, however, can likely be attributed to the resumption of Ukrainian exports across the Black Sea since August 2022 (FAO, 2022).

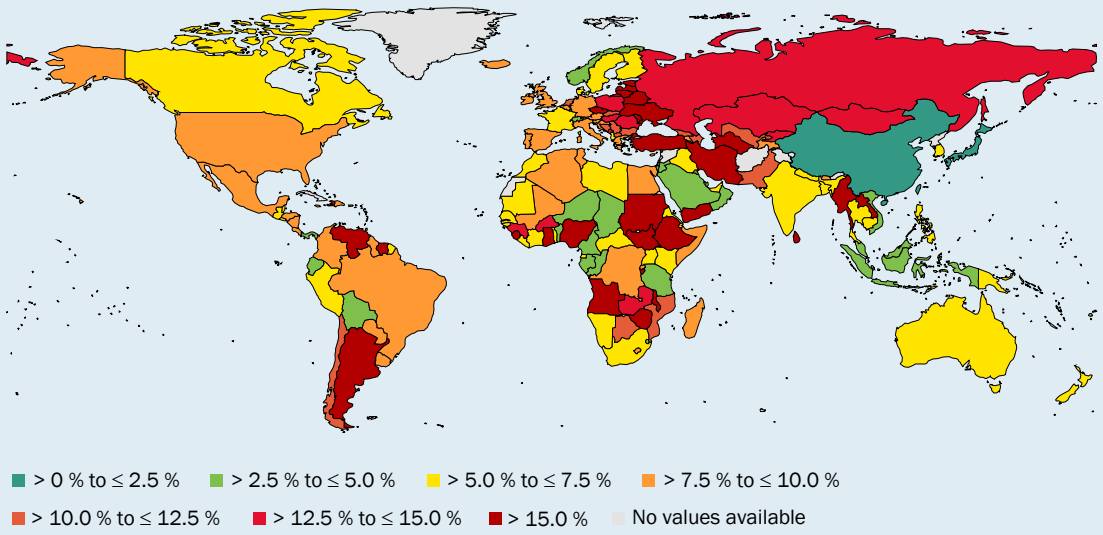
↘ BOX 1

Impact of covid, energy and commodity price increases on emerging and developing countries

The **economic recovery** from the pandemic-related economic slump in 2020 is **still in progress in most emerging and developing countries** (World Bank, 2022, p. 16). Inflation has increased significantly in many countries around the world. ↘ CHART 6 Given the impact of the Russian war against Ukraine, the GCEE expects a significant slowdown in economic growth for most emerging and developing countries in 2022. ↘ TABLE 1

↘ CHART 6

IMF inflation forecast[1] for the year 2022



1 – Autumn forecast 2022.

Sources: EuroGeographics for the administrative boundaries, IMF
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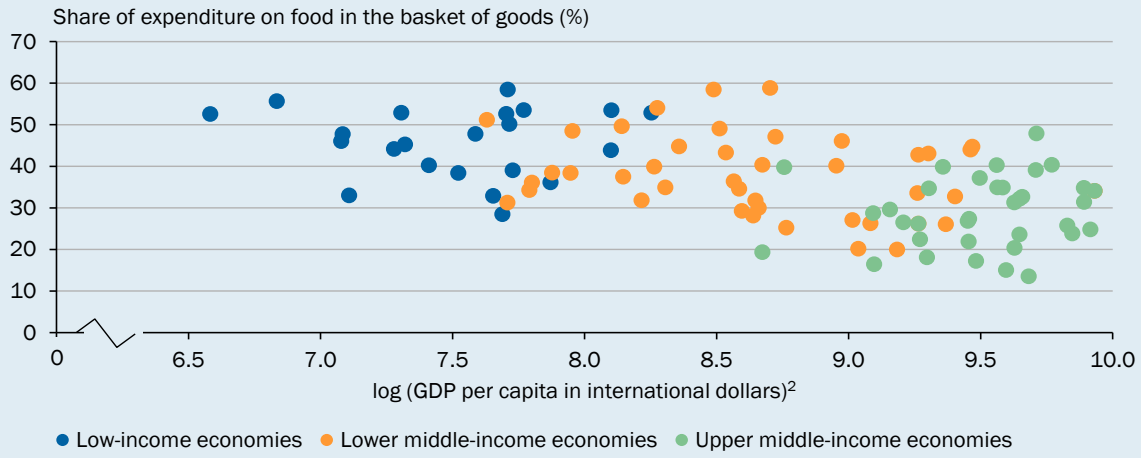
Due to the war actions, Ukraine is the most affected country with an expected GDP drop of about 35 % in 2022 (IMF, 2022). Russia is expected to see a decline of 5.2 % in 2022. ↘ ITEM 22 However, due to global trade linkages, GDP is expected to fall in almost all emerging and developing countries in the European and Central Asian regions. The **sharp rise in some commodity prices** also has a **significant impact on emerging and developing countries** in other regions. While commodity-exporting countries benefit from the price increase, the price jumps for energy and agricultural commodities increase the inflationary pressure in commodity-importing countries as a result of deteriorating terms of trade ↘ GLOSSARY and thus reduce real disposable income. Poorer emerging and developing countries are particularly affected by rising food prices. ↘ CHART 7 On average, food prices account for 36% of the consumer price index in middle-income emerging and developing countries, and as much as 46 % in low-income emerging and developing countries. For high-income countries, the share is only 17 %. At the same time, there is little scope for short-term input substitution in many emerging and developing countries, as the supply of some foodstuffs (especially cereals and some vegetable cooking oils) and fertilizers is concentrated in a few exporting countries – including Russia and Ukraine (OECD, 2022, p. 67 f.).

The **increase in food prices** observed this year exceeds the price increases in the food price crisis of 2007/08 and in 2011, when cereal production was significantly lower, partly due to crop failures. ↘ CHART 5 RIGHT The increased prices of key inputs for agriculture, such as fertilizers, seeds and energy, could further affect food security in many countries (Arteta and Kasyanenko, 2022).

↘ CHART 7

Share of food in the basket of goods in emerging and developing countries[1]



1 – Country groups as defined by the World Bank. 2 – In purchasing power parities at constant prices in 2017.

Sources: IMF, World Bank, own calculations
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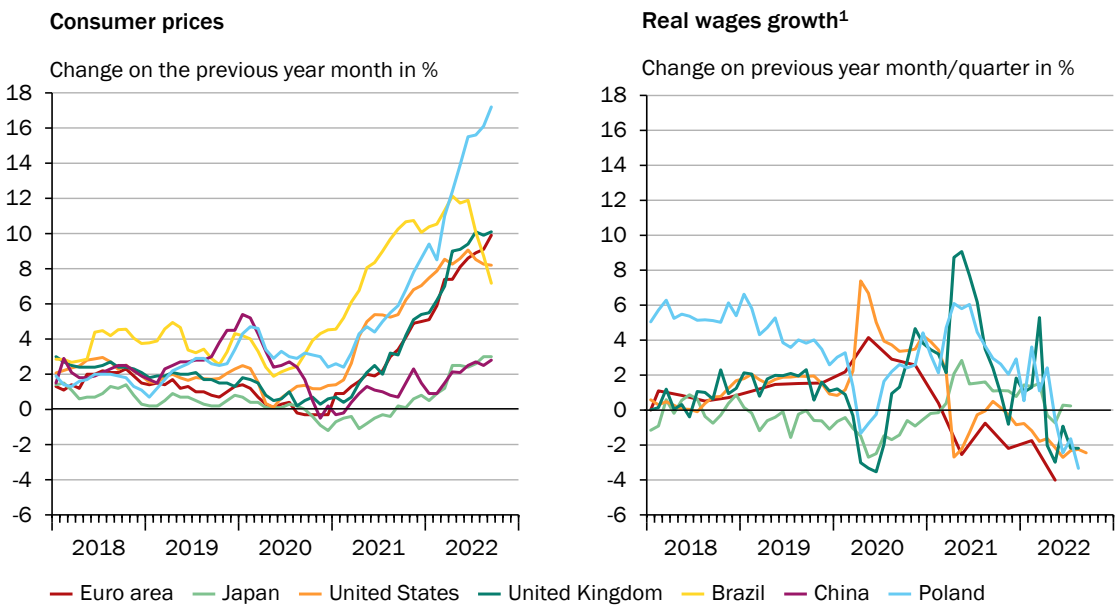
11. **Consumer price inflation** has **continued to rise** over the course of 2022, particularly in advanced economies. ↘ CHART 8 LEFT In the US and the UK, consumer price inflation has recently stabilized at very high levels, while core inflation continues to rise. In the euro area as well as in other European countries such as Poland, the high inflation rate continues to be driven by energy prices. Inflation in Asia is more moderate than in other regions, as energy prices are lower there and especially in Japan the pass-through to consumer prices is less advanced. In some emerging markets, such as Brazil, inflation rates have recently declined due to tax relief on fuel and electricity. ↘ ITEM 12 However, rising food prices are driving inflation particularly strongly in many emerging and developing countries. ↘ BOX 1 Globally, high consumer price inflation is causing households to lose purchasing **power.** ↘ CHART 8 RIGHT ↘ ITEM 25

12. Faced with rising inflation rates, the central banks of many advanced economies as well as some large emerging markets have raised their key **policy rates** significantly in 2022. ↘ CHART 9 LEFT ↘ BACKGROUND INFO 1 The US Federal Reserve has gradually increased the key policy rate from 0.25 to 0.50 % in March 2022 to 3.00 to 3.25 % in September 2022. The European Central Bank (ECB) and the Bank of England have each raised their key policy rates by 2 percentage points since the beginning of the year, to 2.00 % and 2.25 % respectively. Some countries such as Brazil or Poland have already tightened their monetary policy in 2021 against the background of high inflation rates. Turkey and China have recently lowered their key policy rates to support their economies.

    Financing conditions have deteriorated globally and outstanding **yields on 10-year government bonds have** recently **increased** in the face of rising interest rates in advanced economies. ↘ CHART 9 RIGHT As a result of the turnaround in interest rates in advanced economies, capital has been withdrawn from emerging

↘ CHART 8

High inflation weighs on real wages



1 – Hourly wages are deflated by the consumer price index. Both series are seasonally adjusted. Only quarterly figures are available for the euro area. Hourly wages are not available for Brazil and China.

Sources: National statistical offices, OECD, own calculations
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markets (Srinivasan, 2022). The resulting depreciation pressure on exchange rates is likely to lead emerging markets to tighten monetary policy further. The strong US dollar is also making it much more expensive for emerging markets indebted in US dollars to service interest payments and debt.

↘ BACKGROUND INFO 1

Real economic effects of monetary policy tightening

Changes in key interest rates by central banks influence the real economy through various direct and indirect channels (Deutsche Bundesbank, 2022a; ECB, 2022a): Changes in market interest rates affect investment, savings and consumption decisions through changes in real interest rates and the cost of capital. In addition, the refinancing costs of the financial system increase and loan defaults can occur as a result of insolvencies. Financial intermediaries reduce their lending in response. Through these and other **transmission channels,** the central bank can influence aggregate demand. Inflation, however, is only influenced with a significant time lag (Christiano et al., 1996, 2005).

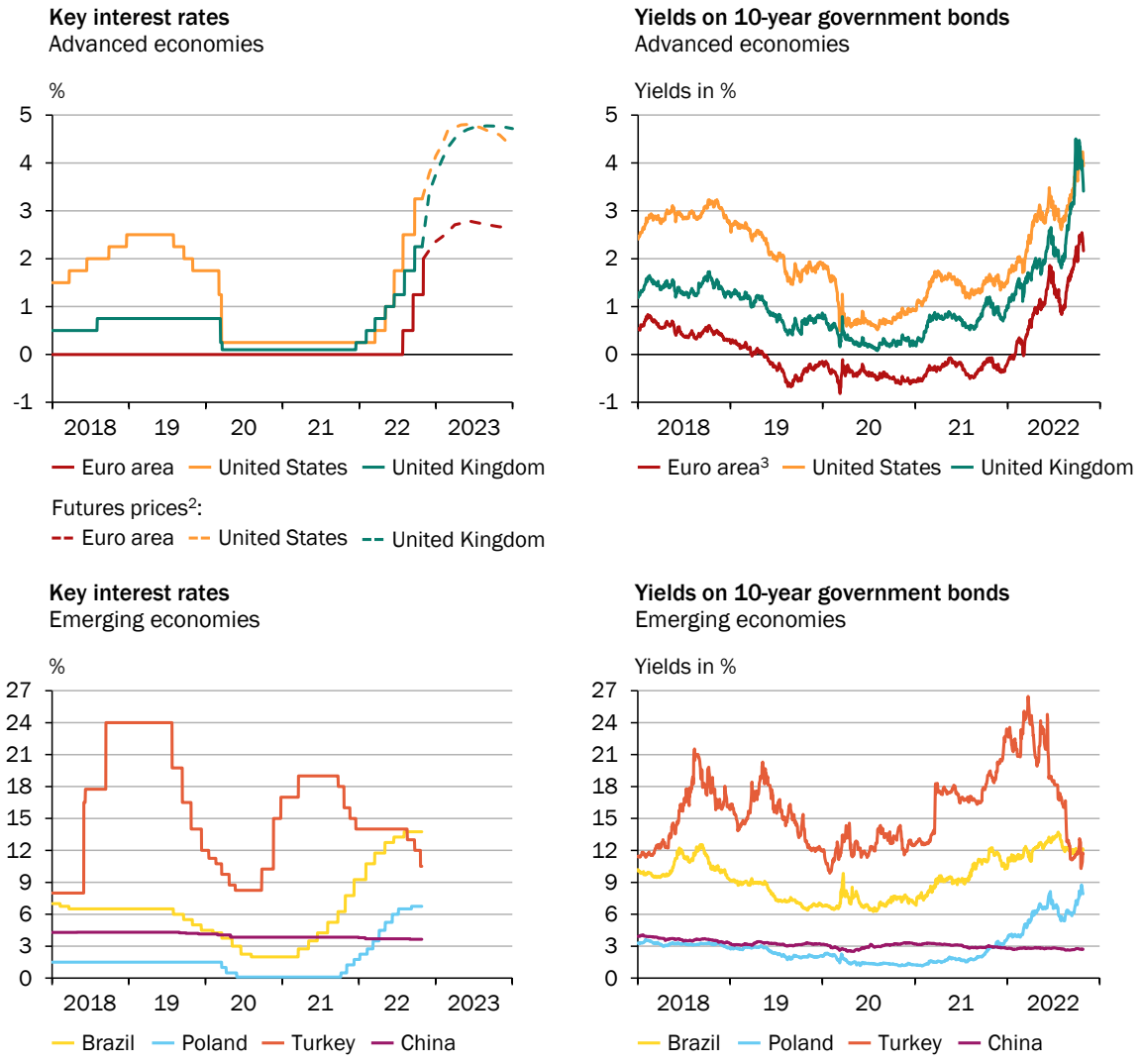
In order to identify the causal effects of monetary policy decisions on the real economy, empirical studies focus primarily on the effect of unanticipated interest rate changes that are not endogenous to the economic situation (literature review in Ramey, 2016). However, key policy rate changes mainly reflect **systematic central bank reactions** to macroeconomic developments, and the transferability of the estimation results from analyses of monetary policy shocks can therefore be difficult. In one of the few available empirical studies on the effects of such endogenous monetary policy decisions, Bernanke et al. (1997) show for the US that most of the impact of oil price shocks on GDP in the 1970s to early 1990s can be traced back to the Federal Reserve's monetary policy response to increased

inflation. Similar to the results of the literature on unsystematic monetary policy shocks, however, the effect on consumer price inflation is only apparent with a significant time lag.

13. At the beginning of 2022, the very contagious **omicron variants of the coronavirus** led to peak infection rates in many economies (GCEE Economic Outlook 2022 item 3). Since then, comparable waves of coronavirus spread and a cluster of deaths as in 2021 did not materialize. Economic activity in the major economies has not been restricted recently. One exception, however, is China, whose zero-covid policy has repeatedly led to strict containment measures in the past. For the

↘ CHART 9

Rising key interest rates[1] and yields on 10-year government bonds



1 – The considered key interest rates are the main refinancing rate for the euro area, the federal funds rate for the United States, the bank rate for the UK, the Selic interest rate for Brazil, the reference rate for Poland, the repo interest rate for Turkey and the short-term borrowing base rate for households and enterprises for China. 2 – Market participants' expectations of central bank interest rates derived from the 30-day Federal Funds Futures for the United States, the 3-month EURIBOR futures for the euro area and the overnight index swap forwards for the United Kingdom. Retrieved on 28 October 2022. 3 – For the euro area, only AAA-rated government bonds are considered.

Sources: Banco Central do Brasil, BoE, CME, ECB, Fed, ICE, National Bank of Poland, Refinitiv Datastream, TCMB, The People's Bank of China

forecast period, the GCEE assumes that further possible waves of infections will not lead to significant restrictions on economic activity. Far-reaching containment measures such as in the winter of 2021/22 are likely to be absent in many large economies, with the possible exception of China. However, China's unchanged zero-covid strategy could lead to domestic containment measures again. ↘ ITEM 50

High inflation rates and a high degree of uncertainty characterize the further economic development

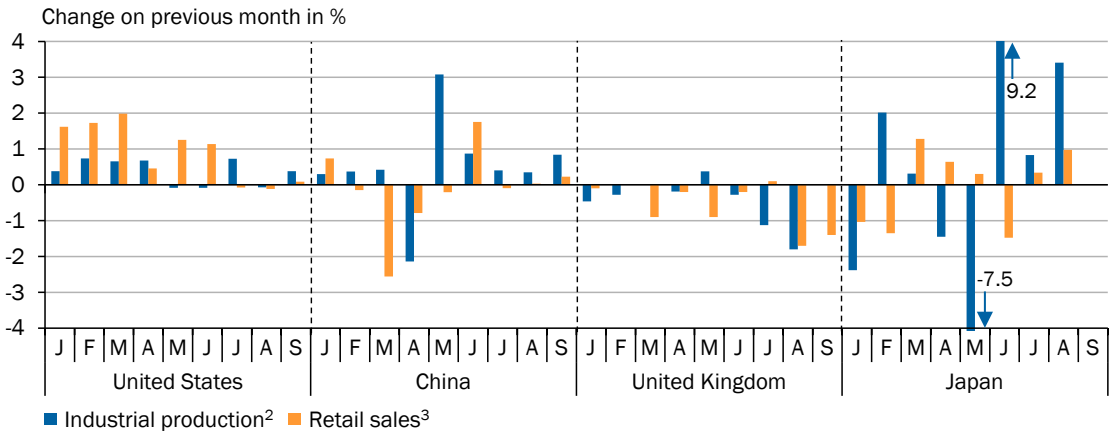
14. Many factors point to a **further cooling of** the **global economy.** ↘ CHART 2 LEFT Inflation is expected to remain high in many economies over the forecast period, dampening private consumption. In addition, monetary policy tightening and high uncertainty are weighing on capital formation. Industrial production should initially be supported by continued high order backlogs, but weaker global demand is likely to prevent a significant expansion. Overall, the GCEE expects global GDP growth of 2.8 % in 2022 and 1.9 % in 2023. ↘ TABLE 1 Global trade in goods is not expected to continue its recent recovery. Growth is expected to be 4.1% and 1.4% in 2022 and 2023, respectively.

The major economies in detail

15. The US economy cooled significantly in the first half of 2022. The **US economy contracted for the second time in a row in** Q2 2022. Compared to the previous quarter, the GDP growth rate (adjusted for price and seasonal effects) was -0.4% in Q1 2022 and -0.1% in Q2 2022. The declines were driven in particular by a reduction in inventories and lower fixed investment. In Q2 2022, positive growth in exports and services supported economic growth, while industrial production stagnated in May and June 2022. ↘ CHART 10 Gross domestic income (GDI),

↘ CHART 10

Industrial production and retail sales in selected economies in 2022[1]



1 – Seasonally adjusted values. 2 – September values were not available for the United Kingdom and Japan. 3 – Real. For the United States, China and Japan, values are deflated by the consumer price index. For the United States, retail sales excluding trade in motor vehicles. The September value was not available for Japan.

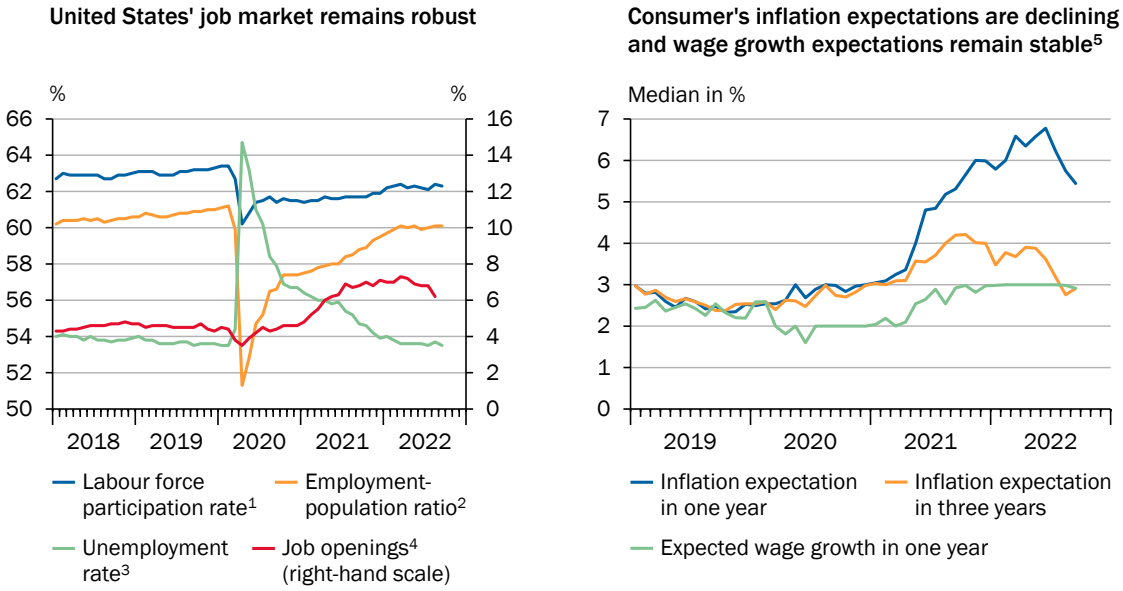
Sources: national statistical offices, own calculations

on the other hand, grew by 0.4% in Q1 2022 and by almost 0.1% in Q2, both from the previous quarter. GDI indicates the income generated by all sectors of an economy and thus measures GDP from the distribution side. Discrepancies between GDI and GDP can result from different data sources used for the calculation (CEA, 2015). The GDI development as well as growth in the services sector argue against a comprehensive economic slowdown. The recently reported **monthly indicators** are mixed. While the sentiment indicators in the services sector and manufacturing have recently been below the growth threshold of 50 points, retail sales excluding motor vehicles and industrial production have grown. ↘ CHART 10 The forecast for the third quarter of 2022 also paints a positive picture at the current margin, with growth of 0.6 % compared to the previous quarter (BEA, 2022). Moreover, the labour market continues to be supportive. ↘ CHART 11 LEFT The unemployment rate fell by 0.2 percentage points to 3.5 % in September 2022 and the number of unemployed people per job opening is at a very low level of 0.6. Accordingly, there are only 6 unemployed people for every 10 vacancies. However, the labour force participation rate is still about 1 percentage point below the pre-pandemic level. In September 2022, consumer price year-on-year inflation rate was at 8.2 %.

16. The still **tight labour market** makes a 75 basis point interest rate hike by the US Federal Reserve at the beginning of November 2022 very likely. This is already almost fully priced in by financial market participants. The **stability of expected wage growth and** the recent **decline in consumer inflation expectations** are likely due to the restrictive monetary policy. ↘ CHART 11 RIGHT Rising

↘ CHART 11

Inflation expectations and labour market in the United States



1 – Number of people in the labour force as a percentage of the civilian noninstitutional population aged 16 and over. 2 – Number of employed persons as a percentage of the civilian noninstitutional population aged 16 and over. 3 – Unemployed persons as a share of the labour force. 4 – Job vacancies as a share of total employment and job vacancies. 5 – Expectations of consumers.

Sources: BLS, Fed

interest rates are also likely to dampen capital formation and private consumption and further cloud the real estate market. The GCEE is therefore lowering its GDP growth forecast for the US for 2022 and 2023 to 1.9 % and 0.4 %, respectively. ↘ TABLE 1

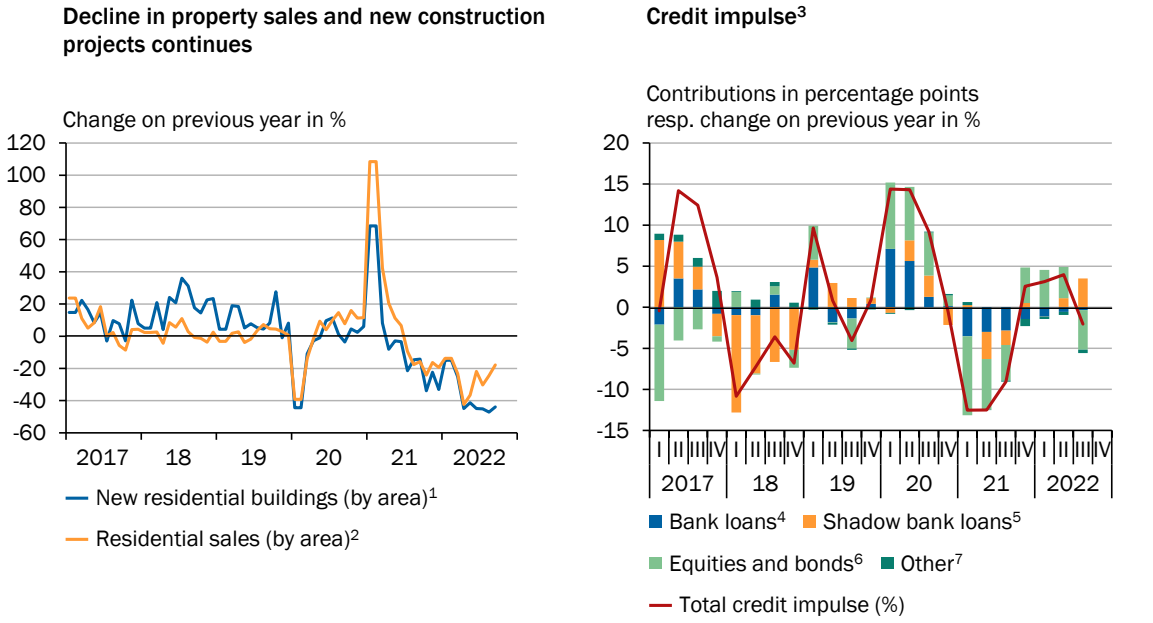
17. In **China,** price- and seasonally-adjusted **GDP fell by 2.7 %** quarter-on-quarter in **Q2** 2022 due to the measures taken to contain the omicron wave, after growing by 1.4 % in Q1 2022. In the **third quarter**, however, GDP increased again by **3.9 % compared to the previous quarter**. The unsteady economic development is also reflected in the monthly indicators for private consumption and industrial production. ↘ CHART 10 Although the latest monthly indicators were slightly improving, the recovery is likely to remain fragile. Exports remained supportive in H1 2022, while growth slowed recently. **Uncertainty** about the **continued zero-covid policy** and possible further lockdowns have pushed **companies' business expectations** for the coming 12 months to the lowest level since the outbreak of the pandemic (S&P Global, 2022). **Consumer confidence** has fallen much more sharply than in the spring of 2020. ↘ CHART 4 RIGHT Contrary to global trends, **consumer price inflation** in China is comparatively low and below the central bank of China's target rate of 3 %. Consumer price inflation is slowly rising. At 2.5 % in August and 2.8 % in September, it was the highest since the beginning of 2020.

The ongoing **problems in the real estate market**, which is important for the domestic economy, are **slowing down** the economy. It is estimated that real estate construction and services account for about 29 % of GDP (Rogoff, 2021). Thus, the decline in housing stock prices in China's 70 largest cities continues, and demand for real estate continues to fall. The decline in housing sales and new construction in August 2022 fell by about 24 % and 47 % year-on-year, respectively (BOFIT, 2022a). ↘ CHART 12 LEFT

18. **Economic policy in China** is expected to remain **supportive**. In August 2022, the central bank again cut several key interest rates, including the 5-year lending rate relevant for real estate loans and investment projects. However, the scope for further rate cuts is likely to be limited given rising interest rates in the US and continued capital outflows (BOFIT, 2022b). The credit impulse, which shows the change in lending compared to the same period last year (Gern et al., 2022), was positive during the year but declined recently. ↘ CHART 12 RIGHT In addition, there are loans issued by local governments for infrastructure investments (local government special bonds), which should additionally support the economy. The Chinese government is likely to stick to its **zero-covid policy**. In view of the global economic slowdown, **foreign demand** is unlikely to provide a **positive impetus**. Consequently, export growth is likely to lag behind the strong rates of the past quarters. Therefore, the GCEE is lowering its forecast for 2022 and expects real GDP growth of only **3.5 %**. In 2023, the growth rate is expected to rise again significantly to **5.8 %**. ↘ TABLE 1

↘ CHART 12

Chinese real estate sector and credit impulse



1 – Area acquired for new residential buildings measured in square meters. 2 – Residential sales by floor area measured in square meters. 3 – Credit impulse is the ratio of credit lending to economic output minus the ratio of credit lending to output one year ago. 4 – In renminbi and foreign currency. 5 – Trust loans, entrust loans, bankers' acceptance bills. 6 – Shares in non-financial companies, corporate bonds, government bonds. 7 – Difference between components and total loans.

Sources: IMF, NBS, PBC, Refinitiv Datastream, own calculations

19. **GDP** in the **United Kingdom** increased by **0.2 % in Q2 2022** compared to the previous quarter, price-, seasonally and calendar-adjusted. The positive development of the service sector as well as the construction sector had a supporting effect, while retail sales and industrial production declined. ↘ CHART 10 **Consumer price inflation in September 2022 was 10.1 %** year-on-year, as in July, the highest level in 40 years. Inflation was driven in particular by higher energy prices, other housing costs and food prices. In addition, the core rate rose recently. The **high inflation rates are weighing** on **consumption** and have led, among other things, to a record low of -49 points in the GfK consumer climate index in September. To ease the burden on private households and companies, the British government has decided on an **energy price guarantee**, which will cap energy bills for the following six months from October 2022. This suggests inflation will peak soon. The announcement of significant tax cuts led to a sharp rise in government bond rates in September 2022 and caused difficulties for pension funds. Despite the reversal of the tax cuts and the resignation of the prime minister, uncertainty about the future development of the public budget is likely to remain high and worsen financial conditions for companies. In addition, business investment is likely to remain subdued by further interest rate moves by the Bank of England. The GCEE therefore expects real GDP growth in the UK to be 4.2 % in 2022 and 0.0 % in 2023. ↘ TABLE 1

20. In **Japan**, the impact of the coronavirus pandemic continues to be felt more acutely than in many other advanced economies. As a result of rising number of coronavirus infections and containment measures, price- and seasonally-adjusted **GDP stagnated** in **Q1 2022**, growing 0.1 % from the previous quarter. As the coronavirus wave subsided in Q2 2022, **GDP** expanded by **0.9 %** from the

↘ 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 %					
		2021	2022[3]	2023[3]	2021	2022[3]	2023[3]
Europe	**28.6**	**5.7**	**2.8**	**0.0**	**3.5**	**11.2**	**9.2**
Euro area	17.2	5.3	3.3	0.3	2.6	8.5	7.4
United Kingdom	3.8	7.5	4.2	0.0	2.6	8.6	5.9
Russia[4]	2.1	4.7	– 5.2	– 5.2	6.7	14.4	10.9
Central and Eastern Europe[5]	1.9	5.7	4.5	1.3	4.4	13.3	11.7
Turkey	1.0	11.6	4.7	1.0	19.6	73.5	61.7
Other countries[6]	2.7	4.5	2.5	0.9	2.0	5.7	3.3
America	**34.4**	**5.9**	**2.1**	**0.5**	**5.6**	**9.2**	**4.7**
United States	27.2	5.9	1.9	0.4	4.7	8.0	3.5
Latin America[7]	2.9	7.7	3.3	0.3	13.9	22.0	16.9
Brazil	1.9	4.9	2.6	0.9	8.3	9.5	4.8
Canada	2.4	4.5	3.3	0.9	3.4	6.8	3.3
Asia	**37.0**	**6.8**	**3.4**	**4.7**	**1.4**	**3.2**	**2.9**
China	20.7	8.6	3.5	5.8	0.9	2.2	2.3
Japan	5.8	1.7	1.5	1.5	– 0.2	2.5	2.5
Asian advanced economies[8]	4.0	5.4	2.2	2.1	2.3	4.5	3.5
India	3.6	8.1	5.5	6.0	5.1	7.1	5.2
Southeast Asian emerging economies	2.9	3.5	5.9	4.4	2.0	5.0	4.6
Total	**100**	**6.2**	**2.8**	**1.9**	**3.4**	**7.6**	**5.3**
Advanced economies[10]	65.0	5.3	2.5	0.6	3.3	7.5	4.8
Emerging economies[11]	35.0	7.7	3.3	4.2	3.7	7.6	6.2
memorandum:							
weighted by exports[12]	100	6.2	3.3	1.0	.	.	.
following IMF concept[13]	100	6.0	3.0	2.4	.	.	.
World trade[14]		10.1	4.1	1.4	.	.	.

1 – GDP (US dollar) of the named countries or country groups in 2021 as a percentage of total GDP of the named countries or country groups, corresponding to 87 % of the IMF country group weighted by US dollars and 84 % of the IMF country group weighted by purchasing power parities. 2 – Price-adjusted. Values are based on seasonal and calendar-adjusted quarterly figures. 3 – Forecast by the German Council of Economic Experts. 4 – Corresponds to an assessment and not a model-based forecast (see item 22). 5 – Bulgaria, Croatia, Czechia, Hungary, Poland, Romania. 6 – Denmark, Norway, Sweden, Switzerland. 7 – Argentina, Chile, Colombia, Mexico. 8 – Hong Kong, Republic of Korea, Singapore, Taiwan. 9 – Indonesia, Malaysia, Philippines, Thailand. 10 – Asian advanced economies, euro area, Central and Eastern Europe, Canada, Denmark, Japan, Norway, Sweden, Switzerland, United Kingdom, United States. 11 – Latin America, Southeast Asian emerging economies, Brazil, China, India, Russia, Turkey. 12 – Total of all listed countries. Weighted by the respective shares of German exports in 2021. 13 – Weights according to purchasing power parities and extrapolated to the countries covered by the IMF. 14 – As measured by the Dutch Centraal Planbureau (CPB).

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

previous quarter, mainly due to an increase in private consumption. **Consumer price inflation peaked at 3.0 % year-on-year in August 2022**, the **highest value in 30 years** (excluding the value-added tax hike in September 2014). It is largely driven by the depreciation of the yen, which makes Japanese imports more expensive. So far, government price subsidies and long terms of energy supply contracts have mitigated a strong increase in energy prices for consumers (IEA, 2022a). Another sharp increase in new coronavirus infections in August 2022 is likely to dampen growth in Q3 2022. The **weak external environment** is also weighing on the export-oriented economy. The cooling of the global economy is likely to slow down the recovery in Japan, but unlikely to fundamentally jeopardise it. The GCEE therefore expects **Japan's** real GDP to grow by 1.5 % in 2022 and 1.5 % in 2023.

21. **Economic developments in major emerging markets** besides China were again **mixed**. In **India**, another coronavirus wave at the beginning of 2022 weakened private consumption significantly, and price- and seasonally-adjusted GDP declined by 1.4 % quarter-on-quarter in both Q1 and Q2 2022. The consumer price index rose in 2022, most recently to 7.4 % in September 2022, and industrial production declined slightly at a rate of -0.8 %. The GCEE forecasts India's economy to grow at a roughly average rate of **5.5 % in 2022** and **6.0 % in 2023**.

    In **Brazil,** price- and seasonally-adjusted GDP expanded by 1.1 % and 1.2 % quarter-on-quarter in both Q1 and Q2 2022, again stronger than in the second half of 2021. The **relatively strong growth** in Q2 2022 was mainly driven **by private consumption** and **the energy sector and construction**. Consumer price inflation declined and stood at around 7.2 % year-on-year in September 2022, well below the interim peak of 12.1 % in April 2022. In the context of high inflation, the Brazilian central bank has been successively raising interest rates to 13.75 % in the meantime. However, as the decline in inflation in recent months was largely related to temporary tax cuts in the run-up to the presidential election, inflation could rise again by the end of 2022, prompting the central bank to take further interest rate steps. The **cooling of the global economy** is also likely to **weigh on export demand**. The GCEE forecasts economic growth rates of 2.6 % in 2022 and 0.9 % in 2023.

22. After the **growth of the Russian economy** in Q1 2022 was negative by -0.3 % quarter-on-quarter, price- and seasonally-adjusted GDP **slumped** by 4.4 % quarter-on-quarter in Q2 2022. Russia has not published foreign trade statistics since the beginning of the war. However, publications by trading partners show a **massive decline in Russian imports** as a result of the economic sanctions (Simola, 2022). At the same time, export profits increased as a result of rising raw material prices. After a sharp **slump in retail trade, manufacturing production and the commodity industry**, monthly indicators have stabilized. LPG and crude oil production expanded strongly, supporting economic activity (BOFIT, 2022c). Russian consumer price inflation has been falling since peaking at 17.8 % year-on-year in April 2022, but remained elevated at 14 % year-on-year in August 2022. After raising the key policy rate to 20 % in March 2022, the Russian central bank successively lowered it to 7.5 % by September. The **military partial mobilization** of up to 1 million people and the associated flight movements are likely

to significantly reduce the labour force and thus the labour supply. The **sanctions against Russian crude oil** as well as the most **widespread suspension of natural gas deliveries to Europe** will also have a lasting negative impact on the economy. In contrast, **government consumption** in particular is currently providing support. The **forecast** for the Russian economy is fraught with **high uncertainty**. The GCEE expects negative economic growth of **-5.2 % in 2022** and **-5.2 % in 2023**.

2. Euro area: Economic outlook deteriorates considerably

23. Economic performance in the euro area was still on an upward trend in many member states in the 1st half of 2022. In the summer of 2022, however, the economic **outlook** for the **euro area deteriorated considerably**. The direct and indirect effects of the Russian war of aggression on Ukraine, the loss of purchasing power as a result of the high inflation rates and the cooling global economy are increasingly burdening the national economies in the euro area. Since energy prices are not expected to ease quickly, **economic output** in the euro area is expected to **decline at least in the winter half-year 2022/23.** ↘ CHART 45 First and foremost, the loss of purchasing power is likely to cause consumer demand in many member states to fall significantly.

Heterogeneous development in the summer half-year 2022

24. Economic output in the euro area increased in H1 2022 despite the deterioration in general conditions. In this context, growth in price-, calendar- and seasonally-adjusted **GDP** accelerated slightly to **0.8%** in **Q2 2022**, **after having** already increased by **0.6%** quarter-on-quarter in **Q1 2022**. This was around 1.9% above the pre-Corona level from Q4 2019. In addition to the contribution from Germany, the expansion in GDP in Q1 2022 was mainly driven by the strong growth in Ireland of 6.2% quarter-on-quarter, attributable mainly to the performance of multinational companies (European Commission, 2022). In Q2 2022, the Netherlands and Austria grew quite strongly at 2.6% and 1.9%, respectively. In addition, economic output grew over average in Greece, Italy and Spain, among others. In contrast, growth in Belgium, Germany and Portugal, for example, was low or almost stagnated. In Estonia and Luxembourg, economic output even declined.

25. The **heterogeneous economic development** of the Member States in Q2 2022 is mainly due to the different economic structures and the associated impact of the **supply chain disruptions as well as** the direct and indirect effects of the **Russian war of aggression**. Thus, energy price increases and economic uncertainty about the natural gas supply situation in the winter half-year 2022/23 differ between Member States. In addition, consumer **price inflation and** growth in **contact-intensive services** affected cyclical developments in the Member States to varying degrees. Thus, reduced purchasing power and high economic uncertainty are likely to have dampened the recovery in private consumption expenditure as a result of the easing of pandemic-related restrictions in some

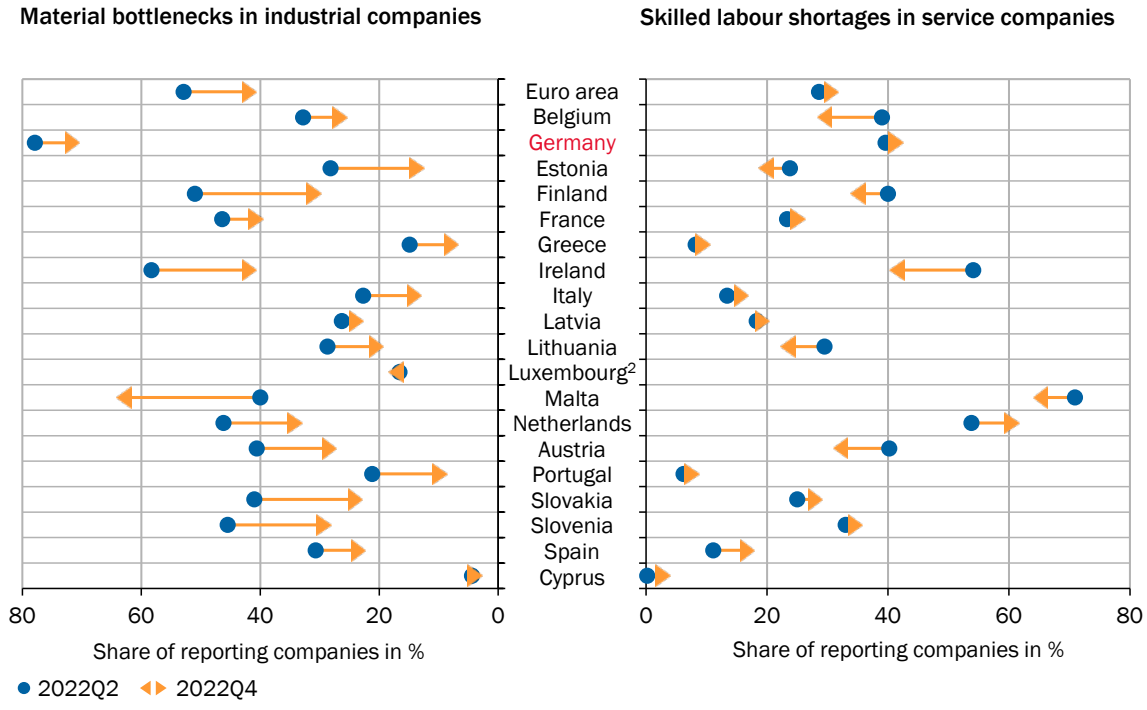
Member States. ↘ ITEM 55 In contrast, most Member States recorded a significant increase in tourism, which gave a boost to the hospitality industry, especially in the Southern European countries. In addition, the economies in the euro area were affected by the Omicron wave at different times and to varying degrees.

Gross value added (GVA) in manufacturing supported growth in some Member States, such as the Netherlands, France and Austria, in H1 2022. Yet, growth slowed in Q2 2022 and manufacturing performance was quite heterogeneous across Member States. For example, GVA contracted in Belgium, Germany and Slovakia, while it grew quite strongly in Italy, Spain and Austria, among others. While supply bottlenecks eased, high producer prices are likely to be responsible for lower growth in other Member States.

26. At the current margin, the available data indicate a clear weakening of economic momentum. The **massive price increases** for **electricity** and **natural gas** are increasingly burdening companies and consumers in many Member States. ↘ ITEM 8 For example, average wholesale electricity prices in many Member States in September 2022 are more than 150% higher than in the same period of the previous year, ↘ CHART 14 LEFT for natural gas the figure is almost 200%. ↘ CHART 14 RIGHT However, wholesale prices for various energy sources have recently fallen, in some cases significantly. ↘ ITEM 291 The fullness of natural gas storage facilities and the current mild weather are probably responsible for the price declines. The price differences between the Member States for natural gas are likely to result in particular from the limited cross-border pipeline capacities. ↘ ITEM 301 Many Member

↘ CHART 13

While supply-side bottlenecks at a high level have recently decreased, shortages in skilled labour in the service sector increased[1]

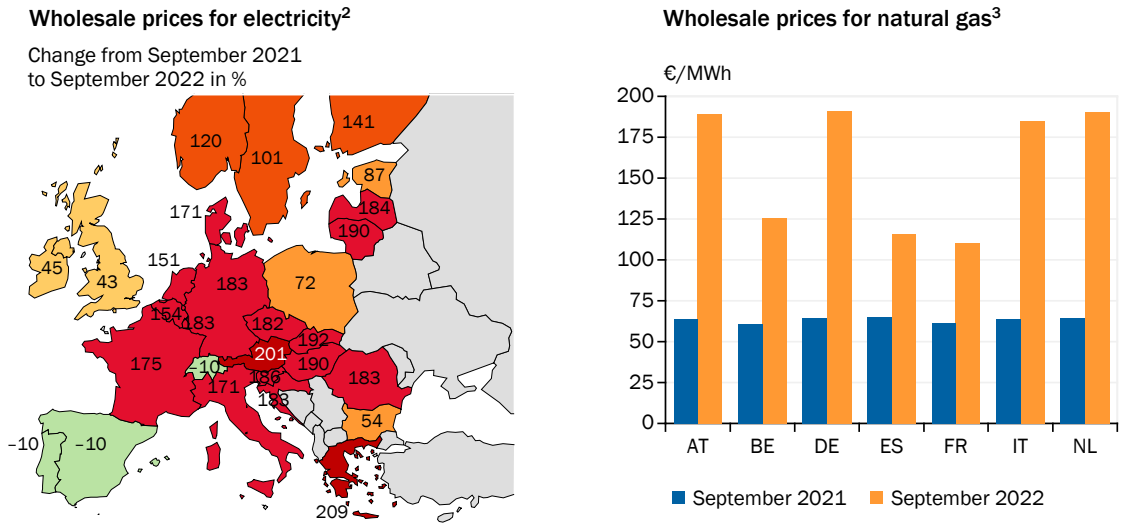


1 – Seasonally adjusted data. 2 – No data on skilled labour shortages available.

Sources: European Commission, own calculations

↘ CHART 14

Development of wholesale prices for electricity and natural gas in selected European countries[1]



1 – Average values calculated with the hourly or daily values of the respective month. 2 – No wholesale prices available for Cyprus and Malta. 3 – AT-Austria, BE-Belgium, DE-Germany, ES-Spain, FR-France, IT-Italy, NL-Netherlands.

Sources: CEGH, Entsoe, MIBGAS, EEX/Powernext, Refinitiv Datastream, own calculations

States have already taken or announced various support measures to cushion the impact of increased energy prices on households and companies (Sgaravatti et al., 2021). ↘ ITEMS 211 AND 151 FF. Some of these have a direct impact on wholesale prices, such as on electricity in Spain and Portugal, or on consumer prices, for example, through lower sales taxes and levies. ↘ ITEM 62

Especially in the **energy-intensive sectors of the economy**, **production is** likely to **decline** even **further.** Higher energy prices are also likely to put pressure on many service companies, which are already facing significantly lower demand as a result of the loss of household purchasing power. In industry, moreover, foreign demand is falling due to the economic slowdown in key trading partner countries. ↘ ITEM 14 FF. A positive factor here could be that, according to surveys, supply bottlenecks in the manufacturing sector have eased noticeably in almost all member states. ↘ CHART 13 LEFT

27. The Purchasing Managers' Index for industry has been below the growth threshold of 50 index points for the euro area since July 2022. In September 2022, all reporting Member States except Ireland were below this threshold, with a **pronounced decline in industrial production to be expected** for Germany, France and Italy in particular (S&P Global, 2022). ↘ ITEM 7 In the official statistics currently only available up to August 2022, the development is still quite volatile so far. For example, production in the manufacturing sector excluding the construction sector in the euro area rose by 1.5% in August 2022 compared to the previous month, adjusted for calendar and seasonal effects. However, after production had fallen by 2.3% in July 2022, the average for July and August 2022 was around 0.5% below the average for the previous quarter. In addition to the particularly energy-intensive industries such as the manufacture of chemical products and metal production and processing, production also fell sharply

compared to Q2 2022 for other manufacturers, such as clothing, printing products and the reproduction of recorded sound, image and data media, as well as furniture. On the other hand, production in mechanical engineering and vehicle manufacturing was on the rise.

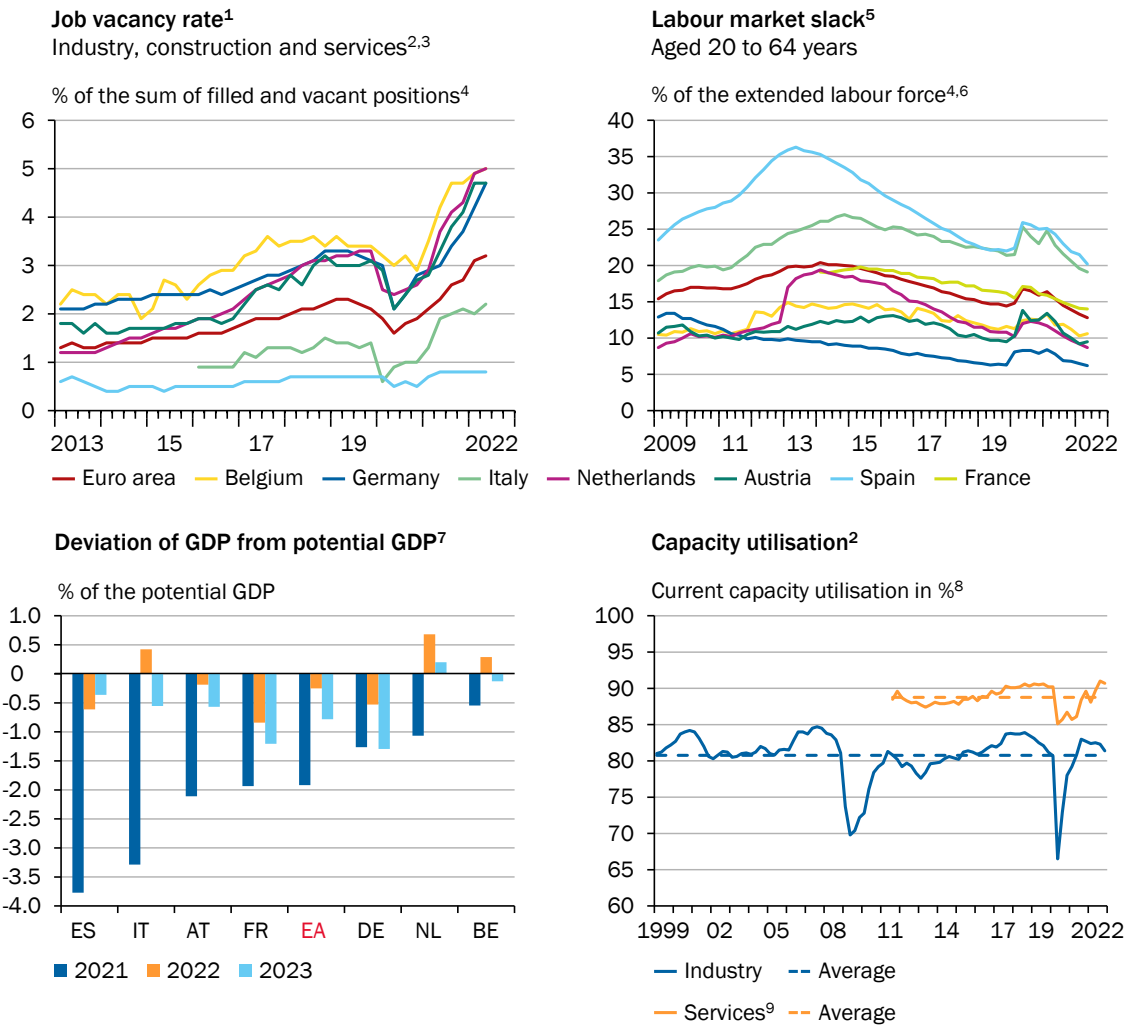
28. The **labour market** in the euro area continues to be **robust**. In August 2022, the seasonally adjusted **unemployment rate** in the euro area was 6.6 %, significantly lower than in the same month of the previous year (7.5 %). This is significantly lower than the pre-crisis level of 7.5% in Q4 2019. Compared to the historical average of 9.3 % since the establishment of the Monetary Union and to the peak of 12.2% at the beginning of 2013, the unemployment rate in the euro area is extremely low at the current margin. However, the unemployment rate still varies considerably between the member states. Malta had the lowest rate at 2.9% and Spain the highest at 12.4%. However, the unemployment rate in Spain was still 13.9% in Q4 2019 and the long-term average since 1999 is also significantly higher at 15.6%. The unemployment rate for people younger than 25 years old remains very high at the current margin, at 26.6%, similar to other Southern European Member States. However, the rate is also below the average of 33.6% recorded since 1999.

29. The sharp increase in job vacancy rates in many Member States since the beginning of 2021 points to a **shortage** of **labour** in the euro area. ↘ CHART 15 TOP LEFT Furthermore, the significant **decline** in **labour market slack** also signals a tightening of the labour market. In Q2 2022 the value for the euro area and for some Member States was already below the level which had prevailed at the beginning of the financial crisis. ↘ CHART 15 TOP RIGHT In addition, survey data point to a further worsening of the shortage of skilled labour in certain occupations in many Member States. Particularly in the services sector in Germany, Ireland, the Netherlands and Malta, a lack of labour is increasingly a limiting factor for companies. ↘ CHART 13 RIGHT At the beginning of Q4 2022, the share of service enterprises citing labour shortages as a limiting factor has decreased noticeably compared to the previous quarter in almost all Member States. The lack of demand mentioned significantly more often by companies recently is also likely to have contributed to this.

30. Despite labour shortages, the International Monetary Fund estimates that **output in** the **euro area is likely to** be **below its potential in 2022**. ↘ CHART 15 BOTTOM LEFT At the same time, survey-based capacity utilisation in the euro area is above its long-term average in both industry and services. ↘ CHART 15 BOTTOM RIGHT In particular, material shortages and the lack of skilled labour continue to prevent an expansion of production. The supply-side bottlenecks that have persisted for some time may have led to a reduction in capacity, which is only captured to a limited extent and with a lag by the empirical estimates of the production potential. This would be supported by the fact that in the survey data of the European Commission, insufficient demand currently plays a minor role as an obstacle to production in a historical comparison.

↘ CHART 15

Labour shortages and above-average capacity utilisation with predominantly negative deviation of GDP from potential output in the euro area



1 – Values for Italy only available from 2016. No values for France. 2 – According to the Statistical classification of economic activities in the European Community (NACE Rev. 2). 3 – Except activities of households as employers and extra-territorial organisations and bodies. 4 – Seasonally adjusted values. 5 – The labour market slack is composed of the unemployed, the underemployed part-time workers, those looking for work but not immediately available and those available for work but not looking for it, expressed as a percentage of the extended labour force. Values for France only available from 2014. 6 – Includes employed and unemployed persons, as well as those looking for work but not directly available to the labour market and those available to the labour market but not looking for work. 7 – International Monetary Fund estimates. ES-Spain, IT-Italy, AT-Austria, FR- France, EA-Euro area, DE-Germany, NL-Netherlands, BE-Belgium. 8 – Seasonally adjusted. Average utilisation rate of the facilities (normal full utilisation = 100 %). For services, the degree of utilisation is determined by the extent to which activity could be increased with the same factor input. 9 – Data only available from Q3 2011.

Sources: European Commission, Eurostat, IMF, own calculations

31. **Harmonised Index of Consumer Prices (HICP) inflation** in the euro area was around **9.9% year-on-year in September 2022, up from** 9.1% in August 2022. Inflation was highest in the Baltic Member States, notably Estonia, at 24.1%, and lowest in France at 6.2%. The extensive price regulations are likely to have contributed significantly to the comparatively low inflation in France. For example, the price of natural gas in France has been frozen since October 2021, and the electricity price increase for 2022 has been capped at 4% (Service Public,

2022). Core inflation in the euro area was 4.8% year-on-year in September 2022 and has been trending upwards since H2 2021. Food, alcohol and tobacco price increases have also continued to accelerate, reaching around 11.8% year-on-year in September 2022. ↘ ITEM 96 The rate of increase in energy prices accelerated somewhat again in September 2022 to 40.7%, after slowing down somewhat in the previous two months. At 4.2 percentage points, it continues to make a markedly large contribution to the overall index. However, the increase in energy prices varies considerably across the Member States. It was lowest in France and Slovakia at 18.8% and highest in the Netherlands at 113.8%. Germany, at 44.2%, is roughly at the euro area average.

32. The **lifting of pandemic-related restrictions** has resulted in a strong **increase in demand** in many Member States, especially in the **contact-intensive services sectors.** In the euro area, prices for services increased by 4.3 % in September 2022 compared to the same month of the previous year. Particularly in the Baltic Member States and the Southern European Member States, which are strongly influenced by tourism, the price increases for services were once again significantly higher. The prices of non-energy industrial goods in the euro area rose by 5.5% in September 2022. Among the four largest economies, this increase was highest in Germany at 6.4 %. In the course of the broad-based price increase, inflation expectations have also risen significantly. ↘ ITEM 105 According to the Survey of Professional Forecasters, the annual expected inflation rate in the euro area was 4.8% in 12 months and 2.4% in 24 months.

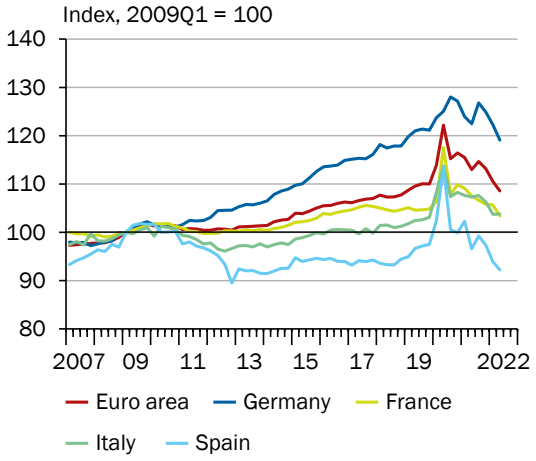
33. As a result of high inflation, **gross hourly wages** in the euro area **fell** by 4.2% in H1 2022 compared to Q4 2021 and are now around 1.7% below the pre-crisis level from Q4 2019. ↘ CHART 16 LEFT Among the four major economies, Spain is the hardest hit, with gross hourly wages falling by around 5.3% compared to Q4 2021 and by 5.4% compared to the pre-crisis level. Germany, France and Italy, on the other hand, are more moderately below pre-crisis levels, with declines of 1.7%, 1.4% and 0.6% respectively. Despite a significant increase in the inflation rate, nominal wage development has been rather moderate so far. In the second quarter of 2022, nominal wages and salaries in the euro area rose by 4.0% compared to the same quarter of the previous year. Year-on-year negotiated wage growth in the euro area has been low at 3.0% in Q1 2022 and 2.4% in Q2 2022. Lower gross real wages are likely to have a dampening effect on demand.

34. Since the beginning of 2022, the **euro** has developed differently against other leading currencies. Against the US dollar, the euro has depreciated sharply by 13.1% since the beginning of the year (as of 27 October 2022). In addition to a faster economic recovery compared to the euro area, the earlier interest rate hikes by US monetary policy are likely to have contributed to the depreciation of the euro. ↘ ITEM 12 ↘ BOX 9 By contrast, the euro appreciated against the Chinese renminbi, the British pound and the Japanese yen by 0.5%, 3.0% and 11.4%, respectively, over the same period. Measured by the effective exchange rate ↘ GLOSSARY, it has depreciated by 4.8% in nominal terms and 5.0% in real terms since December 2021 (as of August 2022). The current depreciation has increased price pressures on imported intermediate goods, energy and raw materials, which typically translate into higher consumer prices (Jašová et al., 2019; Colavecchio and

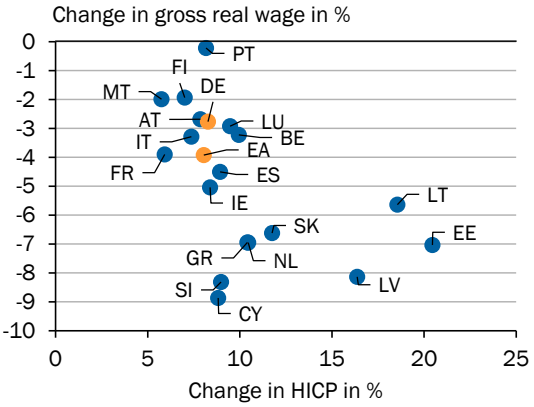
↘ CHART 16

Gross wages in the euro area fell sharply due to high inflation[1]

Gross real wages in the euro area fall at the current margin



Development of inflation and the real wage[2]
Q2 2022 compared to the same prior-year quarter



1 – The figure shows gross wages and salaries per hour worked. Price adjustments are made using the Harmonised Index of Consumer Prices (HICP). Seasonally adjusted values. 2 – AT-Austria, BE-Belgium, CY-Cyprus, DE-Germany, EA-Euro area, EE-Estonia, ES-Spain, FI-Finland, FR-France, GR-Greece, IE-Ireland, IT-Italy, LT-Lithuania, LU-Luxembourg, LV-Latvia, MT-Malta, NL-Netherlands, PT-Portugal, SI-Slovenia, SK-Slovakia.

Sources: Eurostat, own calculations

Rubene, 2020; Ha et al., 2020; Ortega and Osbat, 2020). In addition, the devaluation is likely to lead to a reduction in the price of export goods in foreign currency, which in turn could lead to stronger demand from countries outside the euro area and consequently price pressure on export goods.

35. In view of the massive increase in consumer prices, the **ECB** has **increasingly tightened** its monetary policy since the summer. In July, September and October 2022, the key policy rates were first raised by 50 basis points and then by 75 basis points, respectively. In March 2022, the ECB had already discontinued net securities purchases under the Pandemic Emergency Purchase Programme (PEPP). Purchases under the Asset Purchase Programme (APP) were also terminated in June 2022, sooner than initially announced. In addition, a transmission protection instrument (TPI) for monetary policy was introduced. According to the ECB (Lagarde and de Guindos, 2022), this is intended to ensure the smooth transmission of monetary policy and prevent market fragmentation as key policy rates normalise more quickly. ↘ ITEM 146 Furthermore, the Governing Council of the ECB decided at the October meeting to index the interest rates for the third series of targeted longer-term refinancing operations to the average of the key policy rates of the ECB and to pay interest on minimum reserves at the interest rate of the deposit facility.

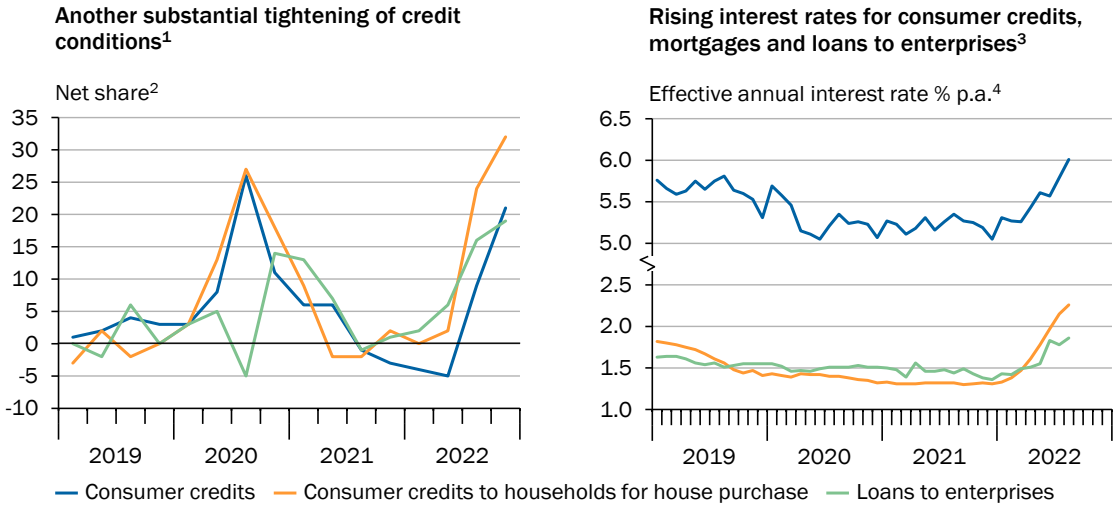
36. As a result of the very high inflation, there is likely to be a **further tightening of monetary policy**. In July 2022, the ECB ended the forward guidance it had practised until then, i.e. it refrained from announcing future interest rate decisions in advance. ↘ ITEM 140 Market-based interest rate expectations, such as the

three-month Euribor futures, point to further interest rate hikes. ↘ CHART 12 Daily data available at data deadline for 27 October 2022 suggest that short-term interest rates will rise to 2.4% by the end of 2022 and reach as high as 2.8% in H1 2023 as tightening continues, before interest rates are expected to stabilise in H2 2023. In the wake of the key interest rate hike decided in the October meeting, expected short-term interest rates have risen further, especially for H2 2023.

37. Monetary policy tightening has increased financing **costs for** private households **and companies**. In the euro area, interest rates for consumer credit and loans for house purchases have risen by about one percentage point and by about 0.5 percentage points for loans to enterprises since the beginning of 2022. ↘ CHART 17 RIGHT In addition, banks in the euro area have substantially tightened their credit standards, such as collateral or equity requirements. ↘ CHART 17 LEFT This is probably due to the higher risks resulting from the gloomy economic outlook and banks' lower risk tolerance. Both interest rate developments and credit standards have been heterogeneous across the euro area (ECB, 2022b). While net demand for

↘ CHART 17

Credit standards and interest rates for private sector loans in the euro area



1 – Credit standards in the past three months (according to the ECB Bank Lending Survey). Credit standards are the internal guidelines or loan approval criteria of a bank. Both requests for new loans and loan refinancing, i.e. leading to a prolongation of a loan or a higher loan amount, should be considered. Credit standards are established prior to the actual loan negotiation on the terms and conditions and the actual loan approval/rejection decision. They define the types of loan a bank considers desirable and undesirable, the designated sectoral or geographic priorities, the collateral deemed acceptable and unacceptable, etc. Credit standards specify the required borrower characteristics (e.g. balance sheet conditions, income situation, age, employment status) under which a loan can be obtained. They determine what types of loans a bank considers desirable and undesirable, what sectoral or geographic priorities are set, what collateral is considered acceptable and unacceptable. And they specify the required borrower characteristics (e.g. balance sheet conditions, income situation, age, employment status) under which a loan can be granted (ECB, 2016). 2 – In each case, the net share is displayed, which is the result of the difference between the sum of the responses "tightened significantly" and "tightened slightly" and the sum of the responses "somewhat relaxed" and "significantly relaxed". The banks' responses are weighted with the respective countries' share in the total loan volume in the euro area and with the banks' share in the total loan volume of the banks surveyed. The survey is conducted on a representative sample of banks in the euro area. 3 – Loans from credit institutions and other financial institutions (excluding money market funds and central banks) for new business. 4 – The calculation does not cover any additional charges that may apply. If a disagio has been agreed, this is considered an interest payment.

Source: ECB

credit by companies continued to rise in Q2 2022, it is likely to have been driven by companies' financing needs in light of high producer prices (ECB, 2022b, p. 16 f.). The ongoing weak development of fixed investment is having a dampening effect on net credit demand.

38. The high inflationary pressure and the poor economic outlook have **worsened financial stability conditions** (ECB, 2022c). In particular, financial institutions that are less strictly regulated than banks, such as investment funds, could run into difficulties due to their high risk appetite. Their liquidity buffers are low and they are more active in financing weak companies, which makes them more vulnerable to economic downturns (ECB, 2022c, p. 77 ff.). In the current Bank Lending Survey (BLS), banks show concern despite the generally positive short-term impact of higher interest rates on bank margins. Above all, the challenging macroeconomic environment and the associated increase in default probabilities of corporate and consumer loans are seen as problematic (ECB, 2022d).

39. In addition, banks that have granted a high number of long-term fixed-interest loans at low interest rates in the past years could face difficulties. Due to **maturity transformation**, banks' liabilities are shorter-term by design. An increase in interest rates has an immediate impact on the financing of their liabilities. Banks with low profitability have increased maturity transformation and could therefore face further pressure on profitability if interest rates rise (Memmel and Seymen, 2021). Although rising interest rates should lead to an improvement in interest margins in the German banking sector at an aggregate level, it can be shown for Germany that a small number of banks suffered a sharp decline in interest margins in the short term (Deutsche Bundesbank, 2022b). In the short term, the interest rate turnaround will have a negative impact on interest margins, especially for some credit cooperatives and savings banks. Nevertheless, analyses of the interest rate turnaround suggest a positive development of interest margins for almost all institutions in the medium term (Deutsche Bundesbank, 2022b, p. 93).

40. As a result of these developments, the **significant banks** ↘ GLOSSARY in the euro area revised their **profitability outlook** (ROE) **downwards** from 7.6% in February 2022 to 7% in May 2022. Nevertheless, they present themselves as **resilient** overall in **stress tests** (ECB, 2022c). Contributing factors include the continuous reduction of non-performing loans on banks' balance sheets as well as higher loan loss provisions and operating profits. In addition, European banks' equity ratios have increased slightly in 2021 and are above the regulatory requirements.

41. The **upward** price trend on **residential property markets** was still strongly recently. In the euro area, residential property prices rose by 9.3% in the second quarter of 2022 compared to the same quarter of the previous year. However, this number is already somewhat lower than the increase in Q1 2022 (9.8 %). According to the ECB (2022c), the **vulnerability** of real estate markets in the euro area has **increased further** over the course of the price increases observed in 2021. The European Systemic Risk Board (ESRB, 2022) formulated warnings and recommendations for various euro area countries over of prices that increasingly did

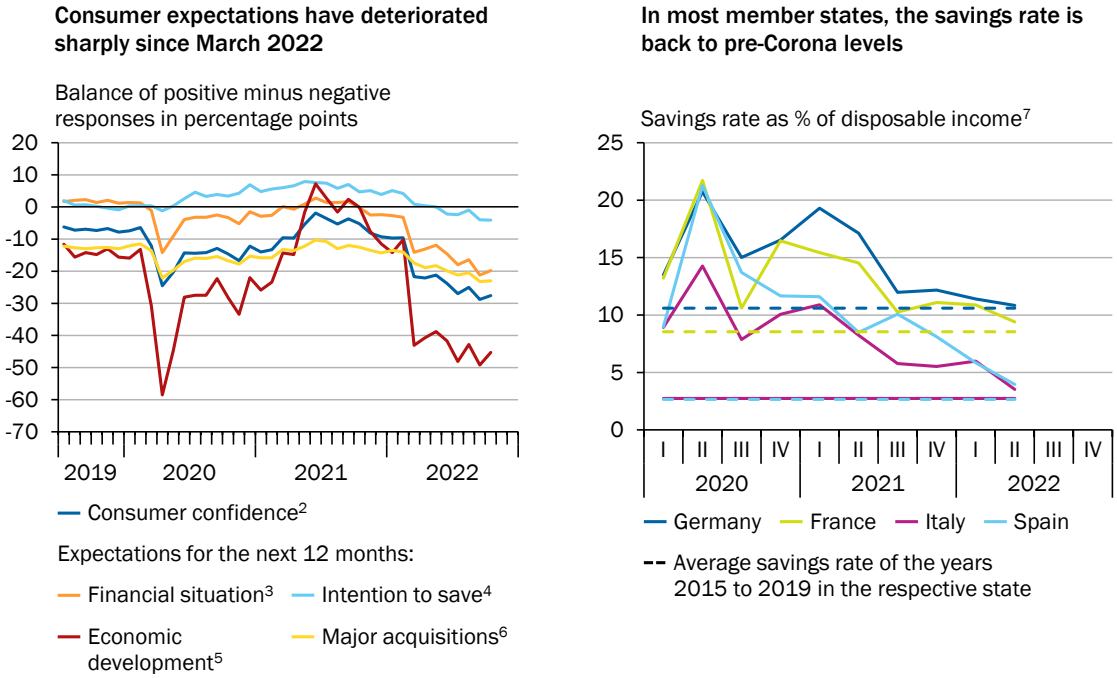
not appear to be justified by fundamentals. Weaknesses in real estate markets could therefore develop destabilising effects on financial markets and the real economy in the medium term. The German Bundesbank (2021) already warned last year of price exaggerations in the residential property market in Germany.

Price increases weigh on growth

42. Although economic performance in Germany, France and Spain was still on an upward trend in the third quarter of 2022 according to the flash estimates from the national statistical institutes available at the cut-off date for data, the **economy is** likely to weaken in **the winter half-year 2022/23.** First and foremost, the loss of purchasing power among private households is likely to lead to a decline in final consumption expenditure. According to surveys by the European Commission, consumer confidence is already below the level of spring 2020. ↘ CHART 18 LEFT Expectations about general economic and personal financial developments have weighed heavily on consumer confidence since March 2022. The loss of real disposable income is also likely to result in the household saving ratio not only normalising, ↘ CHART 18 RIGHT but even falling below the average level of the

↘ CHART 18

Given high inflation and the economic slowdown, households are likely to consume and save less[1]



1 – Seasonally and calendar adjusted. 2 – Arithmetic mean of the questions on the development of the financial situation of the household in the past 12 months, in the coming next 12 months, the general economic development situation in the coming next 12 months and the planned major purchases. 3 – Question: How do you expect the financial position of your household to change over the next 12 months? 4 – Question: Over the next 12 months, how likely is it that you save any money? 5 – Question: How do you expect the general economic situation in Germany to develop over the next 12 months? 6 – Question: Compared to the past 12 months, do you expect to spend more or less money on major purchases (furniture, electrical/electronic devices, etc.) over the next 12 months? 7 – Disposable income incl. adjustment for the change in pension entitlements of private households and non-profit institutions serving households.

Sources: European Commission, Eurostat, own calculations

pre-Corona years. This is consistent with the responses of the households surveyed, who expect to make fewer major purchases in the next 12 months and save less at the same time.

43. Energy prices are likely to remain high over the forecast horizon. ↘ ITEM 8 In the **course of 2023,** however, real incomes should slowly recover, not least due to extensive government support measures, and thus **stabilise private consumption expenditure**. Due to the slowdown in the global economy, growth impulses can only be expected to a limited extent, and at the earliest towards the end of the forecast horizon. ↘ ITEM 14 The deteriorating financing conditions as a result of monetary policy tightening are also likely to have a dampening effect on overall economy demand, especially in the construction sector and in gross fixed capital formation in machinery and equipment.

44. For the economic forecast, the GCEE **assumes that the** Russian war of aggression against Ukraine will **not have an aggravated economic impact** on the economies in the euro area. It can be assumed that, regardless of the further course of the war, there will be no normalisation of trade relations with Russia in the foreseeable future and that the sanctions of the European Union (EU) will remain in place. The economic tensions are therefore likely to remain high. According to the futures markets, **prices for natural gas** and thus also for electricity are likely to **remain high** in the forecast horizon. In particular, due to the lack of Russian natural gas supplies, storage levels at the end of winter 2022/23 are likely to be particularly low and filling them in the summer half-year 2023 will be challenging (Bundesnetzagentur, 2022; EWI, 2022; IEA, 2022b). In the medium term, a sustained easing is not expected until the heating season in spring 2024 is over. ↘ ITEMS 47 AND 302 However, prices are likely to remain above pre-war levels thereafter. As the remaining supply volumes from Russia for the euro area are already quite low, the risk of further price increases is mainly based on insufficient savings by domestic companies and households as well as lower than expected supply volumes from other sources. ↘ ITEM 47

For the forecast period, however, it is **assumed** that **private natural gas consumption** will be **sufficiently reduced** and thus rationing can be avoided. The futures prices for natural gas prices can therefore serve as the relevant scarcity signal. It is also assumed that the status quo of integrated European natural gas and electricity markets is maintained.

45. For **2022,** the GCEE forecasts a **3.3 % increase in** price- and calendar-adjusted **GDP** in the euro area. ↘ TABLE 2 The strong annual growth rate is, however, mainly due to the development in the first half of the year and the statistical carry-over effect of about two percentage points from the previous year. In many Member States, the economic slowdown is likely to continue well into next year. Especially in the economically important member states Germany and Italy, a stagnation or decline in economic output is to be expected in **2023,** adjusted for calendar effects. Accordingly, the aggregate GDP of the euro area is likely to **increase only slightly, by 0.3%**.

46. **Consumer price inflation in** the euro area is expected to reach **8.5 % in the current year**. For **2023, the GCEE** expects only a slight decline in price

↘ TABLE 2

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

Country/ country group	Weight in %[1]	Gross domestic product (calendar-adjusted)[2]			Consumer prices (HICP)[3]			Unemployment rate[4]		
		Change on previous year in %						%		
		2021	2022[3]	2023[3]	2021	2022[3]	2023[3]	2021	2022[3]	2023[3]
Euro area[6]	**100**	**5.3**	**3.3**	**0.3**	**2.6**	**8.5**	**7.4**	**7.7**	**6.8**	**7.1**
including:										
Germany	29.3	2.6	1.8	0.0	3.2	8.6	7.9	3.6	3.1	3.4
France	20.3	6.8	2.6	0.4	2.1	5.9	6.1	7.9	7.5	7.7
Italy	14.4	6.7	3.5	– 0.4	1.9	8.8	9.8	9.6	8.2	8.6
Spain	9.8	5.5	4.6	1.0	3.0	8.5	4.2	14.8	12.8	13.2
Netherlands	7.0	4.9	4.6	0.6	2.8	12.1	9.8	4.2	3.6	4.1
Belgium	4.1	6.1	3.0	0.3	3.2	10.3	7.9	6.3	5.7	6.1
Austria	3.3	4.7	4.8	0.4	2.8	8.5	6.7	6.2	4.7	5.1
Ireland	3.5	13.4	9.5	4.0	2.4	8.3	7.7	6.3	4.5	4.6
Finland	2.0	3.0	2.1	– 0.4	2.1	7.0	4.3	7.7	7.0	7.7
Portugal	1.7	5.5	6.6	0.4	0.9	8.2	5.6	6.6	6.0	6.6
Greece	1.5	8.0	6.2	0.3	0.6	10.1	6.4	14.8	12.6	12.8
memorandum:										
Euro area without Germany	**70.7**	**6.4**	**3.9**	**0.5**	**2.3**	**8.4**	**7.2**	**9.2**	**8.1**	**8.5**

1 – GDP in the year 2021 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 – According to the measuring concept of the International Labour Organization (ILO). For the total euro area and euro area without Germany weighted by the labour force of 2021. 5 – Forecast by the German Council of Economic Experts. 6 – Weighted average of the 19 euro area member states.

Sources: Eurostat, own calculations

increases to **7.4 % on an** annual average. The increased producer prices, especially for energy, are likely to be gradually passed on to consumers. It can be assumed that all three main components of the HICP, energy, food and the core rate, will see further considerable price increases. ↘ CHART 95 The larger differences between the annual average inflation rates of the Member States are due to different inflation dynamics during the year, in addition to different market developments and government interventions, in particular for consumer prices for energy. ↘ ITEM 26 According to the flash estimate, the HICP in Italy increased by 4.0% compared with the previous month in October 2022. In contrast, the HICP in Spain increased by only 0.1% month-on-month, partly due to a reduction in the VAT on natural gas.

3. Opportunities and risks

47. For the real economic outlook, the **downside risks currently clearly dominate**. In particular, the future development of electricity and natural gas prices in Europe harbours a high degree of uncertainty for the forecast. These could turn out to be higher than assumed in the forecast due to various factors. For example,

insufficient savings efforts on the part of private households, a particularly cold winter in 2022/23, lower than planned natural gas deliveries and disruptions in the supply infrastructure could lead to **further price increases** and, **in extreme cases,** to a **gas shortage** (Bachmann et al., 2022; Bundesnetzagentur, 2022; Gemeinschaftsdiagnose, 2022a). A gas shortage situation is likely to result in the need to further reduce gas consumption by the industry through rationing. ↘ CHART 60 **Far-reaching production losses** in the energy-intensive industry and an increase in **unemployment** and **insolvencies** could be the result. The purchasing power of households could also be more heavily burdened. In contrast, a mild winter, faster substitution of gas supply options and more comprehensive savings efforts could ease the situation. The provision of additional electricity generation capacity in Germany, for example through renewables as well as nuclear and coal power plants, could also have a stabilising effect (Egerer et al., 2022). ↘ ITEM 334

The **state regulation of electricity and natural gas prices** is also uncertain. In Germany, the electricity price brake was announced as part of the 3rd relief package, but its design at the time of this forecast is still largely unclear (Bundesregierung, 2022a). The Expert Commission on Gas and Heat (ExpertInnen-Kommission Gas und Wärme, 2022) has made a proposal on how to limit natural gas costs for consumers in Germany. ↘ ITEMS 62 AND 343 This forecast assumes that the Federal Government will launch the proposal. In the event of little or no relief measures, higher inflation rates and greater real economic losses would have to be expected in the short term compared to the forecast. This applies inversely to more comprehensive measures, whereby credit-financed support for demand can increase medium-term inflationary pressure.

48. Numerous states are dependent on cross-border electricity and gas trade, especially since Russian natural gas supplies have been reduced. Cooperation between the member states in the euro area within the framework of the integrated electricity and energy markets is therefore essential to keep these markets stable. **Crisis-related national interventions** could impair the functioning of the internal energy market, significantly increase the pressure on the energy markets, lead to a further increase in energy prices and result in negative overall economic effects. The increased uncertainty about the supply situation will also likely reduce the incentive for business investment.

49. The risk of **a perpetuation of consumer price inflation persists** and has recently intensified – especially in Europe. Thus, medium- and long-term inflation expectations could rise further or even de-anchor. ↘ ITEM 105 Furthermore, wage growth could accelerate. Inflation could then become more persistent, which would force monetary policy to tighten more. This, in turn, could affect economic growth and financial stability.

50. The **Corona pandemic** continues to **pose** a downside risk to global economic activity. Renewed **waves of Corona infections** and **virus variants** could lead to voluntary consumption restraint and work absences due to illness.

II. GERMAN ECONOMY

51. After the German economy had still grown in Q1 2022 as a result of the recovery of private consumption expenditures from the pandemic, the Russian war of aggression on Ukraine dampened the upturn. The gradual reduction in Russian gas supplies led to a further **increase in energy prices** over the course of the summer. This has raised production costs for companies and significantly reduced production in the energy-intensive industries. In addition, wholesale energy prices being increasingly passed through to consumers cause a **loss of purchasing power** among private households. In the forecast, the GCEE assumes that private households will reduce their savings rate in order to stabilise consumption. A robust labour market, the relief packages and the gas price brake should also support consumption. Nevertheless, private consumption expenditures are expected to decline overall in 2023. **Easing supply bottlenecks** and a partial reduction of the **high order backlog** should boost exports and capital formation to some extent.

52. **For 2022,** the GCEE predicts **economic growth** of **1.7 %**. For **2023,** it assumes that the downward forces will prevail and that there will be a decline in economic output of **0.2 %.** In view of the renewed rise in energy prices, but also due to a pick-up in core inflation, **consumer price inflation in** Germany remains **high** over the forecast horizon. In October 2022, it was 10.4 % for the first time since the early 1950s. In 2022 and 2023, the consumer price index (CPI) is expected to increase by 8.0 % and 7.4 %, respectively. Due to the imponderable development of the energy supply and the design of the government relief measures, the forecast is subject to a **high degree of uncertainty.** ↘ ITEM 47

1. Review: Recovery in services and rising energy price pressure

53. **At the beginning of the Russian war of aggression** in February 2022, the **German economy** was still **recovering**. After the pandemic-related stagnation in Q4 2021, price-, calendar- and seasonally-adjusted GDP expanded by 0.8% in Q1 2022 compared to the previous quarter. **GDP** grew at a much lower rate of 0.1% in Q2 2022 and almost reached the **level of the cyclical peak seen in** Q4 2019. ↘ BOX 2 According to the flash estimate of the Federal Statistical Office of 28 October 2022, German economic output measured by price-, calendar- and seasonally adjusted GDP grew by 0.3% in Q3 2022 compared to the previous quarter.

↘ BOX 2

Dating the trough of the coronavirus recession in Germany

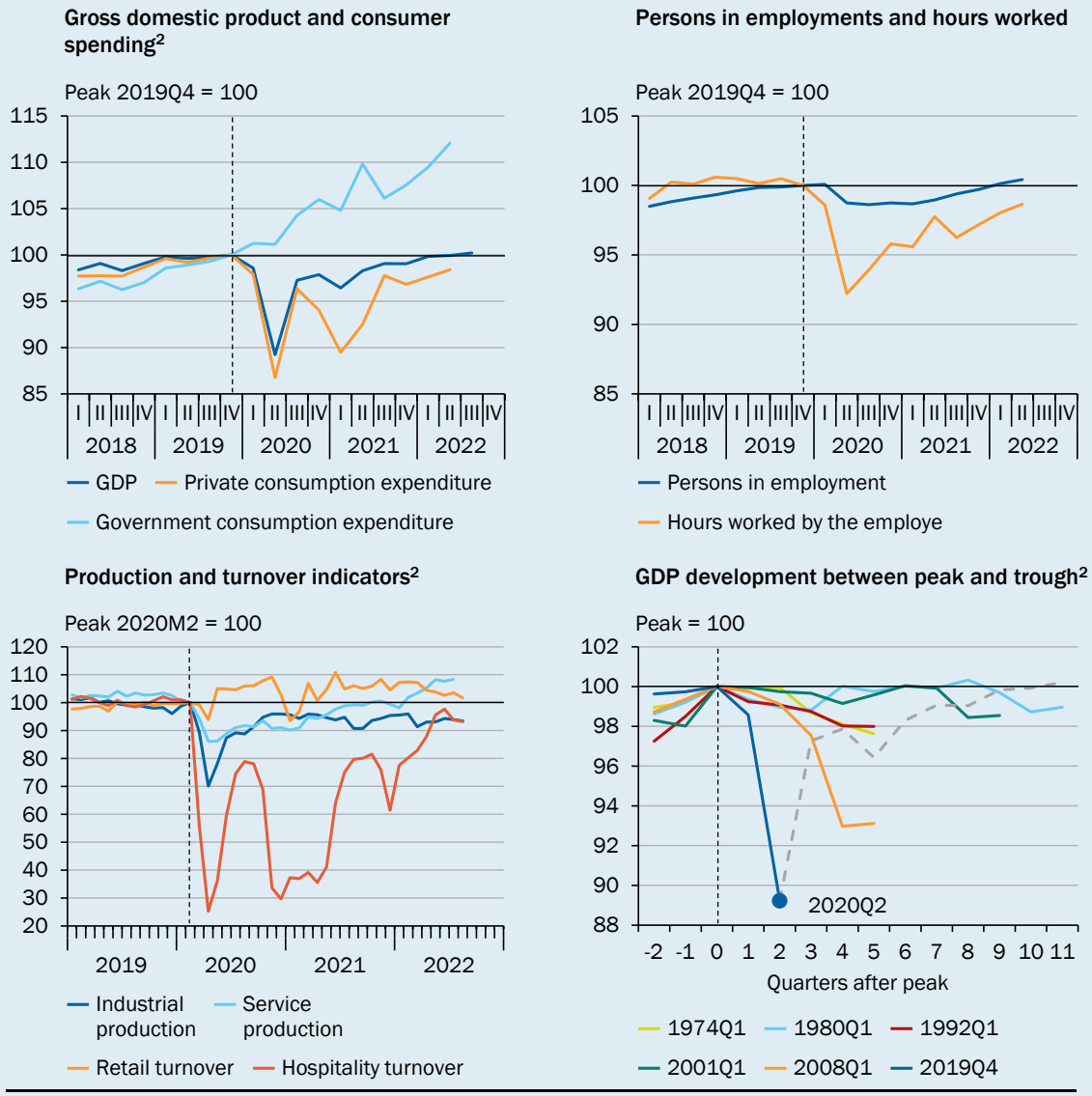
In the GCEE Annual Report 2021 (JG 2021 Box 5), the GCEE dated the **peak of the business cycle** before the **coronavirus recession** in Germany to the **Q4 2019** or **February 2020.** The considerable revision of the results of the national accounts ↘ GLOSSARY in July 2022, in which the

decline in price- and calendar-adjusted GDP in 2020 was lowered from 4.9% to 4.1%, does not change this assessment.

Using the multidimensional expert-based method outlined in Breuer et al. (2022), **the GCEE dates** the business cycle **trough of the coronavirus recession** in Germany to the **Q2 2020** or **April 2020**. The strong rebound of all aggregates of GDP on the expenditure side in the third quarter of 2020 suggests the beginning of the (economic) upturn. In particular, private consumption expenditure increased by 11% in price, seasonally and calendar-adjusted terms. ↘ CHART 19 TOP LEFT Admittedly, the recovery in employment did not pick up speed until 2021. ↘ CHART 19 TOP RIGHT Employment subject to social security contributions has, however, already increased again from the Q3 2020. The use of short-time work also fell sharply from the Q3 2020, interrupted by a temporary increase in the winter half-year 2020/21, which is reflected in the development of hours worked. However, the expansion of short-time work has clearly

↘ CHART 19

Development of selected economic indicators[1]



1 – Seasonally and calendar adjusted. 2 – Price-adjusted.

Sources: Deutsche Bundesbank, Federal Statistical Office, own calculations

limited the increase in unemployment. Based on seasonally and calendar-adjusted monthly data, industrial production as well as price-adjusted turnover in the retail trade and - although at a very low level - in the hotel and restaurant industry increased from April 2020. ↘ CHART 19 BOTTOM LEFT

Following the unusually sharp drop in economic activity in H1 2020, the economic **upturn** after the coronavirus recession was also unusual compared to **previous recessions**. ↘ CHART 19 BOTTOM RIGHT In particular, private consumption expenditure fell in the winter half-years of 2020/21 and 2021/22 due to the pandemic, leading to a decline in price-adjusted GDP in Q1 2021 and stagnation in Q4 2021. Due to behavioural adjustments of households and changed business models of enterprises, and later supported by the progress of the vaccination, the economic impact of the Corona pandemic has gradually decreased since spring 2020. The fact that fewer and fewer sectors of the economy were affected, ↘ TABLE 8 APPENDIX, argues against a prolonged recession phase into 2021.

At two quarters and two months respectively, the **coronavirus recession** was the **shortest recession so far dated by the GCEE** for Germany. This is in line with the decisions of the business cycle-dating committees of the National Bureau of Economic Research (NBER, 2020, 2021) for the US and the Centre for Economic Policy Research together with the Euro Area Business Cycle Network (CEPR-EABCN, 2021a, 2021b) for the euro area as well as the committees of France (Aviat et al., 2021; CDCEF, 2021) and Spain (AEE, 2020, 2022).

54. The overall economy **in the first half of 2022** was largely **determined by final consumption expenditure**. Adjusted for price, calendar and seasonal effects, it **grew** by 0.8 % in each of the first two quarters of 2022, driven in particular by the **services sector.** Fading economic effects of the pandemic and the extensive lifting of pandemic-related containment measures at the end of March 2022 were largely responsible for this. Value added grew particularly in the leisure and entertainment as well as accommodation and gastronomy sectors. Only trade and public services showed a relatively weak development.

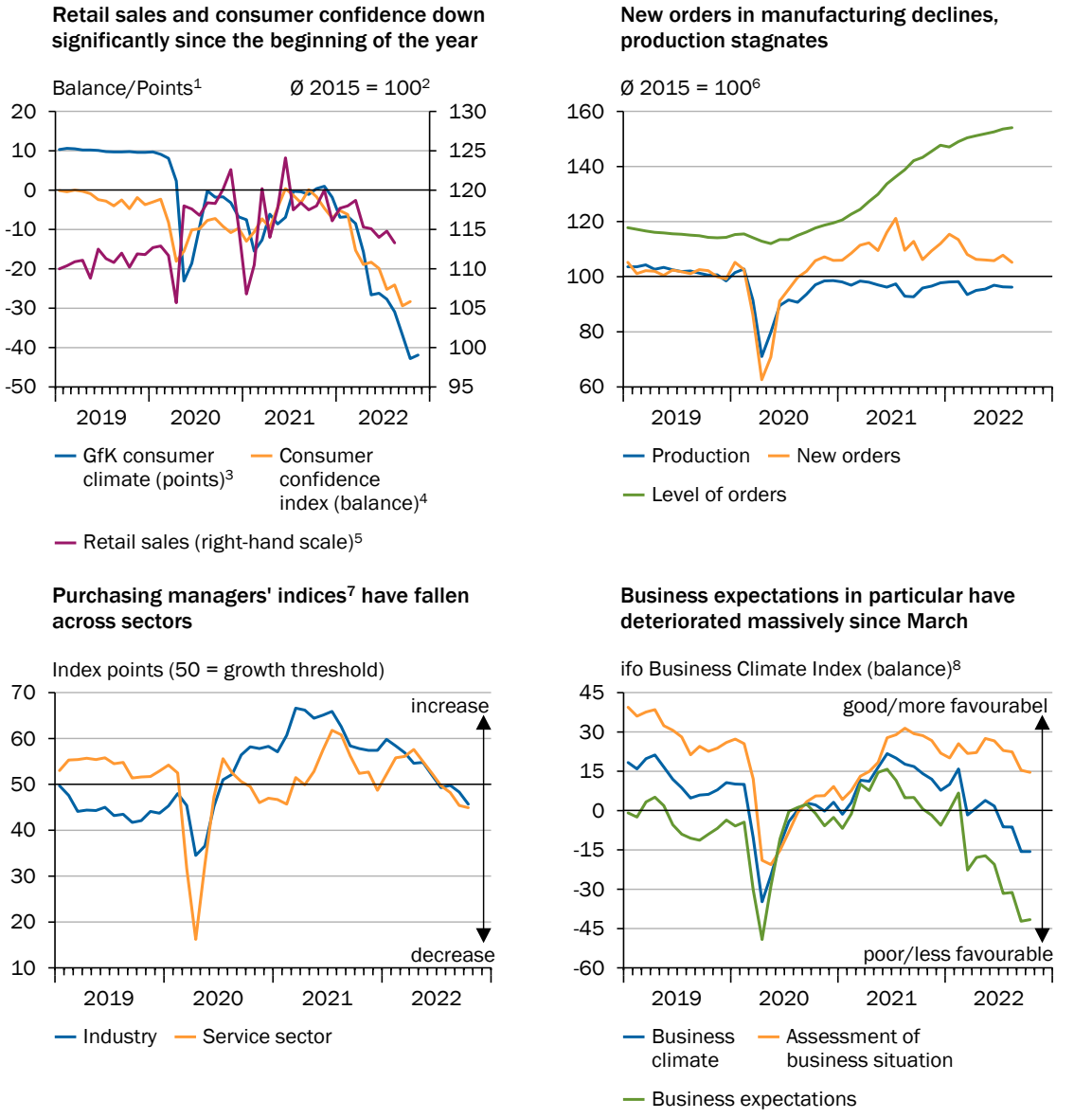
55. In the first half of 2022, the effects of less pandemic-related containment measures outweighed those of the loss of purchasing power caused by **high energy prices.** This was initially reflected only in poorer consumer sentiment (Bazzoni et al., 2022). ↘ CHART 20 TOP LEFT Real disposable income of private households already fell by around 1.2% in Q2 2022 compared to the previous quarter and is likely to have fallen further in Q3. A similar picture emerges for real wages. ↘ CHART 16 ↘ ITEMS 78 AND 11 The fact that private consumption expenditure did not fall at the same rate as real disposable income can **be explained** by a decline in the **savings rate of private households**. The savings rate fell from 17% in Q2 2021 to 11% in Q2 2022, which corresponds to the average savings rate before the pandemic. ↘ CHART 18 RIGHT Furthermore, only part of the increases in electricity and natural gas wholesale prices have reached private households, as supply contracts usually have a term of at least one year. Accordingly, consumption indicators for Q3 2022 show a mixed picture. While retail sales continued to decline in August 2022 compared to the average of the previous quarter, new car registrations increased.

56. The other expenditure components of GDP developed differently. While both government consumption and gross fixed capital formation in machinery and equipment grew, **construction investments were** under pressure **from shortages**

of skilled workers, high material prices and **deteriorating financing conditions** (ZDB, 2022). The deflator of construction investments rose by 10.5 % in the first half-year of 2022, thus much more than the GDP deflator which increased by only 2.8 % in the same period. As a result, construction investment declined significantly in real terms in Q2 2022. **Net exports also reduced growth**, as exports developed significantly weaker than imports. While exports were affected by supply bottlenecks, imports partly rose due to the revival of tourism.

↘ CHART 20

Selected economic development indicators were on an upward trend until the war of aggression on Ukraine and have largely slumped since then



1 – Seasonally adjusted values. 2 – Seasonally and calendar adjusted values. 3 – Based on about 2,000 consumer interviews per month. 4 – The Consumer confidence index is based on selected questions asked of consumers according to the Joint Harmonised EU Programme of Business and Consumer Surveys. 5 – Real index excluding the trade in motor vehicles. 6 – Volume index; seasonally and calendar adjusted values. 7 – The Purchasing Managers' Index is based on a monthly survey of purchasing managers and managing directors. 8 – Manufacturing, services, trade and construction.

Sources: European Commission, Federal Statistical Office, GfK, ifo, S&P Global

Trade with Russia has **fallen sharply** since the war of aggression in Ukraine began. Exports to Russia fell more sharply than imports from Russia to Germany. Imports are largely fossil fuels, which are of great importance for the German economy (GCEE Economic Outlook 2022 Box 3). ↘ ITEM 275 However, the decline in exports is only of minor importance to the overall economy due to the low significance of the Russian sales market (Görg et al., 2022).

57. In contrast to the service **sectors, manufacturing continued** its **weak development** of the previous quarters. In the first half-year of 2022, gross value added fell slightly by -0.5% compared to Q4 2021. Available data on industrial production suggest that the sideways movement continued in Q3 2022. ↘ CHART 20 TOP RIGHT Manufacturing output fell by 0.1 % in August compared to the previous month, but was 0.5 % above the level of the previous quarter. Growth was supported by the **order backlog in the manufacturing sector**, which **is still exceptionally high** despite a decline in new orders and the slowly easing supply bottlenecks. Due to low production, the order backlog reached a new high in August 2022, but increased at a slower pace than in previous months. ↘ CHART 20 TOP RIGHT Although there is also a high order backlog in the construction sector, cancellations are increasing there in particular (ifo Institute, 2022a).

58. In manufacturing, **supply bottlenecks for intermediate products and materials continued to** dampen production and prevented the high demand from being met. Surveys and global indicators suggest, however, that the disruptions have recently eased somewhat (ifo Institute, 2022b). This is largely explained by the decline in aggregate demand and lower supply-side disruptions, especially in China. ↘ CHART 3 ↘ ITEM 6 In the summer months of 2022, temporary supply disruptions caused by **low water levels in the Rhine** were added**.** These impeded the supply of energy raw materials and petroleum products to industry and thus affected electricity production, among other things (Ademmer et al., 2019).

59. The manufacturing sector is also **affected by higher prices for electricity and natural gas**. This is especially true in **energy-intensive sectors** such as the chemical industry and metal production and processing. In these sectors, production in August fell by 8.6 % compared to February 2022 and by 2.1 % compared to July 2022. The direct impact on the total economy was relatively low due to the low value added share of the energy-intensive industries of about 4.4 % in 2021 (Federal Statistical Office, 2022a). However, as the energy-intensive industries are responsible for 76 % of industrial energy consumption, the decline in production in these sectors is likely to have led to a significant **reduction in energy consumption**.

60. The production losses in the energy-intensive sectors can affect downstream stages of the value chain through supply shortfalls. In addition, surveys indicate that a significant proportion of non-energy-intensive companies regard the sharp rise in energy prices as an existential risk (BDI, 2022; Schwartz et al., 2022). ↘ ITEM 47 Indicators of **insolvencies among companies** are currently quite volatile, but according to official statistics in September 2022 they were still below the level of the same month in the previous year (Federal Statistical Office, 2022b). This can probably be explained by the fact that for most companies the

share of energy costs is moderate (Schwartz et al., 2022) ↘ ITEM 318 FF. and energy contracts are also only gradually expiring. ↘ ITEM 47

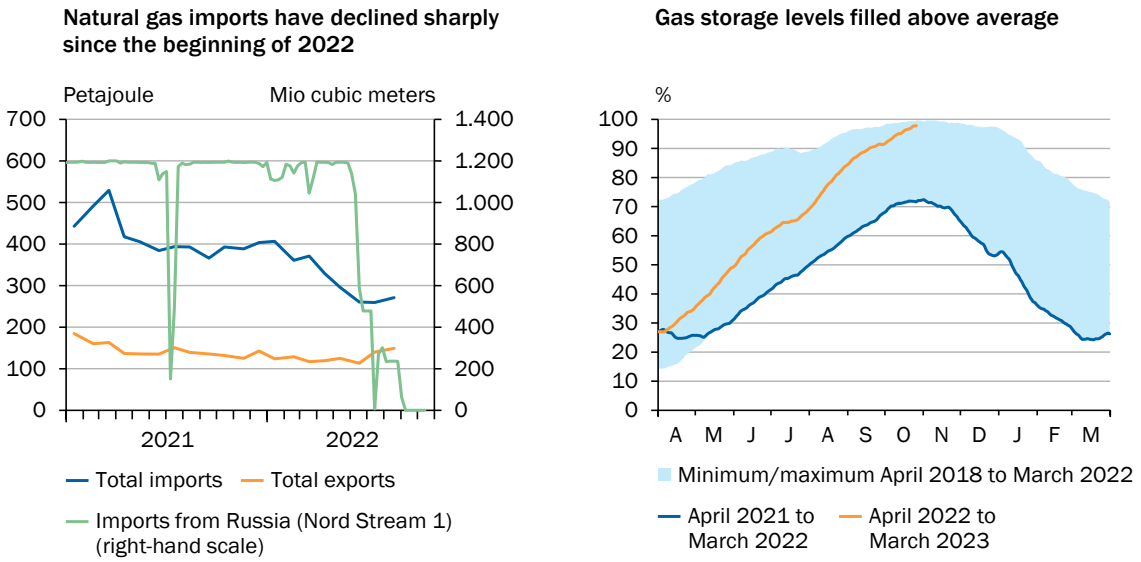
2. General conditions: Continuing pressure on energy prices

61. The German economy is particularly affected by the energy crisis. On the one hand, Germany has so far been heavily dependent on Russian natural gas supplies and substitution possibilities are still limited (Berger et al., 2022; GCEE Economic Outlook 2022 Box 3). On the other hand, natural gas is a comparatively important energy source for Germany. For that reason, the price increases for natural gas and thus also for electricity are likely to have a significant negative impact on the German economy. In the forecast horizon the GCEE assumes that wholesale prices will fall slightly from a high level. In addition, the burden on consumers should be limited due to the VAT reduction on gas from October 2022 and the gas price brake from December 2022. ↘ ITEM 62 The announced electricity price brake is not taken into account in the forecast, as no possible design has been published yet. Furthermore, it is assumed that there **will be no gas shortage in the winter half-years 2022/23** and **2023/24**. ↘ CHART 44 For one thing, Germany's natural gas storage facilities are filled to an above-average level. ↘ CHART 21 RIGHT In addition, savings and higher net imports should be sufficient to avoid a gas shortage situation (Bachmann et al., 2022; Bundesnetzagentur, 2022; Gemeinschaftsdiagnose, 2022b). ↘ CHART 21 LEFT ↘ ITEM 60 The risk of a less favourable development is, however, significant. ↘ ITEM 47

62. **The gas price** brake should **limit the increase in the CPI**. If the brake is implemented as proposed by the Expert Commission on Gas and Heat, **the**

↘ CHART 21

Natural gas deliveries to Germany and storage levels



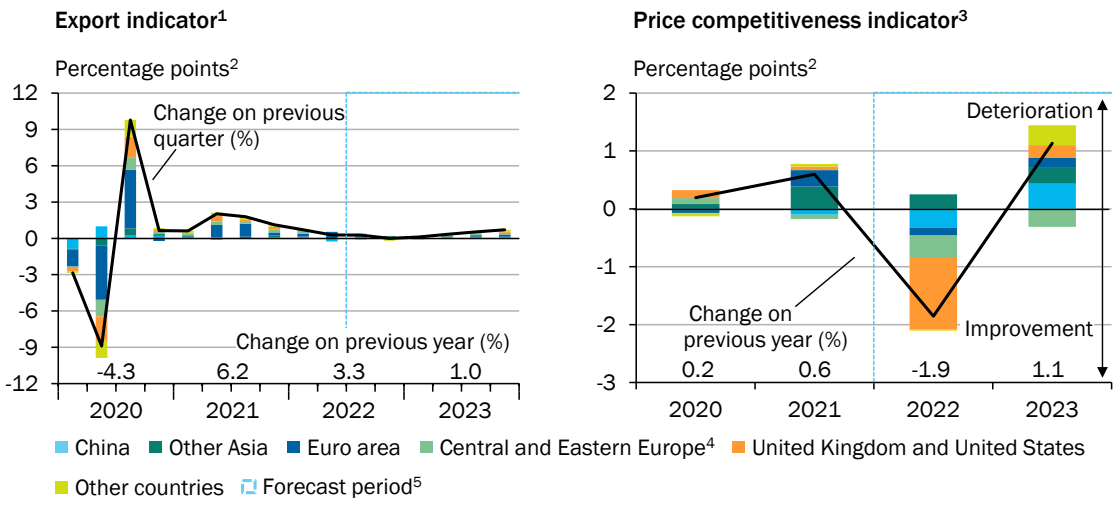
Sources: Aggregated Gas Storage Inventory (AGSI+), BAFA, Bruegel, Bundesnetzagentur

discount on the instalment payment in December 2022 based on the latest consumption estimate at the current price (ExpertInnen-Kommission Gas und Wärme, 2022) ↘ ITEM 195 should already affect prices. However, this only applies if the suppliers reduce the instalment payment in December 2022 by this discount, as they receive a refund from the state. In this case, the rate of change of the CPI in December 2022 could decrease due to lower consumer spending on natural gas. However, the extent to which the rebate will be included in the reported inflation rate is difficult to assess at the current time. In the second stage of the brake, from **March 2023** onwards, the instalment payment for private households is to be reduced monthly by a lump-sum that does not depend on actual consumption in 2023. This lump-sum is calculated as the product of a quantity component and a price component. The **volume component** (called quota in the proposal) **is 80 % of the consumption estimate** on which the instalment payment is based. The **price component** is calculated as the **difference between the contract price and 12 cents** per kilowatt hour (kWh). As a result of this proposal, the gas component of the CPI is expected to decrease again and remain at the reduced level until the brake expires in 2024. The amount of the price reduction depends on the average price paid by private households before the introduction of the brake. In the forecast, it is assumed that households will save 20%, so that gas prices in the CPI are capped at 12 cents.

63. Only **minor growth impulses are to be expected from foreign demand** in the forecast horizon, as the economic outlooks for Germany's most important trading partners have also deteriorated. ↘ ITEMS 2 FF. The export indicator, which tracks the economic development of 49 of Germany's major trading partners, shows weak momentum over the forecast horizon. ↘ CHART 22 LEFT On the supply

↘ CHART 22

Expected development of the external environment



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. Forecast by the GCEE. 4 – Bulgaria, Croatia, Czechia, Hungary, Poland, Romania. 5 – Forecast by the GCEE.

Sources: Deutsche Bundesbank, national statistical offices, own calculations

side, however, the easing of international value chains is likely to have a supportive effect over the forecast horizon. ↘ CHART 6 It can be assumed that the improvement in price competitiveness this year will be partly offset by a deterioration next year. ↘ CHART 22 RIGHT

64. The **labour market** in Germany **is robust,** despite the economic slowdown. The increase in employment has continued over the past months and the unemployment rate was at a low level of 5.4% in September. ↘ ITEM 74 The supportive effect of the labour market is likely to remain over the forecast horizon. Rising wage settlements are also expected to partially offset the loss of households' purchasing power. ↘ TABLE 13 APPENDIX ↘ CHART 78 However, due to an expected increase in infections in the winter half-year 2022/23, higher sick leave is to be expected. ↘ ITEM 73 ↘ BACKGROUND INFO 2

↘ BACKGROUND INFO 2

Work absences due to sick leave and their economic impact

According to the health insurance association BKK, **sick leave** among employees in 2022 was significantly **higher than in previous years, albeit** mainly due to a strong wave of influenza and not due to Sars-CoV-2. While the average share of sick leave among all insured employees was 5.7 % from January to August 2022, it was 4.3 % in the corresponding period of 2021. In the years 2011 to 2019, it was also below 5% on average. In the winter of 2022/23, further labour shortages are expected (Corona-ExpertInnenrat, 2022), which could temporarily dampen overall economic growth. Thus, during a temporary increase in sick leave of 2 percentage points, a temporary loss of value added of 1% can be assumed (Jannsen, 2022). However, home office arrangements are likely to help absorb absenteeism in many sectors. On the other hand, sick leave in other areas, such as childcare, could have a greater economic impact if parents have to take over the care of their children.

65. The fiscal policy **framework is expansionary** for the years 2022 and 2023. ↘ ITEM 80 FF. On the one hand, pandemic-related spending is likely to be phased out. On the other hand, state-owned spending will be expanded due to the **relief packages** for households and companies. ↘ ITEM 181 In addition, there is likely to be a **gas price brake** as part of a package of up to €200bn (Bundesregierung, 2022b). A large part of the measures will not take effect until 2023 and 2024. Further expenditures are to be expected due to the special assets for the German armed forces and the climate and transformation fund. ↘ ITEM 166

3. Outlook: Pronounced and prolonged downturn

66. GDP growth in Germany is expected to decline in Q4 2022. The published **economic indicators point to** a **weaker development** than in Q3 2022. In particular, consumer confidence is at a historically low level. In addition, business sentiment indicators such as the Purchasing Managers' Index and the Ifo Business Climate Index indicate a significant deterioration. ↘ CHART 20 BOTTOM LEFT AND BOTTOM RIGHT These declines are cross-sectoral and predominantly due to worsening

business expectations. The business situation has also deteriorated, but is still assessed as slightly better than the coming development. Real-time indicators for the industry such as electricity consumption confirm the picture of an economic slowdown in the current quarter.

67. **High inflation** is likely to have an increasingly negative impact on final consumption expenditure over the forecast horizon. It is expected that the real disposable income of private households will continue to fall over the forecast horizon. In 2023, real disposable income is likely to fall by 3.5 % compared to 2022. In particular, households will increasingly notice the impact of rising gas and electricity prices. As a result, private **consumer demand** is expected to **decline from** Q4 2022 onwards. However, it is likely that the decline in private consumption will be at least partially compensated by a falling household savings rate. In addition, the labour market will probably prove robust over the forecast horizon, supporting spending behaviour. ↘ ITEM 42 ↘ CHART 18 RIGHT The government relief

↘ TABLE 3

Key economic indicators for Germany

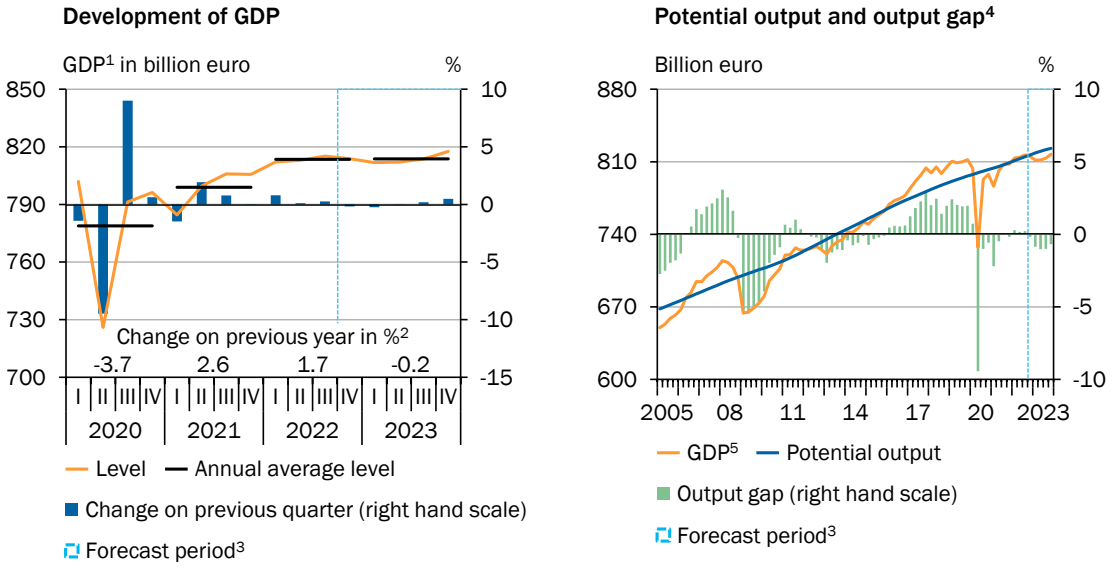
	Unit	2020	2021	2022[1]	2023[1]
Gross domestic product[2,3]	**Growth in %**	**– 3.7**	**2.6**	**1.7**	**– 0.2**
Final consumption expenditure	Growth in %	– 3.0	1.4	4.3	– 0.2
Private consumption[4]	Growth in %	– 5.7	0.4	4.6	– 0.6
Government consumption	Growth in %	4.0	3.8	3.8	0.8
Gross fixed capital formation	Growth in %	– 2.3	1.2	0.0	– 0.3
Investment in machinery & equipment[5]	Growth in %	– 11.0	3.5	1.6	2.1
Construction investment	Growth in %	3.9	0.0	– 1.4	– 2.5
Other products	Growth in %	– 3.3	1.0	1.8	2.8
Domestic demand[3]	Growth in %	– 3.0	1.9	3.5	– 0.1
Net exports	Growth contribution in percentage points	– 0.8	0.8	– 1.6	0.0
Exports of goods and services	Growth in %	– 9.3	9.7	1.5	1.4
Imports of goods and services	Growth in %	– 8.5	9.0	5.5	1.5
Current account balance[6]	**%**	**7.0**	**7.4**	**3.9**	**4.2**
Persons employed (domestic)	**1,000**	**44,915**	**44,980**	**45,530**	**45,619**
Persons employed, covered by social security	**1,000**	**33,579**	**33,897**	**34,465**	**34,601**
Registered unemployment, stocks	**1,000**	**2,695**	**2,613**	**2,422**	**2,498**
Unemployment rate[7]	**%**	**5.9**	**5.7**	**5.3**	**5.4**
Consumer prices[8]	**Growth in %**	**0.5**	**3.1**	**8.0**	**7.4**
General government budget balance[9]	**%**	**– 4.3**	**– 3.7**	**– 2.3**	**– 2.8**
Gross domestic product per capita[10,11]	**Growth in %**	**– 3.8**	**2.6**	**1.7**	**– 0.2**
Gross domestic product, calendar-adjusted[11]	**Growth in %**	**– 4.1**	**2.6**	**1.8**	**0.0**

1 – Forecast by the GCEE. 2 – Price-adjusted. Change on previous year. Also applies to all listed components of GDP. 3 – As the expenditure-side composition of the revisions to GDP in the first half of 2022 is still pending, it is assumed that they represent an adjustment to the changes in inventories. 4 – Including non-profit institutions serving households. 5 – Including military weapon systems. 6 – In relation to GDP. 7 – Registered unemployed in relation to civil labour force. 8 – Change on previous year. 9 – Regional auhorities and social security according to national accounts; in relation to GDP. 10 – Population development according to medium-term projection of the GCEE calculations. 11 – Price-adjusted. Change on previous year.

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

↘ CHART 23

Expected economic development in Germany



1 – Chained volumes, 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.

Sources: Federal Statistical Office, own calculations
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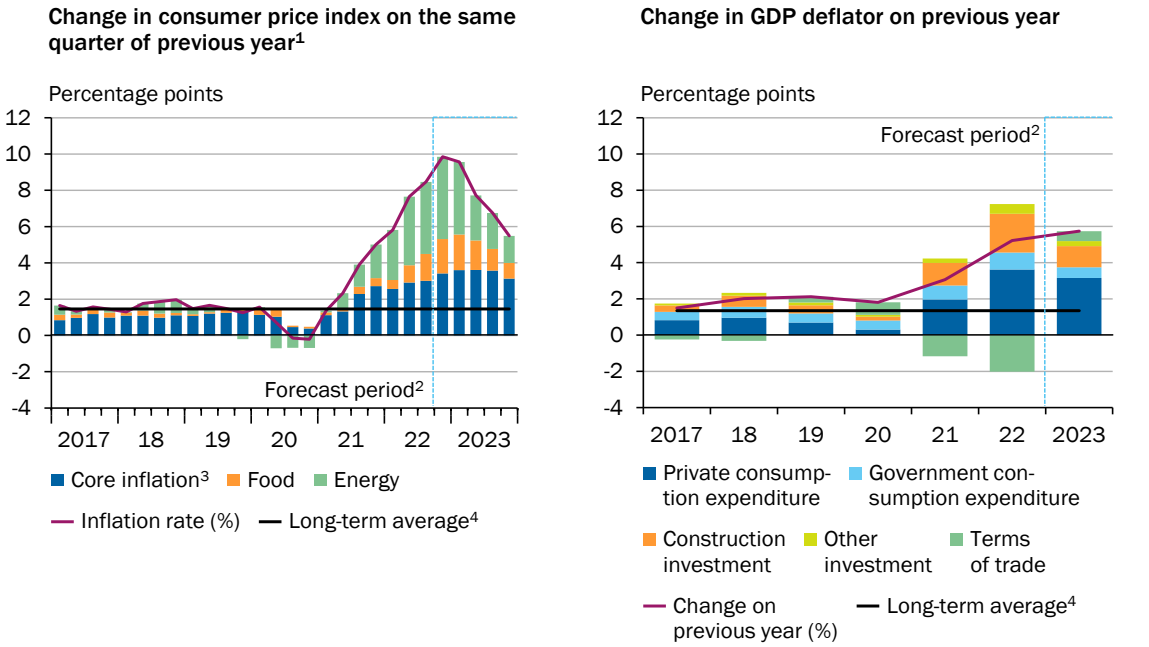
measures will predominantly help low-income households that have little opportunity to adjust their saving behaviour. Then, in the second half of 2023, a decline in inflation rates and significant wage increases should have a stabilising effect. ↘ ITEM 78

68. **Gross fixed capital formation in machinery and equipment is expected to increase moderately** in the forecast horizon. The high order backlog in the manufacturing sector and gradually easing supply bottlenecks should lead to an expansion of production. Moreover, higher defence spending is expected to significantly boost gross fixed capital formation in machinery and equipment of the government. Against the backdrop of worsening production conditions, increased uncertainty and the overall economic slowdown, investment growth is nevertheless likely to remain somewhat subdued, although still well below its pre-pandemic level. For **gross fixed capital formation in construction,** the downward forces are likely to prevail overall, so that a significant decline can be assumed. ↘ ITEMS 56 AND 57

69. Foreign trade is expected to increase over the forecast horizon as supply chain disruptions ease, but to be subdued given the weak economic outlook for the global economy. ↘ ITEM 2 While **exports** are under pressure from cooling external **demand,** the weak domestic economy and **deteriorating terms of trade are weighing on imports**. In the course of the forecast horizon, however, it can be assumed that many export companies will increasingly pass on cost increases to foreign customers and that prices for imported goods will ease somewhat. As a result, the terms of trade should slightly improve in the medium term.

↘ CHART 24

Inflation remains elevated over the forecast period



1 – Based on seasonally and calendar adjusted data. 2 – Overall index excluding food and energy. 3 – Average over the period from 1999 to 2021. 4 – Average over the period from 1999 to 2021.

Sources: Deutsche Bundesbank, Federal Statistical Office, own calculations

70. For **2022, the GCEE** assumes a growth **rate** of **1.7% in** real **GDP.** ↘ TABLE 3 The annual rate in 2022 is significantly shaped by the statistical overhang from 2021 of 0.8 % and a strong 1st quarter 2022. Between Q4 2022 and Q1 2023, the weakness in construction and final consumption expenditure is expected to reduce overall economic activity. ↘ CHART 23 LEFT Only in the 2nd half of 2023 the upward momentum should become stronger. Overall, **GDP** is expected to **decline by 0.2 % in 2023.** This means a downward revision of the growth rates of 1.8% and 3.6% in 2022 and 2023 expected in the spring (GCEE Economic Outlook 2022 item 61). ↘ BOX 3 Calendar effects are negative in both 2022 and 2023. ↘ TABLE 10 APPENDIX Given the economic downturn, gross domestic product is expected to deviate by -0.2% from potential output in the fourth quarter. Thereafter, the **output gap** should widen steadily to -1.0% by Q3 2023. ↘ ITEM 84 ↘ CHART 23 RIGHT

71. **Consumer price inflation in** Germany is likely to **remain high** over the forecast horizon. This is mainly due to the price increases for electricity and natural gas, which will increasingly reach consumers in the winter half-year 2022/23. ↘ CHART 24 **For 2022 as a whole,** the GCEE expects the **CPI to increase by 8.0%.** In 2023, the upward momentum is expected to be somewhat lower, partly due to a weaker oil price and the Federal Government's gas price brake. The GCEE forecasts an inflation rate **of 7.4 % for 2023**. However, **core inflation** will gradually **gain importance** due to the passing on of production costs to consumers and significant wage growth. At the end of the forecast horizon, lower import price increases are likely to be reflected in a declining core inflation rate.

↘ BOX 3

Forecast adjustment for the year 2022

The GCEE expects price-adjusted GDP to grow by 1.7 % in the current year. This results in a slight **downward revision** of **0.1 percentage points compared to** the spring forecast. ↘ TABLE 4 On the one hand, the 1st half of 2022 developed significantly **better than expected in the spring** as a result of the upturn in private consumption expenditure. While in spring GDP was expected to decline by 1.1% in the first half-year, it actually grew by 0.8%. According to the flash estimate of the Federal Statistical Office of 28-10-2022, GDP grew by 0.3 % in the 3rd quarter of 2022. In spring, growth of 2.4 % was still expected for Q3. The direct and indirect effects of the Russian war of aggression against Ukraine as well as the loss of purchasing power caused by high inflation have had a slower impact on the German economy than expected. In addition, the external economic environment has worsened considerably. Accordingly, this forecast expects a **significantly worse economic outlook for the second half of 2022** compared to the March 2022 forecast. Finally, real GDP was revised downwards for 2021 in the revision round of the national accounts in July 2022, which reduced the statistical overhang of 2021 by 0.3 percentage points.

↘ TABLE 4

Comparison of the spring and the autumn forecasts for the year 2022

	Forcast by the German Council of Economic Experts					
	March 2022		Annual Report 2022		Difference	
	Change on previous year[1]	Growth contributions[2]	Change on previous year[1]	Growth contributions[2]	Change on previous year[1]	Growth contributions[2]
Gross domestic product[4]	**1.8**	**x**	**1.7**	**x**	**– 0.1**	**x**
Domestic demand[4]	2.3	2.2	3.5	3.3	1.2	1.1
Final consumption expenditure	2.7	2.0	4.3	3.1	1.6	1.1
Private consumption[5]	3.2	1.6	4.6	2.2	1.3	0.6
Government consumption	1.6	0.4	3.8	0.8	2.2	0.5
Gross fixed capital formation	1.8	0.4	0.0	0.0	– 1.7	– 0.4
Investment in machinery & equipment[6]	0.6	0.0	1.6	0.1	1.0	0.1
Construction investment	1.7	0.2	– 1.4	– 0.2	– 3.1	– 0.4
Other products	3.9	0.2	1.8	0.1	– 2.2	– 0.1
Changes in inventories[4]	x	– 0.2	x	0.2	x	0.4
Net exports	x	– 0.4	x	– 1.6	x	– 1.2
Exports of goods and services	2.8	1.3	1.5	0.7	– 1.3	– 0.6
Imports of goods and services	4.0	– 1.7	5.5	– 2.3	1.4	– 0.6

1 – Price-adjusted. In %. 2 – Contributions to growth of price-adjusted GDP. In percentage points; Deviations in the differences due to rounding. 3 – In percentage points. 4 – As the expenditure-side composition of the revisions to GDP in the first half of 2022 is still pending, it is assumed that they represent an adjustment to the changes in inventories. 5 – Including non-profit institutions serving households. 6 – Including military weapon systems.

Source: own calculations

On the expenditure side, the **revision of the annual average growth rate in 2022 as a whole** is primarily due to net exports. On the one hand, net exports decreased due to a weaker than expected development of exports, which is partly explained by the ongoing supply bottlenecks. Imports, on the other hand, increased more than expected, largely due to a normalisation of travel. The high level of economic uncertainty is also weighing on gross fixed capital formation.

In contrast, private and especially government consumption expenditure should develop better than expected in March.

4. Labour market dynamics weaken

72. The labour market has continued to recover from the COVID-19 crisis since the beginning of 2022, but recently at a reduced pace. Between January and July of this year, **employment** rose by around 243,000 people (+0.5 %) and has thus returned to pre-crisis levels. The increase in employment is in particular due to **employment subject to social security contributions**. From January to July 2022, the number of workers in jobs subject to social security contributions rose by around 216,000 people (+0.6 %), while the number of people in **marginal employment** increased by around 21,000 (0.5 %). The downward trend in self-employment that has existed since 2011 continued in Q1 and Q2 2022. ↘ TABLE 5

73. Due to the significant increase in employment and the decrease in short-time work, **hours worked** increased in Q2 2022 compared to Q2 of the previous year. However, the volume of work did not reach the pre-crisis level of Q4 2019. Increased sick leave and the rise in part-time work led to a decrease in hours worked per employed person in Q2 2022 compared to Q2 2021. ↘ BACKGROUND INFO 2

    According to a projection by the Federal Employment Agency (Bundesagentur für Arbeit, BA), the number of employees taking up **short-time work** fell from February to July 2022 and reached at around 99,000 in July 2022. Notifications for short-time work, which are currently available until September 2022, continue to decline. Most recently, the ordinance amending the short-time workers' allowance ordinance of 15 September 2022 **extended** the facilitated access to short-time work allowance by a further three months **until the end of 2022**. With the ordinance of 28 September 2022, it was also decided that temporary agency workers can receive short-time allowance again for a limited period.

74. The positive development in the number of employed persons is reflected in the decline in the number of unemployed persons until May 2022. However, due to the first-time inclusion of refugees from Ukraine in the basic benefits scheme (Rechtskreis SGB II) ↘ BOX 21 seasonally adjusted **unemployment** jumped in June 2022 compared to the previous month, by around 133,000 people to 2.4 million and most recently again in September to around 2.5 million. The unemployment rate was 5.3 % in June 2022 and has risen to 5.4 % in September 2022. However, the number of unemployed persons receiving unemployment benefit I (Rechtskreis SGB III) fell by around 5,000 in September 2022 compared to June 2022 (-0.6 %).

75. Various **leading indicators** suggest a stable development of the labour market despite the economic slowdown. Despite a decline, the ifo employment barometer continues to point to a need for personnel and a positive willingness to hire in the service sector in September 2022. The labour market barometer of the Institute

↘ TABLE 5

Labour market in Germany
1,000 persons

	2020	2021	2022[1]	2023[1]	2022[1]	2023[1]
	Yearly averages				Change on previous year in %	
Labour force potential[2]	47,510	47,389	47,808	47,984	0.9	0.4
Labour force[3]	46,372	46,402	46,742	46,979	0.7	0.5
Unemployed persons[4]	1,551	1,536	1,349	1,499	– 12.2	11.1
Commuter balance[5]	94	114	137	139	20.1	1.7
Employed persons[6]	44,915	44,980	45,530	45,619	1.2	0.2
Self employed persons	4,056	3,958	3,911	3,897	– 1.2	– 0.3
Employees	40,859	41,022	41,620	41,722	1.5	0.2
Employees subject to social security contributions	33,579	33,897	34,465	34,601	1.7	0.4
Marginally employed persons (ILO concept)[7]	4,853	4,694	4,711	4,647	0.4	– 1.4
Marginally employed persons (FEA concept)[8]	7,179	7,090	7,141	7,053	0.7	– 1.2
Exclusively marginally employed	4,290	4,101	4,104	4,042	0.1	– 1.5
Marginally employed in second job	2,890	2,990	3,037	3,011	1.6	– 0.9
Registered unemployed persons	2,695	2,613	2,422	2,498	– 7.3	3.1
Underemployment excluding short-time work[9]	3,488	3,368	3,219	3,256	– 4.4	1.1
Short-time work (Employment equivalence)	1,217	886	385	294	– 56.6	– 23.5
Labour volume (million hours)[10]	59,249	60,281	61,365	61,407	1.8	0.1
Unemployment rate (FEA)[11,12]	5.9	5.7	5.3	5.4	– 0.4	0.2
Unemployment rate (ILO)[12,13]	3.6	3.6	3.1	3.4	– 0.5	0.3

1 – Forecast by the GCEE except labour force potential (Source: IAB). 2 – Labour force and hidden reserve as defined by the IAB. 3 – Unemployed and employed persons in their working age with residence in Germany (national concept); as defined by the national accounts systems. 4 – According to the measuring concept of the International Labour Organization (ILO). 5 – Difference of employed workers commuting from foreign countries to Germany and those commuting from Germany to foreign countries. 6 – Employed persons in Germany independent of their residence (domestic concept). 7 – 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"). 8 – Employed workers with a monthly wage up to 450 Euro (§ 8 Absatz 1 Nr. 1 SGB IV) and, from 1 October 2022, with a wage of up to 520 euro (Bundesregierung, 2022). 9 – According to the concept of underemployment by the FEA. 10 – Working hours of employed persons working in Germany. 11 – Registered unemployed persons in relation to civilian labour force. 12 – Yearly averages in %; change on previous year in percentage points. 13 – Unemployed persons in relation to the civilian labour force, in each case persons in private households aged from 15 to 74 years.

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

for Employment Research (IAB) also deteriorated slightly, but remains at a high level. At the same time, the number of **registered vacancies** increased significantly. In September, about 840,000 vacancies were reported to the BA, almost 71,000 more (+9.3 %) than in the same month last year, but about 11,000 fewer than in August. Labour demand has thus exceeded its previous peak in May 2022 (around 871,000 vacancies). The increase in reported job vacancies extends to all sectors. Most of the increase is in professional, scientific and technical services, manufacturing and health and social work.

76. The average vacancy time has increased to around 154 days in September 2022 compared to the same month last year (+36 days). This indicates **more difficult**

job filling and labour shortages that are likely to dampen the economic recovery. The crisis year 2020 already saw a **shift in the structure of employment**, with labour shortages particularly in hospitality and manufacturing occupations, which may have contributed to the increase in vacancy periods. ↘ BOX 4 At the current margin, the ifo employment barometer suggests that labour demand and willingness to hire are likely to decline in the coming months.

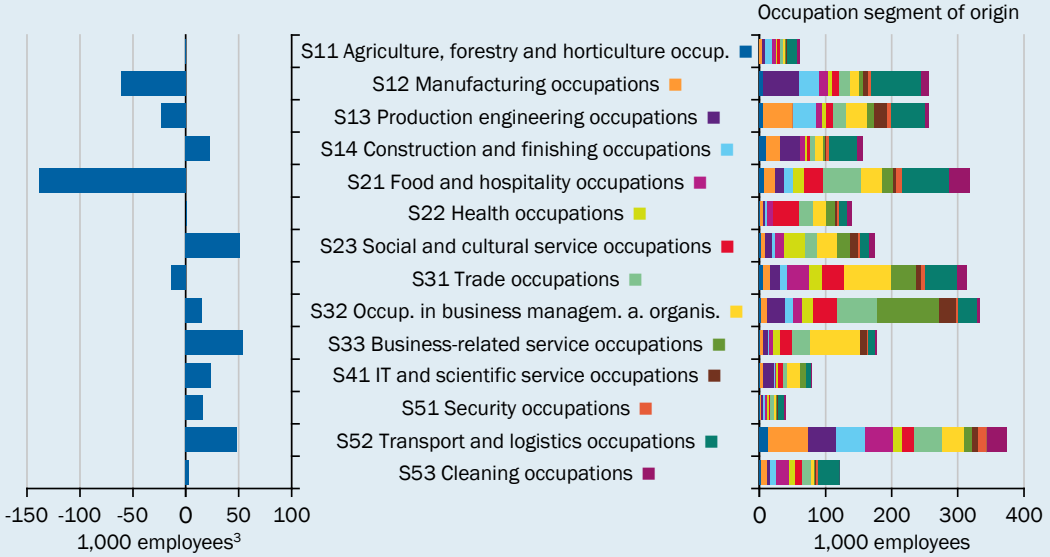
↘ BOX 4

Employment flows in 2020

During the COVID-19 crisis, the labour market was robust, especially due to cyclical short-time work (GCEE Annual Report 2020 items 76 ff. and 208 ff.). At the same time, **labour mobility** between economic sectors increased in a time comparison, with the strongest decline in employment in the hospitality industry (Garnadt et al., 2021; GCEE Annual Report 2021 item 414). In 2020, compared to other occupational segments, employees subject to social security contributions left the sectors that were hit particularly hard by the crisis, such as transport and logistics occupations (with just under -373,000) and food and hospitality occupations (with around -318,000). In particular, the number of transitions from employment to unemployment

↘ CHART 25

Occupational mobility of employees subject to social security contributions in Germany in 2020[1]



1 – Employees with previous employment subject to social security contributions. 2 – Change to employment subject to social security contributions, whereby the occupation segment of origin does not correspond to the entry occupation segment. Occupational segments according to the Classification of Occupations (KldB), 2010 edition. 3 – Balance of employees in newly started employment by occupational segment (mover-in) to employees who have left their occupational segment (mover-out).

Source: Federal Employment Agency

increased in the hotel and restaurant sector and in the transport and warehousing sector by almost 18 % and 11 % respectively compared to the previous year (GCEE Annual Report 2021 item 278). ↘ TABLE 14 APPENDIX Transport and logistics occupations have at the same time recorded a high inflow of employees subject to social security contributions in 2020 compared to other occupational segments. The same applies to business-related service occupations, trade occupations and social and cultural service occupations.

This indicates a **shift in employment subject to social security contributions**, from food and hospitality occupations and manufacturing occupations - which were particularly affected by health policy restrictions in the wake of the COVID-19 crisis - to business-related, social and cultural service occupations and transport and logistics occupations. ↘ CHART 25 LEFT Within the occupational segment of food and hospitality occupations, this is particularly due to hospitality occupations (Bolwin et al., 2022).

Labour mobility can also provide information on **occupational reorientation. For** example, in 2020, workers from food and hospitality occupations, who left these occupations (around 318,000) moved mainly to transport and logistics occupations (23 %) and to trade occupations (18 %). ↘ CHART 25 RIGHT For workers who left manufacturing occupations (just under 256,000), transport and logistics occupations and manufacturing occupations were the main destination occupations (30 % and 21 % respectively).

77. Employment growth is likely to slow down, not least due to the uncertainty in the energy sector and the imminent decline in economic output. Employment subject to social security contributions is expected to increase at a slower rate. Marginal employment is expected to increase initially in the current year, after years of decline exacerbated by the COVID-19 crisis, but to decline again in 2023. **Employment** should nevertheless **peak towards the end of the forecast period**. In 2022, the GCEE expects it to rise by 550,000 year-on-year, but by only 89,000 in 2023. The number of unemployed is expected to fall by 191,000 in the current year and rise by 76,000 next year. The unemployment rate is expected to fall from 5.7 % in 2021 to 5.3 % in 2022 and rise to 5.4 % in 2023. ↘ TABLE 5

78. In 2021, there was less of an increase in effective wages (+1.8 %) than in 2020 (+3.3 %). In 2022 and 2023, the **development of wages is likely to** be **dynamic, but lags behind** the increase in **consumer prices.** For example, collectively agreed wages increased by around 3.9 % in Q1 2022 due to high one-off and special payments. ↘ BACKGROUND INFO 4 ↘ TABLE 12 APPENDIX In Q2 2022, the increase was only 1.2 %. In the same period last year, growth was at a similar level. Rising inflation, the increase in the minimum wage to 12 euros from October 2022 and labour shortages are expected to have a positive impact on wage dynamics. For 2022, collective wages are largely fixed due to the concluded collective bargaining rounds. ↘ TABLES 13 APPENDIX AND 12 APPENDIX Higher wage demands due to rising consumer prices and labour shortages are not expected to shape wage growth until the end of the forecast period. ↘ TABLE 13 APPENDIX

5. Public finances driven by strong increase in nominal values

79. For **2022, the GCEE projects** a **general government budget deficit** of €90.1 billion (2.3 % relative to GDP). ↘ TABLE 6 Over the forecast horizon, the deficit is expected to rise to €115.4 billion in 2023 (2.8 % relative to GDP). The **structural budget balance** ↘ GLOSSARY is expected to be -2.2 % of GDP in 2022, according to the estimate of the GCEE. ↘ TABLE 6 This structural **deficit is** expected to **remain about the same in 2023**, at -2.2 % of GDP.

80. Against the background of strongly growing nominal GDP, the GCEE expects the **debt-to-GDP ratio to reach** 68.0 % in 2022. ↘ TABLE 6 In **2023,** it is expected to be **almost unchanged** at 68.1 % of GDP.

81. **Pandemic-related fiscal measures** are expected to **decline** further in **2022**. This applies in particular to subsidies due to the expiry of corporate aid and government consumption, from which intermediate consumption, for example for the vaccination centres, will decrease. On **the contrary, there will be more spending on** intermediate inputs due to energy price increases and for refugees from Ukraine. In addition, there are other war- and inflation-related expenditures, especially in the **relief packages**, such as for the energy price lump sum, the fuel discount or the nine-euro ticket. ↘ ITEM 181

    The Federal Government has decided to provide the Economic Stabilisation Fund (Wirtschaftsstabilisierungsfond, WSF) with borrowing powers of €200 billion to cushion energy costs. ↘ ITEM 167 The Expert Commission on Gas and Heat has made proposals on how some of these funds can be used to relieve the burden on households and companies that use natural gas. The GCEE assumes in the public finance forecast that the proposals will be implemented accordingly. ↘ ITEM 195 Beyond this, however, as in previous years, only measures that have already been adopted are taken into account. Therefore, for example, the reduction of the bracket creep is not yet taken into account. ↘ ITEM 181 The **additional public expenditure** through the **WSF for 2022 is** still expected to remain **limited.**

82. **Larger increases in expenditure** are to be expected **in 2023**, when the main part of the gas price brake is to take effect. In addition, further large parts of the measures of the relief packages will not take effect until 2023. ↘ ITEM 181 Further expenditure comes from the other special funds, in particular from the special fund Bundeswehr and the Climate and Transformation Fund. ↘ ITEM 166 FF. The further decline in pandemic-related expenditure is likely to have an expenditure-reducing effect.

83. The revenue **side** is driven throughout the forecast period **by strong nominal growth due to inflation, as a result of which** tax revenues, especially from the VAT, are expected to rise sharply. ↘ ITEM 172 For social insurance, a significant increase in revenue is expected for 2023 due to the contribution rate increase in the statutory health insurance.

↘ TABLE 6

General government revenues and expenditures and selected fiscal indicators[1]

	2021	2022[2]	2023[2]	2022[2]	2023[2]
	Billion euro			Change on previous year in %	
Total revenues	**1,711.7**	**1,800.8**	**1,901.1**	**5.2**	**5.6**
Taxes	877.8	934.3	986.7	6.4	5.6
Social contributions	633.7	662.5	702.0	4.5	6.0
Other revenues[3]	200.3	204.0	212.3	1.9	4.1
Total expenditures	**1,846.0**	**1,890.9**	**2,016.4**	**2.4**	**6.6**
Intermediate consumption	227.2	243.5	250.0	7.2	2.7
Compensation of employees	294.4	306.4	319.9	4.1	4.4
Property income (including interest) payable	20.8	24.8	30.8	19.2	24.3
Subsidies	111.6	60.2	110.5	– 46.1	83.6
Social benefits	610.9	636.9	656.5	4.3	3.1
Social benefits in kind	330.0	361.5	373.2	9.5	3.2
Gross capital formation	93.4	105.9	113.8	13.4	7.4
Other expenditures[4]	157.7	151.8	161.8	– 3.7	6.6
Net borrowing/net lending	**– 134.3**	**– 90.1**	**– 115.4**	**x**	**x**
Fiscal indices (%)[5]					
Public spending ratio[6]	51.3	49.1	49.6	x	x
Government consumption ratio	22.1	22.3	17.2	x	x
Social contributions ratio[7]	16.4	16.1	16.1	x	x
Tax ratio[8]	24.8	24.7	24.7	x	x
Tax and contribution ratio[9]	41.2	40.7	40.8	x	x
Net lending/net borrowing	– 3.7	– 2.3	– 2.8	x	x
Structural balance[10]	– 3.3	– 2.2	– 2.2	x	x
Debt-to-GDP ratio[11]	68.7	68.0	68.1	x	x
Interest-to-tax ratio[12]	2.3	2.6	3.1	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.

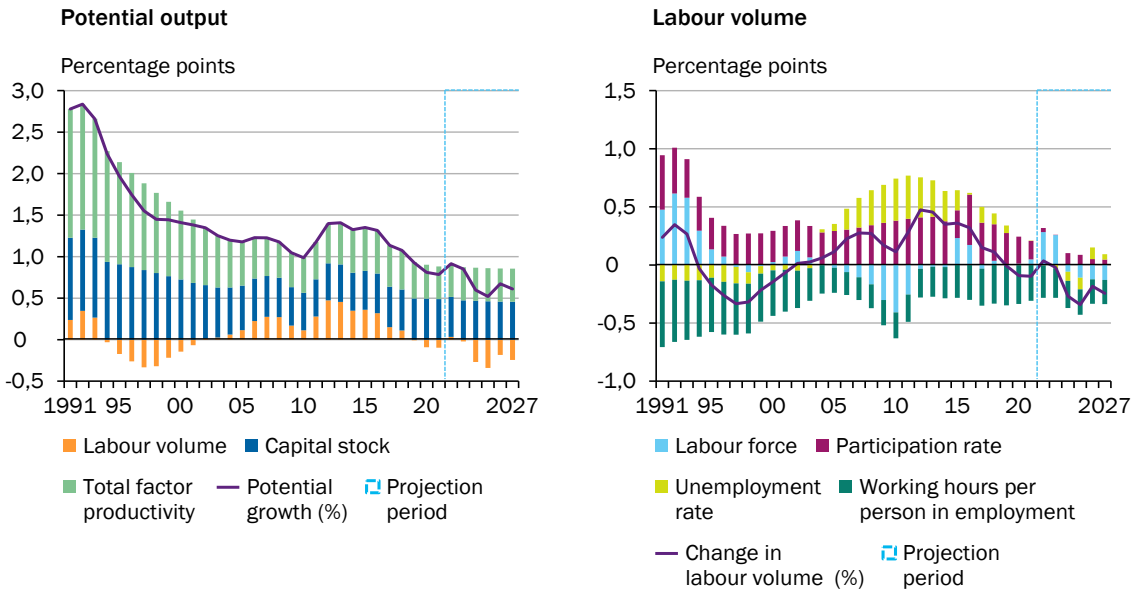
Sources: Deutsche Bundesbank, Federal Statistical Office, own calculations

6. Medium-term projection: potential growth declining

84. The GCEE publishes an annual medium-term projection for German potential output. Using a **production function procedure** based on the EU procedure (Havik et al., 2014), Germany's potential output is estimated for the next five years on the basis of the medium-term development of the **factors labour**, **capital** and **total factor productivity (TFP)** ↘ GLOSSARY (Breuer and Elstner, 2020). The

↘ CHART 26

Growth contributions of components to potential GDP[1]



1 – Calculations by the GCEE.

Sources: Federal Statistical Office, own calculations

coronavirus pandemic has hardly reduced the potential in the medium to long term. ↘ CHART 26 LEFT The **high energy prices**, however, are likely to have a **negative impact on potential output in the medium term**. In 2022 and 2023, the labour component is likely to have a slightly positive impact on potential output as a result of the large influx of Ukrainian refugees, but in the medium-term demographic trends contribute to the reduction of potential output. ↘ CHART 26 RIGHT Uncertainty about medium-term development is currently high.

85. The GCEE estimates that the annual growth of potential output will be, on average, 0.7 % in the years from 2021 to 2027. ↘ TABLE 7 Both **capital stock growth** and the growth of the **Solow residual** are revised only slightly downwards to 1.6 % and 0.4 % respectively, compared to the estimate from the GCEE Annual Report 2021/22 (AR 2021 item 90). There were more significant revisions compared to the previous year's estimate for the labour factor. All revisions are of a statistically expected magnitude and do not by themselves suggest a fundamental deterioration in the growth outlook. ↘ BOX 5 However, due to the ongoing tensions in the energy and commodity markets, **future capital stock growth** in particular is **fundamentally uncertain**. Dovern and Zuber (2020) show that there was a one-year lag in the revision of the capital stock after the financial crisis. In the current situation, high energy prices could threaten the competitiveness of parts of the particularly energy-intensive industries. ↘ ITEM 327 FF. The economic sectors involved in the manufacture of chemicals and chemical products, basic metals and fabricated metal products, coke and refined petroleum products, manufacture of glass and glass products, ceramics and related products, and manufacture of pulp, paper and paper products accounted for 1.7 % of price-adjusted gross fixed capital formation in 2020, with a disproportionately high share of equipment and other investment at 5.9 % and 8.2 % respectively.

↘ TABLE 7

Potential output and its determining factors[1]

Average annual change in %[2]

	1995 to 2021				2021 to 2027	
	actual		potential			
Gross domestic product (GDP)[3]	**1.2**		**1.3**		**0.7**	
Capital stock	**1.7**	**(0.6)**	**1.7**	**(0.6)**	**1.4**	**(0.5)**
Solow-residual	**0.6**	**(0.6)**	**0.6**	**(0.6)**	**0.4**	**(0.4)**
Volume of labour	**0.1**	**(0.1)**	**0.1**	**(0.1)**	**– 0.3**	**(– 0.2)**
Working age population	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Participation rate	0.5	(0.3)	0.5	(0.3)	0.1	(0.1)
Unemployment rate[4]	0.2	(0.1)	0.2	(0.1)	0.0	(0.0)
Average working time	– 0.5	(– 0.3)	– 0.5	(– 0.3)	– 0.4	(– 0.2)
For information purposes:						
GDP per capita[3]	1.1		1.2		0.6	

1 – Calculations by the GCEE. Differences in sums are due to rounding. 2 – In brackets: growth contributions in percentage points. 3 – Price-adjusted. 4 – One minus unemployment rate.

Sources: Federal Statistical Office, own calculations

86. The United Nations Refugee Agency estimates that by the end of October 2022 almost 8 million Ukrainians will have fled to European countries (UNHCR, 2022). The GCEE assumes that around 850,000 Ukrainian refugees will seek refuge in Germany by the end of 2022. For the years 2023 and 2024, this total number is unlikely to change much in net terms. Due to this development, the GCEE –similar to the Joint Economic Forecast (Gemeinschaftsdiagnose, 2022b) – includes Ukrainian refugees of working age (about 60 % between 15 and 74 years) in the estimation. The labour factor should therefore again contribute **positively to potential output** in 2022 and 2023, counteracting the negative effects of demographic trends and declining trend working hours. ↘ CHART 26 RIGHT In the following years, the decline in the labour force as a result of demographic change is likely to weigh heavily on potential growth.

↘ BOX 5

Revisions to the GCEE medium-term projection

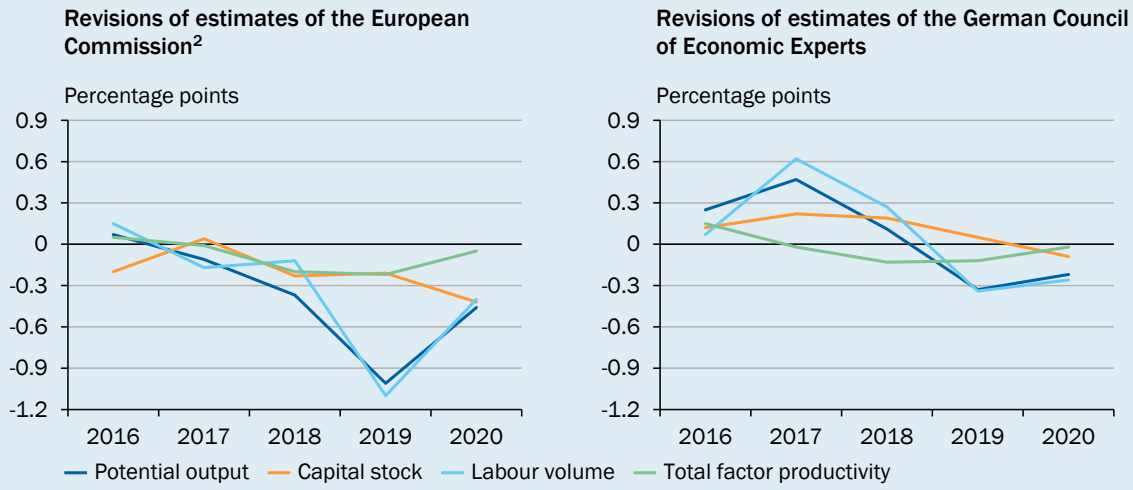
The medium-term projection of the GCEE analyzes the medium-term growth prospects of the German economy (Breuer and Elstner, 2020). The used method models the overall economy's **production potential** by means of three production factors: **Labour, capital** and **total factor productivity**. The GCEE follows the method of the European Commission, but uses more differentiated models for the three determinants of potential output.

In contrast to a trend-cycle decomposition of an output aggregate, the GCEE method allows a **detailed analysis of the contributions of the three components** (labour, capital, factor productivity) to potential output. The comprehensive modeling of the individual components makes it possible to trace their driving forces, for example demographic trends, in detail. Like trend-cycle decompositions, however, the GCEE method is also subject to revisions. The reasons for revisions are manifold. They include, in particular, procedural changes, data revisions and forecast errors.

The **revisions** of the components and of potential output for Germany are **very heterogeneous.** ↘ CHART 27 It is clearly visible that the labour component (light blue) is subject to considerable revisions and is quantitatively comparable with the revision of potential output in each case. In contrast, the capital component and total factor productivity are revised to a lesser extent in both models. Overall, the GCEE's revisions also appear smaller in absolute value than those of the European Commission. However, this is a snapshot that does not admit any conclusions about future revisions.

↘ CHART 27

Revisions of potential output[1]



1 – Difference between the growth rate of the realised value at time t+1 and the growth rate of the forecast at time t–1. 2 – Own calculations based on data from the European Commission Output Gap Working Group (EC OGWG).

Sources: European Commission, own calculations

APPENDIX

↘ TABLE 8

Expenditure and production side of real GDP[1] in Germany[2]

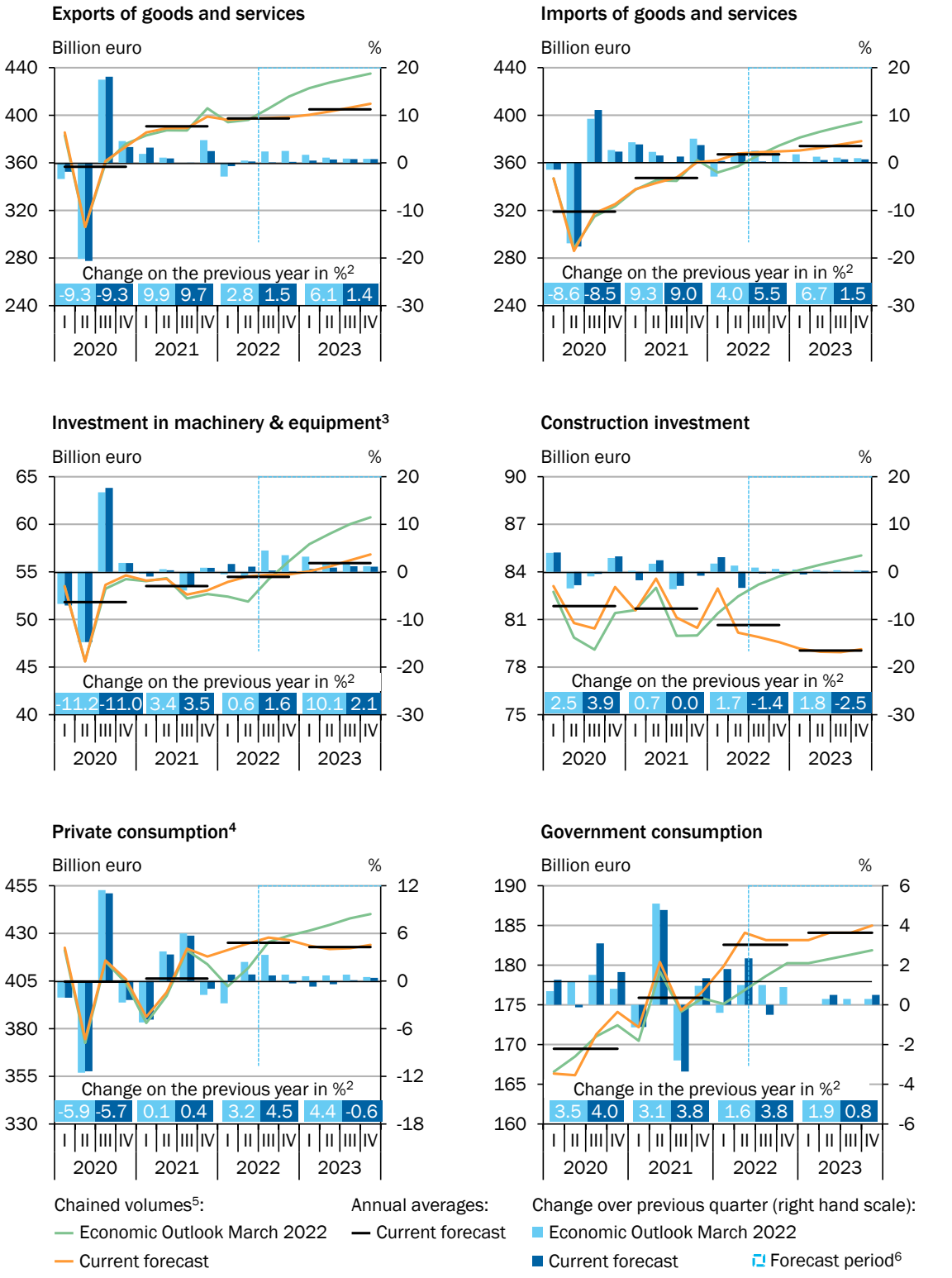
	2019				2020				2021				2022	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
	Change on previous quarter in %													
Expenditure														
Final consumption expenditure	1.1	–0.2	0.4	0.5	–1.2	–8.1	8.6	–1.2	–3.7	3.8	2.8	–0.3	1.1	1.3
Private consumption	0.9	–0.4	0.4	0.4	–2.1	–11.4	11.0	–2.4	–4.9	3.4	5.7	–1.0	0.8	0.8
Government consumption	1.6	0.3	0.4	0.7	1.3	–0.1	3.1	1.7	–1.1	4.8	–3.4	1.3	1.8	2.3
Gross fixed capital formation	0.3	0.1	0.5	–0.6	–0.8	–6.8	5.2	2.5	–1.5	1.5	–2.3	0.0	2.1	–1.3
Investment in machinery & equipment[3]	1.2	0.0	–0.6	–2.7	–7.1	–14.7	17.6	1.9	–1.0	0.3	–3.1	0.9	1.7	1.1
Construction investment	–1.0	–0.3	1.1	0.1	4.1	–2.8	–0.4	3.3	–1.8	2.4	–2.9	–0.8	3.1	–3.4
Other products[4]	2.4	1.3	0.8	1.1	–2.8	–5.2	3.2	1.6	–1.3	0.7	0.6	0.6	–0.1	0.8
Exports	2.7	–1.6	1.4	–1.6	–1.9	–20.6	18.1	3.3	3.2	0.9	0.0	2.5	–0.7	0.3
Imports	1.2	–0.9	1.4	–0.2	–1.4	–17.6	11.1	2.4	3.9	1.5	1.3	3.7	0.4	1.6
Gross domestic product	**0.7**	**–0.2**	**0.1**	**0.3**	**–1.4**	**–9.5**	**9.0**	**0.6**	**–1.5**	**1.9**	**0.8**	**0.0**	**0.8**	**0.1**
Production														
Agriculture, forestry and fishing	7.5	2.2	1.3	0.9	4.6	0.8	1.4	0.2	–0.8	1.7	0.3	–0.3	–5.8	1.9
Industry, except construction	1.2	–1.2	–0.7	–0.4	–2.6	–16.0	14.8	4.7	–1.4	0.3	–0.7	0.8	–0.2	–0.4
Manufacturing	0.8	–1.0	–0.5	–0.8	–3.0	–17.3	15.9	5.3	–1.0	–0.1	–0.8	0.7	–0.1	–0.5
Construction	–4.9	–1.5	0.5	0.1	3.5	–4.2	–2.4	8.6	–6.1	3.7	–2.8	–1.8	3.2	–2.4
Trade, transportation, accom. and food service	2.5	–0.1	0.3	–0.1	–3.0	–14.5	14.0	–1.7	–2.3	1.6	5.8	–0.8	2.1	–1.5
Information and communication	0.5	0.7	1.2	0.4	0.5	–4.5	2.9	2.0	0.7	1.0	0.2	0.9	1.4	1.5
Financial and insurance activities	0.7	0.2	0.9	1.5	0.8	1.6	0.4	–1.3	0.2	0.3	0.7	–0.6	4.3	0.4
Real estate activities	–0.1	–0.2	0.3	0.4	0.6	–2.6	3.2	–0.6	–0.1	0.7	0.2	0.0	0.9	0.0
Business services	0.2	–1.1	0.5	0.6	0.0	–11.9	6.9	1.5	–0.2	4.0	1.0	–0.4	1.2	2.0
Public services, education, health	0.6	–0.1	0.7	0.3	1.0	–8.9	11.2	–4.4	2.1	–0.1	2.3	–2.7	2.9	–0.8
Other service providers	0.6	0.0	0.8	0.5	–5.2	–17.2	20.4	–12.6	2.2	1.2	12.3	–10.2	5.3	1.0
Gross value added total	**0.7**	**–0.5**	**0.3**	**0.1**	**–0.8**	**–10.5**	**9.5**	**0.1**	**–0.6**	**1.1**	**1.6**	**–1.0**	**1.6**	**–0.3**

1 – Price, seasonally and calendar adjusted. Also applies to all stated components of GDP. 2 – ■ <= –2.5; ■ > –2.5 to <= –1.5; ■ > –2.5 to <= –1.5; ■ > –1.5 to <= –0.5; ■ > 0.5 to <= 1.5; ■ > 1.5 to <= 2.5; ■ > 2.5. 3 – Including military weapon systems. 4 – Intellectual property products and cultivated biological resources.

Source: Federal Statistical Office

↘ CHART 28

Components of the German GDP[1]



1 – All components of GDP reported price-adjusted. 2 – Not seasonally and calendar-adjusted. 3 – Including military weapon systems. 4 – Including non-profit institutions serving households. 5 – Reference year 2015, seasonally and calendar-adjusted. 6 – Current forecast period. Forecasts by the GCEE.

Sources: Federal Statistical Office, own calculations

↘ TABLE 9

Key figures of the national accounts

Absolute values

	Unit	2021	2022[1]	2023[1]	2022		2023[1]	
					1st half-year	2nd half-year[1]	1st half-year	2nd half-year
Use of domestic product								
at current prices								
Final consumption expenditure	billion euro	2,571.3	2,853.2	3,014.0	1,372.1	1,481.2	1,469.3	1,544.8
Private consumption[2]	billion euro	1,773.8	1,989.5	2,116.1	955.5	1,034.0	1,035.1	1,080.9
Government consumption	billion euro	797.5	863.7	898.0	416.5	447.2	434.1	463.8
Gross fixed capital formation	billion euro	783.8	877.0	937.2	416.9	460.2	452.3	484.9
Investment in machinery & equipment[3]	billion euro	229.4	248.6	263.1	117.7	130.9	125.2	137.9
Construction investment	billion euro	416.7	483.4	521.6	230.6	252.8	255.1	266.5
Other products	billion euro	137.7	145.1	152.4	68.6	76.4	71.9	80.5
Domestic demand[4]	billion euro	3,410.2	3,778.2	3,970.2	1,835.3	1,942.9	1,938.6	2,031.5
Exports of goods and services	billion euro	1,693.9	1,944.1	2,130.0	937.9	1,006.2	1,047.3	1,082.7
Imports of goods and services	billion euro	1,502.4	1,867.4	2,031.0	891.3	976.1	995.0	1,035.9
Gross domestic product[4]	**billion euro**	**3,601.8**	**3,854.9**	**4,069.2**	**1,881.9**	**1,972.9**	**1,990.9**	**2,078.3**
Chained volumes								
Final consumption expenditure	billion euro	2,333.0	2,433.8	2,429.0	1,197.3	1,236.5	1,199.9	1,229.0
Private consumption[2]	billion euro	1,627.5	1,701.6	1,690.5	836.6	864.9	836.1	854.4
Government consumption	billion euro	703.6	730.4	736.4	359.7	370.6	362.8	373.6
Gross fixed capital formation	billion euro	672.6	672.8	670.6	329.0	343.8	326.4	344.2
Investment in machinery & equipment[3]	billion euro	215.8	219.3	223.9	105.1	114.3	107.0	116.9
Construction investment	billion euro	328.7	324.1	316.0	161.7	162.4	156.4	159.5
Other products	billion euro	126.6	128.8	132.4	61.4	67.4	62.9	69.5
Domestic demand[4]	billion euro	3,024.0	3,130.1	3,125.5	1,544.2	1,585.9	1,546.3	1,579.2
Exports of goods and services	billion euro	1,572.5	1,596.2	1,618.5	795.9	800.5	804.9	813.7
Imports of goods and services	billion euro	1,395.8	1,472.1	1,494.6	725.1	747.1	739.0	755.7
Gross domestic product[4]	**billion euro**	**3,203.8**	**3,259.6**	**3,254.1**	**1,617.0**	**1,642.6**	**1,614.8**	**1,639.4**
Price Development (deflators)								
Final consumption expenditure	2015=100	110.2	117.1	123.9	114.6	119.8	122.4	125.7
Private consumption[2]	2015=100	109.0	116.9	125.2	114.2	119.6	123.8	126.5
Government consumption	2015=100	113.4	118.3	122.0	115.8	120.6	119.7	124.1
Gross fixed capital formation	2015=100	116.5	130.3	139.7	126.6	133.7	138.4	140.8
Investment in machinery & equipment[3]	2015=100	106.3	113.3	117.5	112.0	114.5	117.0	118.0
Construction investment	2015=100	126.8	149.2	165.2	142.4	155.8	163.0	167.1
Other products	2015=100	108.8	112.6	115.1	111.8	113.3	114.4	115.7
Domestic demand[4]	2015=100	112.8	120.8	127.1	118.9	122.5	125.4	128.6
Terms of Trade	2015=100	100.1	96.0	96.9	95.9	96.2	96.6	97.1
Exports of goods and services	2015=100	107.7	121.8	131.7	117.9	125.7	130.1	133.1
Imports of goods and services	2015=100	107.6	127.0	136.1	122.9	130.6	134.6	137.1
Gross domestic product[4]	**2015=100**	**112.4**	**118.3**	**125.1**	**116.4**	**120.1**	**123.3**	**126.8**
Production of domestic product								
Employed persons (domestic)	1000	44,980	45,530	45,619	45,325	45,730	45,452	45,786
Labour volume	million hours	60,281	61,365	61,407	30,125	31,239	30,292	31,114
Labour productivity (per hour)	2015=100	106.1	106.1	105.8	107.3	105.0	106.6	105.2
Distribution of net national income								
Net national income	billion euro	2,743.4	2,856.8	3,017.0	1,371.1	1,471.3	1,464.2	1,552.8
Compensation of employees	billion euro	1,918.0	2,022.3	2,140.1	962.9	1,059.5	1,012.8	1,127.3
Gross wages and salaries	billion euro	1,570.6	1,661.7	1,757.5	788.9	872.8	828.9	928.6
among them: net wages and salaries[5]	billion euro	1,062.6	1,137.1	1,181.8	526.9	605.3	541.9	634.8
Property and entrepreneurial income	billion euro	825.4	834.4	876.9	408.2	410.3	436.1	423.9
Disposable income of private households[2]	billion euro	2,031.2	2,167.4	2,249.6	1,059.5	1,107.9	1,097.3	1,152.3
Savings rate of private households[2,6]	%	15.1	10.7	8.4	12.2	9.2	8.1	8.7
For information purposes:								
nominal unit labour costs[7]	2015=100	112.5	116.4	123.4	111.6	121.1	117.6	129.1
real unit labour costs[8]	2015=100	100.0	98.4	98.7	95.9	100.8	95.3	101.8
Consumer prices	2015=100	109.1	117.8	126.6	115.0	120.5	125.4	127.7

1 – Forecast by the GCEE. 2 – Including non-profit institutions serving households. 3 – Including military weapon systems. 4 – As the expenditure-side composition of the revisions to GDP in the first half of 2022 is still pending, it is assumed that they represent an adjustment to the changes in inventories. 5 – Compensation of employees minus social contributions of employers and employees and income tax of employees. 6 –Savings relative to disposable income. 7 – Compensation of employees per working hour (employee concept) in relation to real GDP per working hour (employed person concept). 8 – 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

↘ TABLE 9 (CONTINUED)

Key figures of the national accounts

Change on the previous year in %

2021	2022[1]	2023[1]	2022		2023[1]		
			1st half-year	2nd half-year[1]	1st half-year	2nd half-year	
							Use of domestic product
							at current prices
4.5	11.0	5.6	12.3	9.7	7.1	4.3	Final consumption expenditure
3.5	12.2	6.4	14.2	10.3	8.3	4.5	Private consumption[2]
6.6	8.3	4.0	8.2	8.4	4.2	3.7	Government consumption
6.5	11.9	6.9	11.4	12.3	8.5	5.4	Gross fixed capital formation
5.5	8.4	5.8	6.6	10.0	6.4	5.4	Investment in machinery & equipment[3]
8.3	16.0	7.9	16.0	16.0	10.7	5.4	Construction investment
2.9	5.4	5.0	5.3	5.4	4.8	5.3	Other products
6.1	10.8	5.1	12.8	8.9	5.6	4.6	Domestic demand[4]
15.6	14.8	9.6	15.4	14.2	11.7	7.6	Exports of goods and services
18.0	24.3	8.8	27.5	21.5	11.6	6.1	Imports of goods and services
5.8	**7.0**	**5.6**	**8.2**	**6.0**	**5.8**	**5.3**	**Gross domestic product[4]**
							Chained volumes
1.4	4.3	– 0.2	6.4	2.4	0.2	– 0.6	Final consumption expenditure
0.4	4.6	– 0.6	8.0	1.5	– 0.1	– 1.2	Private consumption[2]
3.8	3.8	0.8	3.2	4.4	0.9	0.8	Government consumption
1.2	0.0	– 0.3	0.1	0.0	– 0.8	0.1	Gross fixed capital formation
3.5	1.6	2.1	0.6	2.6	1.9	2.3	Investment in machinery & equipment[3]
0.0	– 1.4	– 2.5	– 0.7	– 2.1	– 3.3	– 1.7	Construction investment
1.0	1.8	2.8	1.7	1.8	2.4	3.1	Other products
1.9	3.5	– 0.1	4.9	2.2	0.1	– 0.4	Domestic demand[4]
9.7	1.5	1.4	2.6	0.4	1.1	1.7	Exports of goods and services
9.0	5.5	1.5	7.4	3.7	1.9	1.2	Imports of goods and services
2.6	**1.7**	**– 0.2**	**2.8**	**0.7**	**– 0.1**	**– 0.2**	**Gross domestic product[4]**
							Price Development (deflators)
3.0	6.2	5.8	5.5	7.2	6.9	4.9	Final consumption expenditure
3.1	7.3	7.1	5.8	8.7	8.4	5.8	Private consumption[2]
2.7	4.3	3.1	4.9	3.8	3.3	2.9	Government consumption
5.2	11.8	7.2	11.2	12.3	9.4	5.2	Gross fixed capital formation
1.9	6.6	3.7	6.0	7.2	4.5	3.0	Investment in machinery & equipment[3]
8.3	17.7	10.7	16.9	18.5	14.5	7.2	Construction investment
1.8	3.5	2.2	3.5	3.5	2.3	2.1	Other products
4.1	7.1	5.2	7.6	6.6	5.5	5.0	Domestic demand[4]
– 2.6	– 4.1	0.9	– 5.3	– 3.0	0.7	0.9	Terms of Trade
5.4	13.1	8.1	12.5	13.7	10.4	5.9	Exports of goods and services
8.3	18.0	7.2	18.8	17.2	9.6	4.9	Imports of goods and services
3.1	**5.2**	**5.7**	**5.2**	**5.2**	**5.9**	**5.5**	**Gross domestic product[4]**
							Production of domestic product
0.1	1.2	0.2	1.5	1.0	0.3	0.1	Employed persons (domestic)
1.7	1.8	0.1	2.1	1.5	0.6	– 0.4	Labour volume
0.9	0.0	– 0.2	0.7	– 0.8	– 0.7	0.2	Labour productivity (per hour)
							Distribution of net national income
6.7	4.1	5.6	4.2	3.0	5.7	5.5	Net national income
3.5	5.4	5.8	6.1	4.8	5.2	6.4	Compensation of employees
3.7	5.8	5.8	6.7	5.0	5.1	6.4	Gross wages and salaries
4.2	7.0	3.9	6.4	6.7	2.9	4.9	among them: net wages and salaries[5]
15.0	1.0	5.1	– 0.1	– 1.6	6.8	3.3	Property and entrepreneurial income
2.1	6.7	3.8	5.1	8.3	3.6	4.0	Disposable income of private households[2]
.	.	.	.	.	.	.	Savings rate of private households[2,6]
							For information purposes:
0.7	3.5	6.0	3.0	4.1	5.3	6.7	nominal unit labour costs[7]
– 2.3	– 1.6	0.2	– 2.1	– 1.1	– 0.6	1.0	real unit labour costs[8]
3.1	8.0	7.4	6.7	9.1	9.0	6.0	Consumer prices

1 – Forecast by the GCEE. 2 – Including non-profit institutions serving households. 3 – Including military weapon systems. 4 – As the expenditure-side composition of the revisions to GDP in the first half of 2022 is still pending, it is assumed that they represent an adjustment to the changes in inventories. 5 – Compensation of employees minus social contributions of employers and employees and income tax of employees. 6 –Savings relative to disposable income. 7 – Compensation of employees per working hour (employee concept) in relation to real GDP per working hour (employed person concept). 8 – 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

↘ TABLE 10

Components of the forecast for GDP growth[1] (in %)

	2017	2018	2019	2020	2021	2022[2]	2023[2]
Statistical overhang at the end of the previous year[3]	0.5	1.3	0.4	0.2	2.2	0.8	0.0
Growth rate over the course of the year[4]	3.7	0.1	0.9	– 2.1	1.2	1.0	0.5
Annual rate of change of GDP, calendar adjusted	3.0	1.0	1.1	– 4.1	2.6	1.8	0.0
Calendar effect (in percentage points)	– 0.3	0.0	0.0	0.4	0.0	– 0.1	– 0.2
Annual rate of change of GDP[5]	2.7	1.0	1.1	– 3.7	2.6	1.7	– 0.2

1 – Price adjusted. 2 – Forecast by the GCEE. 3 – 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), seasonally and calendar adjusted. 4 – Percentage change of the fourth quarter on the fourth quarter of the previous year, seasonally and calendar adjusted. 5 – Deviations in sums due to rounding.

Sources: Federal Statistical Office, own calculations

↘ TABLE 11

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

Percentage points

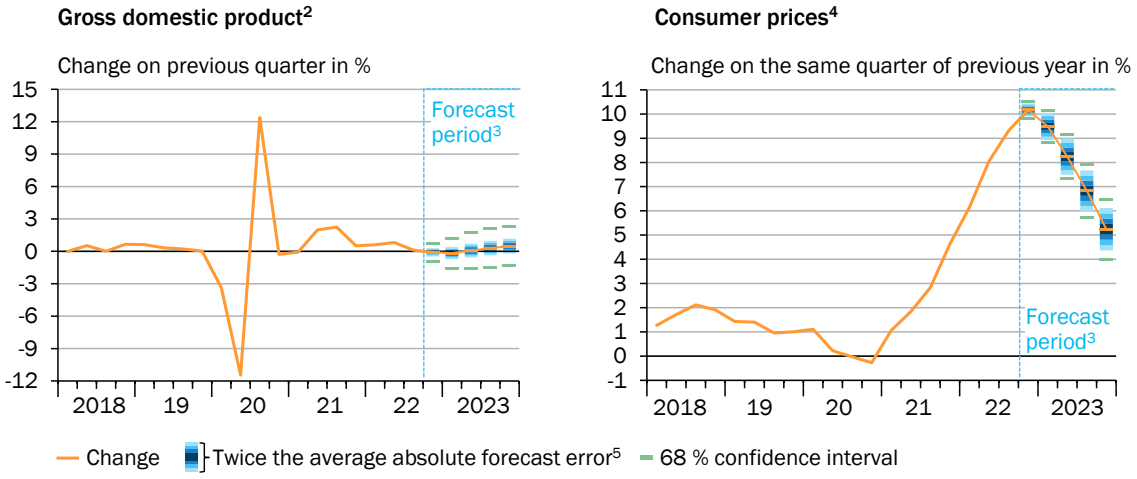
	2017	2018	2019	2020	2021	2022[2]	2023[2]
Domestic demand[3]	**2.5**	**1.5**	**1.6**	**– 2.9**	**1.8**	**3.3**	**– 0.1**
Final consumption expenditure	1.1	0.9	1.4	– 2.1	1.0	3.1	– 0.1
Private consumption[4]	0.8	0.8	0.9	– 2.9	0.2	2.2	– 0.3
Government consumption	0.3	0.2	0.5	0.8	0.8	0.8	0.2
Gross fixed capital formation	0.5	0.7	0.4	– 0.5	0.3	0.0	– 0.1
Investment in machinery & equipment[5]	0.3	0.3	0.1	– 0.8	0.2	0.1	0.1
Construction investment	0.1	0.3	0.1	0.4	0.0	– 0.2	– 0.3
Other products	0.2	0.1	0.2	– 0.1	0.0	0.1	0.1
Changes in inventories[3]	0.8	– 0.1	– 0.1	– 0.3	0.5	0.2	0.1
Net exports	**0.2**	**– 0.6**	**– 0.6**	**– 0.8**	**0.8**	**– 1.6**	**0.0**
Exports of goods and services	2.3	1.1	0.6	– 4.3	4.2	0.7	0.7
Imports of goods and services	– 2.0	– 1.6	– 1.2	3.5	– 3.4	– 2.3	– 0.7
Gross domestic product (%)[3]	**2.7**	**1.0**	**1.1**	**– 3.7**	**2.6**	**1.7**	**– 0.2**

1 – Contributions to growth of price-adjusted GDP. Deviations in sums due to rounding. 2 – Forecast by the GCEE. 3 – As the expenditure-side composition of the revisions to GDP in the first half of 2022 is still pending, it is assumed that they represent an adjustment to the changes in inventories. 4 – Including non-profit institutions serving households. 5 – Including military weapon systems.

Sources: Federal Statistical Office, own calculations

↘ CHART 29

Forecast intervals for gross domestic product and consumer price growth in the euro area[1]



1 – Uncertainty margins calculated on base of the mean absolute forecast error in the period 1999 to 2021. 2 – Price-, seasonally and calendar-adjusted. 3 – Forecast by the GCEE. 4 – Harmonised index of consumer prices. 5 – The width of the confidence band, which is symmetric around the most likely value, is twice the average absolute forecast error.

Sources: Eurostat, own calculations
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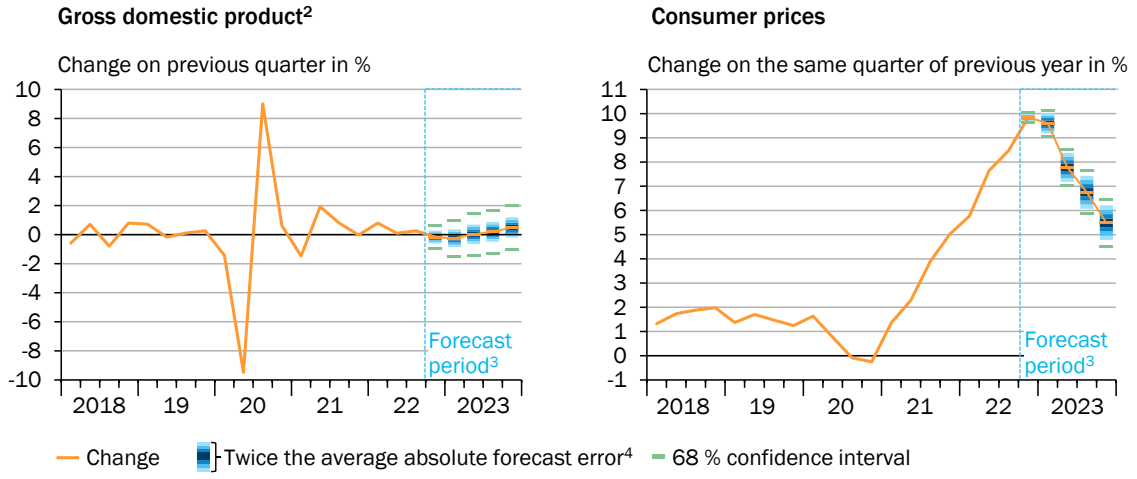
↘ CHART 30

Forecast intervals for gross domestic product and consumer price growth in Germany[1]



1 – Uncertainty margins calculated on base of the mean absolute forecast error in the period 1999 to 2021. 2 – Price-, seasonally and calendar-adjusted. 3 – Forecast by the GCEE. 4 – The width of the confidence band, which is symmetric around the most likely value, is twice the average absolute forecast error.

Sources: Federal Statistical Office, own calculations
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↘ TABLE 12

Negotiated wage agreements by sector with start of term from 2022 onwards[1]

Economic sector	Number of employees	Negotiated agreement in %	Start of term/step of increase	End of term	Special payments
Metal industry (without Berlin/Brandenburg, Saxony)	3,812,900			30-09-2022	18.4 % employee compensation/year, tranformation money (T-Geld, payable Februrary 2022, 27.6 % from February 2023)
Volkswagen AG	102,000	2.3	01-01-2022	30-11-2022	
Paper, cardboard and plastic manufacturing industry	72,800	2.4	01-05-2022	31-01-2023	
Deutsche Bahn AG corporation	134,000	1.5	01-01-2022	28-02-2023	
Textile and clothing industry West Germany	73,400	1.3	01-03-2022		
		1.4	01-10-2022	28-02-2023	
Motor vehicle business Bavaria	80,100	2.2	01-02-2022	31-03-2023	
Motor vehicle business Thuringia	10,400	2.2	01-02-2022	31-03-2023	
Retail sector North Rhine-Westphalia	510,300	1.7	01-05-2022	30-04-2023	
Wholesale and foreign trade North Rhine-Westphalia	308,900	1.7	01-04-2022	30-04-2023	
Wholesale and foreign trade Saxony-Anhalt	16,100	1.7	01-04-2022	30-04-2023	
Sugar confectionery industry North Rhine-Westphalia	16,200	2.5	01-05-2022	30-04-2023	
Retail sector Brandenburg	63,200	1.7	01-07-2022	30-06-2023	
Private transport and logistics industry Brandenburg	3,300	5.2	01-03-2022	31-08-2023	
Energy sector East Germany (AVEU)	20,000	1.5	01-11-2022	31-08-2023	
Civil service Länder (without Hessia)	1,100,000	2.8	01-12-2022	30-09-2023	
Iron and steel industry Northwest Germany, East Germany	87,800				€500 total lump sum for June and July 2022
		6.5	01-08-2022	30-11-2023	
Sugar confectionery industry East Germany	5,100	2.6	01-02-2022		
		2.3	01-11-2022		
		1.5	01-09-2023	30-11-2023	
Wood and plastic manufacturing industry Westphalia-Lippe	44,200	2.7	01-04-2022		
		2.2	01-04-2023	30-11-2023	
Wood and plastic manufacturing industry Saxony	10,200	3.3	01-05-2022		
		2.8	01-04-2023	30-11-2023	
Hotel and restaurant business Saxony	34,100	8.0	01-04-2022		
		9.0	01-10-2022		
		3.0	01-01-2023		
		3.0	01-06-2023	31-12-2023	
Energy sector North Rhine-Westphalia	7,600	3.3	01-04-2022		Average Corona bonus €1,000
		2.2	01-03-2023	31-01-2024	

1 – As of 28 October 2022.

Sources: Handelsblatt, IG Bergbau, Chemie, Energie, Tagesschau, Wirtschafts- und Sozialwissenschaftliches Institut (WSI) https://www.wsi.de/de/datenbank-tarifabschluesse-15320.htm (data retrieval as of 12-09-2022)

↘ TABLE 12 (CONTINUED)

Negotiated wage agreements by sector with start of term from 2022 onwards[1]

Economic sector	Number of employees	Negotiated agreement in %	Start of term/step of increase	End of term	Special payments
Printing industry	124,800	2.0	01-05-2022		
		1.5	01-05-2023	29-02-2024	
Construction	425,100	2.5	01-04-2022		€400 and €450 special one-off payment on 1 May 2022/2023
		2.35	01-04-2023	31-03-2024	
Hotel and restaurant business Bavaria	142,300	7.5	01-04-2022		
		1.3	01-10-2022		
		3.3	01-01-2023		
		4.8	01-04-2023	31-03-2024	
Insurance business	169,600	3.0	01-09-2022		€550 in 2022, €500 special one-off payment in May 2023
		2.0	01-09-2023	31-03-2024	
Temporary employment	835,000	9.7	01-10-2022		
		4.5	01-04-2023		
		4.4	01-01-2024	31-03-2024	
Private transport and logistics North Rhine-Westphalia	176,500	4.3	01-01-2022		
		3.1	01-01-2023		
		2.8	01-01-2024	30-04-2024	
Banking sector	160,500	3.0	01-08-2022		€500 special one-off payment in January 2023
		2.0	01-08-2023	31-05-2024	
Banking sector (public banks)	47,400				€1,050 in March 2022
		3.0	01-07-2022		
		2.0	01-07-2023	31-05-2024	
Textile industry East	9,800	4.1	01-10-2022		
		1.5	01-10-2023	31-05-2024	
Chemical industry	578,500				€1,400 in May 2022
		3.25	01-01-2023		€1,500 in 2023
		3.25	01-01-2024	30-06-2024	€1,500 in 2024
Writing and drawing utensils industry (Bavaria)[2]		4.0	01-10-2022		€600 inflation bonus in December 2022 and in December 2023
		3.0	01-11-2023	01-10-2024	
Cleaning of buildings	487,100	2.5	01-01-2022		
		9.7	01-10-2022		
		3.2	01-01-2024	31-12-2024	
Iron and steel industry Northwest Germany, East Germany	91,700				€250 permanent negotiated extra pay in February 2022, from 2023: €600 €/year
Aviation (without Lufthansa)	6,000	17.8	01-08-2022		
Aviation (Lufthansa)	20,000				€200 on 1 August 2022
		2.5	01-01-2023		

1 – As of 28 October 2022. 2 – No number of employees available until the end of data retrieval.

Sources: Handelsblatt, IG Bergbau, Chemie, Energie, Tagesschau, Wirtschafts- und Sozialwissenschaftliches Institut (WSI) https://www.wsi.de/de/datenbank-tarifabschluesse-15320.htm (data retrieval as of 12-09-2022)

↘ TABLE 13

Wage developments in Germany

Change on the previous year in %

	Collectively agreed wages (hourly concept)	Effective wages[1]	Wage drift[2]	Compensation of employees per working hour	Labour productivity[3]	Unit labour costs (nominal)[4]	Unit labour costs (real)[5]
2018	2.9	3.6	0.7	3.4	0.2	3.1	1.1
2019	3.2	3.5	0.3	3.9	0.8	3.1	1.0
2020	2.0	3.3	1.3	3.8	1.0	2.8	1.0
2021	1.3	1.8	0.5	1.5	0.9	0.7	– 2.3
2022[6]	2.5	3.7	1.3	3.4	0.0	3.5	– 1.6
2023[6]	4.6	5.7	1.1	5.8	– 0.2	6.0	0.2

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

↘ TABLE 14

Entry into unemployment[1] from employment by economic sector

Economic sectors[2]	2019	2020	2019	2020	
	Inflow in thousand		Change on previous year		
			%	Thousand	
Agriculture, forestry and fishing	22.4	21.4	– 3.5	– 4.4	– 1.0
Mining, energy and water/waste management	18.8	19.7	1.5	4.7	0.9
Manufacturing	300.0	316.8	13.9	5.6	16.9
Construction	175.7	170.6	– 1.4	– 2.9	– 5.2
Wholesale and retail trade; repair of motor vehicles and motorcycles	313.8	335.2	1.9	6.8	21.4
Transportation and storage	151.5	168.6	7.9	11.3	17.1
Accommodation and food service activities	174.0	205.6	– 1.5	18.1	31.6
Information and communication	72.1	79.1	4.4	9.6	6.9
Financial and insurance activities	21.2	21.7	– 5.9	2.6	0.6
Economic service[3]	339.3	360.0	2.0	6.1	20.6
Labour leasing	327.9	292.7	– 0.2	– 10.8	– 35.3
Public administration	38.5	38.7	– 4.5	0.7	0.3
Education	57.5	59.8	– 0.1	3.9	2.3
Human health and social work activities	185.6	198.0	– 0.4	6.7	12.4
Other service activities, private households	92.5	99.5	– 1.2	7.6	7.0
Total[4]	**2,290.8**	**2,387.3**	**2.3**	**4.2**	**96.4**

1 – From employment subject to social security contributions on the 1st labour market. 2 – According to the classification of economic sectors, 2008 edition (WZ 2008). 3 – Excluding labour leasing. 4 – With details of the economic sector.

Source: Federal Employment Agency

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