UPDATED ECONOMIC OUTLOOK 2023 AND 2024

22 March 2023

This is a translated version of the original German-language text "Aktualisierte Konjunkturprognose 2023 und 2024“, which is the sole authoritative text. Please cite the original German-language text if any reference is made to this text.

KEY MESSAGES

↘ The **global economic outlook** has improved **slightly** compared to the forecast in the GCEE Annual Report 2022. Decreasing wholesale energy prices and China's exit from its zero-Covid policy mitigate the expected decline in economic growth in Germany and the euro area for 2023. However, **high inflation will dampen growth** until 2024. The German economy will continue to suffer from high energy prices, but has proven to be fairly resilient to the energy crisis during the current winter. Accordingly, **German economic output** is expected to **grow moderately** in 2023 and 2024, **at 0.2 %** and **1.3 % respectively**. In the euro area, expected growth is 0.9 % and 1.5 % (calendar-adjusted), respectively. At the global level, the GCEE expects GDP to increase by 2.2 % this year and by 2.7 % next year.

↘ **Inflation** has been **declining since autumn** 2022, especially in advanced economies, following a sharp rise over the past two years. **However**, the decline has been **slow and uneven**. Consumer prices for energy have recently fallen somewhat in the euro area. However, price inflation of other goods and services is likely to subside only gradually. In **Germany**, the GCEE expects consumer prices (**CPI**) to **increase by 6.6 %** and **3.0 %** in 2023 and 2024, respectively. In the euro area, the inflation rate (HICP) is expected to stay well above the ECB's inflation target of 2 %, at 5.9 % in 2023 and 2.9 % in 2024. Globally, the GCEE expects consumer prices to rise by 5.3 % and 3.5 %, respectively.

↘ **Various downside risks remain**. While Europe has avoided a **gas shortage** in the winter of 2022/23, energy supply in the winter of 2023/24 remains uncertain. If inflation were to decline more slowly than expected, more pronounced monetary tightening might become necessary. This would dampen private demand more strongly. At the same time, the recent rise in financial market risks has made it more difficult for central banks to fight inflation. If the monetary policy response were to weaken due to these trade-offs, inflation could remain high for longer than expected or even pick up again. In addition, an increase in **geopolitical tensions** between the US and China could put a significant strain on global trade in goods and international supply chains.

I. EXECUTIVE SUMMARY

1. The **outlook for the German economy** has improved slightly compared to the GCEE's economic forecast of November 2022. The GCEE expects gross domestic product (GDP) to grow by **0.2 % in 2023**. ↘ ITEM 25 ↘ CHART 2 The short-term downside risks to economic growth have declined. Most notably, uncertainty about energy supplies has receded for the time being, leading to a decline in wholesale energy prices. For example, the average price of natural gas in Europe (EGIX THE) in the first half of March 2023 was around €46 per MWh, around 80 % lower than at its peak in August 2022. ↘ ITEM 8

   Inflation – as measured by the German consumer price index (CPI) – fell from 8.8 % year-on-year in November 2022 to 8.1 % in December 2022. It climbed back to 8.7 % in January and February 2023. Core inflation has continued to rise year-on-year in January and February 2023 and amounted to 5.6 % and 5.7 %, respectively. This suggests that inflation will decline only gradually and remain elevated throughout the forecast horizon. ↘ ITEMS 28 F. The resulting loss of purchasing power is weighing on private consumption expenditure. As monetary policy continues to tighten, rising interest rates exacerbate this development and, in conjunction with sustained high economic uncertainty, dampen business investment. Against this background, the GCEE expects the **economy to grow by 1.3 % in 2024**. The GCEE forecasts **6.6 % and 3.0 % inflation** this year and next year, respectively.

2. **Although the energy supply situation has eased for the time being, the energy crisis is not over**. In the winter of 2022/23, Germany averted a gas shortage with state-ordered rationing. ↘ CHART 1 Russian supplies of natural gas were partly replaced by additional imports from other European countries. In addition, exports to neighbouring countries were reduced. At the same time, natural gas consumption decreased by 14 % in 2022, relative to the average consumption in the past four years (Federal Network Agency, 2023a). The decrease reflected both savings of private households and industry, and relatively mild winter temperatures. In the energy-intensive industry sectors, a seasonally and calendar adjusted decrease in production of 12.8 % between January 2022 and January 2023 contributed to these savings. Since wholesale energy prices are expected to stay permanently above their level in the period between 2010 and 2019 according to futures prices (GCEE Annual Report 2022 item 302), a full recovery of output in energy-intensive industries is not anticipated. Besides, there remains a downside risk of a gas shortage for the German economy in the winter of 2023/24. ↘ ITEM 30

3. **Consumer price inflation has probably peaked** in Germany and many other advanced economies. Last year, consumer energy prices increased particularly strongly, but are now likely to be dampened by falling wholesale energy prices. ↘ ITEMS 9 AND 16 **However, prices of many goods and services are** continuing to **rise by more than 2 %**, which is the medium-term inflation target of many central banks. ↘ CHART 1 Further increases are expected since the costs of downstream producers continue to rise. For example, German producer prices for

↘ CHART 1

Determining factors for the German forecast

Despite improved outlook, energy crisis and inflation-related loss of purchasing power dampen economy

	Current situation	Assumptions for the outlook	Risks
Energy crisis	**Gas shortage avoided**; tight energy supplies, and energy prices remain elevated	**Gas shortage avoided** also in 2023/24; energy intensive industries remain depressed	**Natural gas imports** or **energy savings** lower than expected; **gas shortage**
High inflation	**Core inflation** becomes main driver of inflation; decisive **monetary tightening**	Monetary policy has lagged effects; **inflation decreases slowly**; purchasing power starts to recover	**Inflation more persistent** than expected; risk of **credit crunch** due to monetary tightening; financial markets risks; **deter** sufficient monetary policy **measures against inflation**
Global economy	China's exit from zero-Covid policy **improves outlook for 2023 slightly**; inflation depresses global growth in forecast period	**Easing** of **supply bottlenecks**; **US** monetary policy depresses demand; growth in **China** strengthens global economy	**Chinese demand** increases global inflation; rise in **geopolitical tensions**

Source: own representation

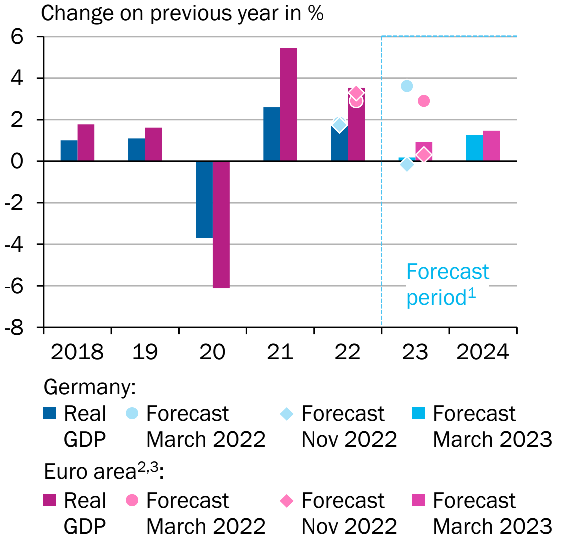
domestic consumer goods rose by 1.8 % in January 2023 compared to the previous month. Effective wages are expected to rise by 5.9 % and 4.5 % in 2023 and 2024, respectively. Higher labour costs, in turn, are expected to result in rising consumer prices, especially for services. ↘ ITEM 28

4. The inflation outlook suggests that central banks will continue to raise interest rates in the US and the euro area in the upcoming months. ↘ ITEM 10 ↘ BOX 2 In the euro area in particular, **monetary policy tightening is** thus **stronger than financial markets expected in autumn 2022** and than forecasted in the GCEE Annual Report 2022. ↘ CHART 1 The first real economic effects of rising key policy rates become apparent in the sharp decline in new home construction loans to private households. Their volume in January 2023 was 38.1 % lower than in the previous year. The monetary tightening is likely to broadly **affect consumer prices only in the upcoming months**, but probably before the end of the year. Compared to the US, where indicators for consumption and the labour market continue to rise and necessitate a strong reduction in demand, ↘ BOX 1 a smaller reduction will likely suffice in the euro area to reduce inflation (Koester et al., 2023).

Persistent inflation remains a risk for the economic outlook in the euro area. ↘ ITEM 12 If the expected increases in key interest rates fail to bring consumer price inflation back onto a path towards the ECB's medium-term target of 2 %, an even stronger monetary policy response may become necessary. This could lead to a

↘ CHART 2
Updated Economic Outlook for the years 2023 and 2024 at a glance

GDP in Germany and the euro area



Key economic indicators (in %)

	2022	2023[1]	2024[1]
Germany			
Gross domestic product[4,5]	1.8	0.2	1.3
Consumer prices[5]	6.9	6.6	3.0
Unemployment rate[6]	5.3	5.4	5.2
Effective wages[5,7]	4.7	5.9	4.5
Budget balance[8]	– 2.6	– 1.6	– 0.4
Euro area			
Gross domestic product[2,4,5]	3.5	0.9	1.5
Consumer prices[5,9]	8.4	5.9	2.9
Global economy			
Gross domestic product[2,4,5]	2.9	2.2	2.7
Consumer prices[5]	7.4	5.3	3.5

1 – Forecast by the GCEE. 2 – Values are based on seasonal and calendar-adjusted quarterly figures. 3 – March 2022 and November 2022 forecasts without Croatia. 4 – Constant prices. 5 – Change on previous year. 6 – Registered unemployed in relation to civil labour force. 7 – Gross wages and salaries (domestic concept) per employees hour worked. 8 – In relation to nominal GDP; regional authorities and social security according to national accounts. 9 – Harmonised Index of Consumer Prices.

Sources: Eurostat, Federal Statistical Office, national statistical offices, own calculations

decline in bank lending, for instance due to increased loan loss provisions or rising loan defaults. In addition, business investment could fall as a result of higher interest rates. This could further depress economic activity in 2024. At the same time, financial market risks that have emerged in recent weeks make it more difficult for the central bank to fight inflation. This could lead to an insufficient monetary policy response. ↘ ITEM 10

5. In the short term, the **inflation-induced loss of purchasing power** remains the **main burden** for the economy in Germany and most other euro area member states. ↘ CHART 1 Catch-up effects after pandemic restrictions were lifted have boosted consumption until autumn 2022, especially in contact-intensive services. ↘ ITEM 31 These catch-up effects are now likely to fade. Since the winter of 2022/23, the negative effects of real income losses have become visible, for example in the decline in hotel and restaurant sales by 16.4 % between October and December 2022 (adjusted for price, seasonal and calendar effects). In contrast, rising employment, declining household savings rates and extensive fiscal policy measures support demand. **Real disposable income** is expected to increase only in 2024 when wages increases will exceed the decreasing inflation rates, allowing for higher consumption expenditure. ↘ ITEM 31

6. The **global economic outlook** has improved slightly compared to autumn 2022. ↘ CHART 1 ↘ ITEM 11 In particular, **China's exit from its zero-Covid policy** should increasingly foster global economic growth. ↘ BOX 1 Therefore, the GCEE is revising its forecast for global GDP growth in 2023 upwards by 0.3 percentage

points to 2.2 %. Next year, growth is expected to increase to 2.7 %. In addition, bottlenecks in intermediate goods are expected to continue to ease. ↘ BOX 2 German exports of goods should therefore gain more momentum in 2023 than expected in autumn 2022. ↘ ITEM 36 However, there are several risks for the global economy. If the US economy cools down more than expected, for example due to stronger monetary tightening, this would affect economies in other world regions. In particular, this could slow down the Chinese industry, which is just recovering and is important for the global economy. Conversely, higher production in China could increase prices via rising demand for commodities such as metals or energy sources. ↘ ITEM 13 There is also a risk that geopolitical tensions between the US and China could have an impact on the global economy - especially if sanctions or higher tariffs are imposed on some commodities and products. ↘ ITEM 22

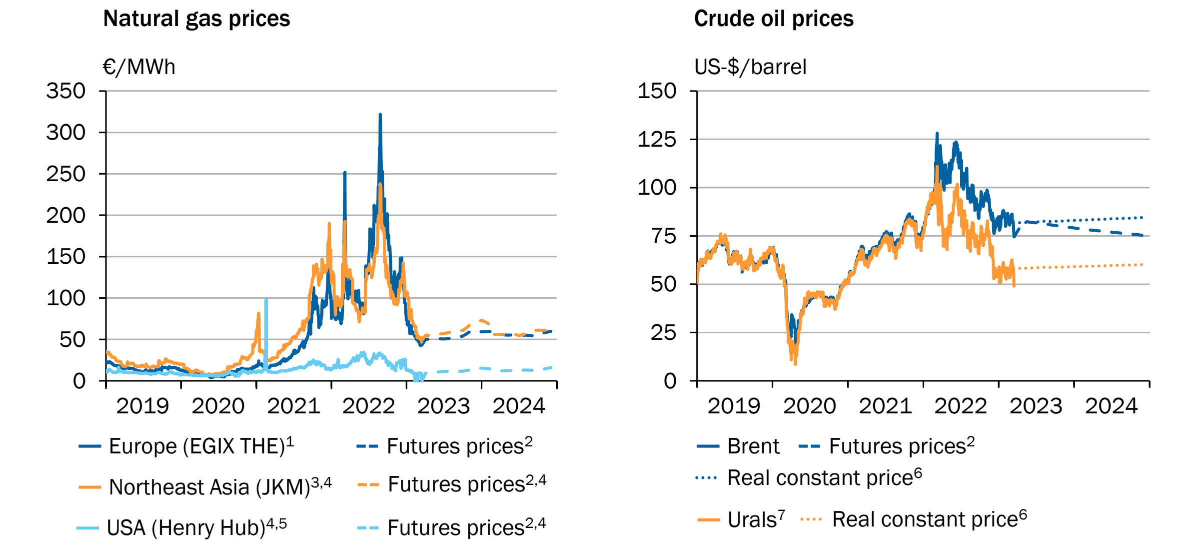
II. GLOBAL ECONOMY

1. Global outlook brightens despite risks

7. **Global GDP grew** by 2.9 % **in 2022,** 0.1 percentage point **in excess of the 2022 GCEE Annual Report forecast** ↘ TABLE 1 The above-average growth of 1.2 % in Q3 2022 relative to the previous quarter contributed to this, while global GDP in Q4 increased only slightly by 0.2 % compared to the previous quarter. Global industrial production and the global trade in goods contracted by 0.8 % and 2.1 % in Q4 2022 relative to the previous quarter, respectively. The weak growth at the end of 2022 was due to stagnation of the Chinese economy and low growth in advanced economies. ↘ BOX 1↘ ITEM 14

8. High energy prices weighed on economic growth throughout the second half of 2022. **Wholesale natural gas prices** in Europe and Northeast Asia have now **fallen to their lowest levels since mid-May 2021.** Natural gas cost an average of €46 per MWh in Europe and €51 per MWh in Northeast Asia in the first half of March 2023. ↘ CHART 3 LEFT Mild temperatures and well-filled gas storage facilities in Europe have depressed prices. On the futures market, the gas price in Europe is expected to rise again by about €15 per MWh until December 2023. The IEA (2022) expects total demand to exceed supply in 2023 due to high LNG demand from Europe since pipeline supplies from Russia have ceased. As a result, prices are expected to remain significantly above those of previous years. LNG demand from China, which fell by more than 20 % year-on-year in 2022, could increase significantly again in 2023. ↘ ITEM 13 Crude oil prices have declined by about $12 per barrel compared to the average price in October 2022, and the average price for Brent crude, the most important price benchmark in Europe, was about $82 per barrel in the first half of March 2023. ↘ CHART 3 RIGHT At the same time, the price discount of Russia's Urals oil has increased to about $25 per barrel with the start of the price cap agreed by the EU and the G7 in December 2022. OPEC+ has so far stuck to the reduced output agreed in October 2022. Despite the sanctions imposed by the EU and the G7 against Russian crude oil, OPEC+ expects a **stable oil price** in **Q1 2023** (OPEC, 2023). Based on futures market

↘ CHART 3
Falling wholesale prices for energy



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 March 2023 and the following months as of 17 March 2023. 3 – Japan Korean Marker (JKM) is the Northeast Asia spot price index for LNG delivered ex-ship to Japan und Korea. 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 – 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. 6 – Oil price extrapolated with an annual inflation rate of 2 %. 7 – Urals is the reference oil brand used as the price benchmark for Russian oil exports. It is a blend of the heavy and sour oil from the Urals and Volga regions with the lighter oil from Western Siberia, traded at the St. Petersburg International Mercantile Exchange (SPIMEX).

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

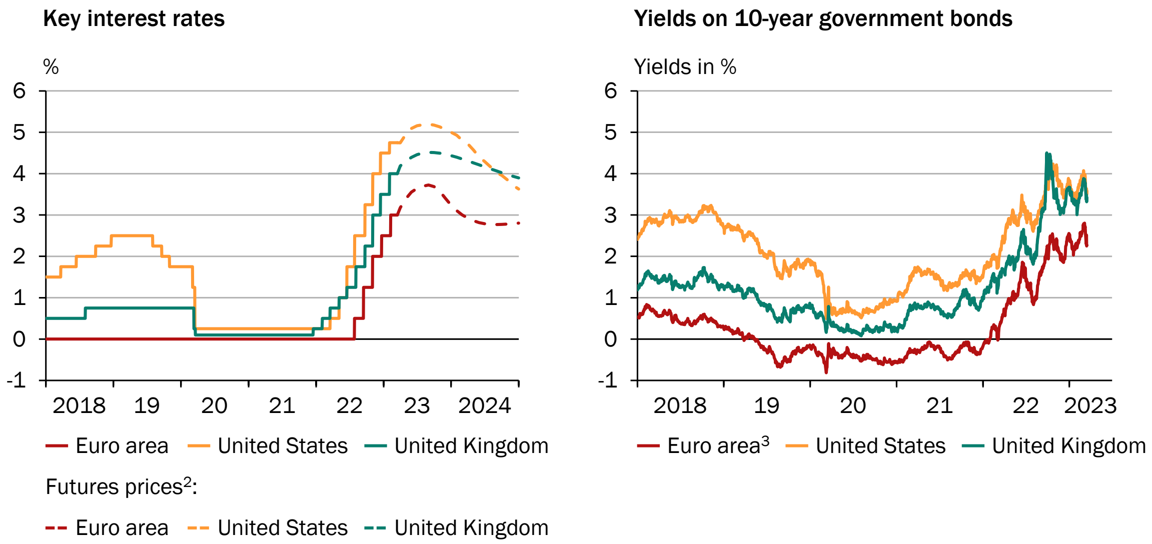
prices, the price of Brent crude is expected to decline to $75 per barrel by the end of the year 2024. ↘ BOX 2↘ ITEM 13

9. Despite lower energy prices, consumer price inflation in advanced economies is declining only slowly. Currently, the core rate - the overall rate excluding energy and food - is a major contributor to persistently high inflation. In January 2023, year-on-year inflation in the G7 countries was between 4.3 % and 10.1 %. In the **US**, both **consumer price inflation,** measured by the Personal Consumer Expenditure Index, and the **core rate** have recently **declined** year-on-year. In January 2023, however, at 5.4 % and 4.7 %, they were still well above the 2 % inflation target of the US central bank, the Federal Reserve (Fed).

In the **emerging markets, consumer price developments** and the associated **key interest rate decisions** are **mixed**. Consumer price inflation in China, at 1.0 % in February 2023, is significantly below the Chinese central bank's target of 3 %. In Turkey, year-on-year inflation is above 80 %. Nevertheless, the Turkish central bank lowered the key policy rate several times in 2022. Argentina's consumer prices increased by more than 90 % in 2022.

10. The rise in key policy rates since March 2022 was accompanied by an **increase of** 1.7 to 2.2 percentage points in **long-term yields on government bonds** of advanced economies in Europe and North America. ↘ CHART 4 RIGHT In addition, the

↘ CHART 4
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 and the bank rate for the UK. 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. Average futures prices of the past 30 trading days, retrieved on 17 March 2023. 3 – For the euro area, only AAA-rated government bonds are considered.

Sources: BoE, CME, ECB, Fed, ICE, Refinitiv Datastream, own calculations

interest rate hikes increased banks' financing costs, which in turn **worsened** households' and companies' **financing conditions**. ↘ BOX 1 Increased interest rates have led to falling bond prices and reduced their value on bank balance sheets. Silicon Valley Bank (SVB), a US bank specialising in US start-ups, had to sell bonds at a large loss in mid-March 2023 to service deposit outflows. Due to liquidity shortages, SVB and two other small US banks, Signature and Silvergate, were closed. This has **unsettled the financial markets**. To prevent the withdrawal of deposits at other banks, regulators therefore guaranteed all deposits at SVB and Signature Bank (U.S. Department of the Treasury, 2023). At the same time, the Fed has established a **Bank Term Funding Program** to provide short-term liquidity. Under this programme, banks can deposit bonds as collateral for central bank loans at par value instead of current market value.

In contrast to the 2008 financial crisis, the difficulties of individual banks are not based on largely worthless financial products. Although the rapidly rising interest rates are a challenge for the financial system, the banks, with very few exceptions, have a well-functioning liquidity management and can cope well with rising interest rates (Drechsler et al., 2021, 2023). In the medium term, banks are likely to benefit from higher interest rates. In addition, the interbank market is not disturbed and the supply of credit to the real economy is secured. Based on the currently known problems, **financial stability** should **not** be **at stake**. **Nevertheless, short-term effects on monetary policy are likely**. The futures market is signalling that a smaller increase in the US key policy rate is currently expected compared to the beginning of March 2023. This should reduce volatility on the financial markets, but at the same time it could make it more difficult to fight inflation.

↘ TABLE 1

Gross domestic product and consumer prices of selected countries

Country/country group	Weight in %[1]	Gross domestic product[2]				Consumer price index			
		Change on previous year in %							
		2022	2023[3]		2024[3]	2022	2023[3]		2024[3]
			Update	Diff. to AR 2022[4]			Update	Diff. to AR 2022[4]	
Europe	**28.5**	**3.2**	**0.7**	**(0.7)**	**1.6**	**11.1**	**7.6**	**(– 1.6)**	**4.1**
Euro area	17.2	3.5	0.9	(0.6)	1.5	8.4	5.9	(– 1.5)	2.9
United Kingdom	3.8	4.0	– 0.5	(– 0.5)	1.1	9.1	7.1	(1.2)	3.3
Russia	2.1	– 2.6	– 0.5	(4.7)	1.5	13.7	7.3	(– 3.6)	6.3
Middle- and Eastern Europe[5]	1.8	4.4	0.9	(– 0.4)	3.0	13.5	12.0	(0.3)	4.4
Turkey	1.0	5.4	2.8	(1.8)	3.0	72.4	42.1	(– 19.6)	28.7
Other countries[6]	2.7	2.7	0.8	(– 0.1)	1.4	5.9	4.5	(1.2)	2.3
America	**34.2**	**2.4**	**1.0**	**(0.5)**	**1.3**	**9.1**	**6.0**	**(1.3)**	**4.0**
United States	27.1	2.1	1.1	(0.7)	1.3	8.0	4.3	(0.8)	2.7
Latin America[7]	2.8	4.1	1.0	(0.7)	2.0	21.7	24.9	(8.0)	17.9
Canada	2.3	3.4	0.7	(– 0.2)	1.2	6.8	4.0	(0.7)	2.6
Brazil	1.9	3.0	0.3	(– 0.6)	1.4	9.3	4.4	(– 0.4)	4.1
Asia	**37.3**	**3.2**	**4.4**	**(– 0.3)**	**4.7**	**3.0**	**2.9**	**(0.0)**	**2.6**
China	20.9	3.1	5.6	(– 0.2)	5.6	2.0	2.1	(– 0.2)	2.2
Japan	5.8	1.0	1.0	(– 0.5)	1.7	2.5	2.9	(0.4)	1.8
Asian advanced economies[8]	3.9	2.0	1.8	(– 0.3)	2.6	4.4	3.4	(– 0.1)	2.5
India	3.7	6.6	6.4	(0.4)	6.8	6.7	5.0	(– 0.2)	4.8
Southeast Asian emerging economies[9]	2.9	5.7	4.1	(– 0.3)	4.5	4.7	4.8	(0.2)	3.8
Total	**100**	**2.9**	**2.2**	**(0.3)**	**2.7**	**7.4**	**5.3**	**(0.0)**	**3.5**
Advanced economies[10]	64.7	2.6	1.0	(0.4)	1.5	7.5	4.9	(0.1)	2.7
Emerging economies[11]	35.3	3.5	4.4	(0.2)	4.8	7.3	6.0	(– 0.2)	4.9
memorandum:									
weighted by exports[12]	100	3.5	1.3	(0.3)	2.1	.	.	.	.
following IMF concept[13]	100	3.3	2.7	(0.4)	3.1	.	.	.	.
World trade[14]		3.2	0.3	(– 1.0)	2.8	.	.	.	.

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. 3 – Forecast by the GCEE. 4 – Difference in percentage points. 5 – Bulgaria Czechia, Hungary, Poland, Romania. Croatia has been part of the euro area since 2023 and is no longer included in this aggregate compared to the Annual Report. 7 – Denmark, Norway, Sweden, Switzerland. 8 – Argentina, Chile, Colombia, Mexico. 9 – Hong Kong, Republic of Korea, Singapore, Taiwan. 10 – Indonesia, Malaysia, Philippines, Thailand. 11 – Asian advanced economies, euro area, Middle- and Eastern Europe, Canada, Denmark, Japan, Norway, Sweden, Switzerland, United Kingdom, United States. 12 – Latin America, Southeast Asian emerging economies, Brazil, China, India, Russia, Turkey. 13 – Total of all named countries, weighted by the respective shares of German exports in 2021. 14 – Weights according to purchasing power parities and extrapolated to the countries covered by the IMF. 15 – As measured by the Dutch Centraal Planbureau (CPB).

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

11. The **global economic outlook for 2023** has **improved slightly**. For example, the manufacturing sector is expected to grow again in Q1 2023 and China's exit from its zero-Covid policy is expected to stimulate global trade. ↘ BOX 1 As a result, supply bottlenecks are likely to ease further (GCEE Annual Report 2022 item 6). ↘ BOX 2 ↘ CHART 8 In Europe, lower energy prices are improving growth prospects. ↘ ITEM 20 However, due to high demand in the US, the still incomplete pass-through of higher production costs in the euro area and expected wage increases, consumer price inflation is expected to decline only slowly in both economic areas. ↘ BOX 1↘ ITEMN 16 F. The impact of deteriorating financing conditions is likely to dampen economic growth over the forecast horizon. ↘ ITEMS 12 AND 19 The GCEE projects global GDP to grow by 2.2 % and 2.7 % in 2023 and 2024, respectively. For global consumer price inflation, the GCEE forecasts 5.3 % and 3.5 % for 2023 and 2024, respectively.

↘ BOX 1

The large economies of the USA and China

In the **US**, price- and seasonally adjusted GDP increased by 0.7 % in Q4 2022 compared to the previous quarter. The situation on the labour market as well as current real-time estimates of the US output gap indicate an **overheating in the US economy** (Berger et al., 2023). The unemployment rate was 3.6 % in February 2023, bringing the labour market close to full employment. Moreover, real private consumption expenditure increased by 1.1 % in January 2023 despite high price increases. Unlike domestic demand, industrial production is weakening and stagnated in February 2023 compared to the previous month. Against the backdrop of a delayed transmission of the strongly tightened monetary policy, the GCEE still expects economic activity to cool in summer 2023. Financing conditions for households have deteriorated. For example, lending standards for consumer credits, especially credit cards, were tightened in Q4 2022 (Fed, 2023), after credit card interest rates rose by almost 4 percentage points in November 2022 compared to the beginning of the year to a record high of over 19 % on average.

Due to the carry-over effect, which was higher than expected in 2022, the GCEE revises its **GDP growth** estimate upwards to **1.1 % for 2023** (+0.7 percentage points compared to the Annual Report 2022). In the following year, **GDP is** expected to **grow at 1.3 %**. For **consumer price inflation**, the GCEE expects it to fall to **4.3 % in 2023** (+0.8 percentage points compared to the GCEE Annual Report 2022) and to reach **2.7 % in 2024.**

In China, price- and seasonally adjusted **GDP stagnated in** Q4 2022 compared to the previous quarter, first due to lockdowns and, after the abrupt exit from the zero-Covid policy in December 2022, due to a massive coronavirus infection wave. Work shortfalls led to the slowest year-end growth in industrial production since May 2022, which grew by only 1.3 % year-on-year in December 2022. Retail sales fell by 1.8 % year-on-year in the same month. In particular, restaurant revenues slumped by 14.1 % on an annual comparison (Zhu and Galler, 2023). According to a UK healthcare provider, the **peak of the coronavirus wave** was **passed in January 2023** (Airfinity, 2023). A second massive wave seems unlikely, as it is believed that by the end of Chinese New Year in January 2023, about 80 % of the Chinese population have been infected at least once (BOFIT, 2023).

The end of the zero-Covid policy should **stimulate domestic production and demand** in 2023. For example, industrial production increased by 2.4 % in the first two months of 2023 compared to the same period of the previous year. Retail sales increased by 3.5 % year-on-year in the same period. Moreover, the purchasing managers' indices in manufacturing and services were above the expansionary threshold of 50 index points in February 2023, at 52.6 and 56.3, respectively. In addition, private consumption could be supported by pent-up savings, which increased by around $2.6 trillion in 2022 (PBC, 2023). In 2021, Chinese household deposits in bank accounts had only increased by about $1.4 trillion, according to PBC (2022). The Chinese government announced new capital formation, earmarked bonds and interest rate subsidies to stabilise the economy, as well as further support for the ailing real estate sector (State Council of the People's Republic of China, 2022).

The **GCEE expects** China's **GDP to grow at 5.6 % in 2023** and at **5.6 % in 2024.** While the in-year growth momentum for 2023 was revised upwards due to the exit from the zero-Covid policy, the carry-over effect from 2022 was 1 percentage point lower than forecast in the GCEE Annual Report 2022. Therefore, the expected annual average growth rate for 2023 is 0.2 percentage points lower than the forecast in the GCEE Annual Report 2022.

12. From the GCEE's perspective, there is a risk that overall **inflation will be more persistent** than assumed in this forecast. Possible restrictions on grain and cooking oil supplies from Ukraine could specifically raise **prices for agricultural products** again in 2023 (European Commission, 2023; IMF, 2023). Real grain prices have fallen by about 17 % since their high in May 2022 (GCEE Annual Report 2022 item 10).

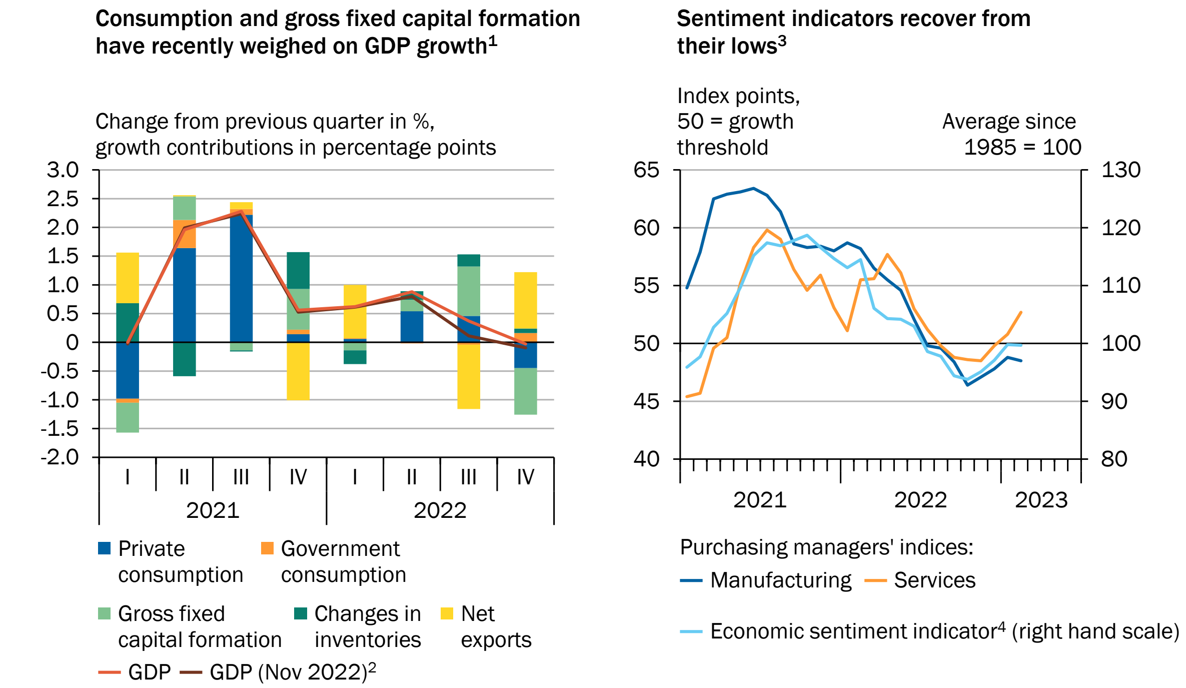
In the event of more persistent inflation, central banks in advanced economies could be forced to take interest rate steps that go beyond the expectations reflected in the current forward curves. ↘ CHART 4 LEFT This would further worsen the **financing conditions of households and companies and** negatively affect private consumption and capital formation.

13. In the GCEE's view, the **external environment** is particularly **uncertain due to economic risks in China**. The Chinese real estate sector remains fragile (GCEE Annual Report 2022 item 17). The potential increase in geopolitical tensions could weigh on world trade. ↘ ITEM 22 In addition, China's economic upturn ↘ BOX 1 could lead to higher prices for energy resources and commodities than currently assumed on the futures market. ↘ ITEM 8 China's demand for crude oil could increase by 1 million barrels per day in 2023 (Goldman Sachs, 2023). Analysts also expect that China could demand up to 14 % more LNG in 2023 than in the previous year, making it the world's largest importer again (Chow, 2023). In the event of stronger growth of the Chinese economy, the GCEE estimates that consumer price inflation in the euro area in 2023 could be only slightly higher than expected in the present forecast for 2023.

2. Resilient euro area

14. **The momentum** in the euro area **business cycle weakened in** the winter 2022/23 - as had already been indicated in autumn. ↘ CHART 5 LEFT The inflation-related **loss of purchasing power weighed on private households' consumption** at the end of 2022. The pandemic-related catch-up effects have meanwhile abated in contact-intensive services. As a result, price-, seasonally- and calendar-adjusted private consumption expenditure fell by just under 0.9 % and gross fixed capital formation by 3.6 % in Q4 2022 compared to the previous quarter. Gross fixed capital formation thus made a negative contribution of around 0.8

↘ CHART 5
Slowdown in GDP growth in the euro area, but recovery in sentiment indicators



1 – Price, seasonally and calendar adjusted. 2 – For the 4th quarter of 2022, forecast by the GCEE. 3 – Seasonally adjusted. 4 – Economic sentiment indicator of the European Commission.

Sources: European Commission, Eurostat, S&P Global, own calculations

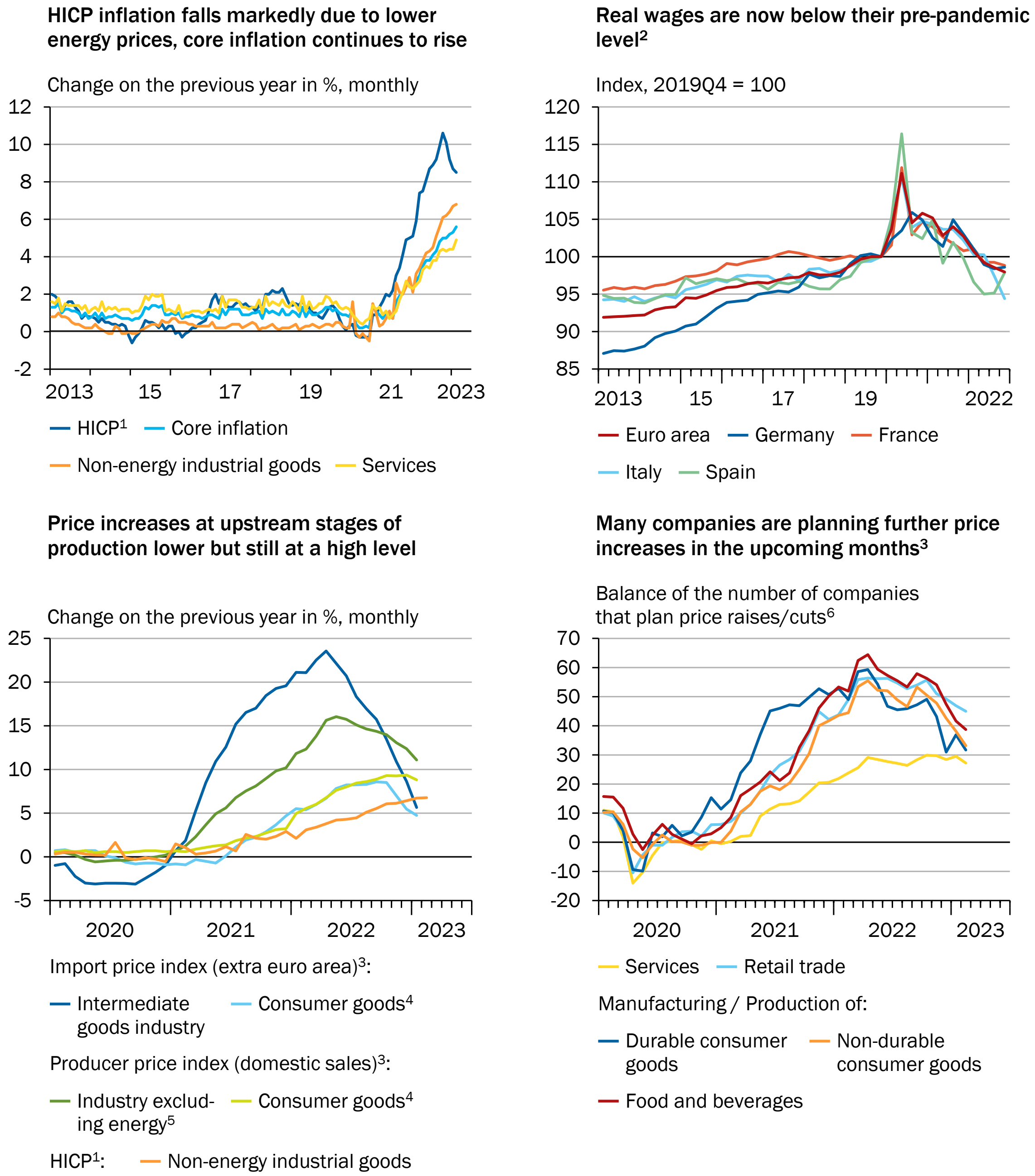
percentage points to GDP growth in the euro area. About 0.7 percentage points of this can be attributed to the significant decline in capital formation in intellectual property in Ireland. This is likely to have been driven by the Irish multinational company sector. Owing to the positive net export contribution of around 1 percentage point, price-, seasonally- and calendar-adjusted GDP in the euro area stagnated in Q4 2022 compared to the previous quarter. The seasonally adjusted unemployment rate was stable at 6.7 % from November 2022 to January 2023, only 0.1 percentage points higher than in October 2022, the historically lowest level since the start of euro area data collection.

15. Persistently high inflation in the euro area as well is likely to continue to **weigh on private consumption expenditure in** the **upcoming quarters**. In contrast, positive demand impulses are likely to emerge from declining wholesale energy prices and the expected economic upturn in China in the upcoming months. ↘ ITEM 8↘ BOX 1 Sentiment indicators such as the S&P Global Purchasing Managers' Indices and the European Commission's Economic Sentiment Indicator have recovered to some extent from their Q4 2022 lows. ↘ CHART 5 RIGHT

16. The year-on-year HICP **inflation rate** has **declined** from 10.6 % in October 2022 to 8.5 % in February 2023. ↘ CHART 6 TOP LEFT This reflects the sharp decline in the energy component from 41.5 % in October 2022 to 13.7 % in February 2023. In addition to a base effect, this can be attributed to the absolute decline in the energy price index of around 8.8 % over this period. Both lower oil prices ↘ ITEM 8 and index-effective government measures, such as the gas and energy price brakes

↘ CHART 6

HICP inflation in the euro area declined, yet various indicators point to continued high price increases in the months ahead



1 – Harmonised Index of Consumer Prices. 2 – Seasonally adjusted. Gross wages and salaries per hour worked. Price adjustments are made using the HICP. 3 – According to the Statistical classification of economic activities in the European Community (NACE Rev. 2). 4 – Excluding food and tobacco. 5 – Mining and quarrying; manufacturing excluding the main industrial groupings of energy production. 6 – Seasonally adjusted. Difference between the surveyed companies regarding the expected change of the domestic prices (net) within the next three months. Positive values correspond to a higher share of companies which expect to increase their prices.

Sources: European Commission, Eurostat, own calculations

in Germany, contributed to this (Eurostat, 2022; European Commission, 2023). ↘ ITEM 26 **However, core inflation increased** from 5.0 % to 5.6 % over the same period. This partly reflects the pass-through of higher producer prices for non-energy industrial goods, which increased by 6.8 % year-on-year in February 2023.

↘ CHART 6 BOTTOM LEFT Prices of services rose by 4.8 % over the same period. **Core inflation is expected to remain high** as increased costs in consumption-related sectors are expected to continue to pass through. According to the European Commission's Business and Consumer Survey, the difference in the proportions of companies planning to increase or decrease prices in the next three months ranged across consumption-related sectors from 27 % to 45 % in February 2023. ↘ CHART 6 BOTTOM RIGHT Among intermediate goods manufacturers, the difference has decreased from its peak in April 2022, from 66 % to 13 %.

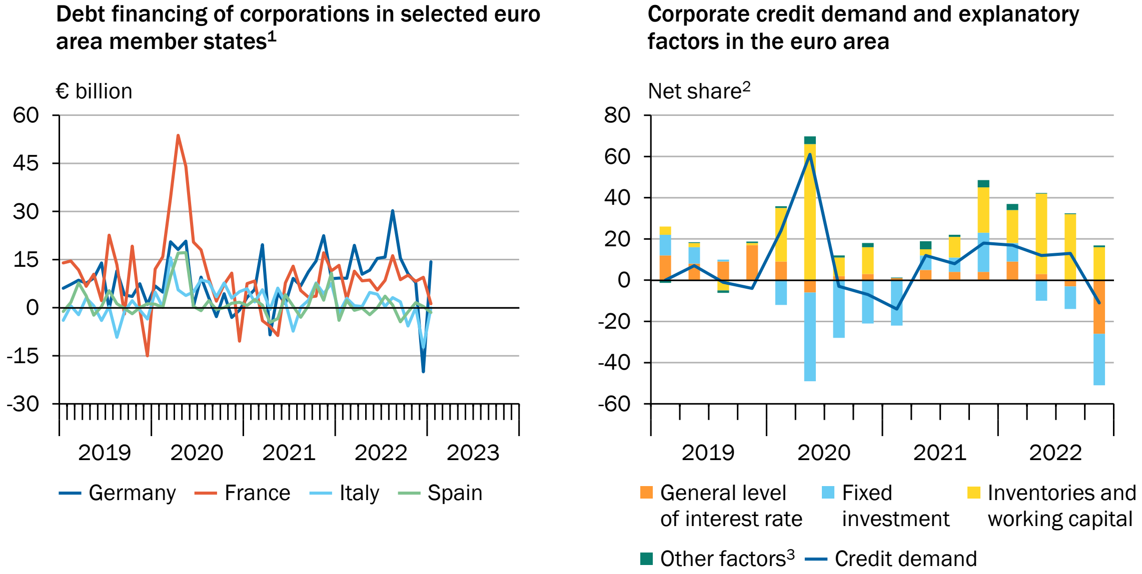
17. The somewhat lower upward price trend in services can be probably attributed to the rather **moderate wage growth in** the **euro area** so far. In Q4 2022, gross nominal wages per hour worked rose by 4.9 % year-on-year and according to the ECB wage indicator collectively agreed wages by just under 2.9 %, while gross real wages per hour worked fell by around 4.6 %. ↘ CHART 6 TOP RIGHT Given the currently high demand for labour, nominal wage growth is expected to pick up over the forecast horizon and - at least partially - offset the real wage losses, as in comparable earlier periods (Alvarez et al., 2022). ↘ ITEM 40 According to Eurostat, minimum wages, which are particularly relevant for labour-intensive sectors, are expected to grow by double digits year-on-year in some member states in H1 2023 - for example 24.0 % in Latvia, 22.2 % in Germany and 17.9 % in Belgium. While this implies a recovery in real wages, it also entails higher costs for firms and thus further price increases for consumers.

18. As inflation is remaining elevated, the Governing Council of the ECB has **continued** to **tighten monetary policy**, raising key policy rates by 50 basis points at each of the past three meetings. The interest rates on the main refinancing operations, the marginal lending facility and the deposit facility will be 3.5 %, 3.75 % and 3.0 %, respectively, with effect from 22 March 2023. ↘ BOX 2 In addition, the Governing Council of the ECB decided at its December meeting to reinvest the principal payments from maturing securities purchased under the Asset Purchase Programme (APP) in full only until the end of February 2023 and then to reduce the stock by €15bn per month until the end of Q2 2023. Against the background of current developments in the financial markets, the Governing Council of the ECB has also agreed to react, if necessary, to preserve price and financial stability in the euro area.

19. **Monetary policy tightening increases the financing costs** of banks, which are passed on to the private sector through higher lending rates. For example, interest rates on corporate credits in the euro area have risen to around 3.6 % in January 2023, more than two percentage points higher than in the previous year. As a result, **debt financing of companies**, i.e. financing via loans and bonds, has **declined** in the largest economies in the euro area at the end of 2022. ↘ CHART 7 LEFT The rise in debt financing earlier in the year can be attributed to high price increases, which in particular increased demand to finance inventory and working capital. The sharp decline in December 2022 is largely driven by one-off effects, especially in Germany (Deutsche Bundesbank, 2023). Accordingly, there was a significant rebound in January 2023.

↘ CHART 7

Rising interest rates reduce demand for financing by companies



1 – Debt securities and loans. Loans: seasonally adjusted and adjusted for loan sales and securitisations and for items related to notional cash pooling services provided by monetary financial institutions (MFIs). 2 – In each case, the net share is shown as the difference between the sum of the responses “significantly increased“ and “slightly increased“ and the sum of the responses “slightly decreased“ and “significantly decreased“. The answers of the banks are weighted with the share of the respetive countries in the total credit volume in the euro area as well as with the share of the banks in the total credit volume of the surveyed banks. A representative sample of banks in the euro area is surveyed. 3 – Unweighted average of “mergers/acquisitions and corporate restucturing“, “refinancing, rescheduling and renegotiation“, “internal financing“, “loans from other banks“, “loans from non-banks“, “issuance/repayment of bonds“ and “issuance/repurchase of shares“.

Sources: ECB, own calculations

The survey of banks in the euro area suggests a **declining demand** for corporate credits in Q4 2022 as the reason for the negative development. This is mainly owing to **lower fixed capital formation as well as the general increase in interest rates**. ↘ CHART 7 RIGHT In addition, banks report a significant tightening of lending standards amid risks of deteriorating economic conditions and a lower creditworthiness of borrowers (ECB, 2023).

↘ BOX 2

Economic conditions and technical assumptions for the forecast

The GCEE's **forecast is** based on various **assumptions.** The assumptions with respect to energy prices, exchange rates and key policy rates over the forecast horizon are derived from past developments and futures prices. The **cut-off date** for this was **17 March 2023.** Further assumptions regarding supply-side conditions and the fiscal policy framework are derived from quantitative and qualitative information.

The Russian war of aggression against Ukraine and its economic effects continue to represent the major source of uncertainty for the forecast. Unchanged from the GCEE Annual Report 2022, the GCEE **assumes** that there will be **no aggravation of the economic repercussions** of the war on the euro area economies in the forecast horizon (GCEE Annual Report 2022 item 44). However, regardless of the further course of the war it can be fairly assumed that there will be no normalisation of trade relations with Russia in the foreseeable future and the sanctions regime of the European Union will remain in place.

Prices for energy supplies have declined over the winter and are now significantly below the average levels of 2022.↘ ITEM 8 The current futures prices indicate only a slight increase for the winter of 2023/24. In 2023, they are thus below the assumed levels underlying the forecast in the 2022 GCEE Annual Report. However, especially for electricity and natural gas prices in Europe, a return to levels prevailing in the period from 2010 to 2019 is not anticipated. ↘ ITEM 21 Brent crude oil futures prices for 2023 and 2024 hovered around 82 US dollars and around 77 US dollars per barrel, respectively, over the past 30 days. ↘ CHART 3 RIGHT An alternative assumption is that the oil price stays at its current real level. For this purpose, the nominal price is adjusted over the forecast horizon and deflated by an inflation rate of 2 %, which is consistent with medium-term inflation expectations. The average futures prices for natural gas in Europe range approximately between 50 and 61 euros per MWh over the forecast horizon. ↘ CHART 3 LEFT The expected natural gas prices in Northeast Asia are slightly above, for the USA below that level.

Owing to the high inflation, **in many advanced economies** central banks have **continued to tighten** monetary policy in recent months. However, the interest rate hikes of the Fed, the Bank of England and the ECB have recently become smaller. As a result of higher financial market uncertainty following the SVB closure, the volatility of futures prices has risen sharply recently. ↘ ITEM 10 The GCEE derives the assumption with respect to the interest rates for its economic forecast from the average market expectation over the past 30 days. ↘ CHART 4 LEFT This implies a continuation of tightening at least until summer 2023. ↘ ITEM 10 Overall, the cumulative monetary policy tightening is likely to be stronger than assumed in the GCEE Annual Report 2022. Moreover, short-term real interest rates have risen sharply. ↘ CHART 8 TOP RIGHT Compared over time, real interest rates are still below the level of before the global financial crisis. However, monetary policy tightening is likely to have an increasingly restrictive effect on demand. The higher key policy rates are reflected in higher yields on government bonds ↘ CHART 4 RIGHT and tighter financing conditions for loans. ↘ ITEM 19

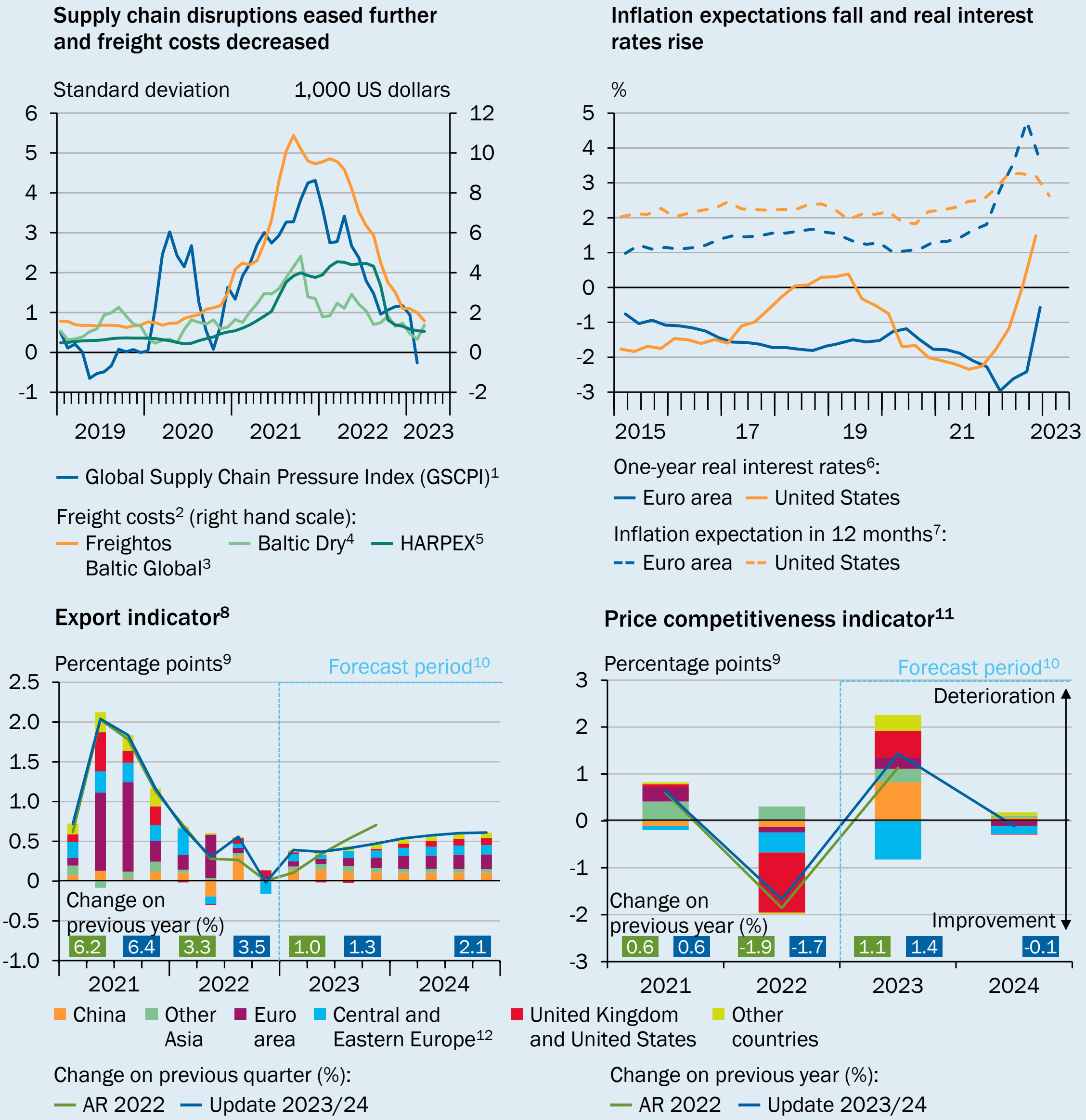
As a result of the monetary policy tightening in the euro area, the euro has appreciated by around 7.2 % against the US dollar since the end of October 2022. For the forecast, it is assumed that the **exchange rate** will stay at the level of **1.06 US dollars per euro** observed at the cut-off date.

Numerous indicators show that **international supply chains** have continued to ease since last autumn. The indicators are now below the level of 2019.↘ CHART 8 TOP LEFT However, according to a survey conducted by the European Commission, around 39.4 % of industrial companies in the euro area still reported shortages of materials and intermediate products in Q1 2023 - 62.1 % in Germany. China's exit from its zero-Covid policy ↘ BOX 1 and the weak global economy are likely to accelerate the **easing of material bottlenecks** –that began in early 2021 – in the upcoming months. In contrast, **shortages of skilled workers in certain occupations** have **increased in** many advanced economies. The still high number of vacancies in these countries makes a rapid easing unlikely over the forecast horizon.

Improved economic prospects among Germany's main trading partners have led to an upward revision of the GCEE calculated export indicator in 2023. ↘ CHART 8 TOP LEFT A further improvement in export opportunities should be expected in the upcoming year, although downside risks remain. ↘ ITEMS 13 AND 22 The weaker decline in inflation in Germany compared to its major trading partners leads to a significant loss in price competitiveness this year. Only small changes are expected in the upcoming year. ↘ CHART 8 BOTTOM RIGHT

↘ CHART 8

Economic environment for the forecast



1 – The GSCPI combines a number of indicators related to transport costs and supply shortages into one index. The index is normalized to have a mean of zero. Shown are the deviation from the mean measured in standard deviations. 2 – Value for March 2023: Average of data available as of 17 March 2023. 3 – Freight rates on the spot market of 40-foot containers for twelve trade routes. 4 – Freight rates of different ship classes for bulk goods on 26 trade routes. 5 – 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. 6 – Difference between the Euribor rate with a maturity of 12 months resp.the yield on one-year Treasury securities and inflation expectations in 12 months. 7 – Survey of Professional Forecasters, expectations for inflation in 12 months. 8 – 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. 9 – Growth contributions of the respective regions. 10 – Forecast by the GCEE. 11 – 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. 12 – Bulgaria, Czechia, Hungary, Poland, Romania. Croatia has been a member of the euro area since January 2023.

Sources: Baltic Exchange, Benigno et al. (2022), Deutsche Bundesbank, ECB, Fed, Freightos, Harper Petersen & Co., national statistical offices, own calculations

20. The GCEE revises its forecast for **economic growth in the euro area** for **2023** slightly upwards to 0.9 %, adjusted for price and calendar effects. ↘ TABLE 2 In 2024, price- and calendar-adjusted **GDP** is expected to **rise by 1.5 %**. The upward revision for 2023 reflects stronger than expected GDP growth for 2022 in the GCEE Annual Report, leading to a 0.2 percentage points higher carry-over effect. The projected annual growth rate in 2023 is slightly higher. Inflation has moderated somewhat stronger in the winter 2022/23 than expected in the autumn due to lower consumer prices for energy. ↘ ITEM 16 Given the further increase in the core inflation at the beginning of the year, the GCEE expects headline **HICP to rise by 5.9 %** year-on-year in **2023**. **In 2024, the inflation rate is expected** to fall to **2.9 %.** The unemployment rate is expected to be 6.8 % in both the current and the upcoming year.

21. **Downside risks continue to predominate** for the economic forecast of the euro area. Compared to the GCEE Annual Report 2022, the short-term outlook, however, is somewhat more balanced. One the one hand, there is the possibility of a faster than expected pass-through of the recent sharp decline in wholesale

↘ TABLE 2

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

Country/ country group	Weight in %[1]	Gross domestic product[2] (calendar-adjusted)				Consumer prices (HICP)[3]				Unemployment rate[4]			
		Change on previous year in %								%			
		2022	2023[5] Up-date	2023[5] Diff. to AR 2022[6]	2024[5]	2022	2023[5] Up-date	2023[5] Diff. to AR 2022[6]	2024[5]	2022	2023[5] Up-date	2023[5] Diff. to AR 2022[6]	2024[5]
Euro area[7]	**100**	**3.5**	**0.9**	**(0.6)**	**1.5**	**8.4**	**5.9**	**(– 1.5)**	**2.9**	**6.7**	**6.8**	**(– 0.3)**	**6.8**
including:													
Germany	29.1	1.9	0.4	(0.4)	1.3	8.7	6.6	(– 1.3)	2.9	3.1	3.1	(– 0.3)	3.0
France	20.2	2.6	0.7	(0.3)	1.4	5.9	5.3	(– 0.8)	2.9	7.3	7.2	(– 0.5)	7.3
Italy	14.4	3.8	0.6	(1.0)	0.8	8.7	6.9	(– 2.9)	2.9	8.1	8.1	(– 0.5)	8.3
Spain	9.8	5.5	1.5	(0.5)	1.7	8.3	4.8	(0.6)	2.9	12.9	13.3	(0.1)	13.3
Netherlands	6.9	4.5	1.3	(0.7)	1.4	11.6	4.8	(– 5.0)	3.2	3.5	3.7	(– 0.4)	3.6
Belgium	4.1	3.1	1.0	(0.7)	1.4	10.3	4.3	(– 3.6)	2.9	5.6	5.9	(– 0.2)	5.8
Ireland	3.4	12.2	5.3	(1.3)	4.6	8.1	4.8	(– 2.9)	3.4	4.5	4.6	(0.0)	4.6
Austria	3.3	5.0	0.8	(0.4)	1.4	8.6	6.9	(0.2)	3.4	4.8	5.2	(0.1)	5.0
Finland	2.0	2.1	0.2	(0.6)	1.3	7.2	5.4	(1.1)	2.7	6.8	7.3	(– 0.4)	7.3
Portugal	1.7	6.7	0.9	(0.5)	1.5	8.1	5.4	(– 0.2)	2.8	6.0	7.1	(0.5)	6.9
Greece	1.5	6.1	3.0	(2.7)	2.4	9.3	3.9	(– 2.5)	2.0	12.5	10.6	(– 2.2)	10.5
memorandum:													
Euro area without Germany	**70.9**	**4.2**	**1.2**	**(0.7)**	**1.6**	**8.3**	**5.6**	**(– 1.6)**	**3.0**	**8.0**	**8.1**	**(– 0.4)**	**8.1**

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 ILO (International Labour Organization). For the total euro area and euro area without Germany weighted by the labour force of 2021. 5 – Forecast by the GCEE. 6 – Difference in percentage points. 7 – Weighted average of the 20 euro area member states (19 member states for the Annual Report 2022).

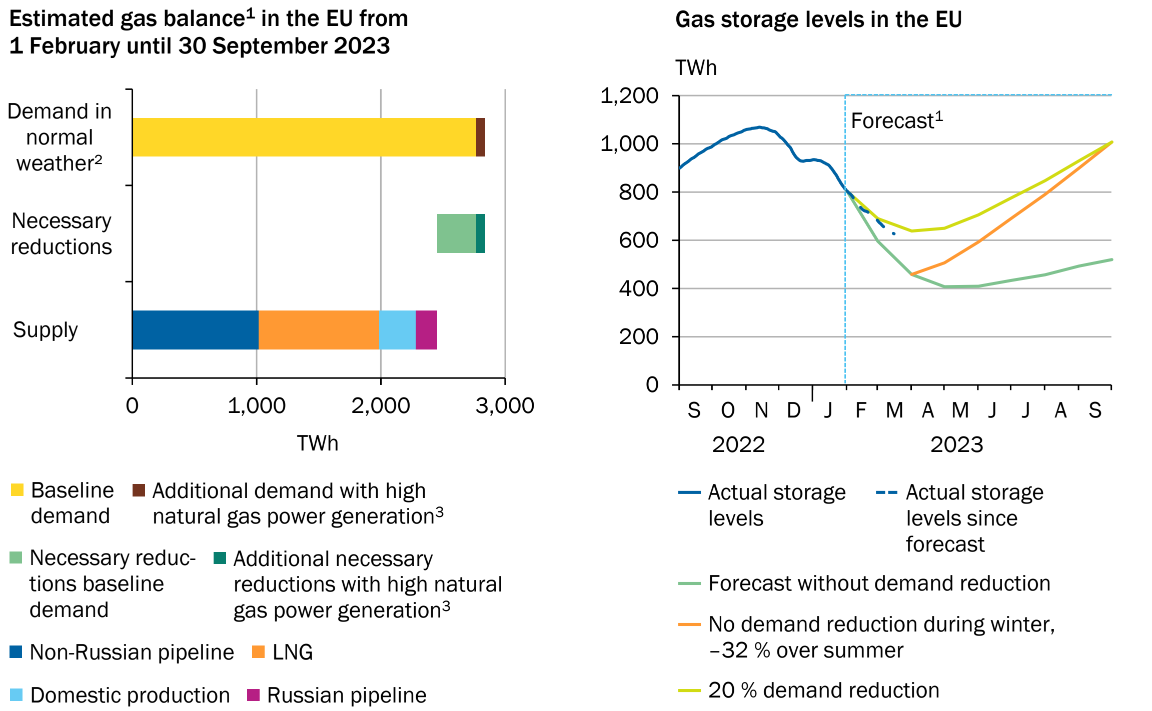
Sources: Eurostat, own calculations

energy prices, which could lead to a faster decline in inflation and thus an earlier recovery in households' real disposable incomes. ↘ ITEM 16 On the other hand, **uncertainty about** future **energy supply** remains elevated. In particular, there is a risk of a **renewed surge in energy prices** as global export capacity for natural gas is constrained and cannot be expanded in the short term (GCEE Annual Report 2022 items 300 f.). The IEA (2023) estimates that LNG liquefaction capacity will increase by only 4.3 % in 2023. Across the EU, according to an analysis by McWilliams et al. (2023), **13 % savings** compared to the average **natural gas consumption of** the past 5 years will be needed to enter the winter of 2023/24 with full storage levels. ↘ CHART 9 LEFT If the demand reduction is not achieved, there is a risk of price competition between EU member states in the summer of 2023 to procure more LNG in order to meet the storage targets. ↘ CHART 9 RIGHT Furthermore, according to McWilliams et al. (2023), additional 2 percentage points of natural gas need to be saved if gas-fired power plants are needed in order to compensate for shortfalls in the electricity generation.

Temporary shortages in the power sector could also drive-up wholesale electricity prices. The shortages could result from **increasing demand for electricity** in combination with a simultaneous exit of conventional power plants **and lacking demand flexibility** (ENTSO-E, 2022a). The risk of such developments is reflected, among others, in the elevated expected annual average duration of power outages, especially in Ireland and Malta, but to a lesser extent also in Germany, France and other EU member states (ENTSO-E, 2022a, 2022b).

↘ CHART 9

Assessment[1] on necessary savings in the EU to reach high gas storage levels before next winter



1 – McWilliams et al (2023) assume in the baseline scenario that Russian pipeline gas continues to be supplied at current levels. 2 – Including the necessary filling of storage facilities and natural gas exports to Ukraine and Moldova. 3 – High natural gas power generation describes the case where the electricity supply from French nuclear power and Italian and Spanish hydropower remains at the low levels of 2022.

Sources: Aggregated Gas Storage Inventory (AGSI), McWilliams et al. (2023)

22. Owing to the relations in trade and in the financial markets, an unexpected **slowdown in the US economy** could spill over to the euro area. ↘ ITEMS 10 AND 19 In contrast, a stronger than expected **demand recovery in China** could boost the export economy in the euro area. Should **geopolitical tensions between the USA and China** lead to reciprocal economic sanctions or higher tariffs, this could have a negative impact on the European economy. As a result of the high import dependence on China (Welslau and Zachmann, 2023; GCEE Annual Report 2022 items 486 f.), a renewed intensification of supply chain disruptions could hamper economic growth, at least in the short term, and lead to a rise in inflation. Germany's dependence on Chinese imports increased further in 2022 (Matthes, 2023). However, it is concentrated on individual critical raw materials and products (Sandkamp et al., 2023) - such as laptops (around 80 %) or rare earths (in some cases more than 85 %).

III. GERMAN ECONOMY

23. Despite supply-side bottlenecks, high energy prices and the Russian war of aggression on Ukraine, real **German economic output** grew by 1.8 % in **2022**. In 2021, real GDP growth was still 2.6 %. Economic development in 2022 was strongly influenced by domestic demand. Pandemic-related catch-up effects supported private consumption in the first three quarters and led to an increase in economic output. In contrast, the overall economy contracted in the 4th quarter.

↘ TABLE 3

Key economic indicators for Germany

	Unit	2021	2022	Forecast[1]		
				2023		2024
				Update	Difference to AR 2022[2]	
Gross domestic product[3]	**Growth in %**	**2.6**	**1.8**	**0.2**	**(0.4)**	**1.3**
Final consumption expenditure	Growth in %	1.4	3.4	– 0.5	(– 0.3)	1.2
Private consumption[4]	Growth in %	0.4	4.3	– 0.9	(– 0.3)	1.2
Government consumption	Growth in %	3.8	1.2	0.5	(– 0.3)	1.2
Gross fixed capital formation	Growth in %	1.2	0.4	– 0.9	(– 0.6)	1.7
Investment in machinery & equipment[5]	Growth in %	3.5	3.3	2.2	(0.1)	3.7
Construction investment	Growth in %	0.0	– 1.7	– 3.7	(– 1.2)	0.1
Other products	Growth in %	1.0	2.1	3.0	(0.2)	3.4
Changes in inventories	Growth contribution in percentage points	0.5	0.5	0.5	(0.4)	0.0
Domestic uses	Growth in %	1.9	3.1	– 0.1	(0.0)	1.3
Net exports	Growth contribution in percentage points	0.8	– 1.2	0.2	(0.2)	0.0
Exports of goods and services	Growth in %	9.7	2.9	0.6	(– 0.8)	3.0
Imports of goods and services	Growth in %	9.0	6.0	0.1	(– 1.4)	3.2
Current account balance[6]	**%**	**7.4**	**3.8**	**5.4**	**(1.2)**	**5.6**
Persons employed (domestic)	**1,000**	**44,980**	**45,570**	**45,829**	**(210)**	**45,912**
Persons employed, covered by social security	**1,000**	**33,897**	**34,509**	**34,817**	**(216)**	**34,986**
Registered unemployment, stocks	**1,000**	**2,613**	**2,418**	**2,460**	**(– 38)**	**2,376**
Unemployment rate[7]	**%**	**5.7**	**5.3**	**5.4**	**(0.0)**	**5.2**
Consumer prices[8]	**Growth in %**	**3.1**	**6.9**	**6.6**	**(– 0.8)**	**3.0**
Budget balance[9]	**%**	**– 3.7**	**– 2.6**	**– 1.6**	**(1.2)**	**– 0.4**
Gross domestic product per capita[10, 11]	**Growth in %**	**2.6**	**1.7**	**0.1**	**(0.3)**	**1.2**
Gross domestic product, calendar-adjusted[11]	**Growth in %**	**2.6**	**1.9**	**0.4**	**(0.4)**	**1.3**

1 – Forecast by the GCEE. 2 – Difference in percentage points except for unit 1,000. 3 – Price-adjusted. Change on previous year. Also applies to all listed components of GDP. 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 – In relation to GDP; regional authorities and social security in according to national accounts. 10 – Population development according to medium-term projection of the GCEE. 11 – Price-Adjusted. Change on previous year.

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

Inflation in Germany, as measured by the CPI, rose to 6.9 % in 2022, the highest level since 1974. While the contribution of energy prices declined in the 2nd half of 2022, food prices and core inflation gained importance. ↘ ITEM 16

24. Inflation is weighing on both private households and companies, so the GCEE expects real **GDP to grow by only 0.2 % in 2023**. The weak growth is attributable in particular to private consumption and gross fixed capital formation in construction. The economic outlook has improved slightly by 0.4 percentage points compared to the GCEE Annual Report. ↘ TABLE 3 The carry-over from 2022 has remained almost unchanged. ↘ CHART 11 LEFT However, the Q1 2023 forecast is better than assumed in the 2022 GCEE Annual Report. In the forecast, gross fixed capital formation in construction, net exports and private consumption were revised upwards in Q1 2023. ↘ TABLE 3 ↘ CHART 14 APPENDIX ↘ ITEM 29

Core inflation rose more than expected in recent months, partly offsetting lower energy price inflation. ↘ ITEMS 8 AND 26 Against this background, **consumer price inflation** is expected to be **6.6 % in 2023**, 0.8 percentage points lower than projected in the GCEE Annual Report. However, the downward revision is largely due to the revision of consumer price statistics. ↘ PLUSTEXT 1

25. In **2024, consumer price inflation** is expected to fall to **3.0 %.** Against the backdrop of a pick-up in wage growth, real incomes should then rise again significantly. The slight improvement in the external environment ↘ ITEM 11 should support goods exports. However, continued higher inflation, deteriorating financing conditions and shortages of skilled workers in certain occupations prevent a strong upturn. For that reason, **real GDP** is expected to grow by **1.3 % in 2024**.

1. Persistent consumer price inflation

26. **Consumer price inflation** fell from 8.8 % in October and November 2022, both year-on-year, to 8.1 % in December 2022 due to the Federal Government's emergency aid for gas customers. In February 2023 it rose again to 8.7 %. ↘ PLUSTEXT 1 **Energy price inflation** fell from 35 % year-on-year in October 2022 to 19 % in February 2023. Fuels and heating oil have become significantly cheaper. Updating the semi-annual average consumer prices for electricity and gas using the CPI gas and electricity, respectively, shows that prices in February 2023 were still slightly below the implicit price caps of 40 cents per kWh and 12 cents per kWh, respectively. Assuming that the utility companies settled supply contracts on the futures market at an early stage, the high procurement prices of 2022 for gas and electricity should be partially reflected in consumer prices only in 2023. The **gas and electricity price brakes** are likely to **dampen the increase in consumer prices.** This can be explained by the fact that the old contracts still in place are gradually expiring and the effects of the tariff increases are mitigated by the brakes. However, the inflation-reducing effect of the energy price brakes should be significantly lower than assumed in the GCEE Annual Report 2022 due to the sharp fall in wholesale energy prices (Garnadt et al., 2023). The electricity price brake was not yet taken into account in the GCEE Annual Report.

↘ BACKGROUND INFO 1

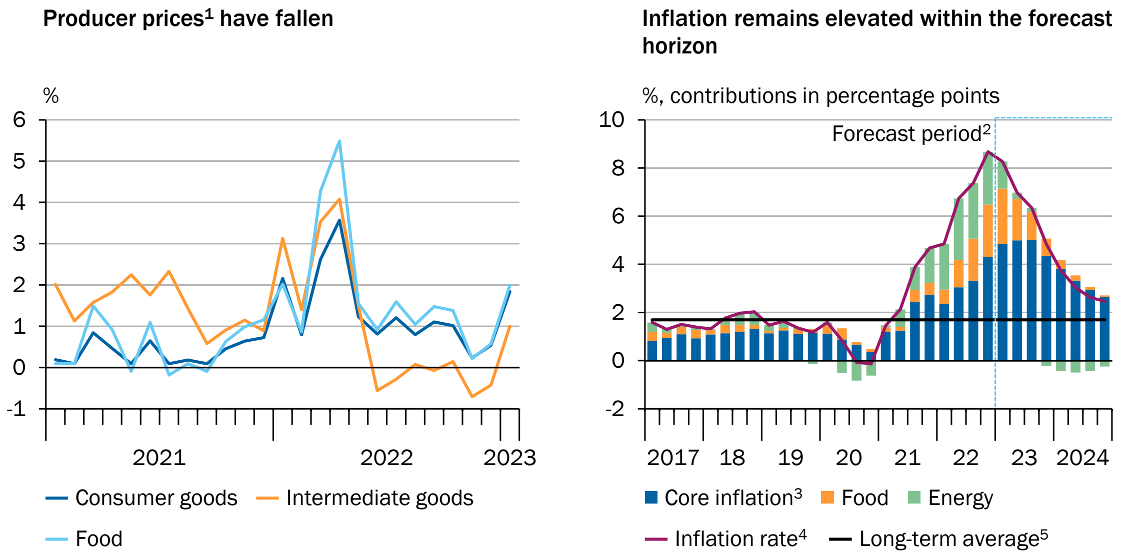
On the revision of consumer price statistics

With the publication of the consumer price statistics for January 2023, the Federal Statistical Office updated the **weighting of the expenditure shares in the national CPI** on a regular basis and **changed it to the base year 2020.** The inflation rates were recalculated on this basis. Although the dynamics for 2022 are similar during the year, the peak in October 2022 was significantly lower at 8.8 % instead of 10.4 %. In addition, the annual inflation rate was revised from 7.9 % to 6.9 % (Federal Statistical Office, 2023a). To take into account the specifics of 2020, which was marked by the Corona pandemic, an **average value for the years 2019 to 2021** was used for the weights of the 700 types of goods in the basket of goods. Due to the relatively cheap household energy in 2019 and 2020, the shift in the weights in the part "electricity, gas and other fuels" is the largest. The share of the energy component in the CPI, which also includes fuels, has fallen by 3 percentage points. This reduces the influence of energy prices on the inflation rate. The weighting of food increased by almost 2 percentage points. The reasons for the changed expenditure shares were quantity and price effects as well as methodological improvements such as the use of the results of the national accounts as the main source for the weighting derivation (Federal Statistical Office, 2023b). The **differences between the annual rates of change of the CPI and the HICP have increased** again due to the revision in 2022. They now amount to 2.8 percentage points at the peak in October. In contrast to the CPI, whose weighting scheme is adjusted every 5 years, the weighting scheme of the HICP is updated annually on the basis of the consumption structure of the preceding year. Thus, inflation based on the CPI only reflects price changes, whereas the HICP also takes quantity changes into account. Due to the significant increase in the price level for energy sources in 2022, there are particularly striking differences in the corresponding weighting shares between the HICP and CPI in 2023 (Federal Statistical Office, 2023a).

27. Price inflation for other goods and services is expected to decrease more slowly than for energy. **Food inflation accelerated particularly strongly** with a lag of about one quarter compared to energy prices. It was 21.8 % in February 2023, up from 6.2 % in March 2022, partly explained by the fact that food production is energy intensive (AY 2022 para 317). Lower energy prices ↘ ITEM 8 are therefore likely to be reflected in food prices in 2023. The increase in producer prices for food came to a virtual halt in Q4 2022, but accelerated again to 1.8 % month-on-month in January 2023. ↘ CHART 10 LEFT

28. **Core inflation accelerated especially in Q4 2022**, compensating for the lower increase in the energy component. In February 2023, the core rate was 5.7 %. Producer prices for consumer goods increased by only 2.4 % in Q4 2022 compared to Q3, a slowdown from previous quarters. ↘ CHART 10 LEFT However, there was a renewed push in January 2023 with a 1.8 % increase compared to December 2022, similarly to producer prices for food. The year-on-year increase in **consumer prices for non-energy goods** was 7.3 % in February, and the rates of change from the previous quarter have remained at around 1.7 % since the start

↘ CHART 10
Producer prices and consumer prices



1 – Producer price index for industrial products according to the product classification, edition 2009 (GP2009). 2 – Forecast of the GCEE. 3 – Overall index excluding food and energy. 4 – Consumer price index, seasonally and calendar adjusted. 5 – Average over the period from 1999 to 2022.

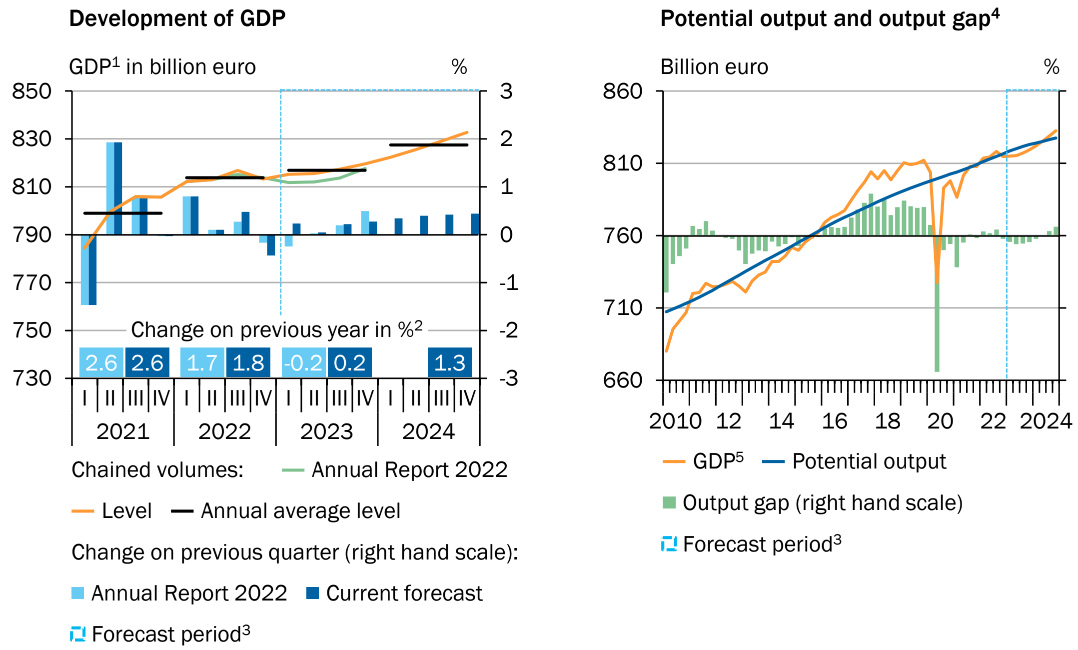
Sources: Deutsche Bundesbank, Federal Statistical Office, own calculations

of 2022. ↘ ITEM 16 Lower producer price inflation is nevertheless likely to be reflected in consumer prices for goods in 2023. **Prices for services** rise even less than the other components of the CPI. In February 2023, the year-on-year rate of change was 4.6 %. However, in view of the already realised and still expected significant wage increases, prices **should increase** within the forecast horizon, especially in the services sector. ↘ ITEM 16 For example, the GCEE assumes nominal growth in effective wages of 5.9 % and 4.5 % in 2023 and 2024, respectively, after 4.7 % in 2022. ↘ ITEM 40 In addition to production costs, higher profit margins should also contribute to inflation. This is indicated by the strong increases in the value added deflators of 2022, which consist of labour income and corporate profits (ifo Institute, 2022; Ragnitz, 2022). In our forecast**,** core inflation will become the main driver of inflation in 2024. ↘ CHART 10 RIGHT

2. Economy recovers only slowly

29. Compared to the forecast in the GCEE Annual Report, real GDP growth was 0.2 percentage points higher than expected in Q3 2022 and 0.2 percentage points lower than expected in Q4 2022. Therefore, the development in the second half-year 2022 is negligible in the forecast revision of GDP growth in 2023 compared to the GCEE Annual Report. The carry-over from 2022 has remained almost unchanged. ↘ CHART 11 LEFT Inventory investment and net exports had a supporting effect, while gross fixed capital formation in construction and private consumption had a lowering effect. Following the 0.4 % contraction in real GDP in Q4 2022, real-time indicators and forecasts for **Q1 2023 indicate modest growth of 0.2 %**, 0.4 percentage points higher than expected in autumn 2022. ↘ CHART 11

↘ CHART 11
Expected economic development in Germany



1 – Reference year 2015, seasonally and calendar-adjusted. 2 – Unadjusted. 3 – Forecast by the GCEE. 4 – Estimate by the GCEE. The potential output estimation is taken from the GCEE Annual Report 2022. 5 – Real seasonally adjusted values; the calendar effect is taken into account, however.

Sources: Federal Statistical Office, own calculations

LEFT ↘ TABLE 3 Starting from a low level, various official economic indicators as well as sentiment indicators have improved, some markedly and repeatedly, at the beginning of 2023. For example, manufacturing output rose by 1.0 % in January 2023 compared to the average of the previous quarter,↘ CHART 13 TOP LEFT and the truck toll mileage index showed a further increase in February 2023. In addition, companies' business expectations brightened. ↘ CHART 13 BOTTOM LEFT After stagnating in Q2, growth rates are expected to increase steadily in subsequent quarters. ↘ CHART 11 LEFT Exports are expected to be the main driver in 2023. The output gap is expected to be -0.5 % in the current year and 0.2 % next year. ↘ CHART 11 RIGHT

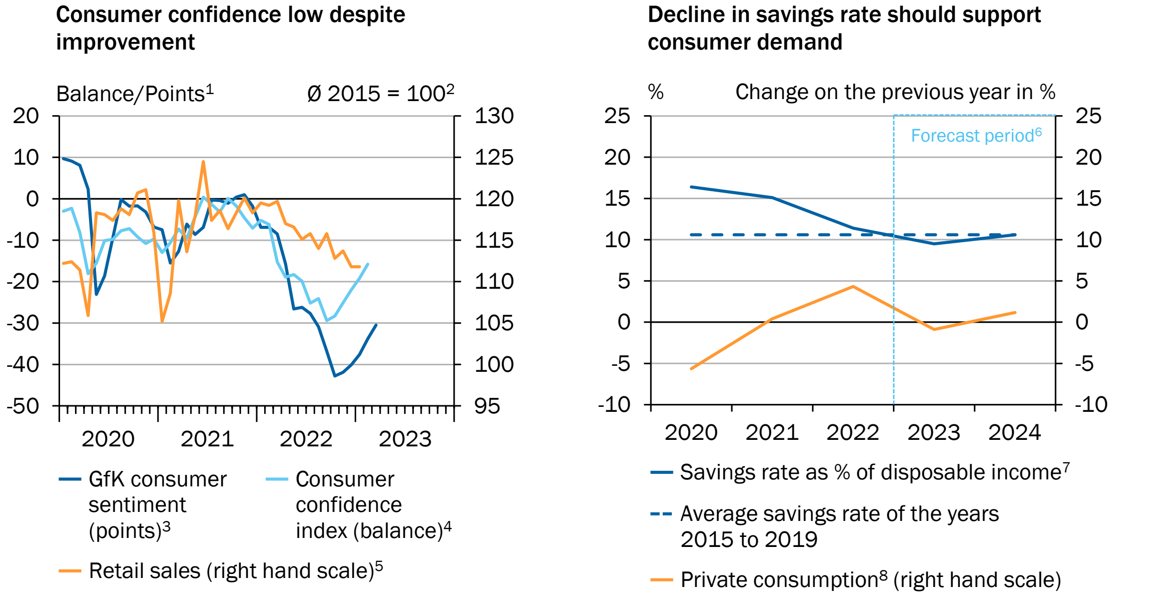
30. The **forecast for the German economy** remains **subject to** increased uncertainty. The risk of new price jumps for natural gas and electricity remains, especially in the winter half-year 2023/24. However, due to the energy price brakes for households and companies that have been in effect since January 2023 (Federal Government, 2022), strong price increases are less decisive for the purchasing power of final consumers until the brakes expire in April 2024. They should nevertheless burden public budgets (Garnadt et al., 2023). In addition, lower energy prices compared to the summer half-year 2022 are likely to reduce the incentive for necessary energy savings. The Federal Network Agency currently describes temperature-adjusted gas consumption as ”critical“ and warns that a shortage situation cannot be ruled out in the winter 2023/24 (Bundesnetzagentur, 2023b). Cold temperatures in particular could exacerbate the situation.

Consumption expenditure

31. **Private consumption expenditure** showed **high growth of** 4.3 % in **2022** compared to the previous year, despite the loss of purchasing power and historically low consumer sentiment. ↘ CHART 12 LEFT Post-pandemic catch-up and normalisation effects as well as earlier high savings played a significant role in this (Wollmershäuser, 2022). Such supporting effects are now likely to lose much of their significance. Retail and hospitality sales continued the negative trend of the previous months in December 2022 and January 2023, respectively. The increase in new private car registrations in the second half-year of 2022 stalled in January and February 2023. However, this is partly due to the reduced promotion of electric cars.

Beyond current indicators, empirical studies show that adverse supply-side energy price shocks reduce private consumption by lowering purchasing power with a time lag of about one year (Carstensen et al., 2013). Thus, the tighter energy supply in 2022 (JG 2022 item 103) is likely to affect consumption especially in 2023. However, high employment and fiscal stimulus measures will support private consumption and reduce uncertainty about economic developments, leading to lower savings of private households for precautionary reasons. Therefore, the GCEE expects the saving ratio to fall to 9.5 % in 2023. ↘ CHART 12 RIGHT Overall, **downward forces are likely to shape** developments in **2023. Only in 2024 real disposable income of private households is expected to grow by**

↘ CHART 12
Consumer indicators in Germany



1 – Seasonally adjusted. 2 – Seasonally and calendar-adjusted. 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 – Current forecast period. Forecasts by the GCEE. 7 – Disposable income including the increase in pension entitlements of private households and non-profit institutions serving households. 8 – Including non-profit institutions serving households.

Sources: European Commission, Federal Statistical Office, GfK, own calculations

3.1 % due to a lower inflation rate and higher wage increases, following a decline of 3.7 % in 2023. Overall, private consumption expenditure is expected to fall by 0.9 % in 2023 and grow by 1.2 % in 2024.

32. **Government consumption** was shaped by the Corona pandemic in the past two years, so that expenditures increased significantly, in particular in the health sector. In 2022, Corona-related expenditure decreased again. However, expenditure on the influx of refugees from Ukraine was added from Q2 2022 onwards. Compared to the data in the GCEE Annual Report, government consumption was revised downwards, especially in Q1 and Q2 2022. Over the forecast horizon, government consumption is expected to increase less than in previous years, but continue to grow at rates of 0.5 % in 2023 and 1.2 % in 2024 in real terms. The main reasons for this are rising compensations of employees.

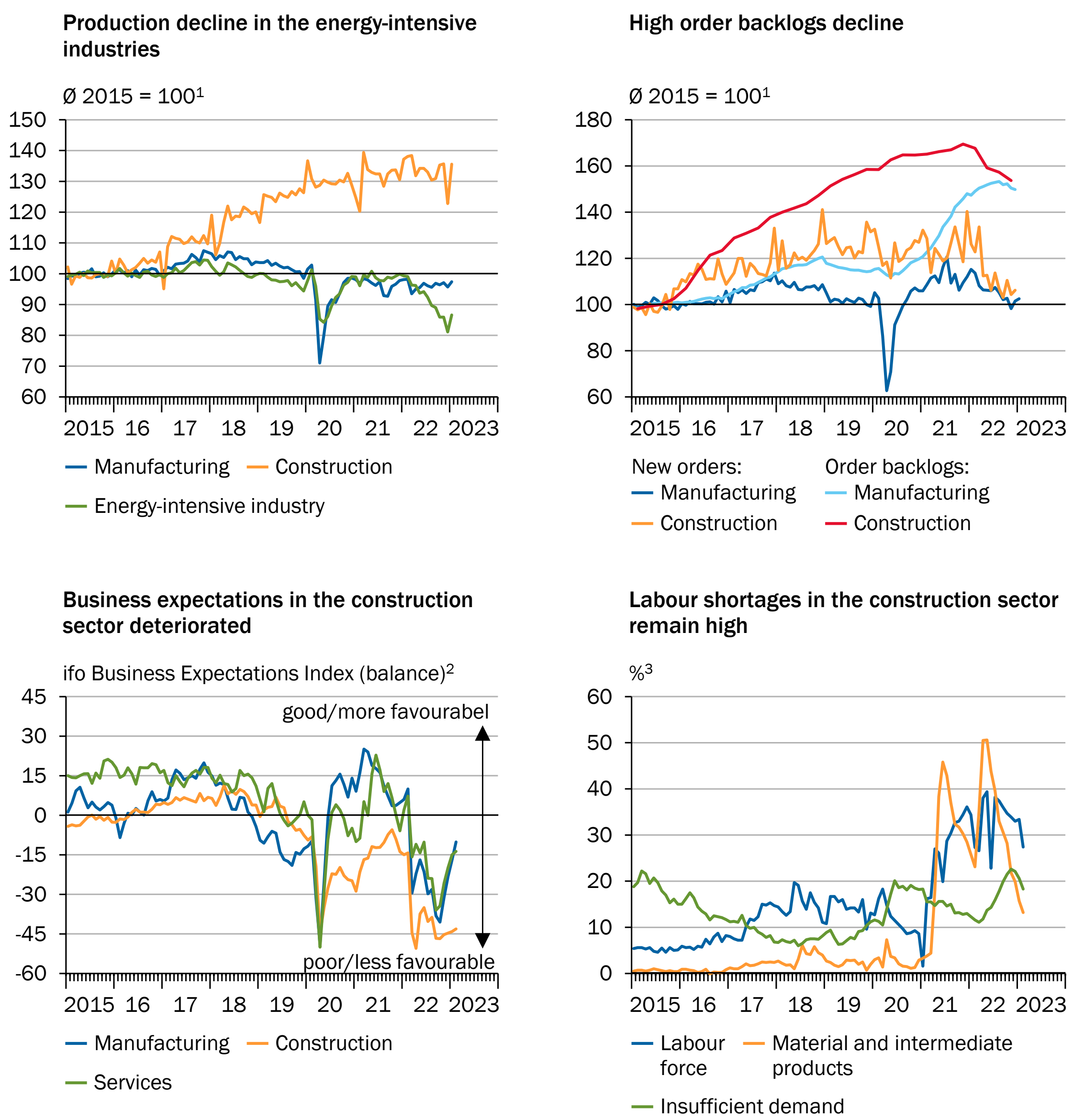
Capital formation

33. **Gross fixed capital formation** increased minimally by 0.4 % in 2022 compared to the previous year. While gross fixed capital formation in **machinery and equipment** expanded strongly by 3.3 % in 2022, **construction investment slumped**. Investment in machinery, equipment and vehicles benefited significantly from the alleviation of supply-side bottlenecks. Thus, price-adjusted domestic turnover rose strongly in many branches of the economy that produce capital goods, for example in the automotive, electrical and electronics industries. In addition, capital goods imports have increased strongly. Following the decline in Q4 2022, gross fixed capital formation in **machinery and equipment** is expected to rise again in Q1 2023. This is signalled by the renewed rise in domestic turnover of capital goods manufacturers in January 2023.

34. **Gross fixed capital formation in machinery and equipment is expected to continue to rise over** the **forecast horizon**. For example, high energy costs should continue to incentivise investment in more energy-efficient machine equipment. In addition, the slight brightening of the global economy ↘ ITEM 11 is expected to boost export demand and thereby increase capacity utilisation in the manufacturing sector. This would stimulate domestic business investment on the demand side. On the supply side, less supply-chain restrictions remain a sustaining factor. ↘ CHART 8 TOP LEFT Possible constraints on the acquisition of machinery, equipment and vehicles in the forecast period could be, besides deteriorating financing conditions, ↘ ITEM 19 the already relatively high capacity utilisation in capital goods manufacturing. Overall, gross fixed capital formation in machinery and equipment is expected to increase by 2.2 % in 2023 and by 3.7 % in 2024.

35. **Gross fixed capital formation in construction** declined by 1.7 % overall in 2022. The various construction sectors recorded declines of 1.0 % to 2.2 %, with residential construction being the most affected and commercial construction the least. The declines were driven by high prices for construction materials, bottlenecks in materials procurement and labour shortages. ↘ CHART 13 BOTTOM RIGHT Order books remain full, but backlogs are now declining. ↘ CHART 13 TOP RIGHT Increasing cancellations play an important role here. Despite all the existing bottlenecks, the

↘ CHART 13



1 – Volume index; seasonally and calendar adjusted values. 2 – Business expectations in the next six months. 3 – Share of companies reporting the specified production limiting factors. Seasonally adjusted values.

Sources: European Commission, Federal Statistical Office, ifo, own calculations

mild weather conditions should support construction activity in Q1 2023. Construction output in January provided quite strong signals in this regard, especially in the finishing trade. For the rest of the forecast period, the decline in new orders in the main construction sector and the drop in building permits signal a continued dampening of construction activity. In addition, only slowly falling prices for building materials do not point to a rapid easing of production costs. Moreover, high interest rates are likely to contribute significantly to the sharp decline in demand for credit in residential construction (ECB, 2023). Last but not least, labour shortages are likely to persist. All these factors make construction projects difficult to be planned and thus dampen the prospect of a return to growth in the current year. Overall, gross fixed capital formation in construction is expected to decline by 3.7 % in 2023 and grow only marginally by 0.1 % in 2024.

Foreign trade

36. **German foreign trade** expanded relatively strongly in 2022 despite the worsening foreign trade environment. Exports rose by 2.9 % compared to the previous year, imports by 6.0 %. Nevertheless, foreign trade declined in Q4 2022. Imports are expected to fall again in Q1 2023. Exports are expected to decline only marginally given the increases in special trade in January and in the truck toll mileage index in February 2023. For the next six months, the ifo export expectations point to a slightly improved outlook again. The development of the export indicator in the forecast horizon ↘ CHART 8 BOTTOM LEFT also suggests that foreign trade is likely to expand. In particular, expected Chinese economic growth contributes to the positive development. ↘ BOX 1 ↘ ITEM 8 In addition, China's re-opening could lead to a reduction in the high price pressure in foreign trade, especially for goods imports. As with gross fixed capital formation in machinery and equipment, a dampening factor for German foreign trade, especially for goods exports, could be the relatively high capacity utilisation in manufacturing and especially in capital goods production. Beyond supply-side bottlenecks, production constraints due to labour shortages are playing an increasingly important role in this regard. A possible intensification of geopolitical tensions between China and the USA ↘ ITEM 22 could also lead to a reduction in foreign trade. Overall, exports and imports are expected to increase by 0.6 % and 0.1 %, respectively, in 2023. In 2024, exports and imports are expected to increase by 3.0 % and 3.2 %, respectively.

3. Labour market stable despite tense economic situation

37. Despite the energy crisis and the Russian war of aggression on Ukraine, **employment increased strongly** on average in 2022 (+590 000 persons) due to the positive statistical carry-over of 2021. **Unemployment** jumped due to the registration of Ukrainian refugees in June 2022 (+133 000 persons). ↘ TABLE 4 The Federal Employment Agency (Bundesagentur für Arbeit, BA) estimates that in December 2022, about 69 000 more Ukrainian nationals were in employment subject to social insurance contributions than before the war began (BA, 2023). Total unemployment fell to 2.5 million people at the end of the year.

38. Labour demand has weakened in the second half of 2022 due to the economic slowdown. ↘ ITEM 29 Since the summer of 2022, there has been a decline in the number of job vacancies reported. The positive development of various leading indicators of the IAB and the ifo Institute has also weakened recently. However, there is still a positive willingness to hire in the private sector, which has risen from its low point at the beginning of the third quarter of 2022. Moreover, according to projections by the ifo Institute, the **use of short-time work** has remained

↘ TABLE 4

Labour market in Germany
1,000 persons

	2021	2022	Forecast[1] 2023 Update	2023 Diff. to AR 2022	2024	2023 Update	2023 Diff. to AR 2022	2024
	Annual averages					Change on previous year in %; (diff. in percentage points)		
Labour force[2]	46,402	46,759	47,041	(62)	47,076	0.6	(0.1)	0.1
Unemployed persons[3]	1,536	1,328	1,353	(– 146)	1,307	1.9	(– 9.2)	– 3.4
Commuter balance[4]	114	139	142	(3)	142	2.0	(0.3)	0.4
Employed persons[5]	44,980	45,570	45,829	(210)	45,912	0.6	(0.4)	0.2
Employees subject to social security contributions	33,897	34,509	34,817	(216)	34,986	0.9	(0.5)	0.5
Exclusively marginally employed[6]	4,101	4,126	4,149	(107)	4,109	0.6	(2.1)	– 1.0
Registered unemployed persons	2,613	2,418	2,460	(– 38)	2,376	1.7	(– 1.4)	– 3.4
Underemployment excluding short-time work[7]	3,368	3,186	3,535	(280)	3,411	10.9	(9.8)	– 3.5
Short-time workers (Employment equivalence)[8]	886	164	117	(– 177)	55	– 28.6	(– 5.1)	– 53.3
Unemployment rate (FEA)[9,10]	5.7	5.3	5.4	(0.0)	5.2	0.1	(– 0.1)	– 0.2
Unemployment rate (ILO)[10,11]	3.6	3.1	3.1	(– 0.3)	3.0	0.0	(– 0.3)	– 0.1

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

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

at a low level since November 2022. (Link, 2023a, 2023b). Thus, the positive employment momentum is likely to slow only slightly in the forecast period.

39. For the forecast period, the GCEE expects a slightly **better employment trend** than in the GCEE Annual Report 2022 due to the slightly improved economic outlook. However, labour supply is likely to be a restraining factor: partial shortages of labour and skilled workers in certain occupations already make it difficult to fill vacancies (Sauer, 2023; JG 2022 items 360 ff.). For example, the IAB labour shortage index was at a record level in February 2023. Towards the end of the forecast period, a decline in labour supply is to be expected due to the retirement of workers from the baby-boom cohorts (JG 2022, item 84 ff.), which will at best be partially offset by the expected progressive labour market integration of refugees from Ukraine.

Overall, **employment** is expected to increase by 259,000 persons in the current year and to a lesser extent by 83,000 in the coming year. The development will be driven by an increase in employment subject to social security contributions. Unemployment is expected to fall gradually over the forecast period. ↘ TABLE 4 The increase in the minimum wage to 12 euros in autumn 2022 is expected to have only a minor impact on employment. However, a decline in working hours among employees subject to social security contributions in the low-wage sector is to be expected (Economic forecast 2022 item 68).

40. In 2022, **effective wages** increased by 4.7 % compared to the previous year. This is significantly higher than the average growth of 3.0 % from 2017 to 2021. ↘ TABLE 9 APPENDIX The GCEE expects a further strong increase in effective wages of 5.9 % in 2023 and 4.5 % in 2024. High inflation expectations and the recent comparatively high wage settlements - for example in the metal and electrical industry of 5.2 % in 2023 and 3.3 % in 2024 - are likely to shape employees' wage demands this year and next. The **tax-free inflation compensation premium** was widely used and led to a **level effect** in effective wages (JG 2022 table 12 Appendix), which, however, is not likely to result in permanently increased price pressure (Fuest, 2022; Lesch and Eckle, 2023). Nominal unit labour costs are expected to rise by 6.0 % in 2023 and 4.1 % in 2024, while real unit labour costs are expected to fall further by 0.7 % this year and rise next year (+1.1 %). ↘ TABLE 9 APPENDIX

4. Price brakes weigh on public finances less than expected

41. Due to high energy prices, **public finances in** 2023 will continue to be characterised **by state support for** companies and private households. The gas price brake already led to additional expenditures last year with the December emergency aid, but its full effect on the state budget will only begin in 2023. However, lower gas prices for new customers compared to the autumn of last year lead to a **decrease in projected expenditure for the gas price brake to** 15 billion euros in 2023 and 0.5 billion euros in 2024 (Garnadt et al., 2023). ↘ ITEM 26 In addition, there are expenses for the electricity price brake of 13 and 0.8 billion euros in 2023 and 2024, which were not yet included in the forecast for the GCEE Annual Report. The nationalisation of gas importers has already led to significant additional expenditure on capital transfers in 2022, which should decrease in the following years.

The general government budget deficit is with €65.6bn (1.6 % in relation to GDP) **expected to be somewhat lower than assumed in the GCEE Annual Report 2022**, given the drop in energy prices and correspondingly lower state support payments as well as the funds already spent from the Economic Stabilisation Fund (ESF). ↘ TABLE 5 In 2024, inflation-related government support payments are expected to fall significantly and tax revenues are expected to rise further, so that the general government deficit will fall to €18.5bn (0.4 % in relation to GDP). The **debt-to-GDP ratio is expected** to be slightly below the previous year at 65.3 % in 2023 against the background of strongly growing nominal GDP, i.e. due to inflation, and **to fall** to 63.5 % in 2024.

↘ TABLE 5

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

	Billion euro				Change on the previous year in %	
	2022	2023[2] Update	2023[2] Diff. to AR 2022	2024[2]	2023[2]	2024[2]
Total revenues	**1,820.8**	**1,920.7**	**(19.6)**	**2,012.8**	**5.5**	**4.8**
Taxes	948.3	992.1	(5.4)	1,036.9	4.6	4.5
Net social contributions	665.8	709.7	(7.7)	746.4	6.6	5.2
Sales	143.0	149.8	(3.2)	154.7	4.8	3.2
Other current transfers	28.0	32.6	(1.1)	37.1	16.3	13.9
Capital transfers	19.0	19.4	(– 0.3)	19.9	2.5	2.5
Property income	16.6	16.9	(2.5)	17.6	2.1	4.3
Other subsidies on production	0.1	0.1	(0.0)	0.1	0.0	0.0
Total expenditures	**1,922.1**	**1,986.2**	**(– 30.2)**	**2,031.4**	**3.3**	**2.3**
Social benefits other than social transf. in kind	618.7	652.4	(– 4.2)	673.7	5.4	3.3
Social benefits in kind	355.6	366.0	(– 7.2)	379.3	2.9	3.7
Compensation of employees	306.7	325.3	(5.4)	339.1	6.0	4.3
Intermediate consumption	236.9	244.4	(– 5.6)	252.6	3.2	3.4
Subsidies payable	72.8	82.8	(– 27.7)	60.8	13.8	– 26.6
Gross capital formation	101.6	110.4	(– 3.4)	120.9	8.7	9.5
Other current transfers	113.4	98.8	(2.4)	97.0	– 12.8	– 1.9
Capital transfers	91.4	76.8	(10.7)	73.8	– 15.9	– 3.9
Property income	26.1	30.5	(– 0.3)	35.1	16.5	15.2
Other taxes on production	0.3	0.3	(– 0.1)	0.3	2.0	2.0
Acquisitions less disposals of non-prod. assets	– 1.3	– 1.3	(– 0.2)	– 1.3	0.0	0.0
Budget balance	**– 101.3**	**– 65.6**	**(49.8)**	**– 18.5**	x	x
Fiscal indices (%)[3]						
Tax ratio[4]	24.9	24.4	(– 0.3)	24.4	x	x
Tax and contribution ratio[5]	41.0	40.5	(– 0.3)	40.6	x	x
Budget balance	– 2.6	– 1.6	(1.2)	– 0.4	x	x
Structural budget balance[6]	– 2.6	– 1.3	(0.9)	– 0.5	x	x
Structural primary balance[6]	– 1.9	– 0.6	(x)	0.3	x	x
Debt-to-GDP ratio[7]	67.4	65.3	(– 2.8)	63.5	x	x

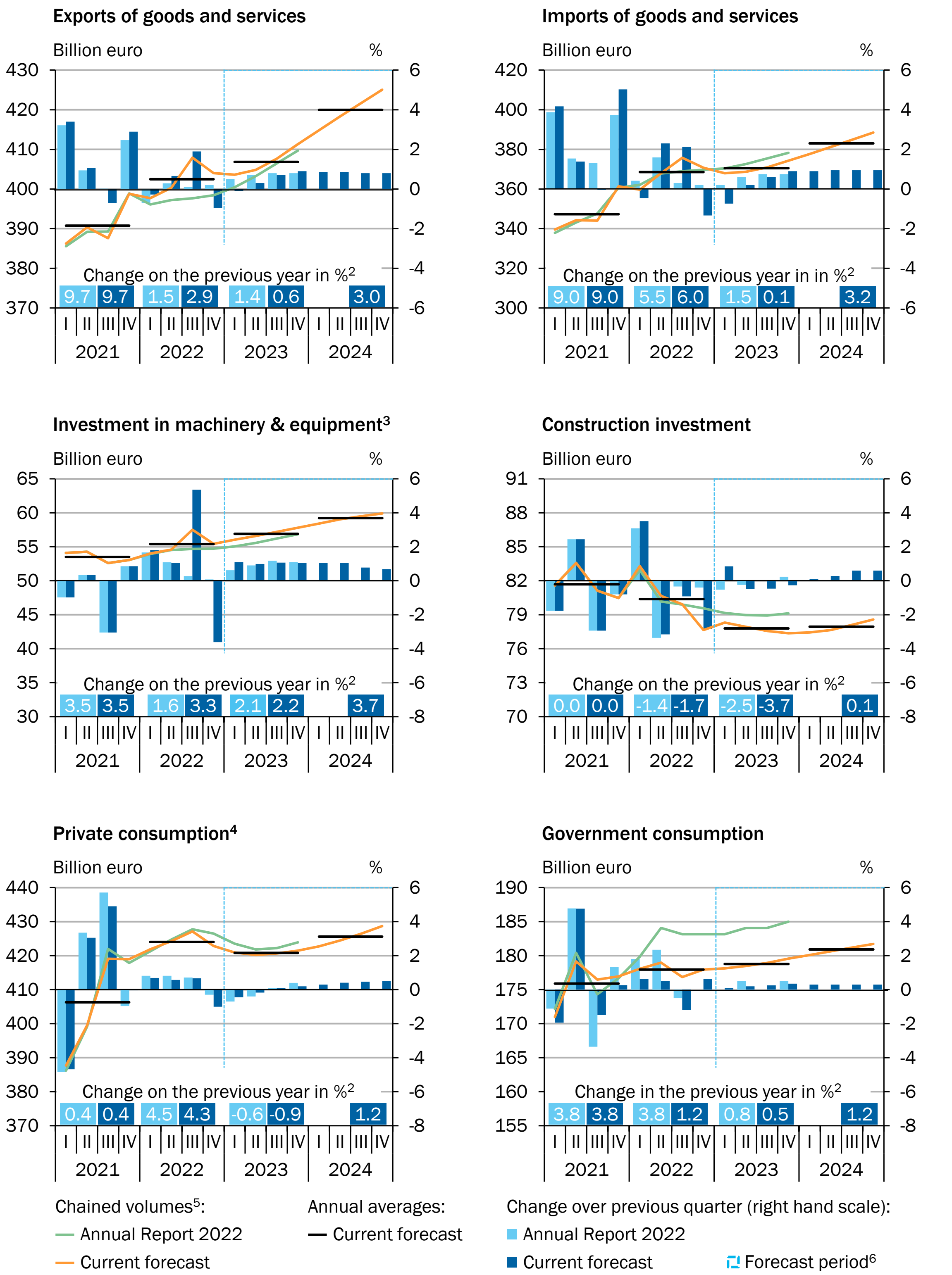
1 – National accounts (nominal values). 2 – Forecast by the GCEE. 3 – In relation to GDP. 4 – Taxes including inheritance tax and taxes entitled to the EU. 5 – Taxes including inheritance tax and taxes entitled to the EU, and actual social contributions. 6 – Based on the estimate for potential output from the previous Annual Report. Calculated with a budget semielasticity of 0.504. The budget semielasticity measures by how many percentage points the relationship between budget balance and GDP changes in the event of a 1% increase in GDP. 7 – Since 2022 forecast by the GCEE for the general government gross debt as defined in the Maastricht Treaty.

Sources: Federal Statistical Office, own calculations

APPENDIX

↘ CHART 14

Components of the German GDP[1]



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

Sources: Federal Statistical Office, own calculations

↘ TABLE 6

Key figures of the national accounts

Absolute values

	Unit	2022	2023[1]	2024[1]	2023[1]		2024[1]	
					1. half-year	2. half-year	1. half-year	2. half-year
Use of domestic product								
at current prices								
Final consumption expenditure	billion euro	2,827.3	2,980.3	3,103.5	1,451.8	1,528.5	1,512.7	1,590.8
Private consumption[2]	billion euro	1,978.9	2,093.4	2,180.4	1,019.3	1,074.1	1,062.4	1,117.9
Government consumption	billion euro	848.4	886.9	923.1	432.5	454.4	450.3	472.9
Gross fixed capital formation	billion euro	872.3	912.6	953.2	441.9	470.7	459.4	493.8
Investment in machinery & equipment[3]	billion euro	253.7	269.7	285.6	128.4	141.3	136.1	149.5
Construction investment	billion euro	474.6	492.7	509.4	242.6	250.1	248.7	260.7
Other products	billion euro	144.0	150.2	158.2	70.8	79.3	74.7	83.6
Domestic demand	billion euro	3,787.5	3,980.7	4,145.3	1,948.2	2,032.5	2,028.0	2,117.3
Exports of goods and services	billion euro	1,946.6	1,999.6	2,099.4	986.7	1,012.9	1,032.5	1,066.9
Imports of goods and services	billion euro	1,867.1	1,846.7	1,932.9	909.0	937.7	942.0	990.8
Gross domestic product	**billion euro**	**3,867.1**	**4,133.6**	**4,311.9**	**2,025.9**	**2,107.7**	**2,118.5**	**2,193.4**
Chained volumes								
Final consumption expenditure	billion euro	2,411.3	2,399.6	2,428.0	1,186.1	1,213.5	1,195.7	1,232.2
Private consumption[2]	billion euro	1,698.0	1,682.9	1,702.7	829.7	853.1	835.2	867.4
Government consumption	billion euro	711.8	715.1	723.7	355.5	359.7	359.7	364.0
Gross fixed capital formation	billion euro	675.3	669.2	680.7	326.3	342.9	329.7	351.0
Investment in machinery & equipment[3]	billion euro	222.9	227.8	236.2	108.9	118.8	112.9	123.3
Construction investment	billion euro	323.0	311.0	311.3	154.5	156.4	152.9	158.4
Other products	billion euro	129.2	133.1	137.6	63.2	69.8	65.3	72.3
Domestic demand	billion euro	3,117.6	3,116.1	3,156.3	1,540.6	1,575.4	1,554.4	1,601.9
Exports of goods and services	billion euro	1,617.7	1,626.9	1,676.1	807.6	819.2	828.7	847.4
Imports of goods and services	billion euro	1,479.5	1,481.2	1,529.2	729.4	751.8	749.1	780.1
Gross domestic product	**billion euro**	**3,261.0**	**3,266.9**	**3,308.2**	**1,621.7**	**1,645.1**	**1,636.2**	**1,671.8**
Price Development (deflators)								
Final consumption expenditure	2015=100	117.3	124.2	127.8	122.4	126.0	126.5	129.1
Private consumption[2]	2015=100	116.5	124.4	128.1	122.9	125.9	127.2	128.9
Government consumption	2015=100	119.2	124.0	127.6	121.7	126.4	125.2	129.9
Gross fixed capital formation	2015=100	129.2	136.4	140.0	135.4	137.3	139.4	140.7
Investment in machinery & equipment[3]	2015=100	113.8	118.4	120.9	117.9	118.9	120.6	121.2
Construction investment	2015=100	146.9	158.5	163.7	157.0	159.9	162.7	164.6
Other products	2015=100	111.5	112.9	115.0	112.1	113.6	114.4	115.6
Domestic demand	2015=100	121.5	127.8	131.3	126.5	129.0	130.5	132.2
Terms of Trade	2015=100	95.4	98.6	99.1	98.0	99.1	99.1	99.1
Exports of goods and services	2015=100	120.3	122.9	125.3	122.2	123.7	124.6	125.9
Imports of goods and services	2015=100	126.2	124.7	126.4	124.6	124.7	125.8	127.0
Gross domestic product	**2015=100**	**118.6**	**126.5**	**130.4**	**124.9**	**128.1**	**129.5**	**131.2**
Production of domestic product								
Employed persons (domestic)	1,000	45,570	45,829	45,912	45,671	45,987	45,757	46,067
Labour volume	million hours	61,103	61,142	61,706	30,093	31,048	30,287	31,419
Labour productivity (per hour)	2015=100	106.6	106.7	107.0	107.6	105.8	107.8	106.2
Distribution of net national income								
Net national income	billion euro	2,858.5	3,068.3	3,179.8	1,483.4	1,584.9	1,541.4	1,638.4
Compensation of employees	billion euro	2,029.8	2,154.5	2,271.8	1,026.7	1,127.8	1,080.0	1,191.8
Gross wages and salaries	billion euro	1,670.0	1,770.6	1,868.0	840.4	930.2	884.0	984.0
among them: net wages and salaries[4]	billion euro	1,128.8	1,191.9	1,255.6	551.8	640.1	578.6	677.0
Property and entrepreneurial income	billion euro	828.7	913.8	908.0	456.7	457.1	461.4	446.6
Disposable income of private households[2]	billion euro	2,174.2	2,253.7	2,379.1	1,104.8	1,148.9	1,161.0	1,218.1
Savings rate of private households[2,5]	%	11.4	9.5	10.6	10.1	9.0	10.8	10.5
For information purposes:								
Nominal unit labour costs[6]	2015=100	116.7	123.7	128.8	118.8	128.6	123.9	133.8
Real unit labour costs[7]	2015=100	98.4	97.8	98.8	95.1	100.4	95.7	102.0
Consumer prices	2020=100	110.2	117.5	120.9	116.2	118.6	120.2	121.6

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

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

↘ NOCH TABLE 6

Key figures of the national accounts
Change on the previous year in %

2022	2023[1]	2024[1]	2023[1] 1. half-year	2023[1] 2. half-year	2024[1] 1. half-year	2024[1] 2. half-year	
							Use of domestic product
							at current prices
10.0	5.4	4.1	6.2	4.7	4.2	4.1	Final consumption expenditure
11.6	5.8	4.2	6.9	4.7	4.2	4.1	Private consumption[2]
6.4	4.5	4.1	4.5	4.5	4.1	4.1	Government consumption
11.3	4.6	4.5	5.7	3.7	4.0	4.9	Gross fixed capital formation
10.6	6.3	5.9	8.8	4.2	6.0	5.8	Investment in machinery & equipment[3]
13.9	3.8	3.4	4.8	2.9	2.5	4.3	Construction investment
4.6	4.3	5.4	3.2	5.2	5.4	5.3	Other products
11.1	5.1	4.1	6.2	4.0	4.1	4.2	Domestic demand
14.9	2.7	5.0	4.8	0.8	4.6	5.3	Exports of goods and services
24.3	– 1.1	4.7	2.4	– 4.2	3.6	5.7	Imports of goods and services
7.4	**6.9**	**4.3**	**7.3**	**6.5**	**4.6**	**4.1**	**Gross domestic product**
							Chained volumes
3.4	– 0.5	1.2	– 0.5	– 0.5	0.8	1.5	Final consumption expenditure
4.3	– 0.9	1.2	– 0.6	– 1.2	0.7	1.7	Private consumption[2]
1.2	0.5	1.2	– 0.1	1.0	1.2	1.2	Government consumption
0.4	– 0.9	1.7	– 1.1	– 0.7	1.0	2.4	Gross fixed capital formation
3.3	2.2	3.7	3.6	0.9	3.6	3.8	Investment in machinery & equipment[3]
– 1.7	– 3.7	0.1	– 4.9	– 2.5	– 1.1	1.3	Construction investment
2.1	3.0	3.4	3.0	2.9	3.2	3.5	Other products
3.1	– 0.1	1.3	0.3	– 0.4	0.9	1.7	Domestic demand
2.9	0.6	3.0	1.1	0.0	2.6	3.4	Exports of goods and services
6.0	0.1	3.2	1.3	– 1.0	2.7	3.8	Imports of goods and services
1.8	**0.2**	**1.3**	**0.3**	**0.1**	**0.9**	**1.6**	**Gross domestic product**
							Price Development (deflators)
6.4	5.9	2.9	6.7	5.2	3.3	2.5	Final consumption expenditure
6.9	6.7	2.9	7.6	6.0	3.5	2.4	Private consumption[2]
5.2	4.0	2.9	4.6	3.5	2.9	2.8	Government consumption
10.8	5.6	2.7	6.9	4.4	2.9	2.5	Gross fixed capital formation
7.1	4.1	2.1	5.1	3.2	2.3	1.9	Investment in machinery & equipment[3]
15.9	7.8	3.3	10.3	5.5	3.6	3.0	Construction investment
2.4	1.3	1.9	0.2	2.2	2.1	1.8	Other products
7.7	5.2	2.8	6.0	4.4	3.2	2.4	Domestic demand
– 4.7	3.4	0.5	3.0	4.2	1.1	– 0.0	Terms of Trade
11.7	2.1	1.9	3.6	0.7	2.0	1.8	Exports of goods and services
17.3	– 1.2	1.4	1.1	– 3.3	0.9	1.8	Imports of goods and services
5.5	**6.7**	**3.0**	**7.0**	**6.4**	**3.6**	**2.4**	**Gross domestic product**
							Production of domestic product
1.3	0.6	0.2	0.7	0.4	0.2	0.2	Employed persons (domestic)
1.4	0.1	0.9	0.1	0.1	0.6	1.2	Labour volume
0.4	0.1	0.3	0.1	– 0.0	0.2	0.4	Labour productivity (per hour)
							Distribution of net national income
4.2	7.3	3.6	8.0	6.8	3.9	3.4	Net national income
5.8	6.1	5.4	6.6	5.7	5.2	5.7	Compensation of employees
6.3	6.0	5.5	6.5	5.6	5.2	5.8	Gross wages and salaries
6.2	5.6	5.3	5.1	6.0	4.9	5.8	among them: net wages and salaries[4]
0.4	10.3	– 0.6	11.1	9.4	1.0	– 2.3	Property and entrepreneurial income
7.0	3.7	5.6	4.2	3.2	5.1	6.0	Disposable income of private households[2]
.	.	.	.	.	.	.	Savings rate of private households[2,5]
							For information purposes:
3.8	6.0	4.1	6.4	5.7	4.2	4.0	Nominal unit labour costs[6]
– 1.6	– 0.7	1.1	– 0.5	– 0.6	0.6	1.6	Real unit labour costs[7]
6.9	6.6	3.0	7.7	5.6	3.4	2.5	Consumer prices

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

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

↘ TABLE 7

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

	2018	2019	2020	2021	2022	2023[2]	2024[2]
Statistical overhang at the end of the previous year[3]	1.3	0.4	0.2	2.2	0.8	– 0.1	0.3
Growth rate over the course of the year[4]	0.1	0.9	– 2.1	1.2	0.9	0.8	1.6
Annual rate of change of GDP, calendar adjusted	1.0	1.1	– 4.1	2.6	1.9	0.4	1.3
Calendar effect (in percentage points)	0.0	0.0	0.4	0.0	– 0.1	– 0.2	0.0
Annual rate of change of GDP[5]	1.0	1.1	– 3.7	2.6	1.8	0.2	1.3

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 8

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

	2018	2019	2020	2021	2022	Forecast[2] 2023 Update	Forecast[2] 2023 Difference to AR 2022	Forecast[2] 2024
Domestic demand	**1.5**	**1.6**	**– 2.9**	**1.8**	**2.9**	**0.0**	**(0.1)**	**1.2**
Final consumption expenditure	0.9	1.4	– 2.1	1.0	2.4	– 0.4	(– 0.3)	0.9
Private consumption[3]	0.8	0.9	– 2.9	0.2	2.1	– 0.5	(– 0.2)	0.6
Government consumption	0.2	0.5	0.8	0.8	0.3	0.1	(– 0.1)	0.3
Gross fixed capital formation	0.7	0.4	– 0.5	0.3	0.1	– 0.2	(– 0.1)	0.4
Investment in machinery & equipment[4]	0.3	0.1	– 0.8	0.2	0.2	0.1	(0.0)	0.2
Construction investment	0.3	0.1	0.4	0.0	– 0.2	– 0.5	(– 0.2)	0.0
Other products	0.1	0.2	– 0.1	0.0	0.1	0.1	(0.0)	0.1
Changes in inventories	– 0.1	– 0.1	– 0.3	0.5	0.5	0.5	(0.4)	0.0
Net exports	**– 0.6**	**– 0.6**	**– 0.8**	**0.8**	**– 1.2**	**0.2**	**(0.2)**	**0.0**
Exports of goods and services	1.1	0.6	– 4.3	4.2	1.4	0.3	(– 0.4)	1.5
Imports of goods and services	– 1.6	– 1.2	3.5	– 3.4	– 2.5	– 0.1	(0.6)	– 1.4
Gross domestic product (%)	**1.0**	**1.1**	**– 3.7**	**2.6**	**1.8**	**0.2**	**(0.4)**	**1.3**

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

Sources: Federal Statistical Office, own calculations

↘ TABLE 9

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]
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	2.2	4.7	2.5	4.2	0.4	3.8	– 1.6
2023[6]	4.6	5.9	1.3	6.1	0.1	6.0	– 0.7
2024[6]	4.9	4.5	– 0.4	4.5	0.3	4.1	1.1

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

Sources: Federal Statistical Office, own calculations

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