



Halle Institute for Economic Research
Member of the Leibniz Association

IWH Studies

3/2023

June 2023



AIECE General Report

Part 1, Spring 2023

Andrej Drygalla, Axel Lindner, Birgit Schultz

Imprint

Contact

Dr Axel Lindner
Halle Institute for Economic Research (IWH)
Kleine Maerkerstrasse 8
06108 Halle (Saale)
Tel +49 345 77 53 703
Fax +49 345 77 53 799
E-mail: axel.lindner@iwh-halle.de

Authors

Andrej Drygalla
Axel Lindner
Birgit Schultz
Layout and typesetting: Franziska Exß

Issuer

Halle Institute for Economic Research (IWH) –
Member of the Leibniz Association

Executive Board

Professor Reint E. Gropp, PhD
Professor Dr Oliver Holtemöller
Professor Michael Koetter, PhD
Dr Tankred Schuhmann

Address

Kleine Maerkerstrasse 8
D-06108 Halle (Saale), Germany

Postal Address

P.O. Box 11 03 61
D-06017 Halle (Saale), Germany

Tel +49 345 7753 60
Fax +49 345 7753 820

www.iwh-halle.de

All rights reserved

Citation

Andrej Drygalla, Axel Lindner, Birgit Schultz: AIECE General Report, Part 1, Spring 2023. IWH Studies 3/2023. Halle (Saale) 2023.

ISSN 2702-4733



AIECE General Report
Part 1, Spring 2023

Halle (Saale), 22.05.2023

Table of contents

1	The external environment	5
2	Outlook for Europe.....	11
2.1	Euro area countries	14
2.2	Labour market.....	17
2.3	Non-euro area member countries	20
3	Policy environment.....	24
4	Risks and special questions	31

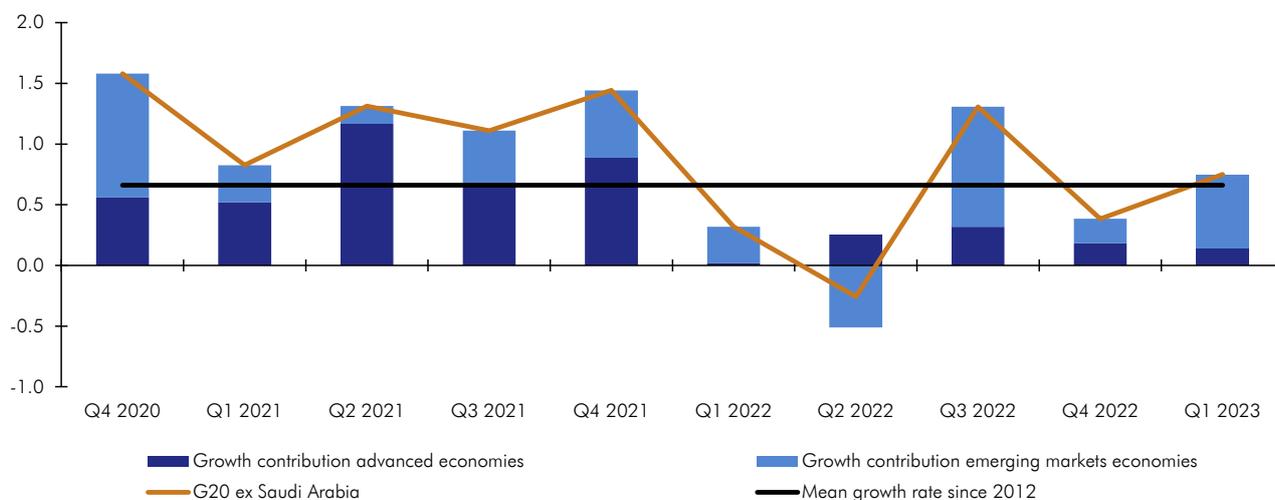
1 The external environment

“It was never going to be an easy ride”: this is the headline of the foreword by IMF chief economist Pierre-Olivier Gourinchas for the World Economic Outlook published this spring. The headline implies that the present state of the world economy can be seen from two perspectives: it is, on the one hand, indeed in a precarious condition, for various reasons. On the other hand, given these reasons, prospects could be much worse than they presently appear. Indeed, world economic growth in the first quarter might, with about 0.7 percent given the data already released, be a bit higher than the average rate in the past decade (see Figure 1.1), mainly due to the recovery in China (with quarterly growth of 2.2 percent).

Figure 1.1

G20 Economies

Quarterly Growth Rates in percent



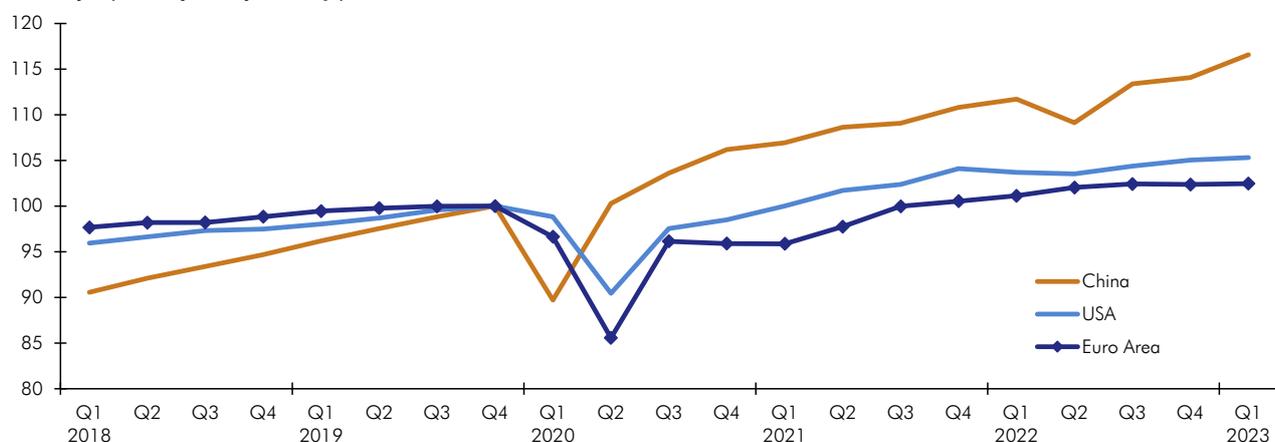
Sources: National Statistical Institutes; illustration and nowcast by IWH.

Growth in the US, however, slowed to 0.3 percent (not annualised), and production in the euro area was stagnant (0.1 percent) (see Figure 1.2).

Figure 1.2

Real GDP

Seasonally adjusted, quarterly, index Q4/2019 = 100



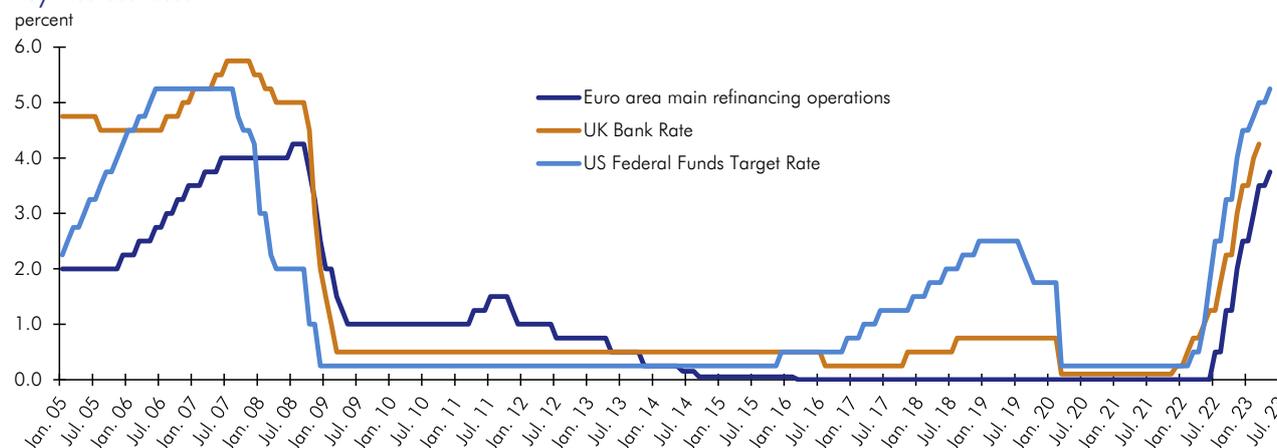
Sources: National Statistical Institutes; calculations and illustration by IWH.

Let's take a look on the **adverse factors** that currently prevent the world economy from expanding more strongly.

Clearly the most important factors are **high inflation and the rapid increase of interest rates**, nominal as well as real, in most parts of the world. In April 2023, consumer prices exceeded their level a year ago by 4.9 percent in the US and by 7 percent in the euro area, inflation in Britain stood at 10.1 percent in March. Looking at the G20 group of countries, the only economies with inflation rates below 3 percent in March were China (0.9 percent) and Saudi-Arabia (2.7 percent). Last year's price hike for commodities is only an indirect factor now, since commodity prices in March were already lower than 12 months ago. The surge in inflation prompted the central banks to change course towards restrictive monetary policy. According to the Bank of International Settlement (BIS), of all central banks only four (those of Japan, China, Turkey and Russia) have not raised key interest rates since March 2022. Key interest rates in the US and in the euro area have been raised from about zero to close to their levels in 2007, before the financial crisis hit (see Figure 1.3).

Figure 1.3

Key interest rates



Sources: Federal Reserve Board; Bank of England; ECB; calculations and illustration by IWH.

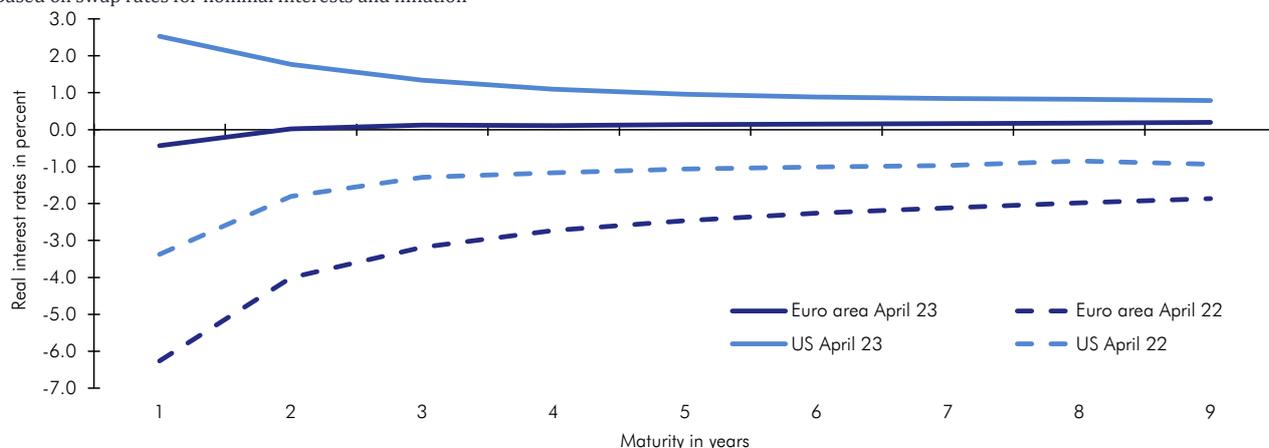
According to most of the AIECE forecasts, the US key interest rate has reached its maximum in May, while the ECB will in summer raise its refinancing rate a bit further to 4 percent. In the following quarters key interest rates are forecast to be lowered, but not rapidly so: at the final quarter of 2024 the median AIECE forecast for the US rate is 4.3 percent and for that in the euro area 3.4 percent (see Figure 3.7).

What matters for economic activity, however, are less nominal interest rates than real ones. These might still not be high in many countries from a historical perspective, but they have risen strongly, since expectations for inflation have come down markedly. Real rates based on interest and swap contracts are, for the horizon of three years, in the US more than 2.5 percentage points and in the euro area more than 3 percentage points higher than in March 2022 (see Figure 1.4). Swap contracts also show that interest rates, whether nominal or real, are still higher in the US than in the euro area. This might prop up the US dollar relative to the euro in the near future. No AIECE institute, however, forecasts major changes of the euro exchange rate versus US-Dollar, British Pound or Yen in the coming quarters, which is in accordance with the well-known empirical finding that no forecasting method beats the random walk hypothesis for exchange rates.

Figure 1.4

Real interest rates for different maturities in the euro area and in the US

Based on swap rates for nominal interests and inflation

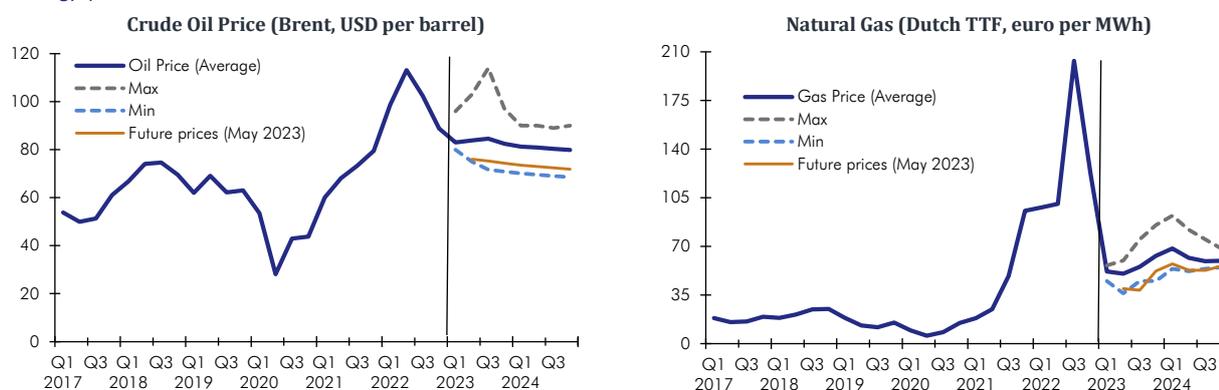


Sources: Refinitiv; calculations and illustration by IWH.

The stepwise increases in interest rates are, with the lag of a couple of quarters, dampening demand via rising financing costs and higher incentives for saving. Moreover, higher real interest rates weight on assets that pay off only in the not so near future, such as housing property. Among the group of G7 countries, house prices fell most strongly in the final quarter of 2022 in Germany (by 5 percent) and in Canada (4.8 percent), with prices being more or less stable in the other countries (according to numbers from the BIS). The presently dominant transmission channel of the restrictive monetary policy, however, was not intended by central banks: in March news about balance sheet losses caused by the decline in the value of bonds with longer maturities triggered bank runs in the US. Since then, several US banks and Credit Suisse in Europe had to be saved, by public receivership or the politically forced acquisition by competitors. At present it is still not clear how the flight of depositors from small and medium sized US banks can be stopped, and a financial crisis in the US, with serious consequences for the world economy, appears possible.

Figure 1.5

Energy prices



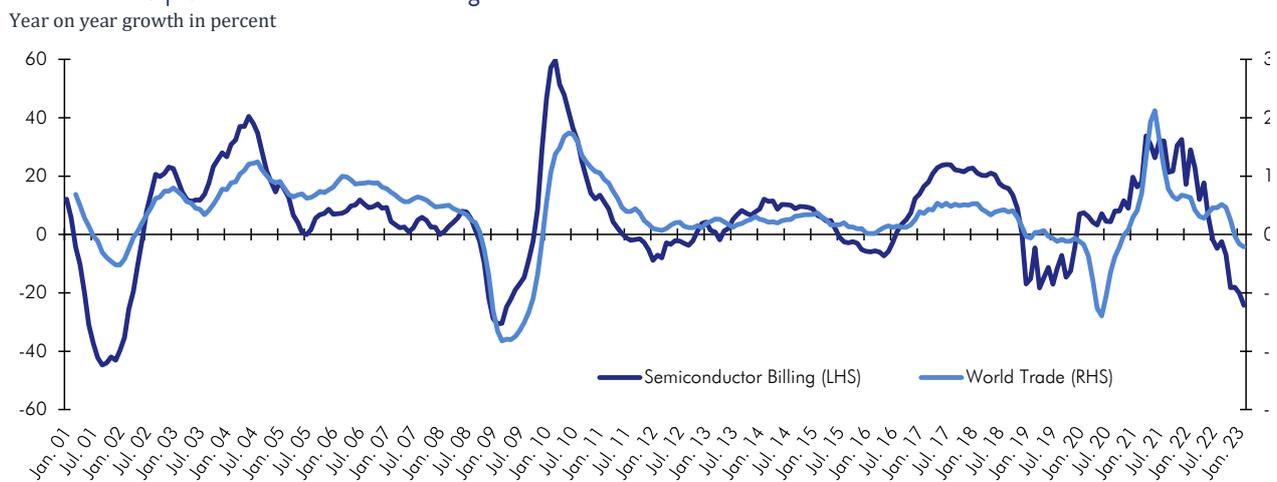
Sources: Refinitiv; AIECE Institutes' forecast; illustration by IWH.

Besides high inflation and associated rising interest rates, strong **geopolitical strains** are the second factor that is clouding economic prospects. Last year Russia's invasion of Ukraine triggered a commodity

price hike that accelerated world inflation markedly. Although prices have fallen since summer, European gas prices will probably remain at least twice as high as before the war, since they are now linked to the higher transportation costs of LNG as compared to pipeline gas from Russia. This is also how AIECE institutes see the future time path of European gas prices (TTF). They expect, in the mean, that prices, after a hike during next winter, will converge to about 60 Euros per megawatt-hour (see Figure 1.5). Forecasts, however, vary a lot: for the first quarter 2024, for example, the highest forecast exceeds the lowest one by about 70 percent. This minimum is close to the present futures prices for TTF gas. The lowest time path for the oil price forecast is also close to the futures time path in May 2023. Thus, the difference between forecasts might to a large part be explained by the different points in time when they were made by the institutes, because current and expected prices have been on a downward trend during the past months.

Generally speaking, the politically motivated abrupt redirection of Russian foreign trade flows from Europe to Asia leads to unavoidable efficiency losses. Even more is at risk with the growing tensions between China and the West (US and Europe), not only because of the sheer size of the Chinese economy, but also because production networks linking China with the West are much more complex than those between Russia and Europe had been. It is difficult to decide whether the political tensions already have sizable macroeconomic consequences. But it should be noted that the share of EU exports to China in total EU exports has declined both in 2021 and in 2022, as has the Chinese share in EU imports.

Figure 1.6
World Trade (cpb) and Semiconductor Billings



Sources: World Semiconductor Trade Statistics; cpb; calculations and illustration by IWH.

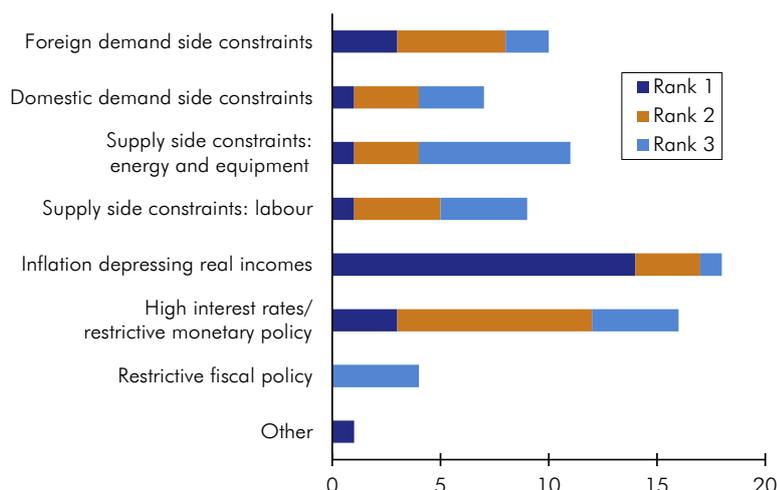
Chinese exports in total have slowed during winter 2022–23, although all pandemic-related restrictions were lifted. Also down went merchandise exports of most neighbouring economies. What stands behind this weakness is the **normalisation of demand for manufactured goods** after the end of the pandemic. This demand was strong during Covid when spending on goods replaced that on services that were temporarily unavailable. This is now reversed; particularly strong is the downturn in the billing of semiconductors that are needed for the production of a large share of manufactured products (see Figure 1.6).

AIECE institutes were asked what are, from their point of view, the most important factors limiting economic growth for 2023 in their own country (see Figure 1.7). The answers might also have some

meaning for the international economy in general. The two most frequently chosen options were “inflation depressing real incomes” and “high interest rates/restrictive monetary policy”. In some distance follow the options “supply side constraints: energy and equipment”, “foreign demand side constraints”, and “supply side constraints: labour”. Interestingly, “domestic demand side constraints” and “restrictive fiscal policy”, two central subjects in many business cycle analyses, are the factors that were chosen the least.

Figure 1.7

Three most important factors limiting economic growth for 2023 in the institutes' countries
(Question 4.1.1)

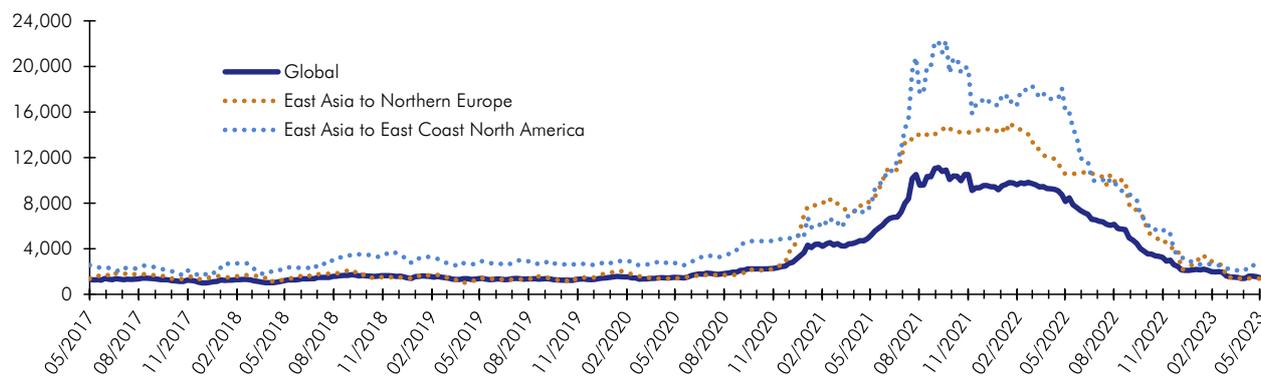


Sources: Answers of AIECE Institutes; illustration by IWH.

Against all these adverse factors stand, however, some **factors that support the world economy**: first, the flip side of weakening demand for a group of industrial goods is an easing of supply chain disruptions: during winter, freight rates have fallen back close to levels before the pandemic (see Figure 1.8).

Figure 1.8

Freightos Baltic Container 40 Index
Price for a standard 40-foot container in US-\$

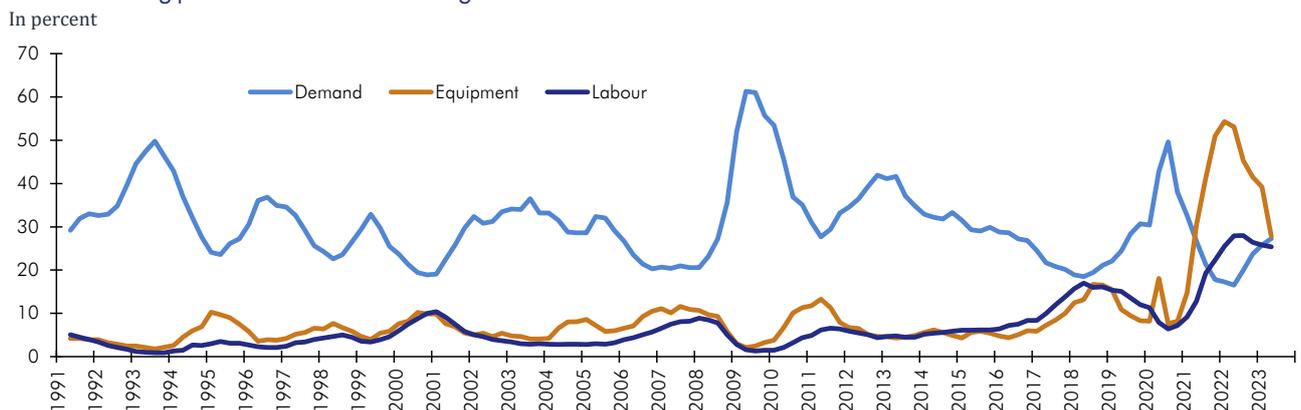


Sources: Freightos; illustration by IWH.

According to a survey by the European Commission, European manufacturers see missing equipment, including intermediate inputs, still as an important factor limiting production, but much less so than in 2022 (see Figure 1.9). Furthermore, another legacy of the pandemic are sizable savings that households

accumulated when many services were not on offer while governments in the US and Europe supported private incomes. In the US in particular these additional savings are gradually being spent. Robust private consumption is the major reason why the US economy, in spite of high inflation and strongly risen interest rates, might escape recession this year. In addition, US consumption is supported by markedly expanding employment.

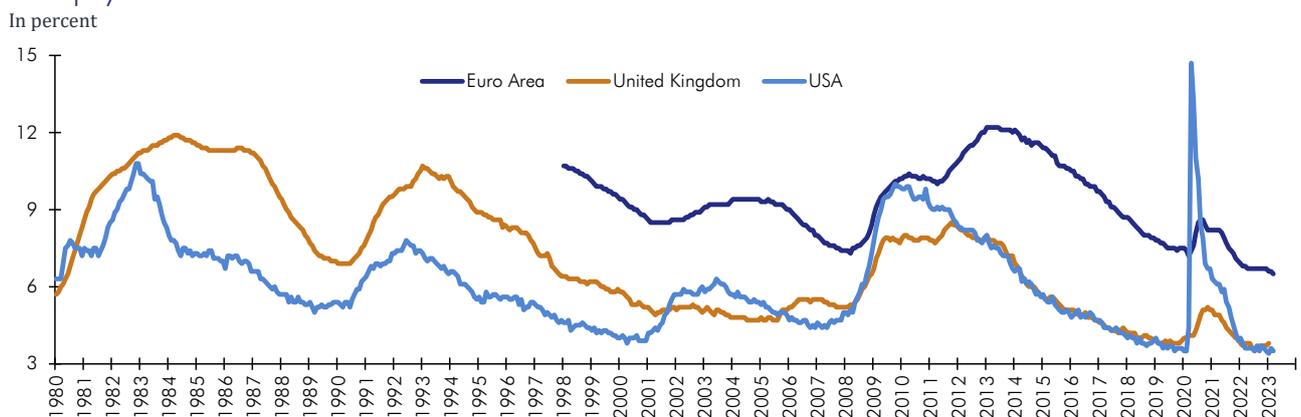
Figure 1.9
Factors limiting production – Manufacturing – Euro Area



Sources: DG ECFIN; illustration by IWH.

Tight labour markets with unemployment rates that are close to historical lows are widespread in advanced economies (see Figure 1.10). This is, together with the recent supply chain disruptions and high inflation rates, a clear sign for **limited production capacities** that hold back growth – a consequence of economic policies that reacted with expansionary measures (monetary as well as fiscal) to the negative supply shocks of the pandemic and the stop of energy flows to Europe. In spite of tight labour markets, however, and perhaps surprisingly, strong wage-price spirals have not developed yet; instead, the GDP deflator has, year-on-year, increased by more than unit labour costs in the US, the euro area, and in Britain.

Figure 1.10
Unemployment Rates



Sources: Bureau of Labor Statistics; ONS; Eurostat; illustration by IWH.

Overall, conditions are mixed and prospects appear ambiguous. This is also what can be deduced from the global purchasing manager indices (see Figure 1.11): the indicator for services points to a vigorous

upswing; this is, because of the large weight of services, also what the PMI indicates for the total world economy. The PMIs for manufacturing industries, however, points to no more than stagnation. Other recent news were also disappointing: industry production and retail sales were weak both in the euro area (March) and in China (April). In the US, a government default on its debt seems more plausible every day the two congress parties cannot find a compromise over lifting the debt ceiling on gross government borrowing.

Figure 1.11
PMI Indices for the World Economy
Seasonally adjusted



Sources: S&P Global; illustration by IWH.

The mean forecasts of AIECE institutes for GDP growth in 2023 and 2024 are, with 2.6 and 2.9 percent respectively, rather subdued, although the mean for 2023 has increased by 0.2 percentage points relative to that for the meeting in autumn 2022 (see Table 1). The numbers are slightly lower than those the IMF predicted in its Spring World Economic Outlook (2.8 and 3 percent).¹

Table 1
Global GDP growth according to the institutes' forecasts
Annual percentage change in percent

	2023	2024
Average	2.6	2.9
Minimum	2.0	2.5
Maximum	3.3	3.4

Sources: AIECE Institutes' forecast; calculations of the IWH.

2 Outlook for Europe

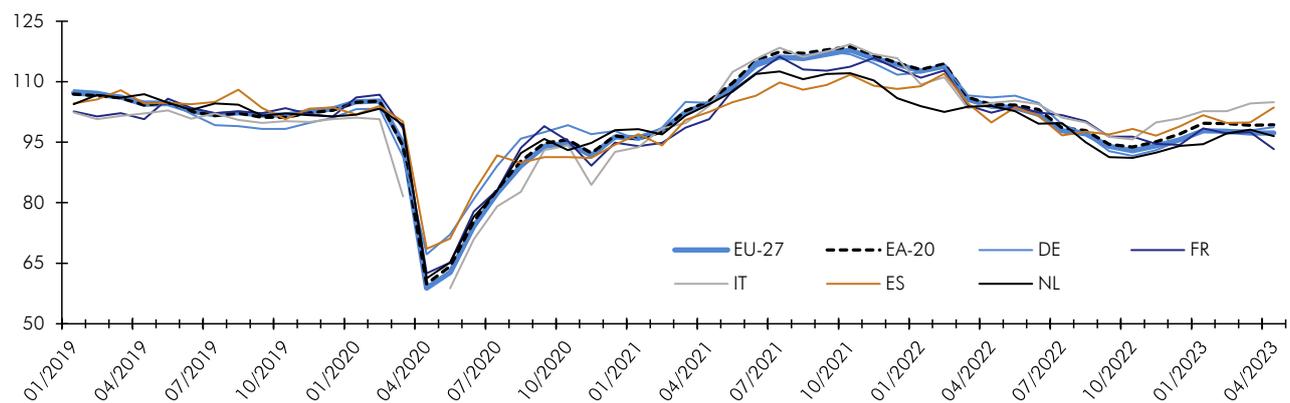
Against the background of decreasing energy prices, the **economic outlook for Europe improved somewhat**. A technical recession defined as two subsequent quarters of negative economic growth that has been expected by the European Commission in its autumn 2022 forecast for most of the EU member countries could be avoided. Economic activity in both the EU and the euro area that was forecasted to decline by 0.6 percent over the two winter quarters stagnated. According to the spring 2023 forecast, the

¹ The IMF numbers are on purchasing power parity-basis, as are the forecasts of AIECE institutes (with two exceptions that use current exchange rates for their weighting scheme).

European Commission now expects GDP this year to expand by 1.0 percent in the EU and by 1.1 percent in the euro area, an upward revision by 0.7 and 0.8 percentage points compared to the autumn forecast.

Leading indicators, which had fallen significantly well into autumn 2022, have reversed direction in the past months. The Economic Sentiment Indicator (ESI) of the European Commission has risen by around 5 points in both the EU and the euro area. It stands, however, still slightly below its respective long-term mean in both economic areas (see Figure 2.1). Only in France and Sweden, the economic sentiment has continued to worsen.

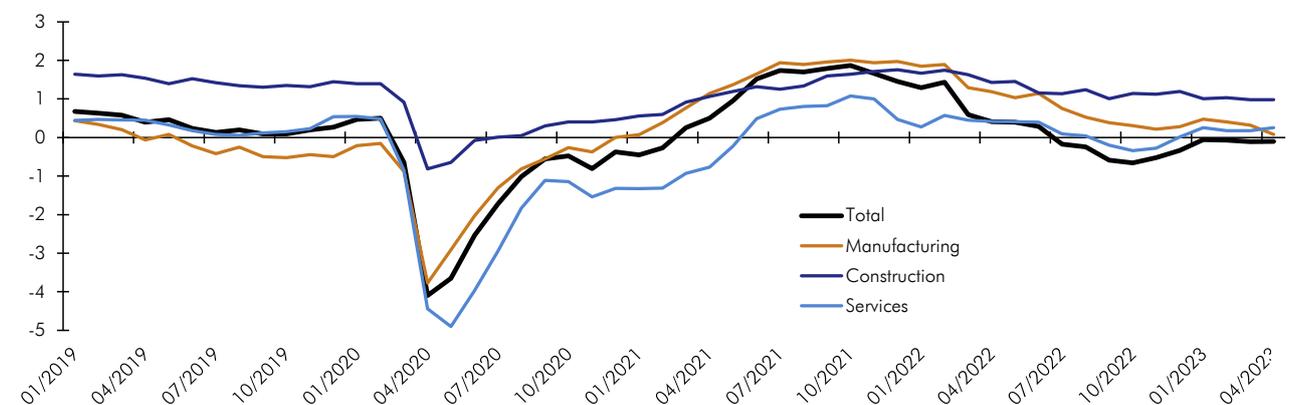
Figure 2.1
Economic Sentiment Indicator in countries of the EU



Sources: European Commission; illustration by IWH.

A closer look at different sectors of the euro zone economy reveals, however, that the improvement in the overall sentiment is driven only by the service sector. Sentiment in the construction sector remained more or less constant, whereas it has even further worsened in the manufacturing sector (see Figure 2.2). PMI figures (S&P Global) draw a similar picture. The difference between the index for services and the one for manufacturing widened to 10.4 in April, an all-time record. The composite PMI increased from 47.3 points in October to 54.1 points in April and lies thus well above the expansion threshold again. Consumer confidence has somewhat recovered from last year's crash. According to the Consumer Confidence Indicator of the European Commission it is however still only marginally higher than during the Great Recession.

Figure 2.2
Economic sentiment in different sectors of the euro area (z-scores)



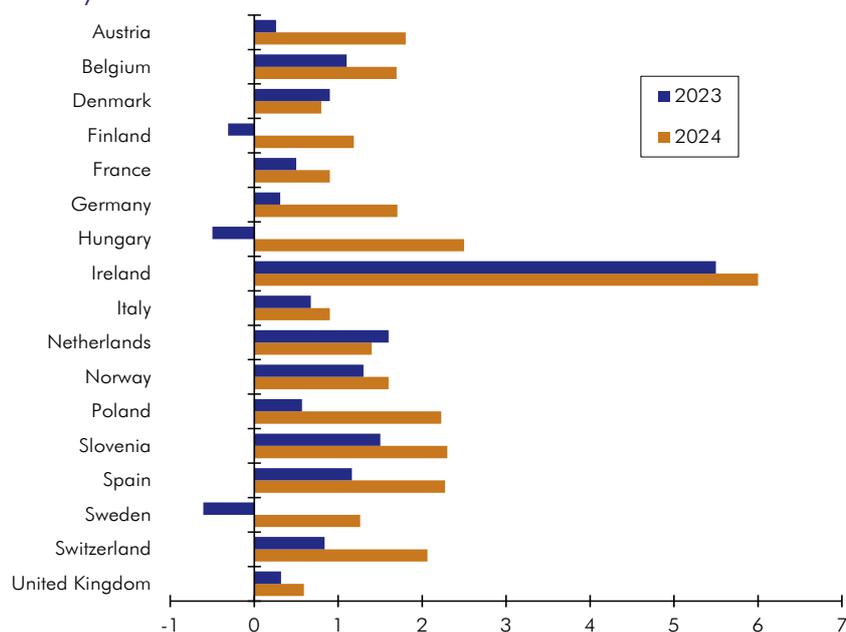
Sources: European Commission; illustration by IWH.

Economic activity is still being dampened by continuously high inflation that reduces households' real incomes as well as via higher interest rates that central banks increased in reaction to ongoing price pressures that have led to tightened credit standards and a drop in credit demand. However, tight labour markets should lead to higher wage growth to compensate for the increase in consumer prices. Domestic demand will not pick up significantly until then. Fiscal measures that have been introduced in reaction to risen energy prices will only somewhat ease the pressure on real incomes.

AIECE members expect real GDP growth in the EU27 to be 0.6 percent this year and to accelerate to 1.6 percent in 2024. As opposed to the European Commission, there is no revision in the forecast for this year as compared to the Autumn 2022 report. The range of forecasts did also not change significantly. It now lies between 0.1 and 1.3 percent (0.1 and 1.2 percent in Autumn). The acceleration of growth between 2023 and 2024 is expected to be even 0.2 percentage points lower. For the euro area, AIECE members expect GDP to grow by 0.8 and 1.3 percent, respectively. The cumulative expansion over two years is similar to the one previously expected, but it is now to a larger extent set to take place in 2023. However, there is a large uncertainty around the performance of the euro area economy in this year with forecasts ranging from 0.2 to 3.2 percent. The range for GDP growth next year is considerably smaller (0.3 to 1.7 percent). It should also be noted that the average growth expectations for both the EU and the euro area are more pessimistic than in the spring forecast of the European Commission.

Figure 2.3

Country Forecasts of AIECE Institutes



Sources: AIECE Institutes' forecast; illustration by IWH.

For the individual countries, AIECE institutes expect an only modest economic expansion or even a contraction in 2023 and an acceleration next year in most of the cases (see Figure 2.3). GDP growth is expected to be highest in Ireland (5.5 percent), followed by the Netherlands (1.6 percent) and Slovenia (1.5 percent). Three countries are expected to contract: Sweden (by 0.6 percent), Finland (by 0.3 percent) and Hungary (by 0.5 percent). Whereas the forecast for Sweden is similar to the respective figure by the European Commission, the projections for Finland and in particular Hungary are substantially lower (by 0.5 and 1.0 percentage points). AIECE institutes are also much more pessimistic about the growth perspectives for Spain,

Denmark and Italy (by 0.7, 0.7 and 0.5 percentage points). Only for the UK, Slovenia and Germany AIECE forecasts are more optimistic than the European Commission (by 0.5, 0.3 and 0.1 percentage points).

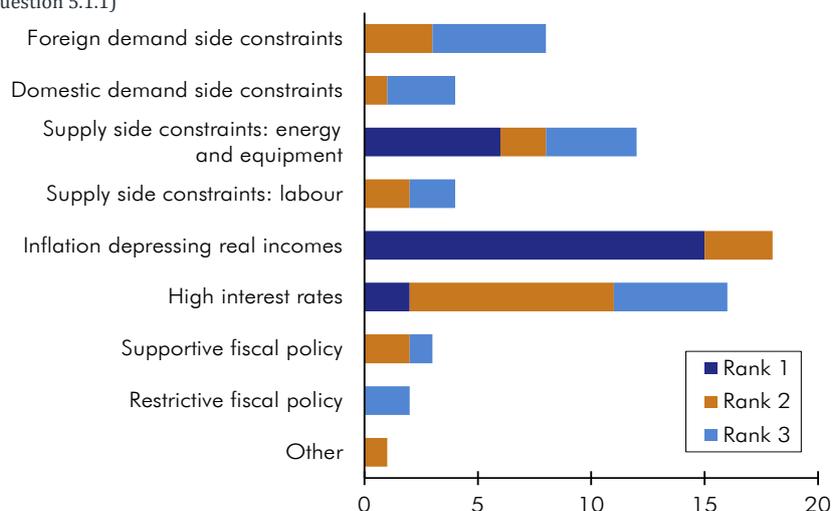
2.1 Euro area countries

As already mentioned in the previous section, AIECE institutes are now more optimistic about the prospects of the euro area this year. Out of the 23 institutes that responded, 13 have upgraded their growth forecasts for 2023. Of the remaining 10 respondents, 8 have not changed their forecast and only 2 have revised it downwards. Although the responses indicate that the prospects for the euro area have improved in the recent months, the most important factors that are currently driving the business cycle are negatively affecting economic activity, above all high inflation that is reducing households' real incomes. Of the 23 institutes that responded to this question, 15 identified it as the most important driver of the business cycle, with 3 more institutes ranking it as number 2 (see Figure 2.4). As the second important factor the survey identifies high interest rates (16 responses in total). Supply-side constraints (energy and equipment) are the third important factor (12 responses). Although other factors have also been selected, these three factors are the only ones that have been identified as the most important driver by each of the institutes. According to the institutes, fiscal policy is currently neither positively nor negatively affecting the business cycle, with only 5 of 23 institutes having identified it as one of the three most important factors.

Figure 2.4

Drivers of the euro area business cycle in 2023

(Question 5.1.1)



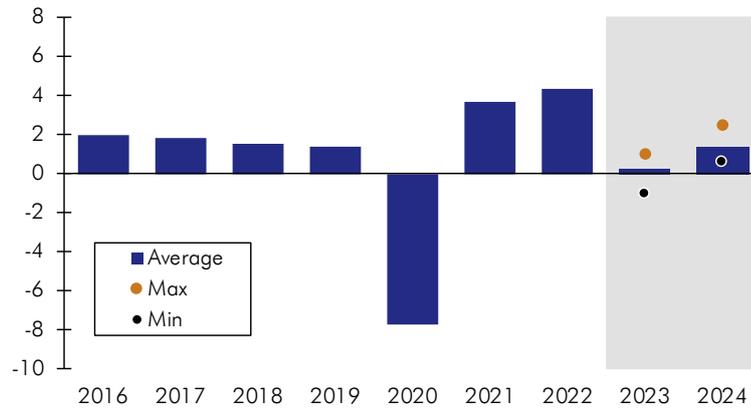
Sources: Answers of AIECE Institutes; illustration by IWH.

Having been identified as the single most important driver of the business cycle, high inflation affects economic activity mainly via its negative effect on households' real incomes that results in **lower private consumption**. AIECE members on average expect its growth to substantially decrease from 4.3 percent in 2022 to only 0.6 percent this year (see Figure 2.5), with the most pessimistic forecast expecting it to shrink by 1.0 percent. Next year, private consumption is set to expand by 1.4 percent. **Public consumption** in the euro area is expected to grow by 0.8 percent in both years. Growth in **gross fixed capital formation** is expected to slow down to 0.7 percent this year, reflecting the effects of higher borrowing costs and tighter lending standards. It is expected to accelerate to 1.6 percent in 2024.

Figure 2.5

Private consumption in the euro area

Percentage change from previous year



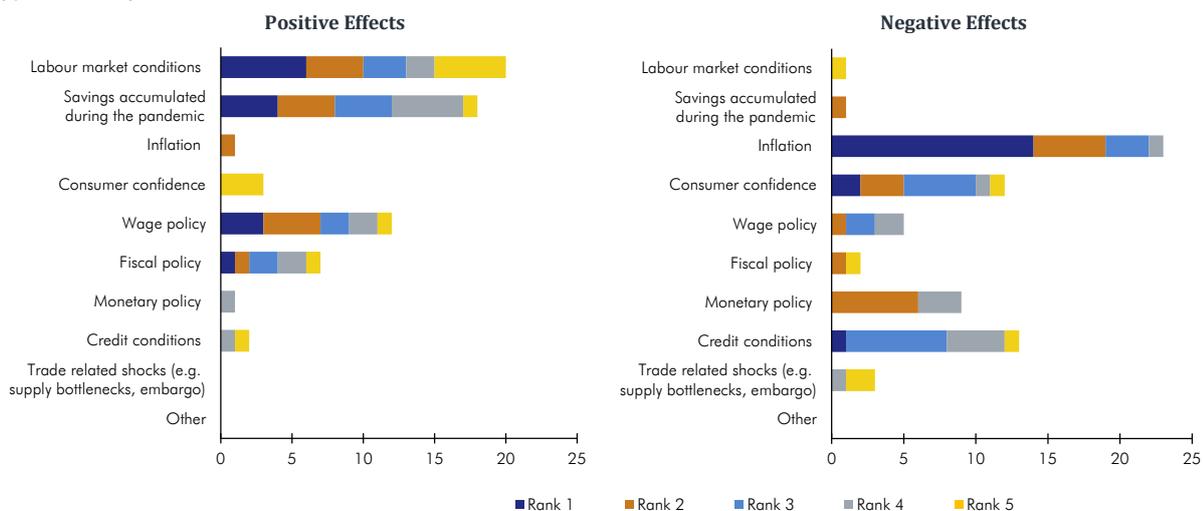
Sources: AIECE Institutes' forecast; illustration by IWH.

Unsurprisingly, inflation is the single most important negative factor that affects private consumption in the economies of the AIECE members. It has been selected by all 23 respondents, by 14 of them as the most important negative factor and by 5 as the second most important one (see Figure 2.6). **Private consumption** is expected to be also negatively affected by credit conditions (13 responses) as well as low consumer confidence (12 responses) that by itself is most probably negatively affected by high inflation and worsened credit conditions. On the other hand, private consumption is supported by the continued favourable labour market conditions (20 out of 23 respondents) that have led to record-high employment numbers and historically low unemployment rates. Still important seem to be also savings that have been accumulated during the pandemic (18 respondents) that help households to better absorb the higher prices for important goods. Wage policy and fiscal policy are the third and fourth important factors favouring private consumption (12 and 7 respondents) as they lead to an increase of the flow of disposable income.

Figure 2.6

Determinants of private consumption in 2023 in the institutes' countries

(Question 4.2.1)



Sources: Answers of AIECE Institutes; illustration by IWH.

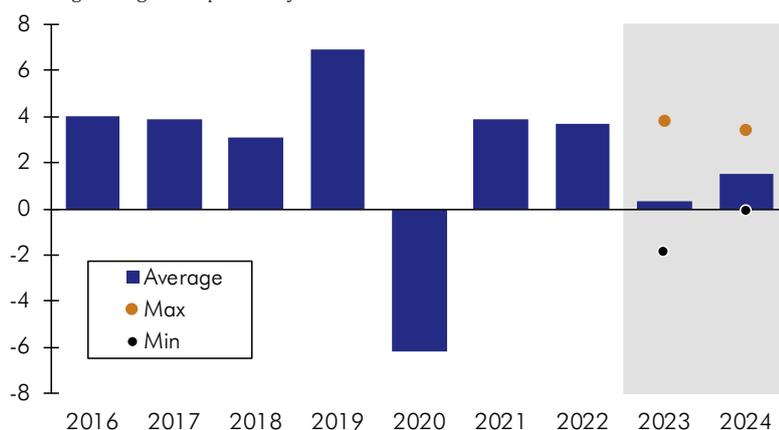
In the very short-term, the negative factors seem to outweigh the positive ones. AIECE institutes expect private consumption growth to slow down considerably this year, 10 out of 23 respondents expect it even to contract.

Having expanded by close to 4 percent during 2021 and 2022, **gross fixed capital formation in the euro area** is expected to slow down markedly this year. AIECE members expect it to grow by only 0.4 percent. Next year it is expected to accelerate to 1.5 percent, which is still low by historical standards (see Figure 2.7).

Figure 2.7

Investment in the euro area

Percentage change from previous year



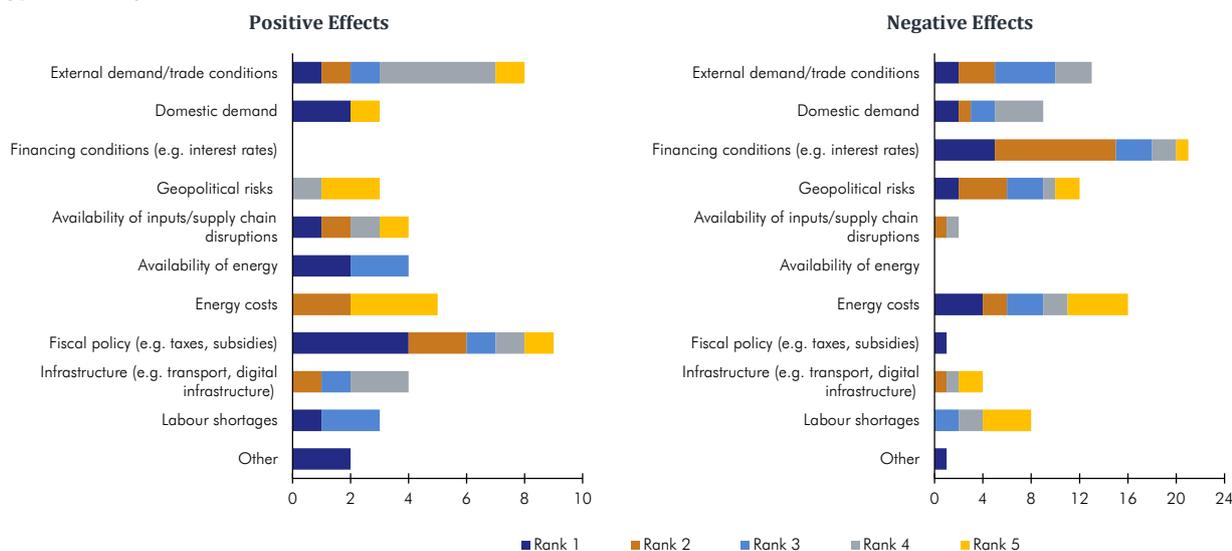
Sources: AIECE Institutes' forecast; illustration by IWH.

When surveyed about the factors that will drive **private investment** in 2023, AIECE institutes have selected nearly twice as many **negative factors** than positive ones. Financing conditions such as higher interest rates or tightened lending standards are the most important negative factor (see Figure 2.8). It was selected by 21 out of 24 respondents and was most often named as the most important or second most important driver. Low demand is also regarded as important, with 13 (9) institutes expressing foreign (domestic) demand as a concern. Among supply-side factors dampening investment activities, high energy costs stand out with 16 responses, followed by 8 institutes that regard labour shortages as a concern. Geopolitical risk is regarded as a negative factor affecting investment decisions by 8 respondents.

As regards **factors that affect private investment positively**, AIECE institutes note in particular fiscal policy (9 respondents) and external demand (8 respondents; see also Figure 2.8). These are followed by factors that trigger investment decisions in order to adapt to unfavourable developments, in particular energy costs, availability of energy and inputs, as well as labour shortages. Geopolitical risks have also been named as a factor that positively affects investment decisions, apparently because companies may shift production from countries and regions that pose or might pose a risk.

Figure 2.8

Determinants of private investment in 2023 in the institutes' countries
(Question 4.2.2)



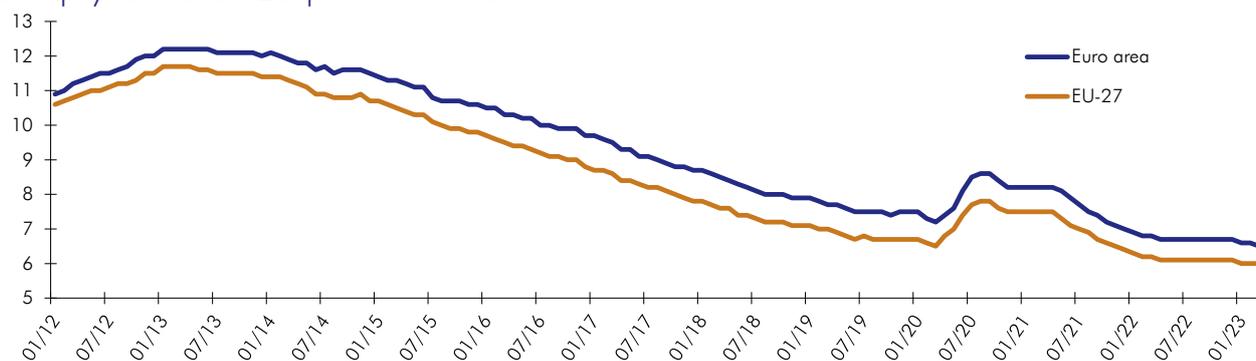
Sources: Answers of AIECE Institutes; illustration by IWH.

2.2 Labour market

Labour markets have remained strong with unemployment rates falling to new all-time lows (see Figure 2.9). Unemployment rates in the EU27 and the euro area have now been falling for ten years, only temporarily interrupted by the pandemic. In March the unemployment rates stood at 6.0 and 6.5 percent, nearly 2 percentage points below the respective Covid peak in late 2020.

Figure 2.9

Unemployment Rates in Europe on historic lows



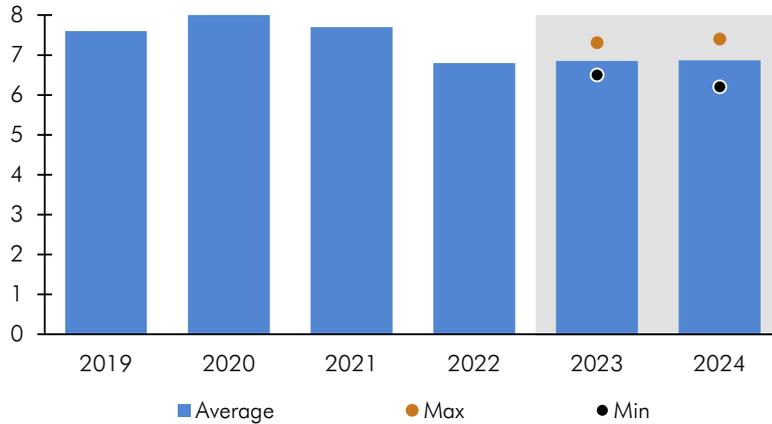
Sources: Eurostat; illustration by IWH.

What is more, total employment is at its historical height as well. The share of firms reporting that labour shortage is the main limiting factor of production remains high, in particular in the services sector, signalling a tight labour market. Intentions to hire have, however, somewhat eased in the past months. Employment growth is hence set to slow in the near future.

Figure 2.10

Forecast of unemployment rates in the euro area – AIECE members

ILO unemployment rate; seasonally adjusted; in percent



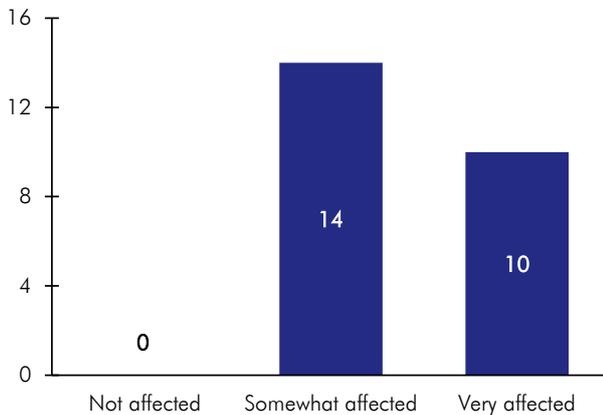
Sources: AIECE Institutes' forecast; illustration by IWH.

AIECE members expect **unemployment rates in the euro area** to slightly increase from its current level and to average at 6.9 percent in both 2023 and 2024 (see Figure 2.10). The results are in line with slightly decreased hiring expectations amid a slowdown in consumption-related industries, as well as the strong increase in the labour force related to migration flows from Ukraine that is not immediately absorbed by the labour market. However, this does not apply to all countries of the euro area to the same extent.

Figure 2.11

Labour shortages in the institutes' countries

(Question 4.6.1)



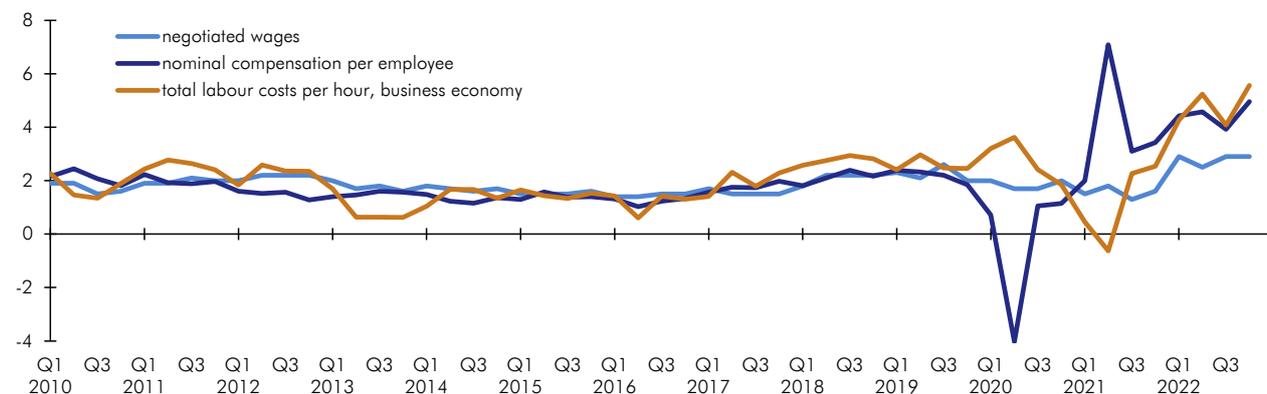
Sources: Answers of AIECE Institutes; illustration by IWH.

Shortages of appropriate personnel continue to be a problem for the labour markets in European economies. Of the 24 AIECE institutes that responded to the question, 14 stated that their labour market is somewhat affected and 10 that it is very affected (see Figure 2.11). None of the respondents stated that the labour market is unaffected by labour shortages. Against the background of rising unemployment rates, these findings indicate increasing skill mismatches.

Figure 2.12

Wage growth in the euro area

Wage indicators (y/y in percent)



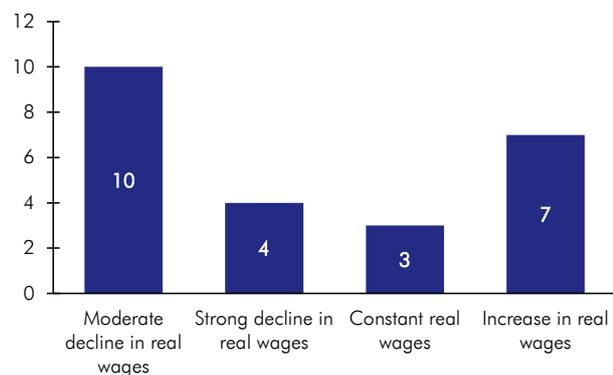
Sources: Eurostat; European Central Bank; calculations and illustration by IWH.

Despite tight labour markets and high inflation rates, **wage growth** in the euro area remains modest (see Figure 2.12). Negotiated wages have increased by only 2.8 percent in 2022. The increase has been relatively constant over the year. More recent data that is available for some individual countries (e.g. Germany, Italy and Spain) suggest that growth in negotiated wages has accelerated at the start of the year. Nominal compensation per employee and total labour costs per hour that tend to develop in line with negotiated wages increased more strongly by 4.5 and 4.8 percent. These unusually heterogeneous dynamics might suggest that recently employees have been compensated for the surge in inflation by one-off payments instead of permanent wage increases.

Figure 2.13

Wage dynamics in AIECE member countries

(Question 4.6.2)



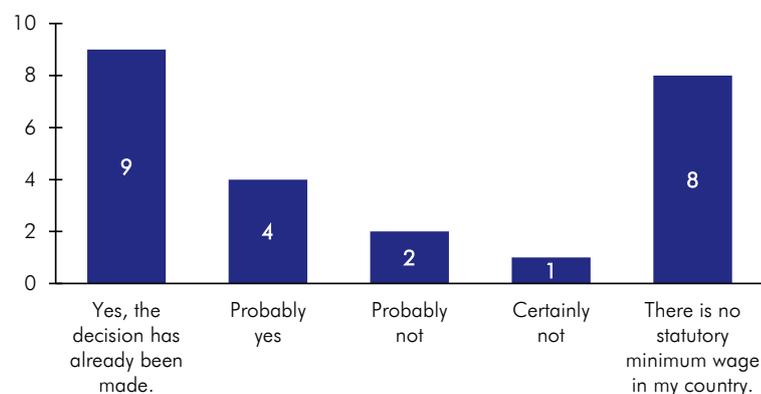
Sources: Answers of AIECE Institutes; illustration by IWH.

In some countries of the surveyed AIECE institutes, wage growth in 2023 is even expected to surpass inflation. Such an increase in **real wages** is expected by 7 out of 24 respondents and for a total of 6 economies (see Figure 2.13), among them Poland for which inflation is expected to average 12.6 percent. Most institutes (13 of 24) expect constant or moderately declining real wages. Only for 3 countries, Italy, Sweden and France, respondents expect real wages to decrease strongly.

High inflation rates should also lead to higher **statutory minimum wages** in order to remain effective. Among the group of respondents from countries in which statutory minimum wages exist (16), such increases are expected or have already been decided in 13 cases (see Figure 2.14).

Figure 2.14

Increase in statutory minimum wages in AIECE member countries
(Question 4.6.3)



Sources: Answers of AIECE Institutes; illustration by IWH.

2.3 Non-euro area member countries

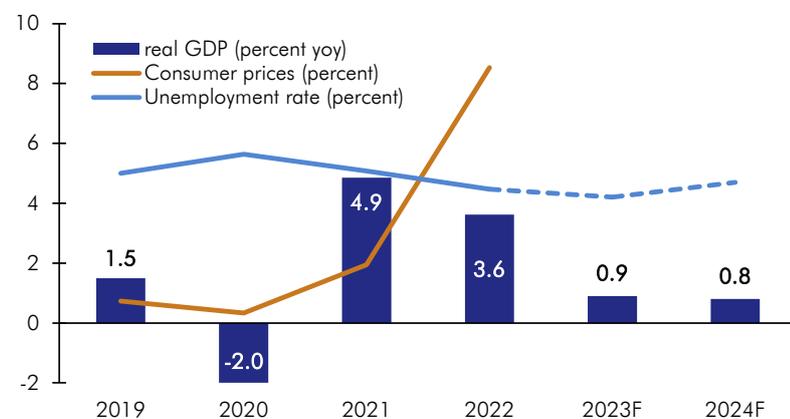
In this section, we take a brief look at the European economies outside the euro area. The forecasts as well as most of the views represent those of the AIECE member of the respective country.

Denmark

GDP growth in Denmark slowed down markedly, from 0.6 percent in the last quarter of last year to 0.3 percent in the first quarter 2023. Higher interest rates have driven down nominal house prices by more than 10 percent – and real house prices by more than 15 percent, which is probably one reason why economic sentiment as measured by the ESI (z-score) is the lowest of all 27 EU. The forecast for GDP growth in 2023 is 0.9 percent (see Figure 2.15). Given that the carry-over effect amounts to 0.8 percent, the Danish economy is de facto stagnating over the course of the year.

Figure 2.15

Macroeconomic Outlook – Denmark



Sources: Eurostat; AIECE Institutes' forecast; illustration by IWH.

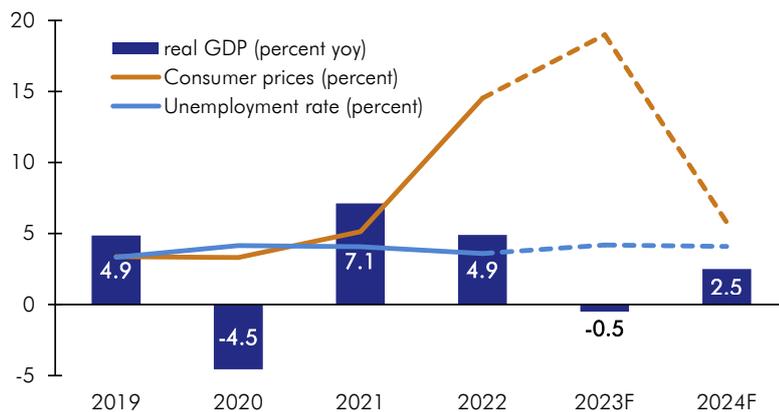
In 2024 GDP growth is expected to be 0.8 percent. Inflation peaked at around 9 percent in late summer 2022 and is gradually coming down. Unit labour costs and unit profits have started contributing positively to inflation. The unemployment rate is expected to increase to 4.7 percent in 2024. The current account balance, which rose to 13.2 percent in relation to GDP (highest among all EU members) in 2022, is expected to further increase to 15.2 percent in both 2023 and 2024.

Hungary

Production has been shrinking since the third quarter 2022 including first quarter of this year. The fall in investment (including in inventories) was particularly strong in the second half of 2022. Consumer price inflation is, with 25.6 percent in March, currently the highest in the European Union. It is forecast to stay as high as 19 percent in 2023 and come down to 5.8 percent only in 2024. Real wages will be sinking this year, and with them private consumption. Since investment activity will come down even more markedly, total production is expected to be 0.5 percent lower than it was in 2023. In 2024, however, large foreign direct investment projects should bring the Hungarian economy back to growth (by 2.5 percent). The unemployment rate is forecast to barely move from its present level, as scarcity of labour is bound to continue.

Figure 2.16

Macroeconomic Outlook – Hungary



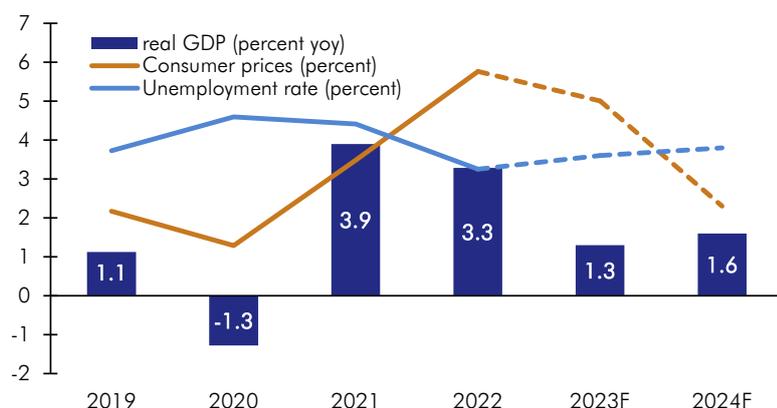
Sources: Eurostat; AIECE Institutes' forecast; illustration by IWH.

Norway

Over most of last year the Norwegian economy has grown at a moderate pace that was dampened by a contraction of petroleum activities and ocean transport. Economic activity is expected to remain close to its potential over the forecast horizon and to average 1.3 percent in 2023 and 1.6 percent in 2024. Last year, inflation has risen to levels not seen since the 1980s. However, when compared to other European countries, it was the lowest at an average of 5.8 percent. It is expected to decline to 5 percent this year and 2.3 percent in 2024. In contrast, unemployment has fallen to levels that are associated with a boom. It is expected to increase from an average of 3.2 percent in 2022 to 3.6 this year and 3.8 percent in 2024.

Figure 2.17

Macroeconomic Outlook – Norway



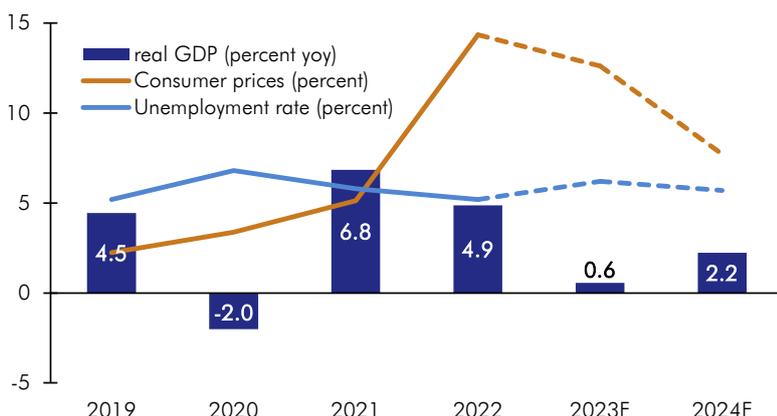
Sources: Eurostat; AIECE Institutes' forecast; illustration by IWH.

Poland

The Polish economy, in spite of the nearby war, continued to strongly expand in the first three quarters of 2022, with a temporary impulse for consumption from the large influx of Ukrainian refugees. Since autumn, however, high inflation and rising interest rates as well as weak external demand caused the economy to slow down. Growth is, with 0.6 percent, forecast to be weak in 2023 due to the above-mentioned factors. Expansion should gain pace in 2024, but the forecast is, with 2.3 percent, still below the potential growth rate in Poland. HICP inflation peaked in February with 17.2 percent and will come down due to fallen commodity prices and weak demand, but wage dynamics will stay high because labour markets are tight and unemployment is low. Therefore, consumer price inflation will not come down quickly, with 12.6 percent in 2023 and 7.7 percent in 2024.

Figure 2.18

Macroeconomic Outlook – Poland



Sources: Eurostat; AIECE Institutes' forecast; illustration by IWH.

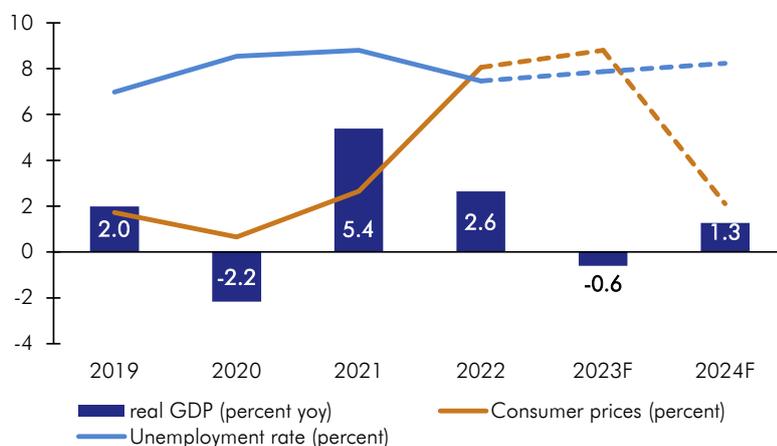
Sweden

The Swedish economy contracted by a cumulative 0.3 percent over the two winter quarters. Real disposable income will decrease this year, causing households to cut back sharply on spending. Housing

investment will fall markedly due to a drop in housing prices and increased construction production costs. The export sector will be affected by a weaker global economy. For the year 2023, GDP is expected to contract by 0.6 percent, which is the lowest growth forecast of all European economies covered by this report. In 2024 the Swedish economy is expected to expand by 1.3 percent. Fixed-interest rate consumer price inflation stood at close to 8 percent in April. The Riksbank is thus expected to continue raising interest rates. It has taken longer than anticipated for inflation to change direction, but many factors behind the high inflation rate are now reversing. Inflation is therefore set to drop back. For the average of 2023 it is expected to decrease to 8.8 percent and quite substantially in 2024 to 2.1 percent. The unemployment rate is set to rise from 7.5 in 2022 to 7.9 this year and 8.2 percent in 2024. The recent increase is driven by high youth unemployment. Among those under 25 years, the unemployment rate stood at 22 percent in March, the fourth highest reading of all EU countries.

Figure 2.19

Macroeconomic Outlook – Sweden



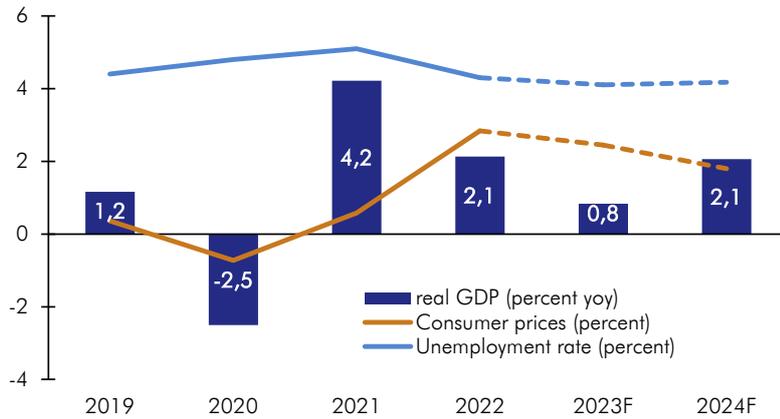
Sources: Eurostat; AIECE Institutes' forecast; illustration by IWH.

Switzerland

According to the latest forecast, real gross domestic product in Switzerland will rise by 0.8 percent in 2023 and by 2.1 percent in 2024. Economic activity will be dampened by the modest economic performance of trade partners that is negatively affected by continued high inflation and monetary tightening. Domestic inflation is expected to decrease to an average of 2.6 percent this year and 1.5 percent next year. Despite the reduction, inflation will in 2023 still be out of the range that the Swiss National Bank (SNB) equates with price stability. The SNB is thus expected to further raise its key interest rate in several stages over the course of this year from its current level of 1 percent to 2 percent and to leave it there until the end of the forecasting period. The unemployment rate is to remain more or less constant at around 4.2 percent.

Figure 2.20

Macroeconomic Outlook – Switzerland



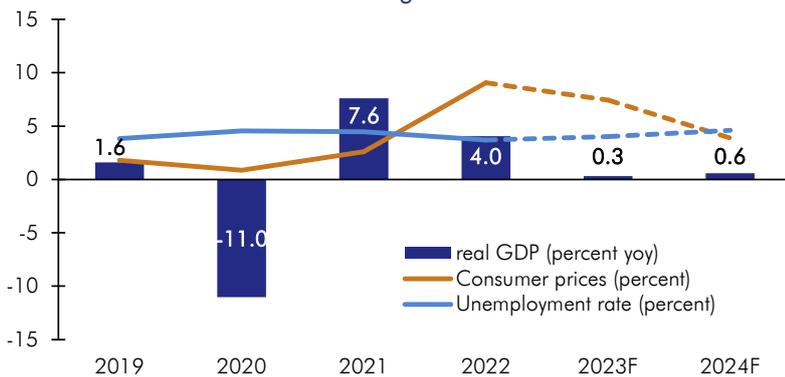
Sources: Eurostat; AIECE Institutes' forecast; illustration by IWH.

United Kingdom

Production in the United Kingdom expanded by no more than 0.1 percent in both quarters during the winter. The UK economy has been basically stagnant since spring 2022. Consumer price inflation is at present, with 10.1 percent in March, somewhat higher than in the euro area or the US. The difference comes from higher price increases for food and energy. The Bank of England has been raising the Bank Rate since the end of 2021, up to 5.25 percent in May. Inflation reduces real incomes, while higher financing costs depress investment activity. GDP is forecasted to grow by 0.3 percent in 2023 and 0.6 next year. Inflation will come down only gradually, with 7.4 percent for 2023 and 3.9 percent for 2024 (still widely off the Bank's target of 2 percent). Many industries suffer from labour shortages, but due to overall weak demand the unemployment rate is expected to increase from 3.7 percent in 2022 to 4 percent this year and 4.6 percent in 2024.

Figure 2.21

Macroeconomic Outlook – United Kingdom



Sources: Eurostat; AIECE Institutes' forecast; illustration by IWH.

3 Policy environment

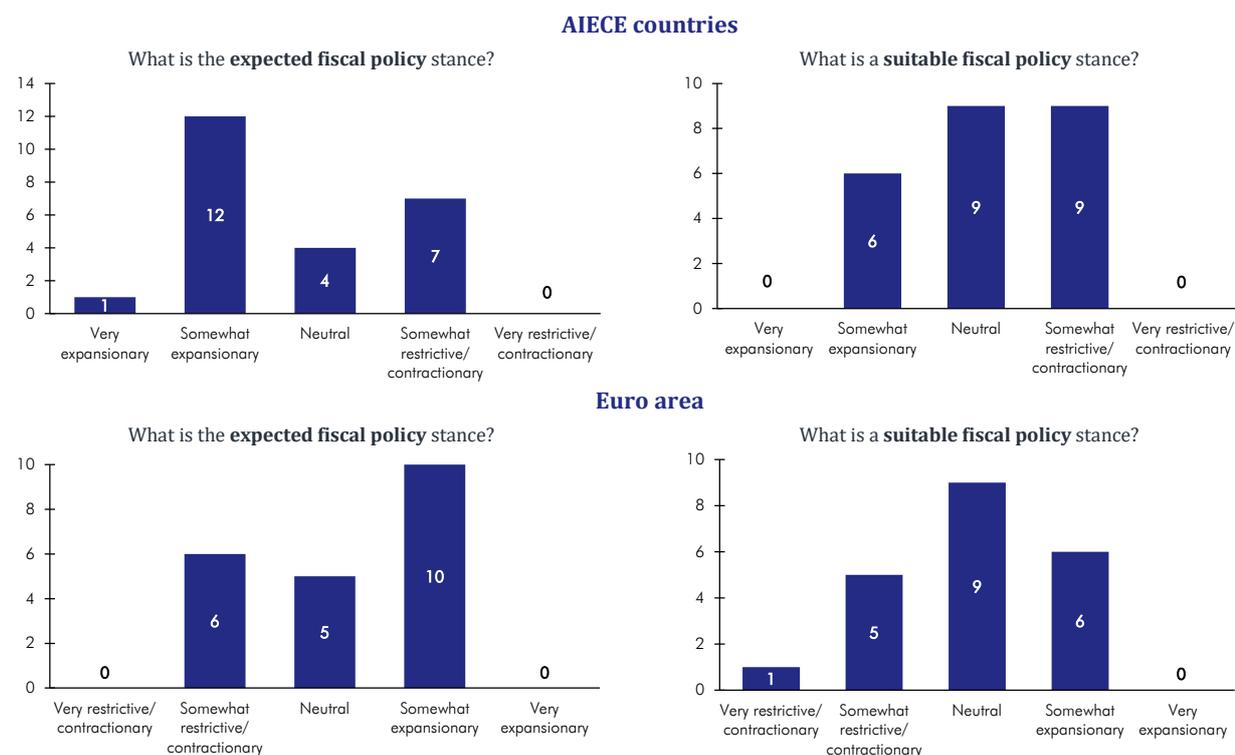
The policy environment in 2023 remains challenging. Energy shortages could be avoided last winter and energy prices decreased sharply from their heights in late summer. However, gas and electricity prices remain much higher than on average in the last decade. Gas storages that are comfortably filled,

but could be quickly depleted if the upcoming winter will be colder than usual and energy consumers save less energy than recently. Since higher wholesale prices for energy have only this year started to translate to higher retail prices, consumers are confronted with substantially larger energy bills. Fiscal policy is challenged to cushion households and industry from hardship cases without reducing incentives to save energy. Monetary policy is even more challenged. In contrast to previous year, when energy prices contributed the most to the increase in the price level, inflation in the euro area is now much more driven by domestic factors and hence those that central banks have an impact on. Core inflation (excluding energy and unprocessed food) stood at 7.3 percent in April and was thus higher than headline inflation. What is more, the ECB as well as surveys do not expect inflation to quickly return to its target. Since the impact of monetary policy on the economy comes only with a lag, however, the steps that the ECB has already undertaken might already be sufficient. This could be an important argument to end the hiking cycle in the context of financial stress that the tightening of monetary policy has caused in the United States.

Figure 3.1

Evaluation of fiscal policy in 2023 by AIECE institutes

Answers for questions 4.4.1/4.4.2/5.2.1/5.2.2; number of AIECE members (rest to 25 institutes: no answer)

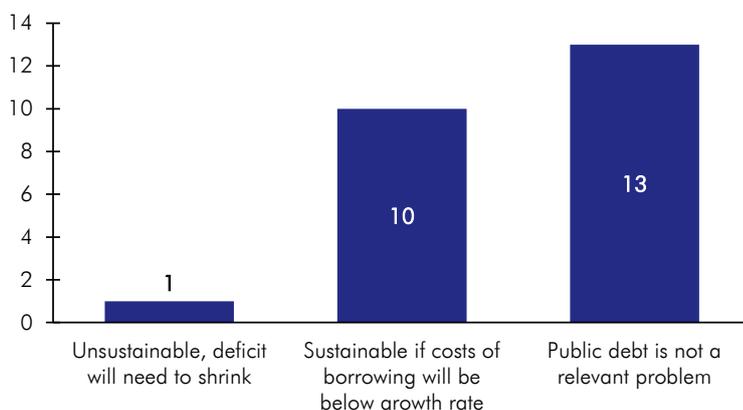


Sources: Answers of AIECE Institutes; illustration by IWH.

When asked about the current stance of **fiscal policy** in the home country, around half of the respondents (13 of 24) assess it as **expansionary**. A restrictive fiscal policy stance is reported by 7 respondents, 4 find it to be neutral (see Figure 3.1). In comparison to the report from last November, the assessment has shifted away from expansionary to restrictive. This shift can most probably be explained by the fact that the actual spending on policy measures will be much lower than the initially announced volumes given that energy prices decreased a lot since their peaks. This is even more evident when regarding the assessment of the suitable fiscal policy stance. Only one fourth of respondents thinks that fiscal

policy should be expansionary this year, with the remaining institutes equally favouring a neutral and a restrictive policy stance (see also Figure 3.1). In November, almost two thirds responded that an expansionary fiscal policy would be appropriate this year. For the euro area in total, results indicate similar assessments of the actual as well as suitable fiscal policy stance (see also Figure 3.1).

Figure 3.2
Sustainability of public debt in the institutes' countries
(Question 4.4.3)



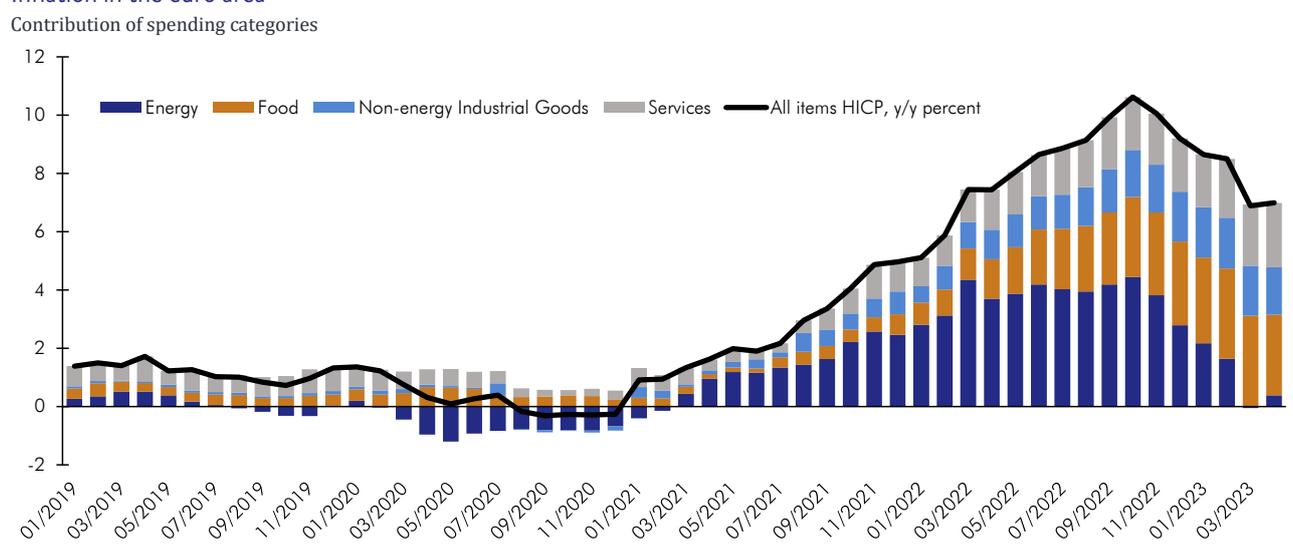
Sources: Answers of AIECE Institutes; illustration by IWH.

Supportive measures during the Covid pandemic increased the debt-to-GDP ratios of the EU countries by around 15 percentage points on average. They have again decreased in all countries from their respective pandemic peaks and in some countries, such as Portugal and Greece, they are now even lower than they were before the start of the pandemic, not least because of the effect of higher inflation on both government revenues and the ratio's denominator. However, the debt burdens are still high in many countries and can, in particular in combination with rising interest rates, negatively affect the flexibility of fiscal policy in the future. Since the governments have adopted numerous support measures in the wake of rising energy prices, we have asked AIECE members whether **public debt is sustainable** in their respective country **over the medium term**. Only one of the 24 respondents regards the public debt as unsustainable (see Figure 3.2), while the majority of 13 institutes see no relevance in the dynamics of public debt. 10 institutes see the sustainability of public debt conditional on the borrowing cost relative to the growth rate. Among these respondents are institutes from France and Italy, the two countries in which interest payments as a share of government revenues increased by far more than in any other country in the last two years. **Inflation in the euro area** that has peaked at 10.6 percent in October 2022 decreased to 7 percent in the first months of 2023 (see Figure 3.3).

It is thus still around 3 percentage points higher than its previous high in July 2008. The contribution of energy prices that amounted to more than 4 percentage points in five months of the previous year is now virtually zero as energy prices eased and base effects came into play. The biggest contribution now comes from food prices, although it is already decreasing. Indicators such as producer prices and farm-gate prices point to further decreasing food price inflation and hence a lower contribution to headline inflation. The same holds true for non-energy goods prices, for whom producer prices also indicate a reduction in consumer prices in the coming months. The second biggest contribution to headline inflation is from service prices that have risen by 5.2 percent year-on-year in April. In contrast to food and goods prices, service price inflation is still rising. Higher wages that account for a higher share of services

cost as compared to goods will tend to keep service price inflation high in the upcoming months. As a consequence, core inflation is expected to be above headline inflation from mid-2023 onwards.

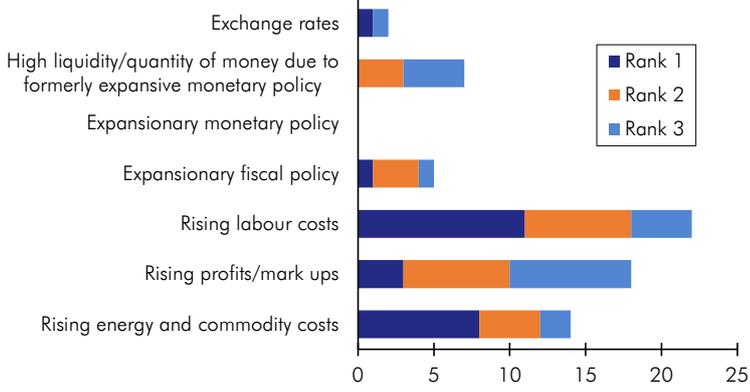
Figure 3.3
Inflation in the euro area



Sources: Eurostat; illustration by IWH.

The diminishing importance of rising energy and commodity prices becomes also apparent in the AIECE survey. In the autumn report, these two factors have been named by far as the two **most important contributors to inflation**. In the current survey, rising labour costs are the most important factor. This option has been selected by 23 out of 24 respondents of which 11 put it on rank 1 and a further 7 on rank 2 (see Figure 3.4). Rising profits/markups are the second important factor when considering the number of all responses. However, when taking into account the importance that respondents have given to the options (ranks), rising energy and commodity prices are the second important inflation contributor: 8 respondents have put this option on rank 1. The effects of policy measures are considered to be less important in driving inflation. And if so, these are the liquidity effects of previously expansive monetary policy that are more important than current fiscal policy. Current monetary policy is not seen as an important factor for current inflation.

Figure 3.4
Drivers of inflation in 2023 in the institutes' countries
(Question 4.3.1)



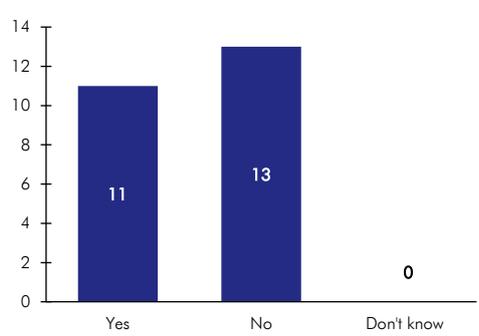
Sources: Answers of AIECE Institutes; illustration by IWH.

When asked about the factors that are expected to drive inflation next year, the answers tend to have the same pattern. The increased relevance of rising labour costs becomes even more apparent: 10 out of 13 respondents name it as the most important factor (see Figure 3.5). This result is in stark contrast to the autumn report where high energy and commodity costs have been identified as the most important drivers for inflation also in 2024 by 8 out of 10 respondents. Although the expected contribution of underlying factors has changed, their total impact has not: a slight majority of respondents (13 vs 11) does not expect the inflation rate in the home country to return to close to 2 percent in 2024. This result is in line with the assessment in the autumn report. **Inflation hence is expected to be persistent in the near term**, driven by increases in wages.

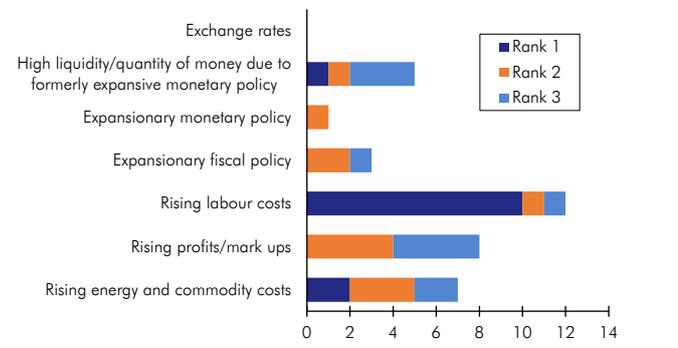
Figure 3.5
Inflation perspectives in the institutes' countries

Answers for questions 4.3.2/4.3.3; number of AIECE members (rest to 25 institutes: no answer)

Do you think that the inflation rate (HICP) in your own country will come close to 2 percent in 2024?



What are the 3 main factors that may contribute to a high inflation rate in your own country in 2024? Rank them from 1 to 3 (1 = most important).



Sources: Answers of AIECE Institutes; illustration by IWH.

When surveyed about the **assessment of monetary policy in the home country** this year, all institutes but one expect a restrictive policy stance. Of these 23 institutes, 5 even expect a very restrictive policy stance (see Figure 3.6). Only in Poland monetary policy is expected to be neutral. The actual monetary policy is overall in line with the policy stance that respondents regard as appropriate. By 7 out of 24 institutes a looser policy was deemed appropriate, 2 respondents would consider a more restrictive policy appropriate.

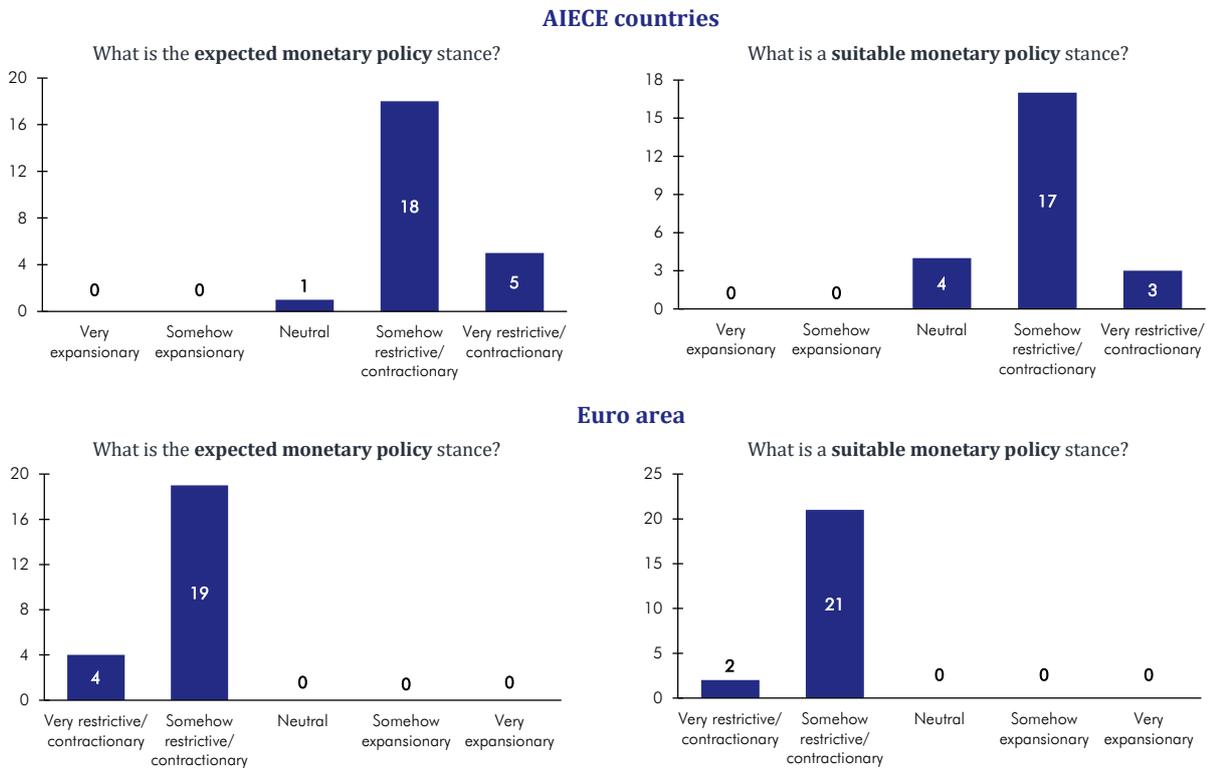
The **assessment of the actual and appropriate monetary policy stance in the euro area** is similar to the one of individual countries. All institutes regard the current policy as restrictive or very restrictive (see also Figure 3.6). In 4 out of 23 cases respondents would consider a different degree of restrictive policy more appropriate. In contrast to the individual countries' assessment, none of the respondents thinks that a neutral policy stance would be appropriate for the euro zone as a whole.

Starting in July 2022, **the European Central Bank has increased its policy rate** in seven steps by a total of 375 basis points until now. AIECE institutes expect a further increase by about 25 basis points until the end of the year. The peak of the tightening cycle is expected for the second half of the year. For 2024, respondents expect the ECB to cut its policy rate by around 50 basis points. On average, the policy rate will stand at 3.1 percent in both years (see Figure 3.7).

Figure 3.6

Evaluation of monetary policy in 2023 by AIECE institutes

Answers for questions 4.5.1/4.5.2/5.3.1/5.3.2; number of AIECE members (rest to 25 institutes: no answer)



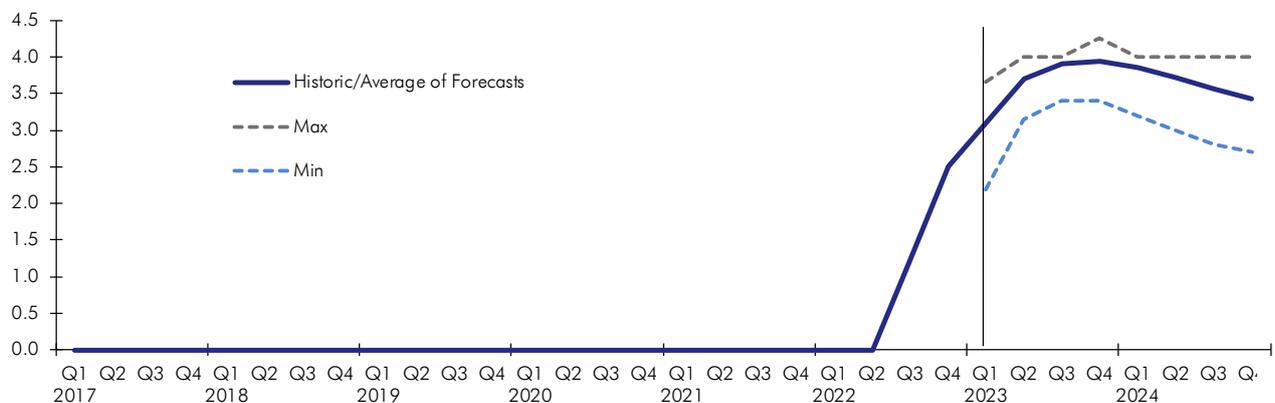
Sources: Answers of AIECE Institutes; illustration by IWH.

Higher key interest rates as well as the expectation of further hikes have led to an increase in capital market yields as well as to rising interest rates for different types of private credit. Higher interest rates tend to reduce private demand, in particular for capital goods. As outlined in the previous section, interest rates and credit conditions have been named as factors that are expected to affect GDP growth as well as private consumption and investment this year. The AIECE institutes were thus surveyed

Figure 3.7

ECB policy rate in percent

Results for question 1.1.3

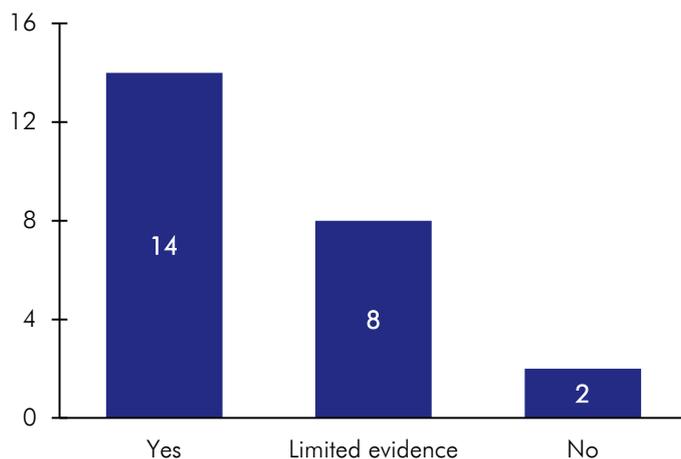


Sources: ECB; AIECE Institutes' forecast; illustration by IWH.

whether or not there is already evidence in their country of **negative effects due to rising interest rates**. Out of 24 institutes that responded to this question, 14 stated that there is already evidence and another 8 that there is limited evidence (see Figure 3.8). Moreover, this share of positive answers increased significantly as compared to the autumn report. Back then, only 50 percent of respondents

Figure 3.8

Negative effects of rising interest rates in the institutes' countries
(Question 4.5.4)



Sources: Answers of AIECE Institutes; illustration by IWH.

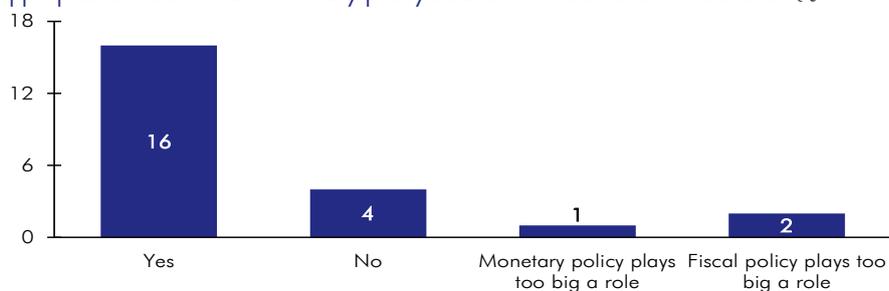
reported that negative effects are already evident.

Finally, given the outlined negative effects that monetary policy currently has on economic activity, we have surveyed the AIECE members about their assessment of the current **balance between fiscal and monetary policy**.

The majority of respondents (16 out of 23) finds the balance appropriate (see Figure 3.9). Of the remaining 7 respondents, 3 institutes provided details about the type of imbalance. In Poland and Spain fiscal policy is assessed to play too big a role, whereas one of the French institutes regards monetary policy to be too prominent in its country.

Figure 3.9

Appropriateness of fiscal-monetary policy balance in the institutes' countries (Question 4.5.3)



Sources: Answers of AIECE Institutes; illustration by IWH.

4 Risks and special questions

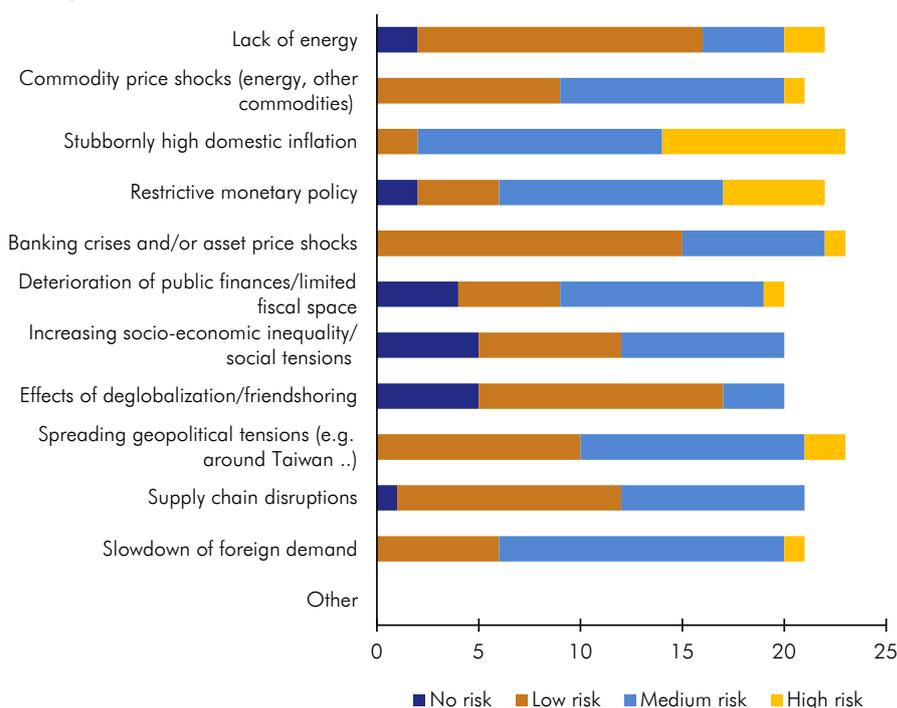
The final section of the questionnaire addresses current macroeconomic risks and topical policy issues. AIECE members were asked how they assess certain downside risks to their forecasts. The focus is on the forecast for the AIECE member's respective economy:

What are the main downside risks to your projection for growth in your country in 2023? Please evaluate each of them according to their importance.

Figure 4.1 shows the assessment of the various risk factors given in the questionnaire. The two of them that are regarded as important by most institutes are also those that in question 4.1.1 were chosen as the most serious factors limiting production: stubbornly high inflation is regarded as a high or medium risk by a large majority of the institutes, while restrictive monetary policy is perceived mainly as a medium risk. A slowdown of foreign demand is also seen as a medium risk factor by more than half of the institutes. About half of all institutes see a deterioration of public finances/limited fiscal space, commodity price shocks and spreading geopolitical tensions as medium risk factors. Only a few institutes still worry about a lack of energy, and a majority regards the risk of banking crises and/or asset prices shocks as low. To sum up, according to the institutes, quite a few risk factors have some relevance, but the dominant issue is the hike in inflation and interest rates.

Figure 4.1

Main downside risks for growth in 2023 in the institutes' countries
(Question 6.1.1)



Sources: Answers of AIECE Institutes; illustration by IWH.

The list of options in question 6.1.1 contains commodity price shocks as a risk factor for 2023. High energy prices might, however, have serious long-term consequences; one of them is addressed in question 6.1.2: with the stop of pipeline oil and gas from Russia, European energy prices have risen relative

to prices outside Europe not only temporarily, but probably for the medium or long term. As a consequence, energy intensive production in Europe has structurally become less competitive. This is in particular relevant for some industrial branches such as the chemical industry. Therefore we asked the following question of last autumn's General Report again:

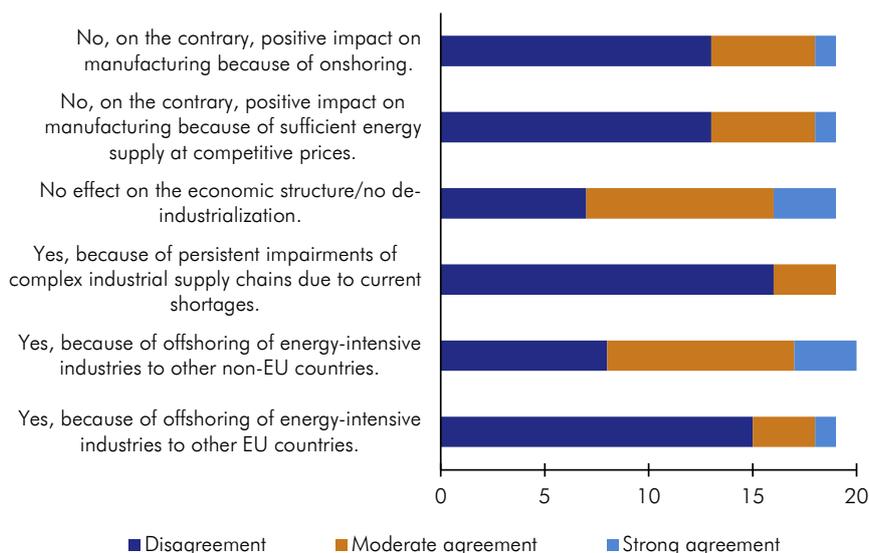
Do you expect a sustained de-industrialization in your country as a result of the currently high energy prices?

An overview of the answers gives a somewhat blurred picture (see Figure 4.2): On the one hand, a majority (12 out of 19) moderately or strongly agrees on the statement that there will be no effect on the economic structure and no de-industrialization. On the other hand, a majority (12 out of 20) agrees on the statement that offshoring of energy-intensive industries to other non-EU countries is to be expected. Answers were similar last autumn, but with a higher majority (15 out of 20 answers) agreeing on offshoring to other non-EU-countries. It might be fair to conclude that institutes expect some off-shoring, although the effects on European industries will, according to most institutes, probably be limited.

Figure 4.2

Sustained de-industrialization in the institutes' countries?

(Question 6.1.2)



Sources: Answers of AIECE Institutes; illustration by IWH.

It seems therefore, in spite of the recent price reductions, still appropriate to talk about an energy crisis in Europe. What steps should be taken to ease it? Some options were posed to the participating institutes in our survey:

Please assess the main policy tools the EU should employ to ease the energy crisis.

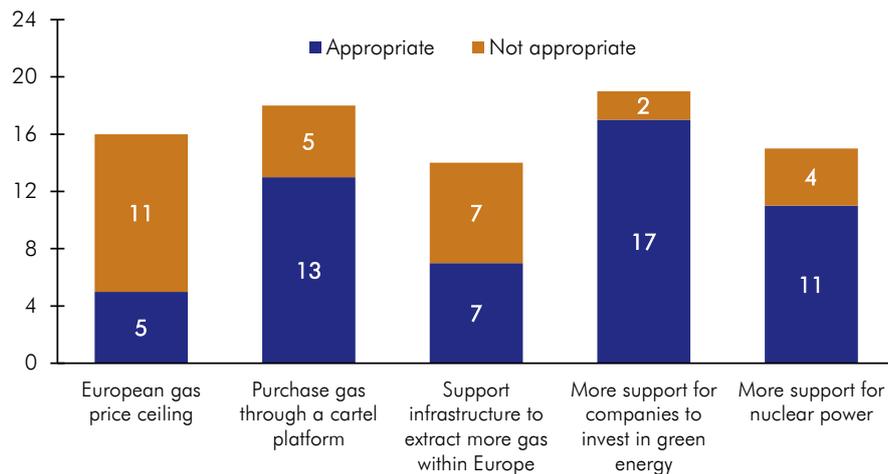
As can be seen from Figure 4.3, a large majority of institutes is in favour of more support for companies to invest in green energy. 13 out of 18 institutes support gas purchases through a cartel platform. This tool is no longer just an idea, since this month the EU Commission has launched the first international tender for joint gas purchasing, under the new EU Energy Platform. A clear majority of the institutes recommends more support for nuclear power, and most institutes advise against a European gas price

ceiling. Overall, results are very close to those from the General Report of autumn 2022, with one exception: while in autumn, 10 out of 17 institutes were in favour of support for infrastructure to extract more gas within Europe, institutes are now split about this proposal. Last year's success in acquiring enough gas, in particular LNG, for the winter might have convinced some institutes that diversification of imports can do the job of securing sufficient gas supply for Europe.

Figure 4.3

Main policy tools to ease the energy crisis

(Question 6.1.3)



Sources: Answers of AIECE Institutes; illustration by IWH.

The questionnaire contained additional questions to three topical policy issues. The first relates to the role subsidies should play in the intended green and digital transition of the European economy:

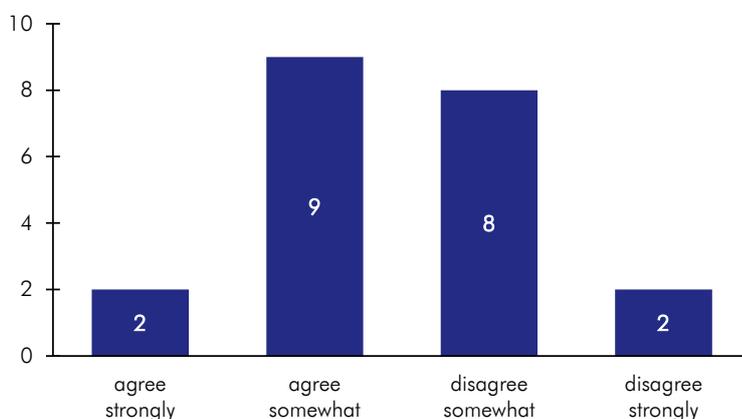
The US government has decided to subsidise production of semiconductors and green technologies. Economic policy in Europe should react with extending its own subsidies for these strategically important industries.

The graphical representation of the answers is almost symmetric (see Figure 4.4): About half of the institutes agree with the statement, about half do not, but in both cases mostly just somewhat so and

Figure 4.4

Europe should extend subsidies for strategically important industries

(Question 6.2.1)



Sources: Answers of AIECE Institutes; illustration by IWH.

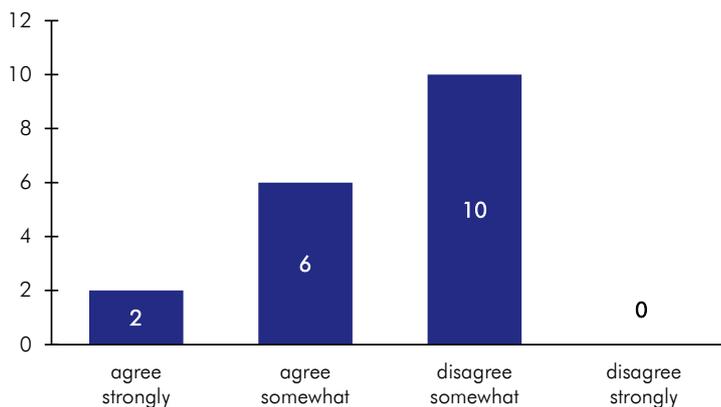
not strongly. The shape of this picture might be a consequence of the very general options institutes had to choose between. In this case ideas for specific policy recommendations would be in the background of many “somewhat” answers. Some institutes, however, might feel being at a loss for good advice on this issue.

While an economic debate on new subsidies should centre on efficiency arguments, it is also important to consider the consequences for public households, the more so as the suspension of EU fiscal rules will end next year. The coordination of fiscal policies might have been the most controversial field of EU economic policy since the creation of the currency union. By now it has become clear that the present framework of fiscal surveillance does not work properly. To name just a few of its shortcomings, rules have become extremely complicated and intransparent, sanctions are not enforceable, and trying to abide by the rules in the coming years would be extremely painful for some countries with high debt levels. Therefore, the European Commission has proposed a reform of the fiscal surveillance that aims at a simplified framework, more national ownership, and stricter enforcement. The proposal consists of two main points: first, the Commission wants to shift the framework “away from year-by-year evolution of national public finances to a longer term view that is aligned to the concept of sustainability”.² This implies that the terms the Commission and specific member countries would agree on would depend on country-specific analyses of debt sustainability. The second point is to use the net primary expenditure as the single operational indicator for fiscal adjustment. According to the Commission, this indicator would be under the direct control of the government, while allowing revenues to fluctuate in line with cyclical conditions.³ Institutes were asked whether, from their point of view, this second reform proposal makes sense or not:

The European Commission has proposed to use the net primary expenditure as the single operational indicator for fiscal adjustment. This proposal goes, by and large, in the right direction.

Figure 4.5

Net primary expenditure as fiscal indicator is a step in the right direction
(Question 6.2.2)



Sources: Answers of AIECE Institutes; illustration by IWH.

² Wyplosz, Ch. (2023), The European Commission’s expenditure benchmark”, CEPR policy insight No.121.

³ Buti, M. et al (2023), The emerging criticisms of the Commission proposals on reforming the European fiscal framework: A response, Voxeu Column.

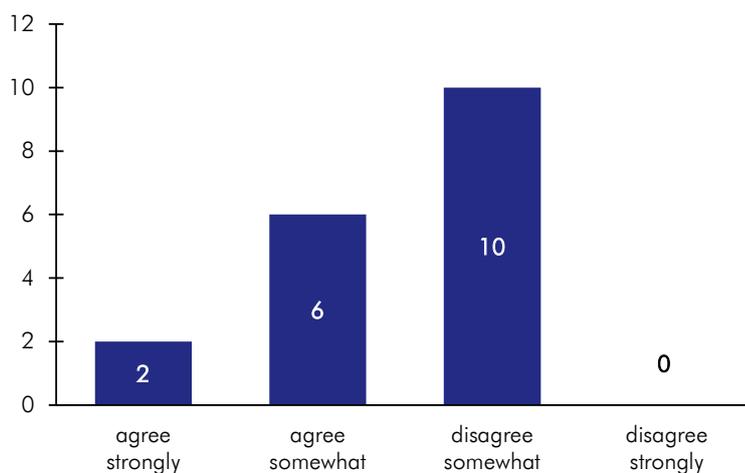
A majority of the institutes disagrees somewhat with the statement (see Figure 4.5), and of course, it would be interesting to know their specific reasons. There might be basically two groups of them: first, a simple argument would be that, in order to reach the goal of keeping public debt levels sustainable, it is public deficits that have to be limited instead of expenditures; second, Wyplosz (2023) has shown that the calculation of the net primary expenditure as defined by the Commission is quite complex and thus the measure might lack transparency. For example, it is in fact a variation of the concept of the cyclically adjusted deficit, since “net” means that discretionary revenue changes are subtracted from expenditure changes. Moreover, in order to judge whether an expenditure growth path is appropriate, it is still necessary to estimate a potential growth path of the economy.

The final question pertains to monetary policy in times of both high inflation and a couple of bank failures. How should central banks manage the trade-off between stabilizing the price level and keeping the risk of financial crises low?

Steep increases in key interest rates have triggered failures of banks in the US and in Europe. In order to avoid further banking crises, monetary policy should tolerate inflation rates above target for a longer time than would otherwise be appropriate.

Figure 4.6

In order to avoid further banking crises, monetary policy should tolerate inflation rates above target for a longer time than would otherwise be appropriate (Question 6.2.3)



Sources: Answers of AIECE Institutes; illustration by IWH.

On this issue, for once, most institutes appear to be similarly minded: 17 institutes disagree strongly or somewhat with the statement, only five agree somewhat, and none does so strictly (see Figure 4.6). It might be noted that such hawkishness is made easier by the fact that up to now, the bank runs of 2023 happened largely in the US, and the failure of Credit Suisse may be understood as a special case of its own.



Halle Institute for Economic Research (IWH) –
Member of the Leibniz Association

Kleine Maerkerstrasse 8
D-06108 Halle (Saale)
Germany

P.O. Box 11 03 61
D-06017 Halle (Saale)
Germany

Tel +49 345 7753 60
Fax +49 345 7753 820

www.iwh-halle.de

ISSN 2702-4725

The logo for the Leibniz Association, featuring the word "Leibniz" in a stylized, cursive script font, with the words "Leibniz Association" in a smaller, sans-serif font underneath.

Leibniz
Association