Global Economic Outlook

——— September 2023

CNB CZECH NATIONAL BANK

Cut-off date for data
15 September 2023

CF survey date
11 September 2023

GEO publication date
22 September 2023

Notes to charts

ECB, Fed, BoE and BoJ: midpoint of the range of forecasts.

The arrows in the GDP and inflation outlooks indicate the direction of revisions compared to the last GEO. If no arrow is shown, no new forecast is available. Asterisks indicate first published forecasts for given year. Historical data are taken from CF, with exception of MT and LU, for which they come from OE.

Leading indicators are taken from Bloomberg and Refinitiv Datastream.

Forecasts for EURIBOR and LIBOR rates are based on implied rates from interbank market yield curve (FRA rates are used from 4M to 15M and adjusted IRS rates for longer horizons). Forecasts for German and US government bond yields (10Y Bund and 10Y Treasury) are taken from CF.

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I. Introduction

The global debt burden has fallen slightly. According to the IMF, total public and private debt stood at 238% of global GDP last year, still visibly above the pre-pandemic level. The good news, though, is that it declined for the second year in a row, due not only to high inflation worldwide, but also to robust economic growth. Private debt fell faster than public debt, suggesting that most economies have room to consolidate public finances. The increase in global debt since the turn of the millennium has been driven by China and the USA. Private debt in China has been above both the international average and the level in the USA for ten years now. In terms of public debt, China is rapidly approaching the global average. If this trend continues, the Chinese economy may face major constraints on its growth prospects.

The chart in the current issue shows the debt growth outlook for the economies under review over the coming three years. As a percentage of GDP, the government deficits are highest in the USA and lowest in the traditionally thrifty Germany. What's interesting about the outlook is that all the economies except the USA are set to undergo gradual public finance consolidation, while the USA is expected to see even faster growth in debt. The issue of debt will also be analysed in the October issue of GEO.
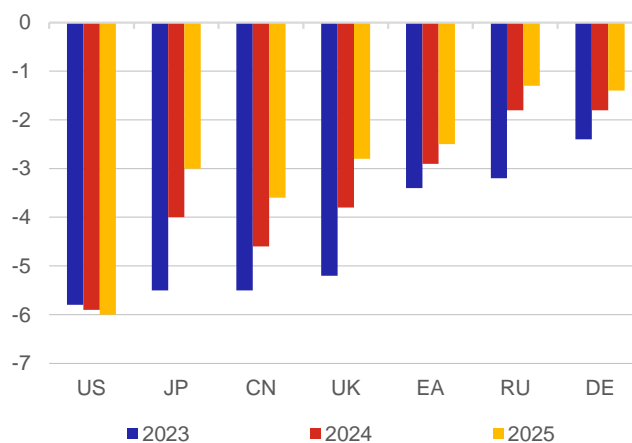
Government deficit outlook, % of GDP

Source: Bloomberg

The UK and the euro area have the weakest economic prospects for this year and the next. GDP growth in the euro area countries will stay below 1% this year, while Germany will not avoid a contraction. The updated macroeconomic forecast published by the European Commission in September confirmed this deterioration. 2024 will probably be a weak year economically. Of the key economies, only China and India, which has been developing apace over the last several years, will record visible growth.

The key central banks probably reached a notional interest peak at the start of the autumn. The rather surprising hike made by the ECB Governing Council at its meeting in September and the confirmation of the current interest rate level by the Fed and the BoE signal that interest rates have probably reached the top of the cycle in the fight against unusually high inflation. These central banks can be expected to start easing monetary policy in the course of 2024.

The current issue also contains an analysis: "Business and financial cycles of major global economies". The article deals mainly with the practical aspects associated with the modelling of the business and financial cycles and presents a comparison of the two cycles for the major global economies – the USA, Japan, the UK, Germany and France. It is demonstrated in the article that the financial cycle is typically two to four times longer than the business cycle and has a greater amplitude and also that historically, peaks in financial cycles have been followed by recessions.

GEO barometer for selected countries

		EA		DE		US		UK		JP		CN		RU	
GDP	**2023**	0.5	↘	-0.4	↘	2.1	↗	0.3	↗	1.8	↗	5.0	↘	1.0	↘
(%)	**2024**	0.7	↘	0.6	↘	0.8	↗	0.4	→	0.9	↘	4.5	↘	1.2	↘
Inflation	**2023**	5.5	→	6.0	→	4.1	→	7.4	↗	3.1	↗	0.7	↘	5.4	↗
(%)	**2024**	2.5	→	2.7	↗	2.5	↘	3.1	↗	2.0	↗	1.8	↘	4.8	→
Unemployment	**2023**	6.5	↘	5.6	→	3.7	→	4.2	→	2.6	→	3.5	→	3.3	→
(%)	**2024**	6.7	↘	5.7	↗	4.3	↘	4.2	→	2.4	→	3.4	→	3.4	→
Exchange rate	**2023**	1.11	↘	1.11	↘			1.28	↘	134.2	↗	7.21	↗	94.3	↘
(against USD)	**2024**	1.13	↘	1.13	↘			1.31	↗	123.9	↗	6.93	↗	95.5	↗

Source: Consensus Forecasts (CF)
Note: The arrows indicate the direction of the revisions compared with the last GEO.

II. Macroeconomic barometer

Equity markets development, index 100 = January 2018

- EA (Euro Stoxx 50)
- DE (DAX)
- US (S&P 500)
- UK (FTSE 100)
- JP (Nikkei 225)
- CN (Shanghai Composite)
- RU (RTS Index)

Core inflation, %

- EA
- DE
- US
- UK
- JP
- CN
- RU (rhs)

Manufacturing production, yoy %

- EA
- DE
- US
- UK
- JP
- CN
- RU

Retail sales, yoy %

- EA
- DE
- US
- UK
- JP
- CN
- RU

Monetary policy rates, %

- EA
- US
- UK
- JP
- CN
- RU (rhs)

Supply chains development

- Global Supply Chain Preasures – FRBNY
- Shortage of material and equipment – ESI (rhs)

Source: Refinitiv Datastream, European Commision.

III.1 Euro area

The near-term prospects for the euro area have become rather gloomier, and its performance is likely to remain lacklustre until the year-end. The third estimate for Q2 revised GDP growth down to 0.1% (0.5% year on year). Household consumption stagnated for the second quarter in a row. Government expenditure and gross fixed capital formation went up slightly. The decline in net exports was roughly offset by growth in inventories. The performance of the economy was thus truly lacklustre in the first half of this year. The new incoming data do not look much better. Industrial production and retail sales both fell in July. The labour market situation remains solid, but surprisingly poor coincident indicators offer no hope that the economy will emerge from the doldrums any time soon. On top of that, the previously strong service sector is losing steam. The purchasing managers' survey is now showing a decline in activity, causing the composite PMI to drop to 46.7 points. According to the ESI, economic sentiment worsened across all sectors in August. After having improved in August, the ZEW index fell again in September (a majority of the analysts surveyed expect the economy to stagnate). In the ECB's new forecast, the GDP growth outlook is revised down for both this year and the next. The revision reflects a shift of the expected recovery to the beginning of next year. The CF survey of analysts turned out much the same.

Euro area inflation is projected to remain "too high for too long", so the ECB raised rates for a tenth consecutive time. Annual consumer price inflation stopped falling in August, remaining at 5.3%. Month-on-month growth in prices (of 0.6%) is to blame. It was caused primarily by a surge in energy prices, although rising prices of non-energy industrial goods also contributed. Core inflation decreased slightly (to 5.3%). However, inflation expectations (tracked in the PMI) rose in August for the first time in a long time. According to the new ECB forecast, inflation (given the current market rate outlook) would not have reached the target until the end of 2025. The Governing Council assessed this as too late and therefore decided to raise the key interest rates by 0.25 pp.

GDP growth, %
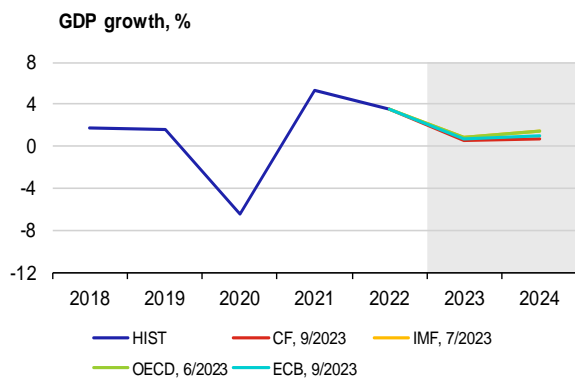
	CF		IMF	OECD	ECB	
2023	0.5		0.9	0.9	0.7	
2024	0.7		1.5	1.5	1.0	

Inflation, %
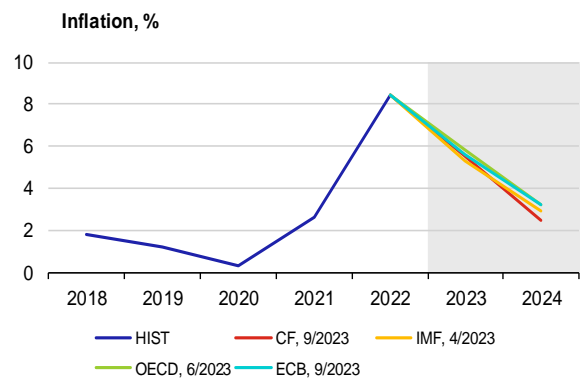
	CF		IMF	OECD	ECB	
2023	5.5		5.3	5.8	5.6	
2024	2.5		2.9	3.2	3.2	

ESI leading indicators
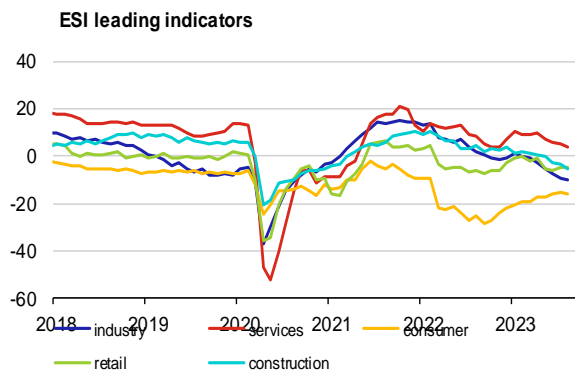
	industry	services	consum.	retail	constr.
6/23	-7.3	5.7	-16.1	-5.9	-2.6
7/23	-9.3	5.4	-15.1	-4.5	-3.6
8/23	-10.3	3.9	-16.0	-5.0	-5.2

Interest Rates, %
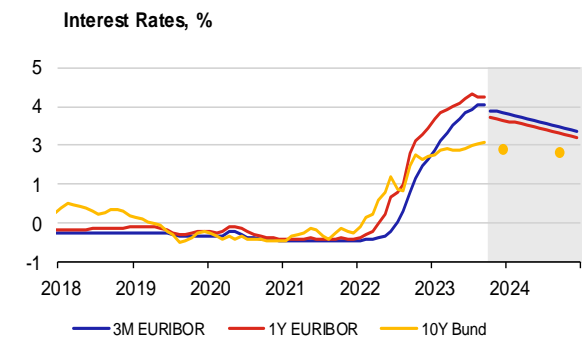
	8/23	9/23	12/23	9/24
3M EURIBOR	3.78	3.80	3.53	3.10
1Y EURIBOR	4.07	4.07	3.32	2.90
10Y Bund	2.55	2.60	2.40	2.30

III.2 Germany

A confirmed stagnation of the German economy fostered a further drop in business sentiment. Detailed results confirmed that the economy stabilised in Q2 after two consecutive quarters of modest contraction. Weaker exports were offset by positive contributions from investment, inventories and public expenditure. However, declining leading indicators suggest that Europe's largest economy is in poor shape. Business sentiment remains pessimistic. The Ifo index worsened further, falling for a fourth quarter in a row. Business managers feel the German economy is not out of the woods yet and are therefore gloomy about the coming months. Consumer sentiment remains at low levels, recording a decline in August after having been broadly flat the month before. The composite PMI is also indicating negative sentiment. It fell further in August (44.6), recording the sharpest drop in private sector activity in more than three years. Manufacturing sector´s output is continuing to decrease (39.1) and services sector also recorded a decline for the first time in eight months (47.3), having previously been broadly stable. Germany has been hit hard by a slump in industrial production as a result of low external demand, so the economy will probably remain weak also in Q3. According to the new European Commission and CF forecasts, the economy as a whole will contract slightly this year (by 0.4% in both cases) and recover slightly in 2024 (with GDP growth of 1.1% and 0.6% respectively).

The decline in consumer price inflation is fading, as August saw only a very slight drop. Harmonised prices rose by 6.4% year on year, so inflation remains high. This is due mainly to growth in food prices, which, despite having slowed, remains high, but also to growth in energy prices, which has picked up again after a recent slowdown. Excluding food and energy prices, core inflation remained stable at 5.5%, so the fundamental price pressures are still high. Services inflation in particular will probably remain elevated as a result of wage growth, which hit a record high in Q2. Both the European Commission and CF are now predicting that inflation will stay above 6% this year and drop below 3% next year. In July, industrial producer prices fell in year-on-year terms for the first time in more than two years – specifically by 6%.

GDP growth in selected euro area countries in 2023 and 2024, %

● CF ● IMF ● OECD ■ ECB 2023 ■ ECB 2024
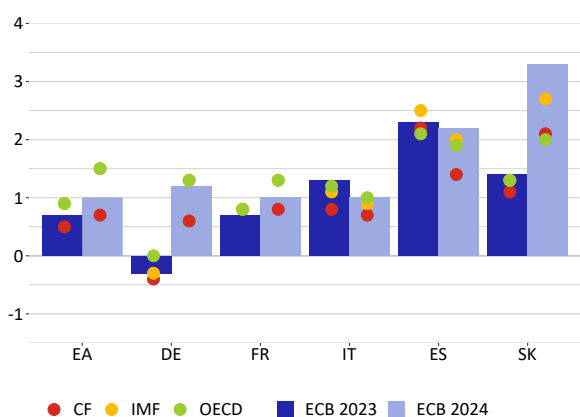
Inflation in selected euro area countries in 2023 and 2024, %

● CF ● IMF ● OECD ■ ECB 2023 ■ ECB 2024
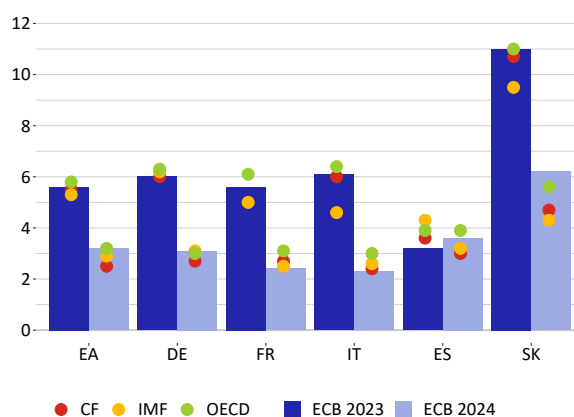
ESI leading indicators
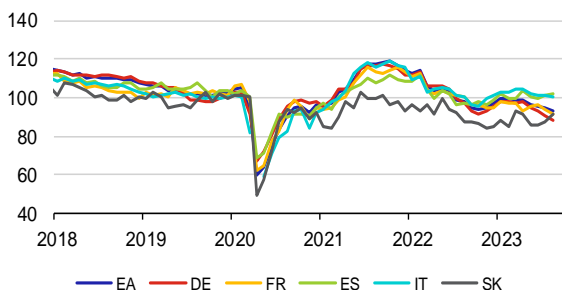
—— EA —— DE —— FR —— ES —— IT —— SK

Economic and inflation surprises in the euro area, %

—— Citi Inflation Surprise Index —— Citi Economic Surprise Index

	EA	DE	FR	ES	IT	SK
6/23	95.2	93.1	96.4	99.7	101.2	86.1
7/23	94.5	91.0	93.9	100.9	101.4	87.6
8/23	93.3	88.6	91.4	102.4	100.3	91.8
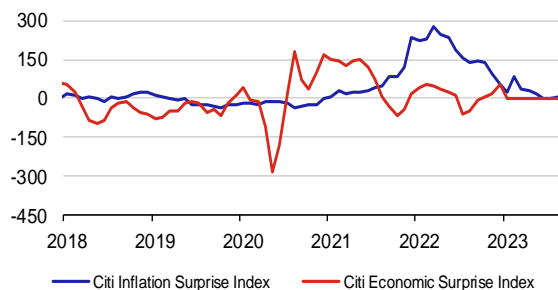
Inflation expectations based on 5year inflation swap and SPF

	5y5y	SPF
7/23	2.55	2.14
8/23	2.61	2.14
9/23	2.60	2.14

III.3 United States

The growth outlook for the American economy has moved upwards. The new CF outlook expects GDP growth of 2.1% this year, slowing to 0.8% next year. According to the Bloomberg survey, the economy will grow by 2.0% this year and 0.9% next year. The most recent August survey also contained a large upward revision (of 0.5 pp). Concerns about falling household consumption and about restrictive monetary policy having a negative effect on the economy are thus receding.
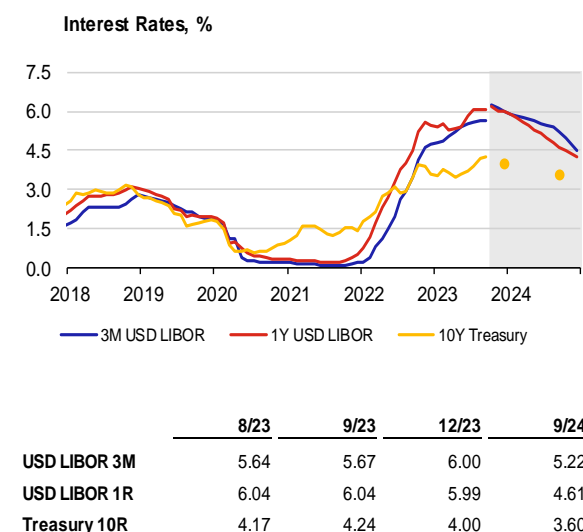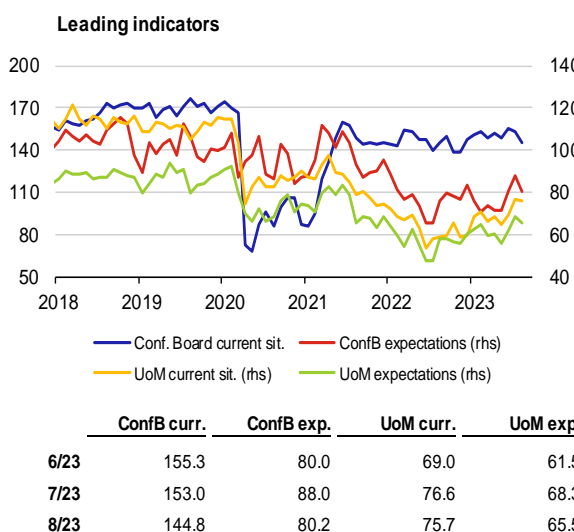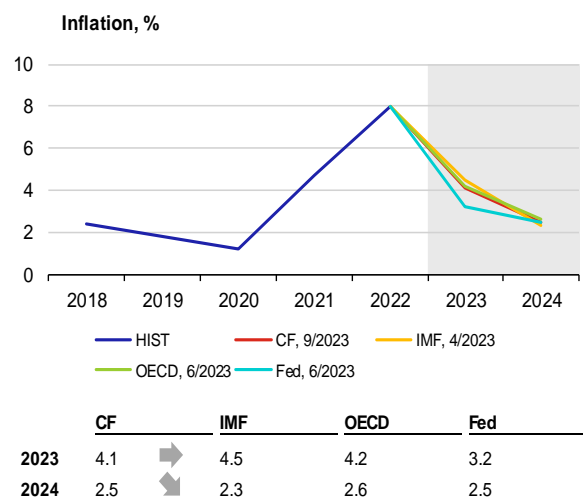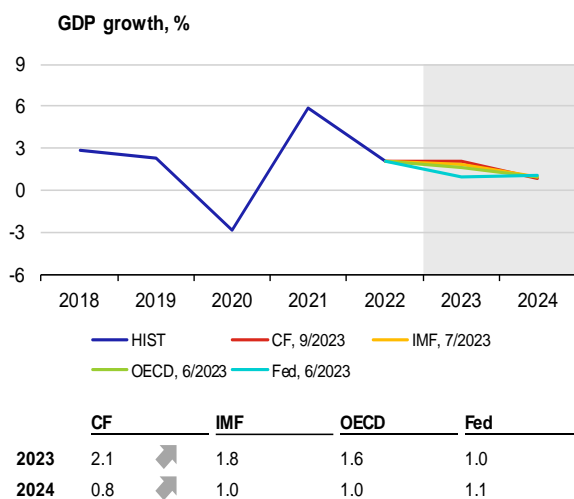
Detroit was hit in mid-September by a strike by autoworkers, who are demanding a 40% pay rise to compensate for inflation. Automakers (General Motors, Ford and Chrysler) are willing to agree to a 20% increase, but with a simultaneous cut in benefits, which the unions oppose. A larger hike would reduce the firms' competitiveness, especially with respect to Tesla, which is not unionised. More than 12,700 workers are on strike.

Monthly inflation reached 0.6% and core inflation 0.3% in August. According to analysts, annual inflation will average 4.1% this year and 2.5% next year. Market inflation expectations are still above 2% five years ahead, but the short-term expectations of households have fallen slightly. Retail sales went up by 0.6% in August, well above expectations, but this was due in large part to higher fuel prices. Excluding automobiles and fuel, retail sales rose at a pace of 0.2% in August (versus 0.7% in July). Consumers are spending their savings, and total credit card debt is rising quickly. The latter exceeded USD 1 trillion (around 4% of GDP) for the first time in 2023 Q2.

Interest rates are expected to be kept in the range of 5.25–5.5% at the US Fed's monetary meeting in September. At the traditional meeting of central bank governors in Jackson Hole in September, Fed Chair Jerome Powell said core inflation was not falling fast enough and thus maintained a hawkish tone. The markets nonetheless do not believe rates will be raised further and expect them to be cut in late spring or early summer 2024.

GDP growth, %

	CF		IMF	OECD	Fed
2023	2.1	↗	1.8	1.6	1.0
2024	0.8	↗	1.0	1.0	1.1

Inflation, %

	CF		IMF	OECD	Fed
2023	4.1	➡	4.5	4.2	3.2
2024	2.5	↘	2.3	2.6	2.5

Leading indicators

	ConfB curr.	ConfB exp.	UoM curr.	UoM exp.
6/23	155.3	80.0	69.0	61.5
7/23	153.0	88.0	76.6	68.3
8/23	144.8	80.2	75.7	65.5

Interest Rates, %

	8/23	9/23	12/23	9/24
USD LIBOR 3M	5.64	5.67	6.00	5.22
USD LIBOR 1R	6.04	6.04	5.99	4.61
Treasury 10R	4.17	4.24	4.00	3.60

III.4 China

Leading indicators and observed data in Q3 are signalling an improvement in the performance of the Chinese economy. Retail sales went up by a further 4.6% year on year in August. Industrial production saw a similar increase (4.5%). Moreover, following weaker data in July, the Caixin Manufacturing PMI – a leading indicator – switched back to the phase of economic expansion in August, hitting a six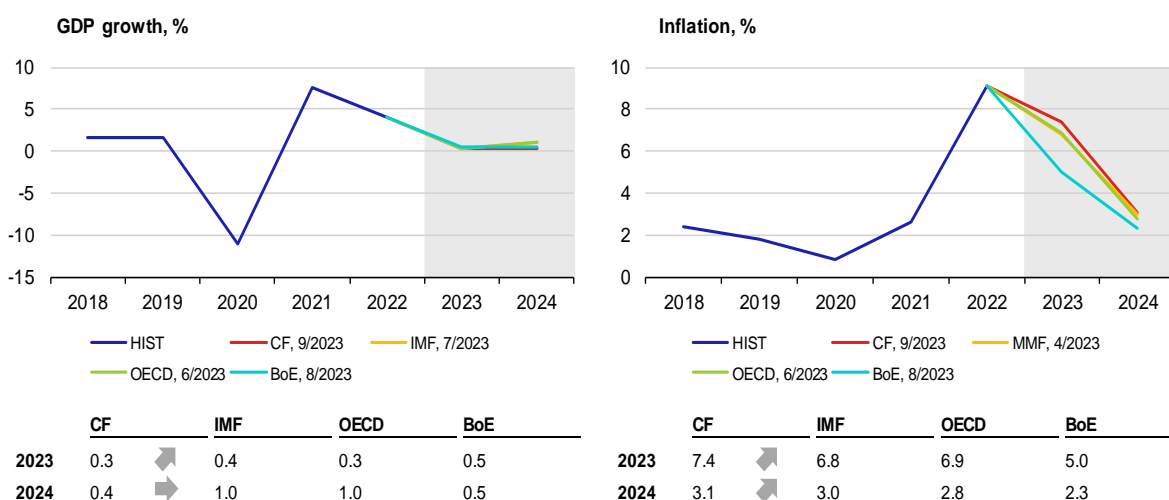-month high. By contrast, the Caixin Services PMI worsened, continuing to indicate a fragile situation in this sector. In this context, the Chinese central bank also cut banks' reserve requirement ratio for the second time this year in mid-September (by 25 bp to 7.4%). This measure is intended to boost growth by enhancing lending capacity and supporting government spending. On the other hand, there is persisting risk in the shape of high global interest rates, geopolitical tensions and the impacts of the collapse of the Chinese property sector, which may reverberate through the rest of the economy and further undermine the still weak domestic consumption. According to the September CF, the annual growth rate of the Chinese economy will be 5% this year, slowing to 4.5% next year.

After a year-on-year decline in July, consumer prices rose modestly again in August, while producer prices, which remained in deep deflation (-3%), declined less sharply (by 4.4% in July). Consumer price inflation stood at 0.1% in annual terms in August, in contrast to the 0.3% year-on-year decline recorded in July. Inflation thus remains subdued this year owing to chronically weak domestic demand, despite the renminbi having weakened by almost 10% against the US dollar since the start of the year. According to the September CF, consumer prices will rise by just 0.7% this year and accelerate to 1.8% next year. Moderating trend in producer price deflation is set to continue for the rest of this year, mainly on the back of a recovery in energy commodity prices and also due to the low base in the second half of last year.

GDP growth, %

	CF		IMF	OECD	OE	
2023	5.0	⬊	5.2	5.4	5.1	➡
2024	4.5	⬊	4.5	5.1	4.6	➡

Inflation, %

	CF		IMF	OECD	OE	
2023	0.7	⬊	2.0	2.1	0.5	➡
2024	1.8	⬊	2.2	2.0	1.7	➡

Leading indicators

	PMI manuf.	PMI in Non-manufacturing	PMI service
6/23	49.0	53.2	53.9
7/23	49.3	51.5	54.1
8/23	49.7	51.0	51.8

Development of China foreign trade, bil. USD
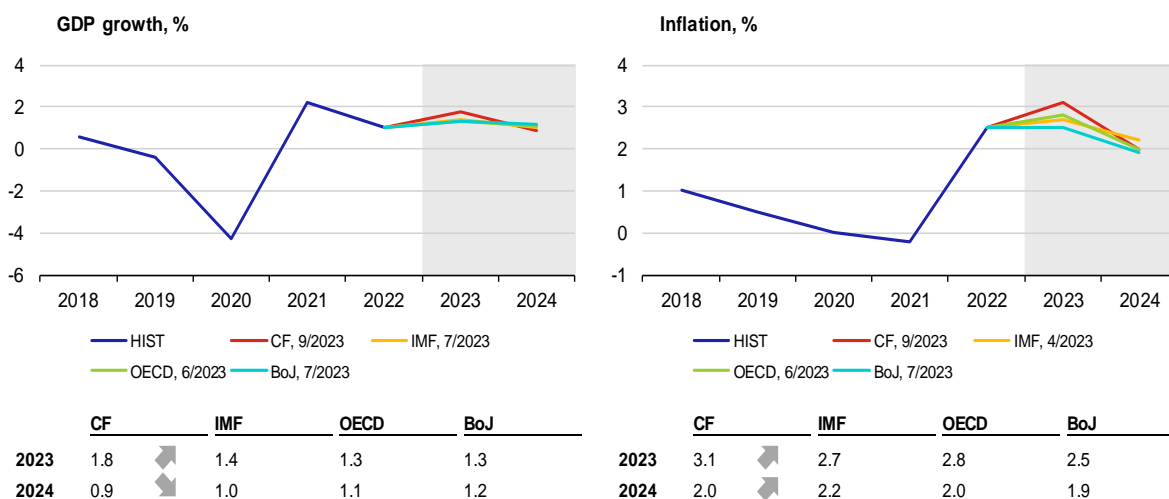

Source: Bloomberg
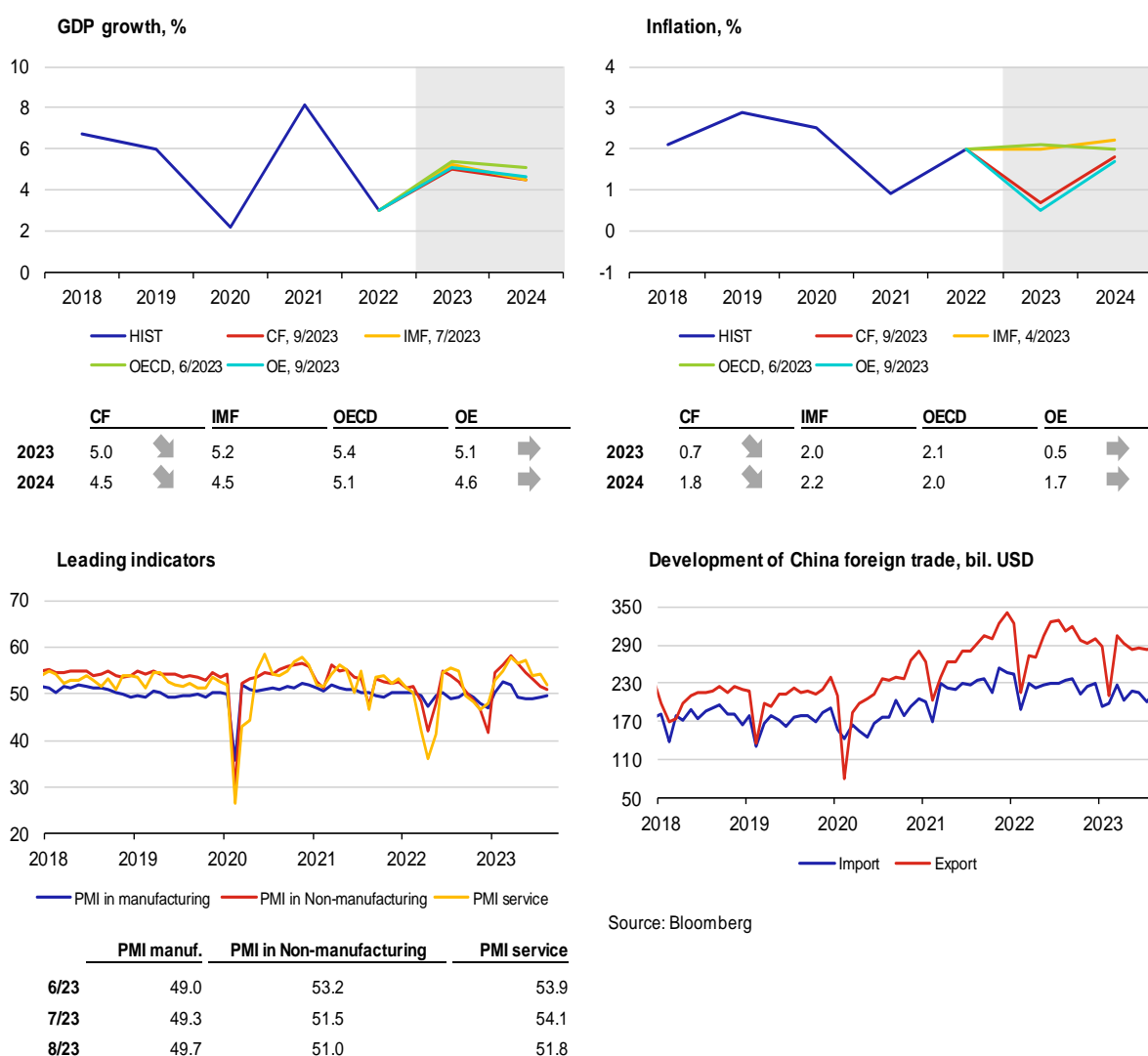
III.5 United Kingdom

The UK economy has recovered more quickly than expected from the pandemic, by the end of 2021 according to revised figures. Its recovery is therefore not as bad by comparison with the other G7 nations. Recent data, though, paint a mixed picture, indicating many challenges for the economy. Growth exceeded expectations in Q2, and consumer confidence also rose. The composite PMI, however, is worrying. In August, it fell into the contraction zone (48.6), newly reflecting falling activity in services (49.5) as well as a growing decline in manufacturing (43.0). Weak sales and rising unemployment were also recorded. The CF GDP growth outlook therefore remains very modest for both 2023 and 2024 (at 0.3% and 0.4% respectively). The economy is also experiencing a combination of high wage growth (despite signs that the labour market is loosening) and high inflation. The latter is falling and is at its lowest level since February 2022, but prices still rose by 6.8% in the 12 months to July. Underlying price pressures persist, as core inflation is flat at almost 7%. Moreover, services prices are rising more quickly. The BoE governor has nonetheless declared that interest rates are near the top of the tightening cycle.
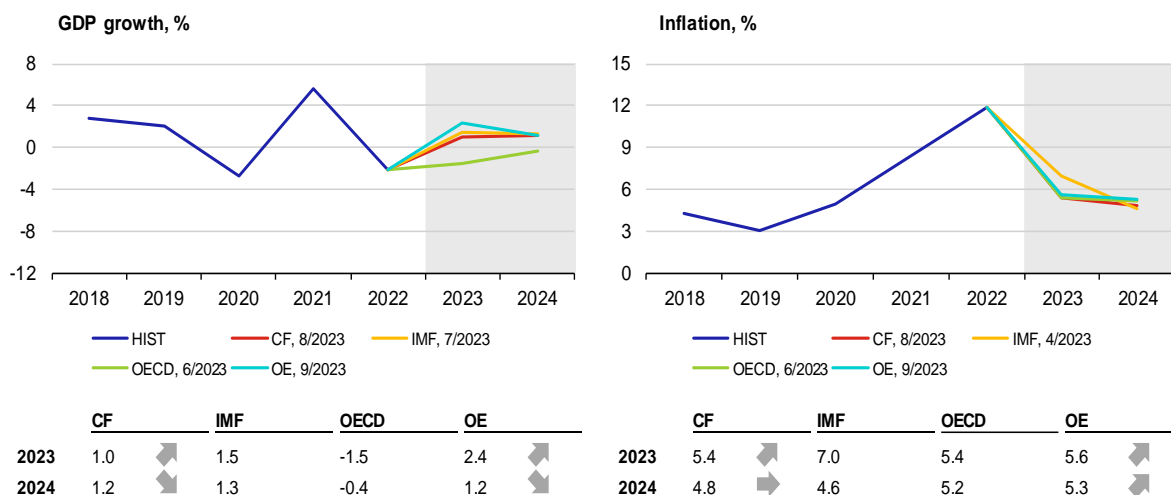

	CF		IMF	OECD	BoE
2023	0.3	↗	0.4	0.3	0.5
2024	0.4	→	1.0	1.0	0.5

	CF		IMF	OECD	BoE
2023	7.4	↗	6.8	6.9	5.0
2024	3.1	↗	3.0	2.8	2.3

III.6 Japan

The Japanese economy exceeded expectations in Q2 despite weak domestic demand. The quarterly GDP growth of 1.2% was driven mainly by net exports, which were supported by a weak yen. Car exports were a major growth contributor, as was inbound tourism, which returned to more than two-thirds of pre-pandemic levels. Real imports conversely dropped sharply. Together with falling private consumption, this reflects the impact of stagnant wages and rising prices on Japanese households. Headline inflation retreated slightly in July, but core inflation (excluding food and energy prices) at 2.9% and services inflation at 2.0% broke more record highs dating from the 1990s. The proportion of CPI basket items with rising prices (86%) and the median inflation rate (1.6%) are also at their highest levels since measurements began in 2000, signalling that price growth in the economy – though still relatively modest – is no longer due solely to imported supply shocks.

	CF		IMF	OECD	BoJ
2023	1.8	↗	1.4	1.3	1.3
2024	0.9	↘	1.0	1.1	1.2

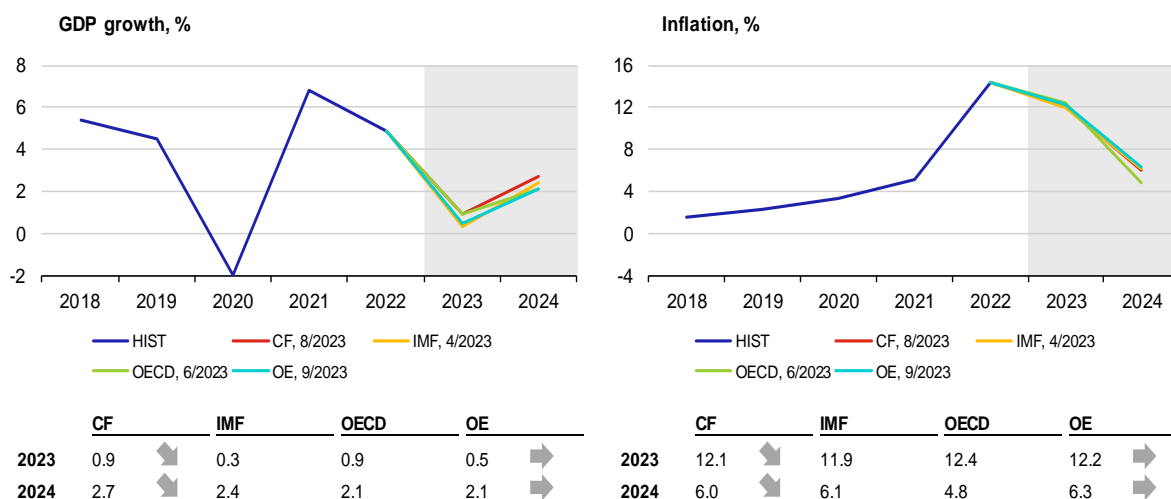|	CF		IMF	OECD	BoJ
2023	3.1	↗	2.7	2.8	2.5
2024	2.0	↗	2.2	2.0	1.9

III.7 Russia

The Russian central bank decided to raise interest rates to 13% at its September meeting. This followed on from its decision to hike rates from 8.5% to 12% made at an extraordinary meeting held in mid-August in response to the rouble depreciating sharply above the RUB 100/USD level. The central bank is also reacting to persistent inflation, which reached 5.2% in August relative to an already high base of 14.5% a year earlier. The rouble – one of the sources of the inflation pressures – has been fluctuating around RUB 95/USD since the August rate increase. The pressing problems of inflation and the exchange rate were mentioned by President Putin in an address given at the Eastern Economic Forum in Vladivostok in September. The president's economic adviser Maksim Oreshkin in his speech drew attention to another phenomenon of the present-day Russian economy – its sharply falling current account surplus. However, the rising price of oil, which is boosting Russian exports, is generating a positive outlook in this regard.

GDP growth, %

Inflation, %

	CF		IMF	OECD	OE	
2023	1.0	↕	1.5	-1.5	2.4	↕
2024	1.2	↓	1.3	-0.4	1.2	↘

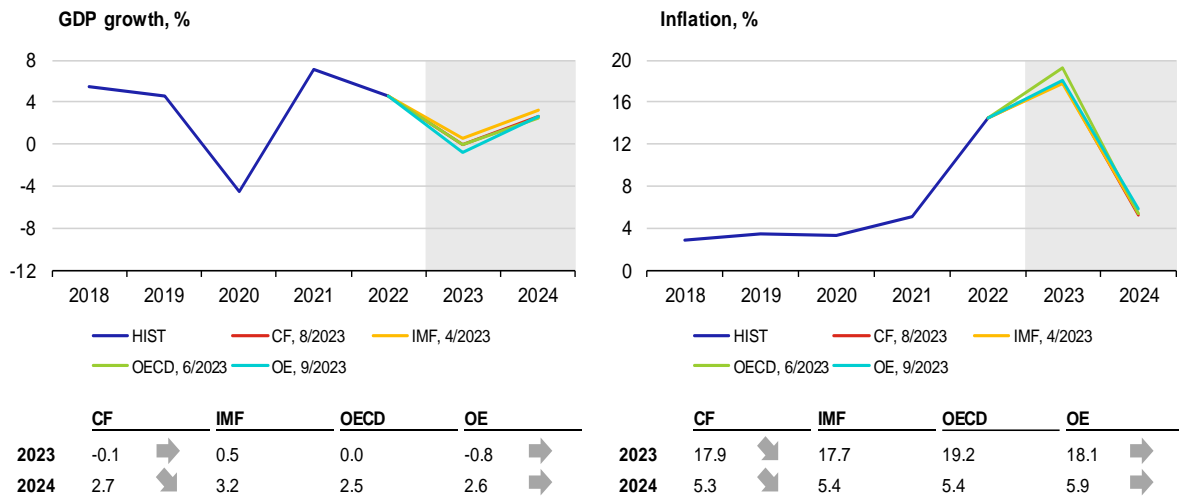|	CF		IMF	OECD	OE	
2023	5.4	↗	7.0	5.4	5.6	↗
2024	4.8	→	4.6	5.2	5.3	↕

III.8 Poland

The Polish central bank is changing monetary policy course and cutting rates, while annual inflation remains in double figures. Year-on-year consumer price inflation retreated from 10.8% in July to an 18-month low of 10.1% in August. The decreasing growth rate of the consumer price index is still due mainly to falling food prices. In month-on-month terms, consumer prices were flat (-0.2% in July). The NBP surprised the markets by lowering the policy rate by 75 bp to 6% at the September meeting. This step came as unexpected in an environment where annual consumer price inflation is still in double figures. Poland is additionally facing a tight labour market, rising real wages and a rebounding property market, supported by a new government programme offering subsidies to first-time buyers. Manufacturing output has been falling for several months. The industrial PMI has decreased further and remains in contraction territory.

GDP growth, %

Inflation, %

	CF		IMF	OECD	OE	
2023	0.9	↓	0.3	0.9	0.5	→
2024	2.7	↓	2.4	2.1	2.1	→

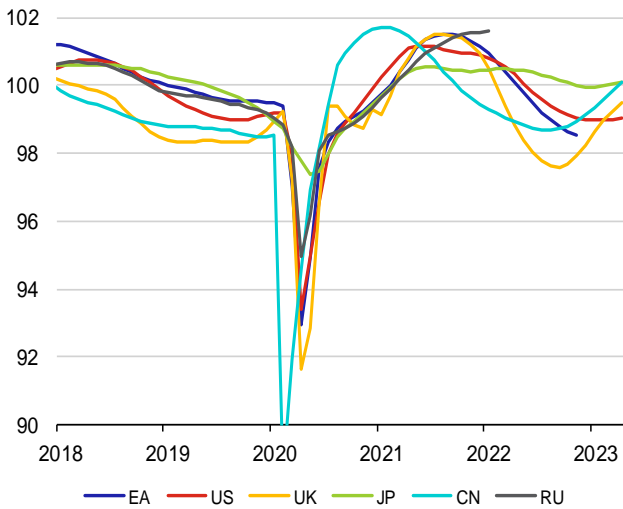|	CF		IMF	OECD	OE	
2023	12.1	↓	11.9	12.4	12.2	→
2024	6.0	↓	6.1	4.8	6.3	→

III.9 Hungary

Consumer price inflation in Hungary is falling as expected and the MNB continues to ease monetary conditions.
The Hungarian data point to a further slowdown in the growth rate of consumer prices (annual inflation stood at 16.4% in August and 17.6% in July). The MNB further lowered the interest paid on optional reserves and the overnight lending rate serving as the upper bound on the interest rate corridor by 100 bp to 14% and 16.5% respectively. The markets expect the base rate to decrease to 10% by the year-end as the risks are easing. GDP fell by 2.4% year on year, mainly because of a decline in industrial output. The gloomy outlook for Q3 is confirmed by the manufacturing PMI, which remained in the contraction zone in August. Retail sales and manufacturing output also fell. With the forint currently weak, foreign trade is conversely faring well, recording a surplus since the start of the year. Analysts' outlooks for this year are broadly unchanged.
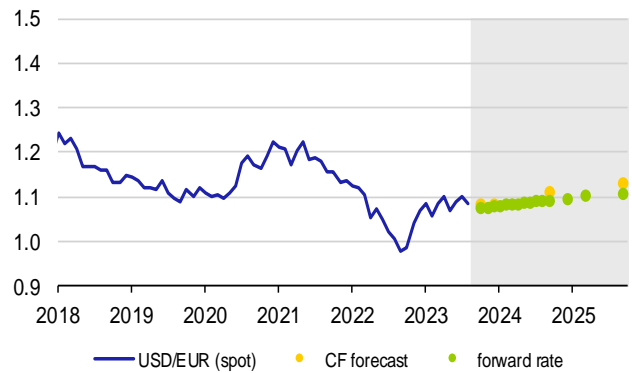
GDP growth, %

	CF		IMF	OECD	OE	
2023	-0.1	→	0.5	0.0	-0.8	→
2024	2.7	↘	3.2	2.5	2.6	→

Inflation, %

	CF		IMF	OECD	OE	
2023	17.9	↘	17.7	19.2	18.1	→
2024	5.3	↘	5.4	5.4	5.9	→

IV. Leading indicators and exchange rate outlooks

OECD Composite Leading Indicator

Legend: EA, US, UK, JP, CN, RU

The US dollar (USD/EUR)

Legend: USD/EUR (spot), CF forecast, forward rate

	11/9/23	10/23	12/23	9/24	9/25
spot rate	1.075				
CF forecast		1.085	1.087	1.113	1.134
forward rate		1.077	1.080	1.095	1.111

The British pound (GBP/USD)

Legend: GBP/USD (spot), CF forecast, forward rate
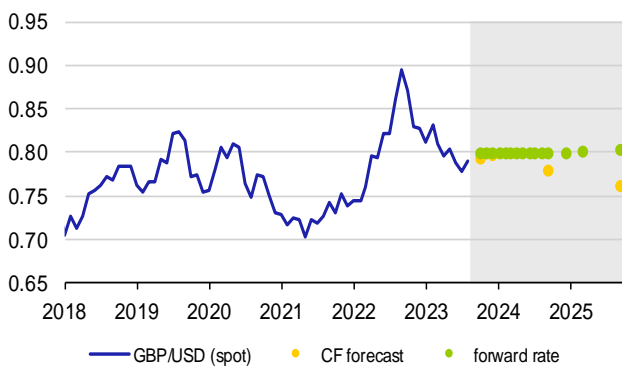
	11/9/23	10/23	12/23	9/24	9/25
spot rate	0.798				
CF forecast		0.793	0.797	0.780	0.763
forward rate		0.799	0.799	0.800	0.804

The Japanese yen (JPY/USD)

Legend: JPY/USD (spot), CF forecast, forward rate
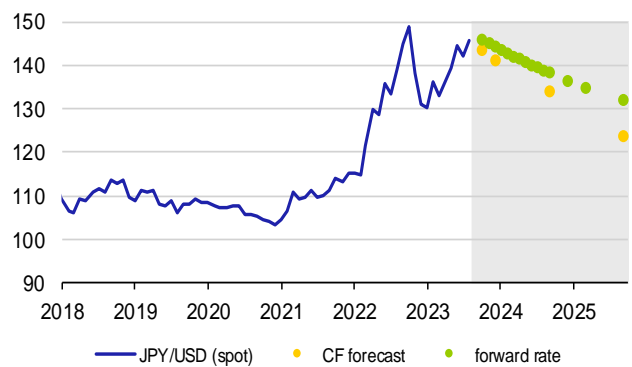
	11/9/23	10/23	12/23	9/24	9/25
spot rate	146.4				
CF forecast		143.5	141.5	134.2	123.9
forward rate		145.9	144.5	138.4	132.1

The Chinese renminbi (CNY/USD)

Legend: CNY/USD (spot), CF forecast
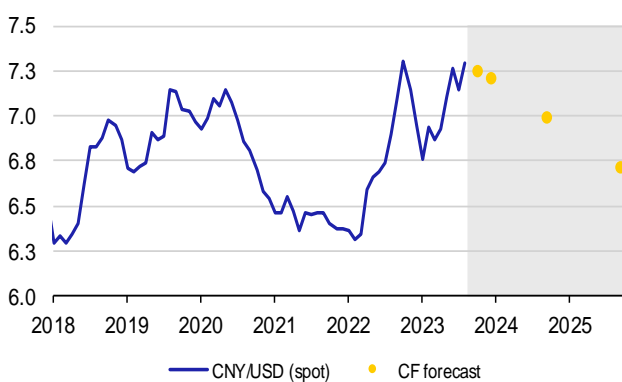
	11/9/23	10/23	12/23	9/24	9/25
spot rate	7.290				
CF forecast		7.257	7.212	6.994	6.722

The Russian rouble (RUB/USD)

Legend: RUB/USD (spot), CF forecast
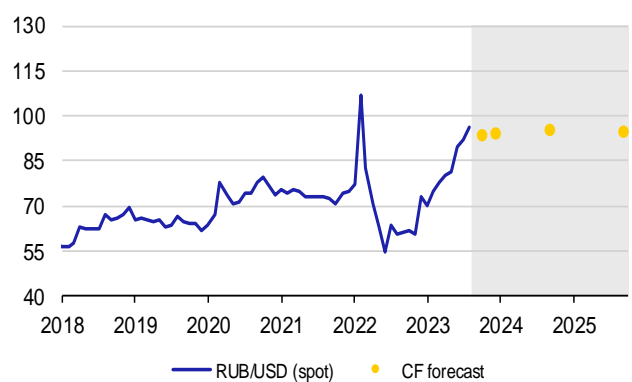
	11/9/23	10/23	12/23	9/24	9/25
spot rate	95.58				
CF forecast		94.06	94.31	95.76	94.76

Note: Exchange rates as of last day of month. Forward rate does not represent outlook; it is based on covered interest parity, i.e. currency of country with higher interest rate is depreciating. Forward rate represents current (as of cut-off date) possibility of hedging future exchange rate.
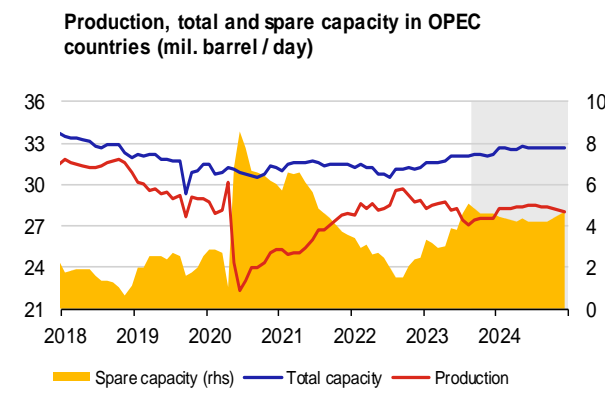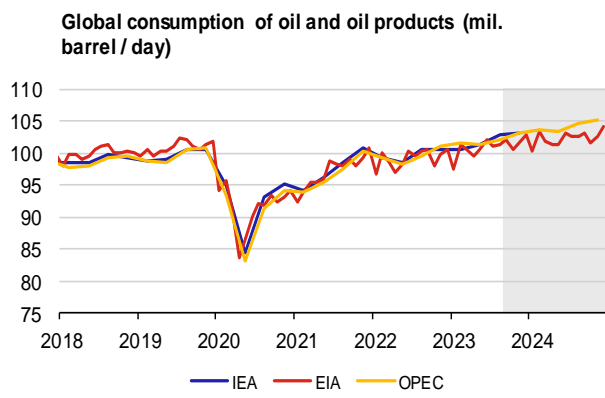
V.1 Oil

Following a temporary decline in the second half of August, prices on the crude oil market began to surge again at the end of the month and the Brent price reached USD 94/bbl in mid-September. The rise in oil prices ongoing since the end of June was interrupted by renewed concerns about a slowdown of the Chinese economy after the central bank there cut interest rates unexpectedly. The decline in oil prices was also driven by worse broader financial market sentiment, an appreciating dollar and weaker economic data from the USA and the EU. Hedge funds reduced their net long positions. Nonetheless, an increasing negative slope at the start of the futures price curve indicated persisting tightness on the physical market. This led oil prices to start rising again at the end of August. The growth intensified at the start of September when Saudi Arabia and Russia announced their intention to extend their production cuts until the end of this year. The growth in oil prices was also fostered by sharply falling oil inventories in the USA. The output cut in Saudi Arabia since July had been explained as being a response to speculative oil sales by financial investors, whereas the recent extension until the year-end is fuelling speculation as to whether this is a pre-emptive step in expectation of weaker demand or an attempt to lift the oil price above USD 100/bbl. Concerns of weaker economic growth in China are dragging on oil price growth in the long term, and the situation is complicated by big month-to-month swings in oil imports into China, but a strong domestic driving season and rising air passenger transport volumes, coupled with growing fuel exports from China, suggest that Chinese oil demand is fairly robust so far this year.

The market curve again shifted up markedly over the entire horizon in mid-September compared to the previous forecast, but remains downward-sloping, signalling a Brent price of USD 89.5 and 82.3/bbl at the end of 2023 and 2024 respectively. The September CF raised its 1Y forecast by USD 1 to USD 83.7/bbl, in line with the market curve. The EIA forecast has also gone up but predicts markedly higher levels for the end of 2023 and 2024 – USD 92 and 87/bbl respectively.

Outlook for prices of oil (USD/barrel) and natural gas (USD / 1000 m³)
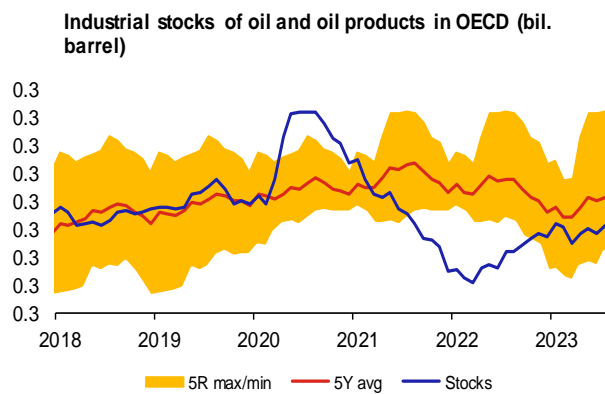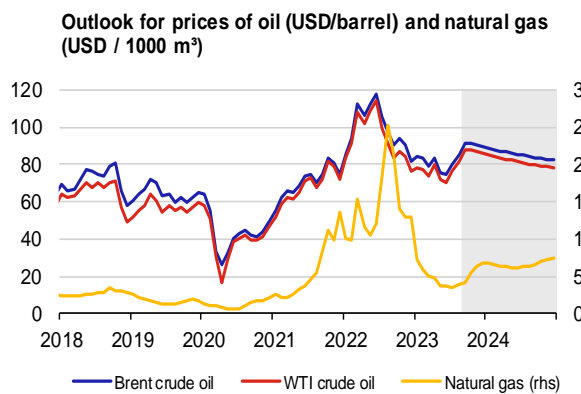
	Brent		WTI		Natural gas	
2023	84.02	↗	79.68	↗	506.92	↗
2024	85.25	↗	81.42	↗	662.33	↗

Industrial stocks of oil and oil products in OECD (bil. barrel)

Global consumption of oil and oil products (mil. barrel / day)

	IEA		EIA		OPEC	
2023	102.00	→	100.98	↘	102.06	↗
2024			102.34	↘	104.30	↗

Production, total and spare capacity in OPEC countries (mil. barrel / day)

|	Production		Total capacity		Spare capacity	
2023	27.92	↘	31.96	↗	4.04	↗
2024	28.30	↘	32.64	→	4.35	↗

Source: Bloomberg, IEA, EIA, OPEC, CNB calculation
Note: Oil price at ICE, average natural gas price in Europe – World Bank data. Future oil and gas prices (grey area) are derived from futures. Industrial oil stocks in OECD countries – IEA estimate. Production and extraction capacity of OPEC – EIA estimate.

V.2 Other commodities

The natural gas price in Europe rose in the first half of August and has since been fluctuating around EUR 35/MWh for more than a month. This is roughly the price it reached in July 2021 just before the energy crisis erupted. The rise in August was fuelled by fears of a drop in LNG exports from Australia due to threatened strikes. For some time, however, the gas price in Europe has been lower than the LNG price in Asia, suggesting an absence of tightness on the European market. Demand (especially in Germany) is weak and inventories are above the usual level for the time of year. Lower gas supplies from Norway due to unexpectedly lengthy seasonal maintenance have thus yet to lead to stronger gas price growth. During the coming winter, though, the gas price should gradually rise to EUR 55/MWh. The coal price in Europe also rose in the first half of August in response the growing natural gas price. The more than one-year long decline in the coal price thus halted.

The decline in the food commodity price index slowed in the first half of September compared to August, and the index is expected to rise for the rest of the year. This trend is due mainly to prices of wheat, corn and soy, which fell after the EU and the USA pledged to support agricultural commodity exports from the Black Sea region. The harvest outlook for Latin America continued to improve as well. By contrast, prices of rice and sugar went up and the cocoa price hit another historical high. Pork prices dropped sharply in mid-August. Beef prices were flat at an all-time high.

The six month-long decline in the industrial metal price index halted in September and the outlook is rising. Prices of all the index components decreased in August, with the exception of zinc and lead (thanks to a recovery in sales of electric vehicles). The Chinese government's latest steps to support the economy gave industrial metals prices a slight boost, but this was counteracted by growth in stocks of most metals at the LME, which merely confirms a continuing downward trend in global industrial demand. The strengthening dollar is also pushing metals prices down.

Non-energy commodities price indicies
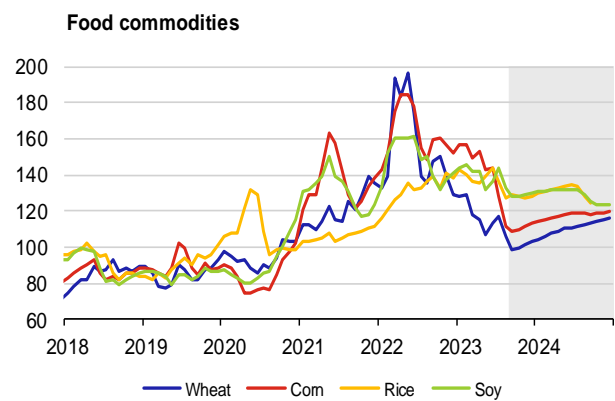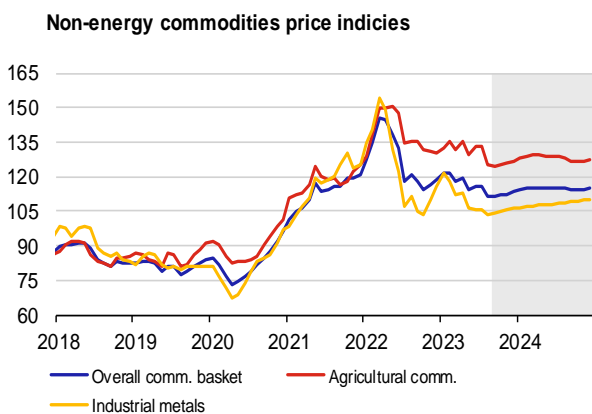
	Overall		Agricultural		Industrial	
2023	115.6		130.0		108.9	
2024	114.8		128.1		108.3	

Food commodities

	Wheat		Corn		Rice		Soy	
2023	111.3		132.2		134.5		136.2	
2024	111.0		117.7		131.1		128.8	

Meat, non-food agricultural commodities
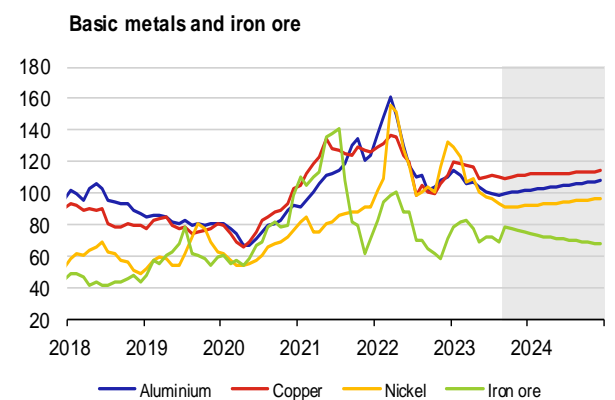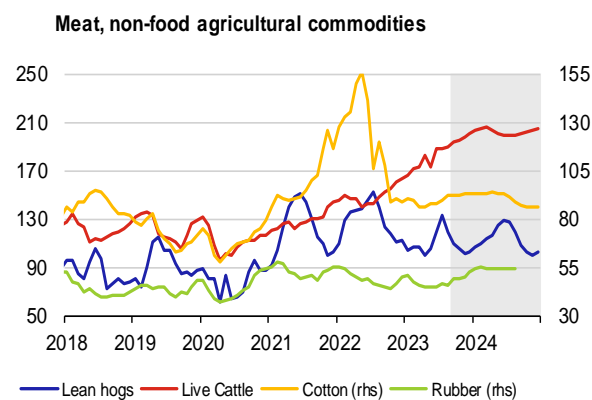
	Lean hogs		Live Cattle		Cotton		Rubber	
2023	109.5		184.8		90.0		47.6	
2024	113.1		202.2		90.5		54.4	

Basic metals and iron ore

	Aluminium		Copper		Nickel		Iron ore	
2023	103.9		113.3		102.0		76.3	
2024	105.4		113.2		94.8		71.0	

Source: Bloomberg, CNB calculations.
Note: Structure of non-energy commodity price indices corresponds to composition of The Economist commodity indices. Prices of individual commodities are expressed as indices 2010 = 100.

Business and financial cycles of major global economies[1]

Perhaps the most important lesson that central banks and other regulators have learned from the global financial crisis is the need to ensure the stability of the financial system.[2] The simultaneous peaks of the business and financial cycles have fully manifested the extent of the impact of financial stress on the real economy, i.e. GDP, consumption, investment and unemployment, highlighting the importance of macroprudential policy. This has led to the introduction of a number of new instruments to increase and ensure the resilience of the financial system. The crisis has also motivated central banks to incorporate the financial and banking sectors into their macroeconomic models. In the post-GFC world, business cycle volatility cannot be explained without taking the financial cycle into account. This article deals mainly with the practical aspects associated with the modelling of the business and financial cycles and the use of simple statistical filters. It also presents a comparison of the two cycles for the major global economies – USA, Japan, the UK, Germany and France.

Financial cycle 101

Monitoring the business cycle is not enough. While economics has recognised the cyclical nature of the real economy since the 1930s (due in part to the painful experience of the Great Depression), the term "financial cycle" has only emerged in the past few decades. Unlike the business cycle, which is commonly simplified as fluctuations in real GDP from its long-term trend (output gap), there is no single measure of the financial cycle. This is mainly due to the fact that financial systems differ across countries. The reIn the literature, the financial cycle and developments in the cycle are most often estimated using the following variables, variables derived from them or a combination thereof:[3]

- **The volume of loans to the private non-financial sector** – the gap in the ratio of total credit to real GDP (the Basel gap or the credit-to-GDP gap) is a commonly used measure of the financial cycle (see, for example, Minsky, 1982; Drehmann and Juselius, 2014). Other popular indicators include the credit gap, see, for example, Dell'Ariccia et al. (2012), and the debt service ratio, see, for example, Drehmann and Juselius (2012).
- **Property prices** – most often as the property price gap, for example, Drehmann and Juselius (2014), the price-to-income gap and the price-to-rent gap, for example, Cevik and Naik (2023).
- **Equity prices** – gaps in stock indices are a significantly less used indicator, mainly due to the amount of noise in time series (for example, Hatzius et al., 2010).

The financial cycle is typically two to four times longer than the business cycle and has a greater amplitude. This observation applies regardless of which of the above variables are used to define the financial cycle (Drehman et al., 2012). Therefore, if we consider the length of business cycle as 4–7 years,[4] the financial cycle lasts around 8-28 years. In addition, fluctuations of the financial cycle from the long-term trend have been several times larger, especially since the mid-1980s. At that time, the cycles also started to diverge more. Both observations can be attributed to globalisation, be it of the financial or real parts of the economy, and to changes in monetary policy regimes (Borio, 2014). Chart 1 illustrates these stylised facts using the USA, the world's largest economy, as an example, with its advanced financial sector and strong global impact. The chart shows that the various approaches to measuring the financial cycle (using different variables) yields similar information about its form and length. It also shows that historically the peak of financial cycle indicator is usually followed by a recession. The chart also indicates a peak last year. Analyst forecasts would also have made sense from this perspective. They had initially expected a recession in the USA in mid-2023 and are now expecting one in late 2023 and early 2024.

Historically, peaks in financial cycles have been reliably followed by recessions. A good example is the global financial crisis that was preceded, and ultimately intensified, by a decade-long global financial boom (see Chart 1). However, cyclical recessions are not necessarily preceded by financial stress. For example, the 1996–2001 dot.com bubble was accompanied by the same financial expansion in the United States and Europe for its entire duration (see Chart 1).

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[1] Author: Jakub Doležal. The views expressed in this article are those of the author and do not necessarily reflect the official position of the Czech National Bank. The author wishes to express his special thanks to Libor Holub and Zlatuše Komárková of the Financial Stability Department, and Luboš Komárek and Petr Polák from the editing team for their valuable advice and comments.

[2] The activities of the Bank for International Settlements at the turn of the millennium made a fundamental contribution in this area. At that time, special departments were beginning to emerge in a number of central banks, explicitly focusing on assessment of the risks to the financial system.

[3] A fitting example is the CNB's composite financial cycle indicator, which aggregates several time series, weighted by the ability to capture the banking sector's future credit losses. See https://www.cnb.cz/en/financial-stability/thematic-articles-on-financial-stability/An-indicator-of-the-financial-cycle-in-the-Czech-economy/

[4] There are a number of approaches to describing cycles in economics, relating mainly to their length and nature. One of the short-term cycles is the Kitchin cycle, lasting 18–40 months, which represents short-term fluctuations in real output caused by fluctuations in inventories. The causes are difficult to determine. The Juglar cycle is a medium-term cycle lasting 8–10 years associated with investment in fixed capital, alternating periods of increased wear and tear and increased investment. They may also involve alternating commodity generations, agricultural fluctuations, etc. Kuznets cycles (also Schumpeter, Kondratiev waves) are long-term cycles lasting 20–50 years. These can be explained by wars, scientific discoveries, major infrastructural investment, innovation waves, etc.

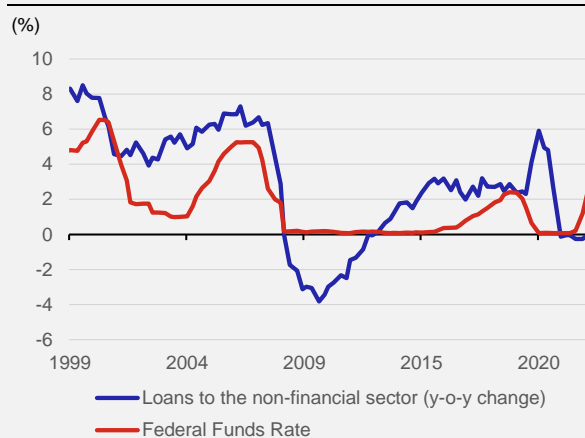**Chart 1 – US business and financial cycle**

(% deviation from trend)
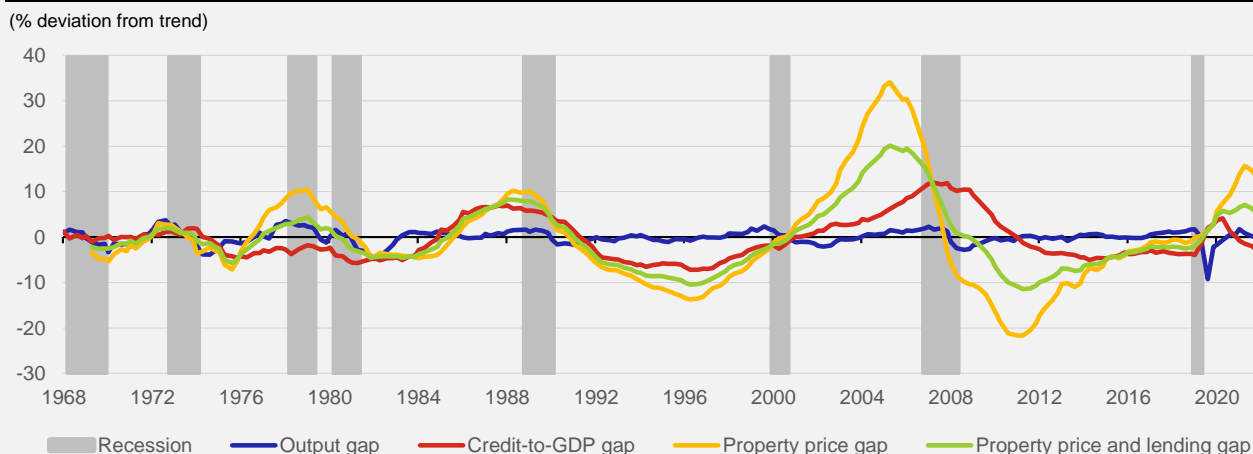
Source: Federal Reserve Bank of St. Louis (FRED), author's calculations
Note: The credit gap is the gap in the ratio of total credit to real GDP.

Recessions or crises[5] accompanied by a fall in the financial cycle are deeper and longer-lasting. On average, during these recessions, economies record declines in real GDP which are 50% higher than in other recessions (Drehman et al., 2012). However, the same logic applies to the recovery phase, which is shorter if accompanied by a financial expansion.

The global financial crisis consolidated the role of macroprudential policy as an independent discipline. This policy is tasked with safeguarding the stability of the financial system as a whole. In practice, it has a countercyclical effect on financial variables and thus prevents the build-up of systemic risk. In many countries, macroprudential policy is the responsibility of the central bank (for example, the UK, New Zealand, the Czech Republic). In others, it is that of regulators composed in part of central bank representatives (for example, the USA, the euro area, Japan, Norway). The objectives of macroprudential policy and the use of its instruments can influence monetary policy decision-making and indirectly affect the course of the business cycle and its implications for the economy. This relationship can also be seen in the opposite direction – monetary policies affect the financial cycle and the stability of the financial system. Interest rates directly and significantly affect credit growth, property prices and financial asset prices. Restrictive monetary policy is dampening growth in financial variables and is supporting expansionary growth (see Chart 2). In periods of sustained low monetary policy rates we can observe that banks, for example, lower their lending standards (Maddaloni and Peydró, 2011; Jimenéz et al., 2014). By contrast, the implementation of macroprudential policy instruments may have "spillover effects" on the output of the economy and the transmission of monetary policy at certain stages of the business and financial cycle. However, the effect depends on the specific instrument, its parameters

Chart 2 – Total real loans to the private sector

(%)

Source: FRED

and the situation in the banking sector and sectors of the real economy at the time of its application. For example, the countercyclical capital buffer (CCyB) and banks' liquidity requirements can have a rather limited effect on economic output (especially in an environment of robust capitalisation, profitability and liquidity of the banking sector), and credit ratio limits (LTV, DTI and DSTI) can have a somewhat stronger effect on the business cycle (Nier and Kang, 2016; Richter et al., 2019). The current and expected position in the financial and business cycle at the central bank's forecast horizon must thus be taken into account in the central bank's financial stability decision-making.

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[5] In a statistical sense, a recession is defined as a decline in GDP lasting at least two quarters. The situation can be described as a crisis if the fall in GDP lasts more than four quarters.

Box 1 – Production function vs statistical filters

Can univariate filters get close enough to "reality"? Box 1 compares the univariate filters that appear in the literature examining the business cycle using real GDP in the Czech Republic. Compared to the output gap from the production function, the two-sided Hodrick-Prescott filter with a smoothing parameter λ = 1,600 fares best. Unlike the one-sided filter, it sets the trend at a certain time also with regard to later values that are not available in real time. The three remaining filters produce far worse results. The first is the one-sided version of the HP filter, which, by definition, displays virtually the same picture at the end of the series as the two-sided version and therefore suffers very similarly from end-point bias. The second method tested is the Hamilton regression filter (Hamilton, 2018). This was created as an alternative to the HP filter and reduces its shortcomings to some extent. The last filter chosen is the band-pass HP filter, which is used by the OECD to calculate the composite leading indicators of the business cycle (CLIs), an overview of which is a traditional part of Global Economic Outlook. This method applies the HP filter twice: first for extraction of the cycle with λ = 133,107.94 and a second time to remove high-frequency noise with λ = 13.93 (Yamada, 2012). However, all four methods share one shortcoming.

By their nature, univariate statistical filters attribute the drop in GDP during the pandemic to a cyclical swing of the economy (see Chart 2). However, it was the potential, and not the cyclical component, that had fallen drastically. During the lockdown, it was subject to restrictions across sectors introduced to slow the spread of Covid-19, and economic activity thus fell short of its long-term trend.

Chart Box – difference between output gap estimates

(% of potential GDP)
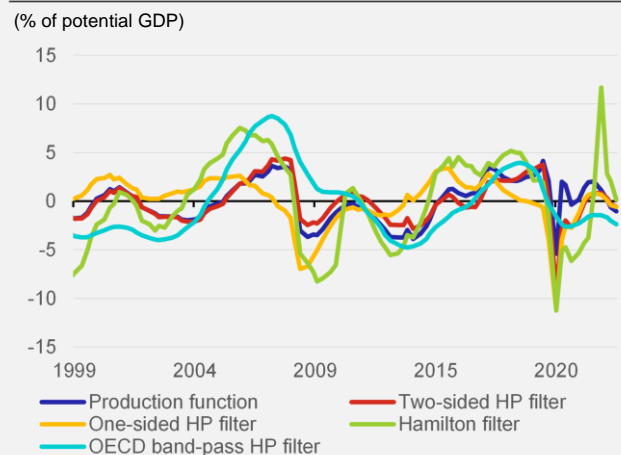
Source: Eurostat, author's calculations
Note: λ = 1,600 was used for both the two-sided and one-sided filter.

Modelling cycles in practice

How to best model cycles? Burns and Mitchell (1946) presented the first ever formal method of analysing the cyclical behaviour of time series – the break-point method. If we consider its application to the business cycle, the method designates the time between reaching the local minimum (maximum) and local maximum (minimum) of real GDP as the period of expansion (recession). However, the method does not tell us how much the economy deviates from the trend in periods of expansion or recession, making it difficult to use for the purposes of stabilisation policy. In cycle analyses, economics often looks at macroeconomic and financial variables as deviations from the long-term trend.

However, gaps in macroeconomic or financial variables based on theory are not inherently measurable or observable. This is due to their definition as the difference between an observable variable (e.g. GDP, credit volume) and its steady-state level (potential of GDP, credit trend) that is neither measurable nor observable. Univariate statistical filters are an effective solution which combines numerical simplicity and the ability to deliver relatively accurate results. The Hodrick-Prescott filter (Hodrick and Prescott, 1997) is a widely-used filter in economics and is also used in this article for modelling cycles. In the spirit of economic theory, the Hodrick-Prescott filter assumes that time series can be viewed as the sum of the long-term trend and cyclical components. The trend is determined on the basis of historical values and the "smoothing parameter" λ. Higher values of λ lead to a smoother, even linear trend, while with lower values the trend is closer to the observed values. In the literature, λ = 1,600 is typically used for the business cycle and λ = 2,500–400,000 for a longer financial cycle. However, the simplicity of the method has several shortcomings. End-point bias or the deviation at the end of the series (i.e. the period that matters most) is probably the most serious of these. This is because, in the absence of future values, the filter indicates the position in the cycle unreliably. The use of the filter (at least without a reliable forecast of a given variable) is therefore problematic in real time, which is important for political decision-making. Other often-cited criticisms focus on the univariate nature of the filter (the trend is based on only one variable, unlike, for example, the Kalman filter, which allows trends of multiple variables to be monitored) and the arbitrary choice of the smoothing parameter λ, which is not based on the fundamentals of economic theory.

Economics naturally also offers more advanced approaches to capturing the business and financial cycles than statistical filters. A popular method for deriving the business cycle is to calculate potential output using the Cobb-Douglas production function explaining the output of the economy using inputs, specifically productivity, labour and capital (empirical comparison in Box 1) or using structural macroeconomic models. Similar methods can also be applied to estimate the financial cycle. For example, Seidler and Geršl (2012) estimate the steady-state level of the aforementioned credit-to-GDP variables for Central European post-Communist countries using elasticities obtained from a panel of advanced market economies. For most countries, the gap obtained in this way is diametrically different to that obtained using the HP filter – credit expansion does not necessarily mean excessive borrowing (and possible materialisation of risk) but rather

convergence to the financial world in the West. Baxa and Žáček (2022) derive the financial cycle from a multidimensional structural model using time series for GDP, credit volumes, property prices and asset prices.

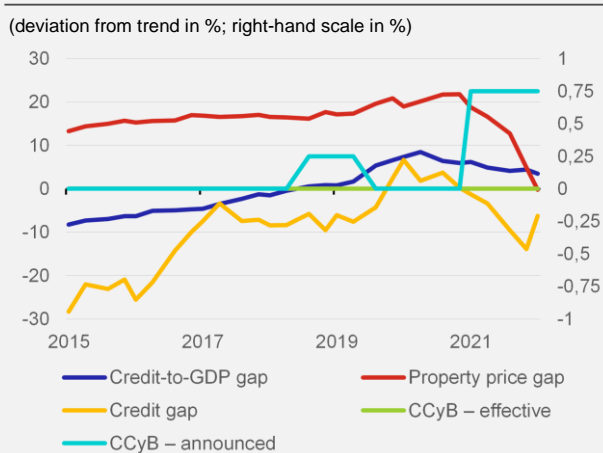## Cycles and central bank decision-making

The position of the economy in the cycle is reflected in the policy-making of some central banks. One such example is the US Fed, whose objectives also include maintaining high employment.[6] However, in most market economies, price stability tends to be the primary objective for monetary policy decision-makers, and other goals (e.g. stabilising output, i.e. the countercyclical role of monetary policy) are only of secondary importance. The shift in perspective in this direction has been accelerated by the flattening Phillips curve, suggesting that the link between the positive output gap and inflation has weakened over time (e.g. Kuttner and Robinson, 2010; Akerlof et al., 2014). In addition, contemporary macroeconomic theory argues that stabilising output goes hand in hand with price stability – the "divine coincidence" (Blanchard and Galí, 2007). The inflation outlooks at the monetary policy horizon are therefore the primary guide for setting interest rates. However, there are also exceptions. For example, the interest rate cuts introduced with the onset of the Covid-19 pandemic were partly motivated by efforts to prop up a hampered real economy where economic agents really had no idea what such a shock could generate. By contrast, macroprudential policy uses a number of instruments pursuing various intermediate macroprudential policy objectives[7] but has one primary objective, and that is to achieve overall financial stability. Despite the single institutional framework due to membership of the Basel Committee on Banking Supervision, approaches to the application of specific instruments often differ across countries. This mainly holds true of the countercyclical capital buffer (CCyB) designed to influence the financial cycle. From the time perspective, it is set asymmetrically (i.e. it is increased with a sufficiently long lead time and decreased or released immediately). The aim is to increase the banking sector's resilience to credit risk materialisation in the recessionary phase of the financial cycle. In practice, during periods of financial expansion exceeding the long-term trend (a positive financial cycle gap), banks are required to create and maintain a capital buffer which would not only be able to sufficiently cover losses from a future financial downturn, but also support smooth lending.

The Basel Committee on Banking Supervision (2010) recommends using the credit-to-GDP gap as a common reference indicator of the position in the cycle for setting the CCyB rate.[8] Also known as the Basel gap, the indicator is modelled for these purposes using a one-sided HP filter with a smoothing parameter $\lambda = 400,000$. The recommended CCyB rate rises as the percentage deviation from the trend rises. The problems associated with this practice are highlighted, for example, by Edge and Maisenzahl (2011). The rest of the article elaborates on the use of the countercyclical capital buffer in the regionally important countries that apply it. More specifically, it offers a view of the extent to which the changes in the CCyB rate correspond to the estimate of the Basel gap constructed according to the common methodology.
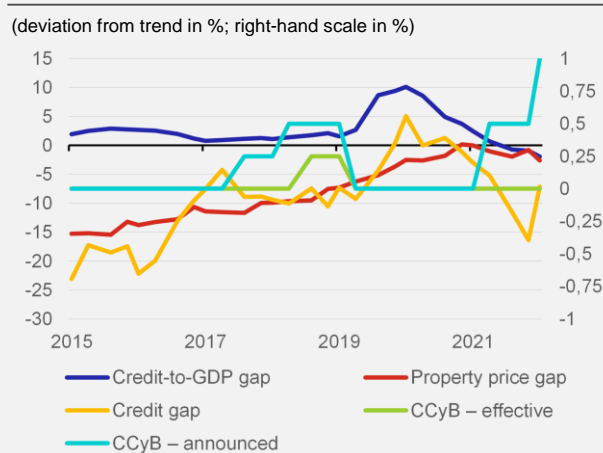
The case of Germany

BaFin, which falls under the Federal Ministry of Finance, is responsible for the countercyclical capital buffer in Germany. At the end of June 2019, BaFin announced the introduction and implementation of the CCyB at a rate of 0.25% with effect from 1 July 2020. The decision to introduce the instrument was motivated by a positive Basel gap (BaFin, 2019), which had turned positive for the first time since 2004 in late 2019 H1 (see Chart 3). However, the buffer has not been activated yet, as

Chart 3 – Estimate of Germany's current position

(deviation from trend in %; right-hand scale in %)

Legend: Credit-to-GDP gap; Property price gap; Credit gap; CCyB – effective; CCyB – announced

Source: Eurostat, ESRB, author's calculations
Note: CCyB – countercyclical capital buffer.

Chart 4 – Estimate of France's current position

(deviation from trend in %; right-hand scale in %)

Legend: Credit-to-GDP gap; Property price gap; Credit gap; CCyB – effective; CCyB – announced

Source: Eurostat, ESRB, author's calculations
Note: CCyB – countercyclical capital buffer.

[7] See https://www.esrb.europa.eu/pub/pdf/recommendations/2013/ESRB_2013_1.en.pdf

[8] The ESRB (European Systemic Risk Board), an authority supervising the EU financial system, draws attention to the differences in the appropriateness of the indicator across countries and recommends that national regulators take into account more relevant indicators. See https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32014Y0902(01)

the decision to introduce the CCyB rate was abolished at the end of March 2020 due to concerns associated with the real and financial developments after the Covid-19 pandemic. This decision was made by BaFin partly because German banks had expected the level of capital to increase by the CCyB rate since the June announcement and were thus prepared for hypothetical losses (BaFin, 2020). However, the gap widened markedly during the pandemic (due to a fall in GDP and simultaneous credit growth) and, along with a record-high drop in property prices (see Chart 3), became one of the reasons for the introduction of a CCyB rate of 0.75% with effect from February 2023 (BaFin, 2022).

The case of France

The HCSF (Haut Conseil de stabilité financière) is responsible for setting the CCyB rate in France. Its members include the Minister of Finance and the Governor of the Banque de France. The implementation of the countercyclical capital buffer has been very similar to that in Germany. Owing to a positive Basel gap and its outlook, a CCyB rate of 0.25% entered into force in July 2019. This was accompanied by the announcement of a doubling of the rate with effect from April 2020. However, the buffer was released in 2020 Q1 due to the pandemic. The latest HCSF decisions are interesting, though – a CCyB rate of 0.5% applicable since April 2023 and a 1% rate to come into effect in January 2024. The Basel gap is negative in both cases, something not mentioned by the Council in its press releases. The decision was motivated primarily by strong credit growth in the second half of 2022 and total private sector debt (HCSF, 2022).

The case of the United Kingdom

In the UK, the countercyclical capital buffer rate is set by the FPC (Financial Policy Comittee), made up of representatives of the Bank of England and external experts. The UK regulator does not use the Basel gap to set the rate (FPC, 2016),[9] as illustrated in Chart 5. The initial introduction of the CCyB rate, announced in July 2016, was cancelled due to Brexit and related concerns about financial stress. As in Germany and France, a buffer rate of 1% was later introduced, and was released during the Covid-19 pandemic. In the current situation, when the Basel gap is negative, a relatively high rate of 2% applies to British banks compared to neighbouring countries. BoE approaches the setting of CCyB pragmatically and takes into account also the results of stress tests.[10]

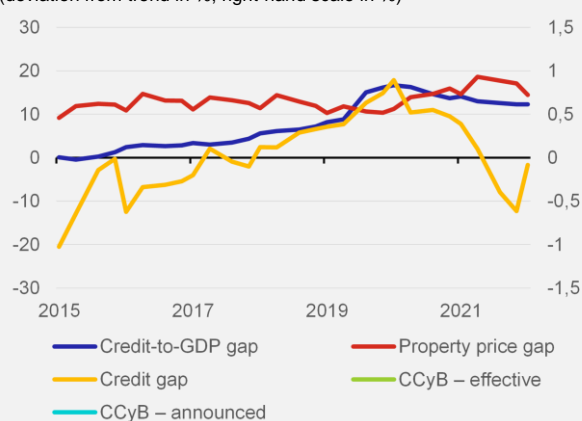**Chart 5 – Estimate of the UK's current position**
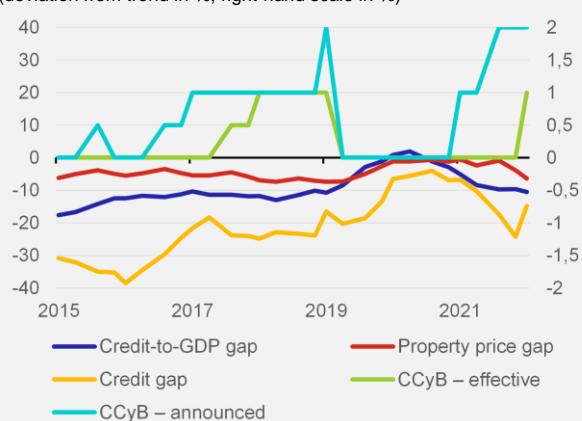
(deviation from trend in %; right-hand scale in %)

Source: Eurostat, ESRB, author's calculations
Note: CCyB – countercyclical capital buffer.

Chart 6 – Estimate of Japan's current position

(deviation from trend in %; right-hand scale in %)

Source: Federal Reserve Bank of St. Louis, author's calculations
Note: Japan has not applied the CCyB rate yet.

The case of Japan

Unlike in the advanced economies of the global West, in Japan's case, there are no clear trends in financial variables. In Japan, for example, the evolution of real property prices is unique, as they have not reached the level observed at the start of the "lost decade" in more than 30 years. With a bit of exaggeration, we can say that the theoretical financial cycle is longer than the time series themselves. Despite this, a financial gap indicator pointing to a positive position like the credit-to-GDP gap (see Chart 6) can be found in the Financial System Reports published by the Bank of Japan (BoJ, 2023).

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[9] The FPC's primary measure for setting the CCyB rate is the ability of domestic banks to absorb potential losses. For example, standards for the provision of loans and stress test results are taken into account.

[10] See, for example https://www.bankofengland.co.uk/paper/2023/ps/the-financial-policy-committees-approach-to-setting-the-countercyclical-capital-buffer

Conclusion

The global financial crisis has brought about a definitive paradigm shift in the perception of the financial sector. Financial variables displaying cyclical behaviour have a marked effect on the real economy. The most important lesson still is that recessions accompanied by financial failures are deeper and longer-lasting. Macroprudential policy, which reduces the build-up of financial stress, was incorporated into the toolkit of central banks (or institutions established for this purpose) also to ensure that countries eliminate as much as possible any losses arising from the suboptimal functioning of the financial system.

The Hodrick-Prescott filter is used as a simple and relatively informative tool for estimating the long-term trend of economic variables. End-point bias and misleading real-time estimates remain a problem. As recognised by the Basel Committee, national regulators rely more on other indicators or more comprehensive approaches when setting the countercyclical capital buffer (see also e.g. the CNB) rather than the standardised representation of the Basel gap (Basel Committee on Banking Supervision, 2022) to enable the CCyB to fulfil its role in mitigating the impacts of the adverse phase of the financial cycle more effectively. Of the three European countries under review applying the CCyB rate, Germany is the only country whose rate is qualitatively consistent with the Basel gap as originally defined. However, this can be expected. As the European Systemic Risk Board (ESRB) points out, financial cycles are relatively different across countries, so the common reference indicator may not always meet financial stability needs (ESRB, 2014; ESRB, 2022).

The Hodrick-Prescott filter is unreliable for evaluating the current state of the financial cycle in selected countries or its outlook. In all three cases of European economies, the effective CCyB rate is currently at historical highs despite low filter-derived values of the financial gap. Systemic risk and the potential losses for which regulators are preparing the banking systems in their jurisdictions cannot be perceived through a univariate filter.

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Keywords

Financial cycle, business cycle, Hodrick-Prescott filter, countercyclical capital buffer

JEL Classification

E32, E58, G28

A1. Change in predictions for 2023

GDP growth, %

	CF		IMF		OECD		CB / OE	
EA	-0.1	2023/9 2023/8	+0.1	2023/7 2023/4	+0.1	2023/6 2023/3	-0.2	2023/9 2023/6
US	+0.2	2023/9 2023/8	+0.2	2023/7 2023/4	+0.1	2023/6 2023/3	+0.6	2023/6 2023/3
UK	+0.1	2023/9 2023/8	+0.7	2023/7 2023/4	+0.5	2023/6 2023/3	+0.2	2023/8 2023/5
JP	+0.4	2023/9 2023/8	+0.1	2023/7 2023/4	-0.1	2023/6 2023/3	-0.1	2023/7 2023/4
CN	-0.3	2023/9 2023/8	0	2023/7 2023/4	+0.1	2023/6 2023/3	0	2023/9 2023/8
RU	+0.3	2023/8 2023/7	+0.8	2023/7 2023/4	+1.0	2023/6 2023/3	+0.1	2023/9 2023/8

Inflation, %

	CF		IMF		OECD		CB / OE	
EA	0	2023/9 2023/8	-0.4	2023/4 2022/10	-0.4	2023/6 2023/3	+0.2	2023/9 2023/6
US	0	2023/9 2023/8	+1.0	2023/4 2022/10	+0.5	2023/6 2023/3	-0.1	2023/6 2023/3
UK	+0.1	2023/9 2023/8	-2.2	2023/4 2022/10	+0.2	2023/6 2023/3	0	2023/8 2023/5
JP	+0.1	2023/9 2023/8	+1.3	2023/4 2022/10	+0.3	2023/6 2023/3	+0.7	2023/7 2023/4
CN	-0.2	2023/9 2023/8	-0.2	2023/4 2022/10	-0.1	2023/6 2023/3	0	2023/9 2023/8
RU	+0.4	2023/8 2023/7	+2.0	2023/4 2022/10	-1.0	2023/6 2023/3	+0.2	2023/9 2023/8

A2. Change in predictions for 2024

GDP growth, %

	CF		IMF		OECD		CB / OE	
EA	-0.1	2023/9 2023/8	+0.1	2023/7 2023/4	0	2023/6 2023/3	-0.5	2023/9 2023/6
US	+0.2	2023/9 2023/8	-0.1	2023/7 2023/4	+0.1	2023/6 2023/3	-0.1	2023/6 2023/3
UK	0	2023/9 2023/8	0	2023/7 2023/4	+0.1	2023/6 2023/3	-0.3	2023/8 2023/5
JP	-0.1	2023/9 2023/8	0	2023/7 2023/4	0	2023/6 2023/3	0	2023/7 2023/4
CN	-0.2	2023/9 2023/8	0	2023/7 2023/4	+0.2	2023/6 2023/3	0	2023/9 2023/8
RU	-0.1	2023/8 2023/7	0	2023/7 2023/4	+0.1	2023/6 2023/3	-0.1	2023/9 2023/8

Inflation, %

	CF		IMF		OECD		CB / OE	
EA	0	2023/9 2023/8	+0.2	2023/4 2022/10	+0.2	2023/6 2023/3	+0.2	2023/9 2023/6
US	-0.1	2023/9 2023/8	+0.1	2023/4 2022/10	+0.1	2023/6 2023/3	0	2023/6 2023/3
UK	+0.1	2023/9 2023/8	-0.7	2023/4 2022/10	0	2023/6 2023/3	0	2023/8 2023/5
JP	+0.3	2023/9 2023/8	+1.2	2023/4 2022/10	+0.2	2023/6 2023/3	-0.1	2023/7 2023/4
CN	-0.2	2023/9 2023/8	+0.3	2023/4 2022/10	0	2023/6 2023/3	0	2023/9 2023/8
RU	0	2023/8 2023/7	+0.6	2023/4 2022/10	-0.1	2023/6 2023/3	+0.4	2023/9 2023/8

A3. GDP growth and inflation outlooks in the euro area countries

GDP growth in the euro area countries in 2023 and 2024, %
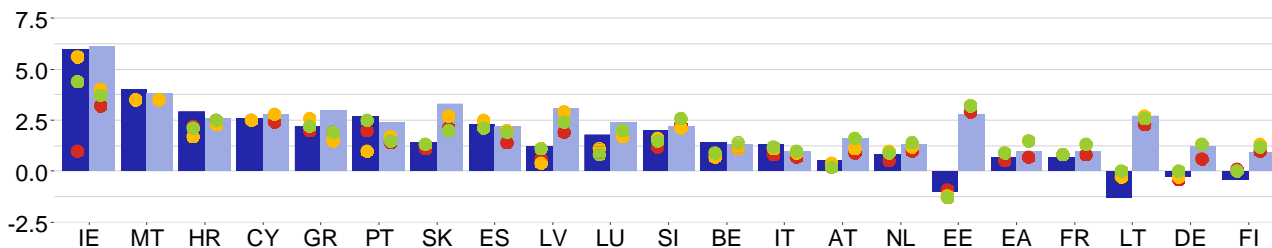
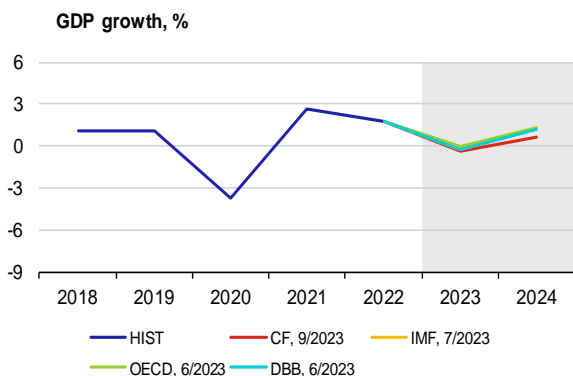### Inflation in the euro area countries in 2023 and 2024, %

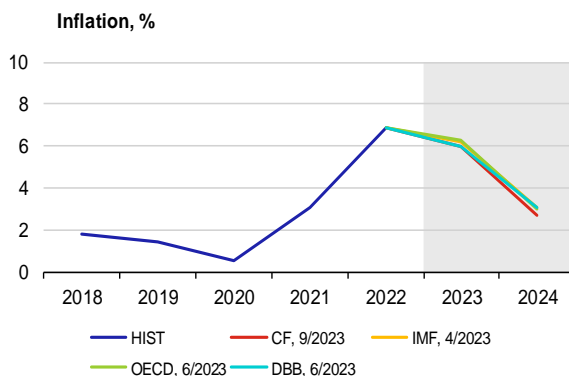● CF ● IMF ● OECD ■ ECB 2023 ■ ECB 2024
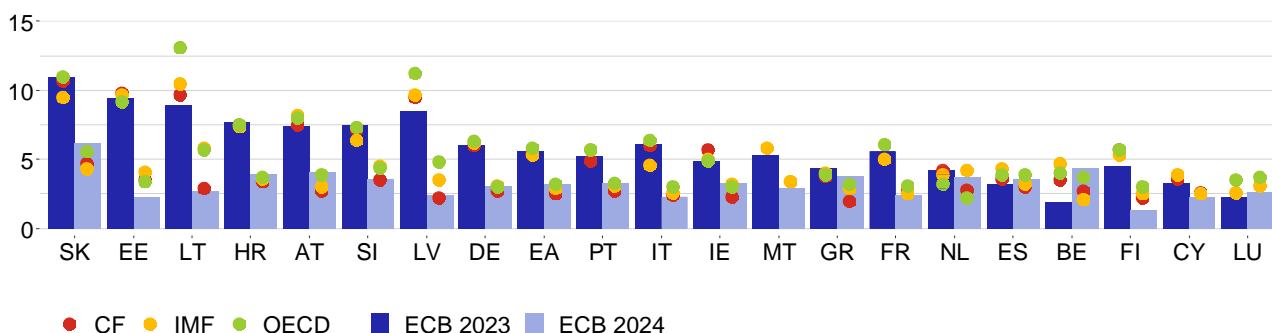
Note: Charts show institutions' latest available outlooks of for the given country.

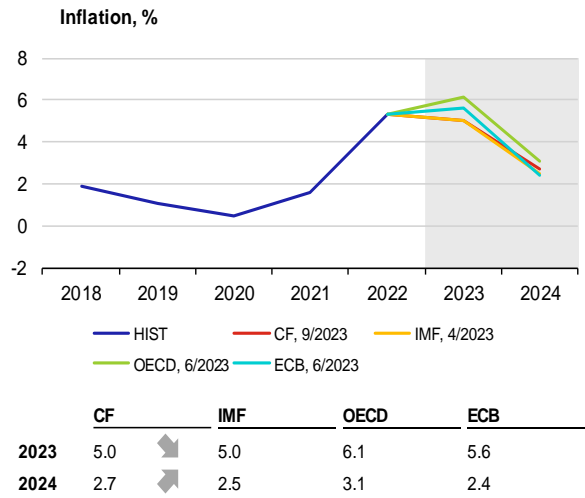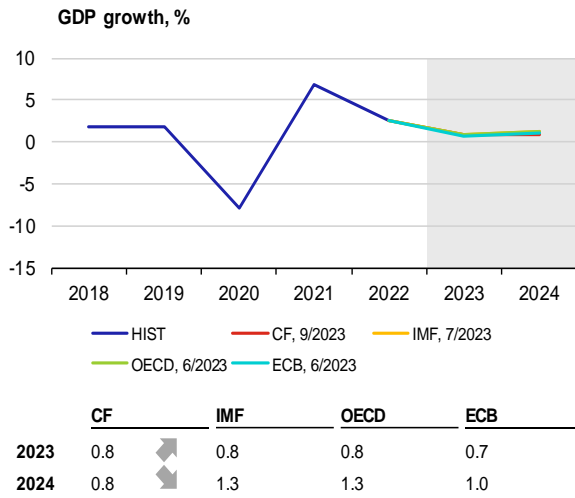## A4. GDP growth and inflation in the individual euro area countries

Germany

GDP growth, %

Inflation, %

HIST — CF, 9/2023 — IMF, 7/2023 — OECD, 6/2023 — DBB, 6/2023

	CF		IMF	OECD	DBB
2023	-0.4	⬇	-0.3	0.0	-0.3
2024	0.6	⬇	1.3	1.3	1.2

HIST — CF, 9/2023 — IMF, 4/2023 — OECD, 6/2023 — DBB, 6/2023

	CF		IMF	OECD	DBB
2023	6.0	➡	6.2	6.3	6.0
2024	2.7	⬈	3.1	3.0	3.1

France

GDP growth, %

| | HIST | CF, 9/2023 | IMF, 7/2023 |
| | OECD, 6/2023 | ECB, 6/2023 | |

	CF		IMF	OECD	ECB
2023	0.8	↗	0.8	0.8	0.7
2024	0.8	↘	1.3	1.3	1.0

Inflation, %

| | HIST | CF, 9/2023 | IMF, 4/2023 |
| | OECD, 6/2023 | ECB, 6/2023 | |

	CF		IMF	OECD	ECB
2023	5.0	↘	5.0	6.1	5.6
2024	2.7	↘	2.5	3.1	2.4

Italy

GDP growth, %

| | HIST | CF, 9/2023 | IMF, 7/2023 |
| | OECD, 6/2023 | ECB, 6/2023 | |

	CF		IMF	OECD	ECB
2023	0.8	↘	1.1	1.2	1.3
2024	0.7	→	0.9	1.0	1.0

Inflation, %

| | HIST | CF, 9/2023 | IMF, 4/2023 |
| | OECD, 6/2023 | ECB, 6/2023 | |

	CF		IMF	OECD	ECB
2023	6.0	→	4.6	6.4	6.1
2024	2.4	↗	2.6	3.0	2.3

Spain

GDP growth, %

| | HIST | CF, 9/2023 | IMF, 7/2023 |
| | OECD, 6/2023 | ECB, 6/2023 | |

	CF		IMF	OECD	ECB
2023	2.2	↗	2.5	2.1	2.3
2024	1.4	→	2.0	1.9	2.2

Inflation, %

| | HIST | CF, 9/2023 | IMF, 4/2023 |
| | OECD, 6/2023 | ECB, 6/2023 | |

	CF		IMF	OECD	ECB
2023	3.6	↗	4.3	3.9	3.2
2024	3.0	↘	3.2	3.9	3.6

Netherlands

GDP growth, %

	CF		IMF	OECD	ECB
2023	0.5		1.0	0.9	0.8
2024	1.0		1.2	1.4	1.3

Inflation, %
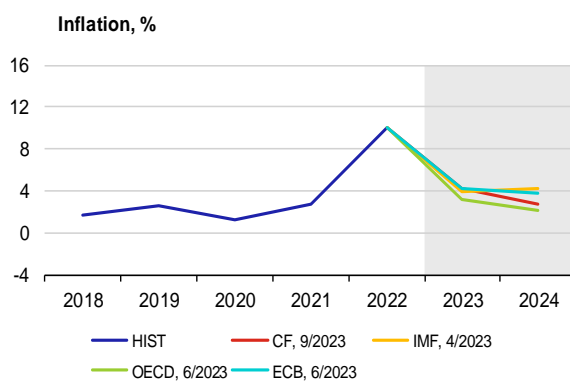
	CF		IMF	OECD	ECB
2023	4.2		3.9	3.2	4.2
2024	2.8		4.2	2.2	3.7

Belgium

GDP growth, %
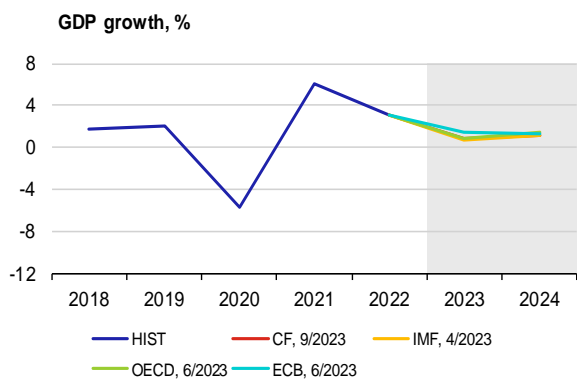
	CF		IMF	OECD	ECB
2023	0.9		0.7	0.9	1.4
2024	1.1		1.1	1.4	1.3

Inflation, %
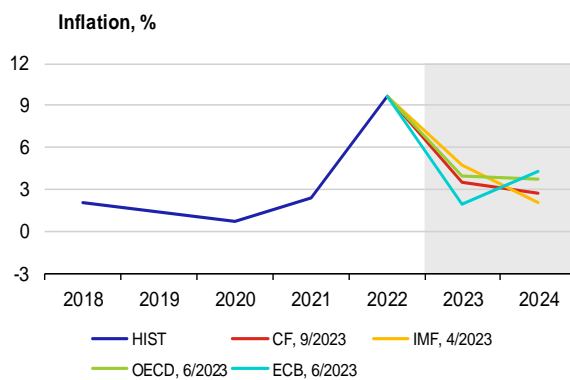
	CF		IMF	OECD	ECB
2023	3.5		4.7	4.0	1.9
2024	2.7		2.1	3.7	4.3

Austria

GDP growth, %
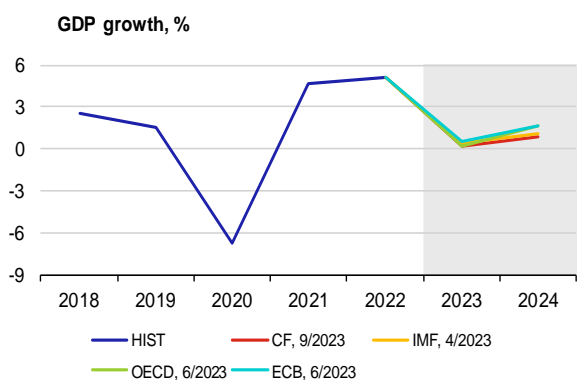
	CF		IMF	OECD	ECB
2023	0.2		0.4	0.2	0.5
2024	0.9		1.1	1.6	1.6

Inflation, %
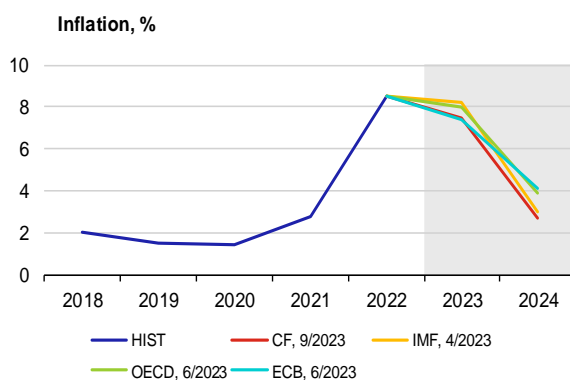
	CF		IMF	OECD	ECB
2023	7.5		8.2	8.0	7.4
2024	2.7		3.0	3.9	4.1

Ireland

GDP growth, %
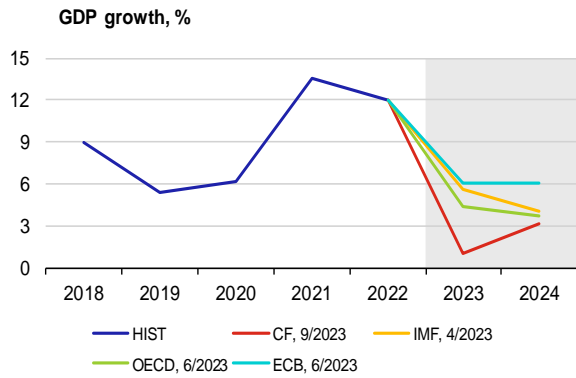
	CF		IMF	OECD	ECB
2023	1.0		5.6	4.4	6.0
2024	3.2		4.0	3.7	6.1

Inflation, %
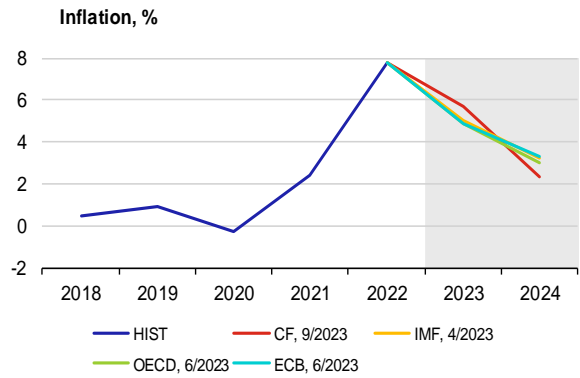
	CF		IMF	OECD	ECB
2023	5.7		5.0	4.9	4.9
2024	2.3		3.2	3.0	3.3

Finland

GDP growth, %
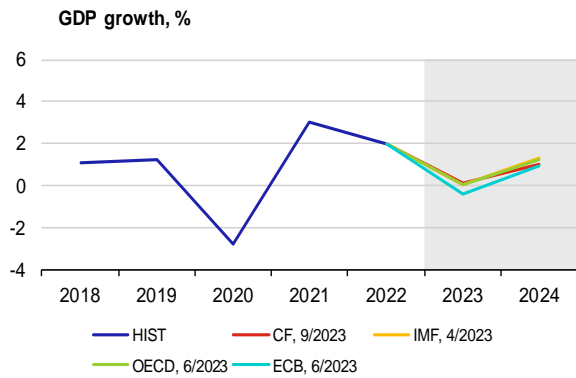
	CF		IMF	OECD	ECB
2023	0.1		0.0	0.0	-0.4
2024	1.0		1.3	1.2	0.9

Inflation, %
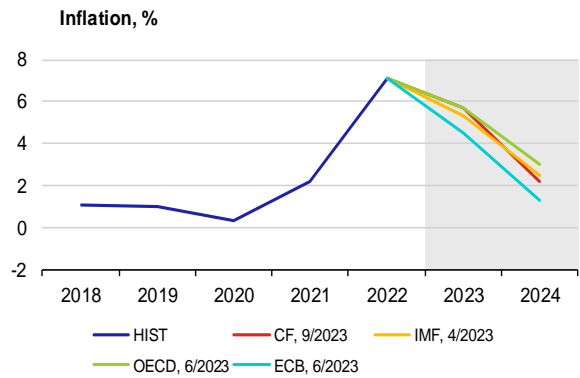
	CF		IMF	OECD	ECB
2023	5.7		5.3	5.7	4.5
2024	2.2		2.5	3.0	1.3

Portugal

GDP growth, %
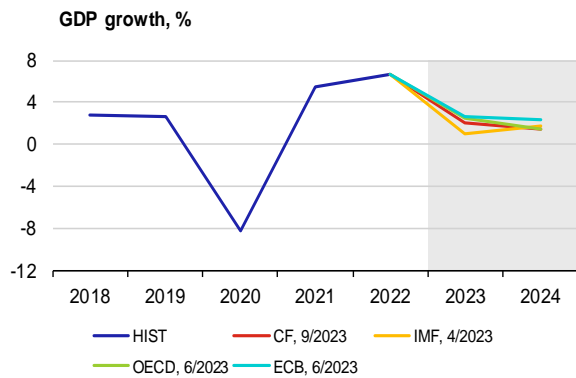
	CF		IMF	OECD	ECB
2023	2.0		1.0	2.5	2.7
2024	1.4		1.7	1.5	2.4

Inflation, %
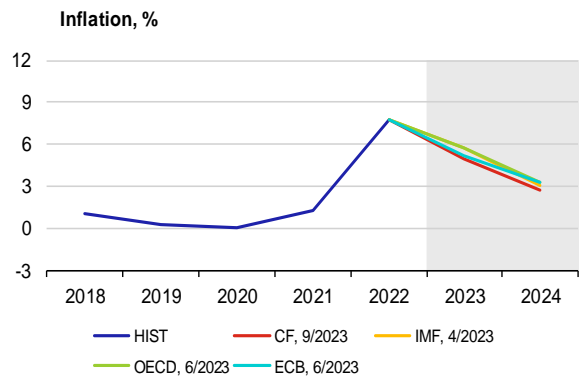
	CF		IMF	OECD	ECB
2023	4.9		5.7	5.7	5.2
2024	2.7		3.1	3.3	3.3

Greece

GDP growth, %
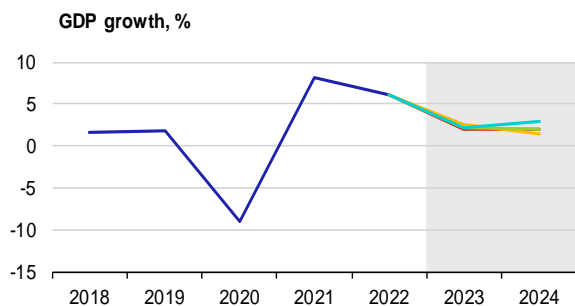
	CF		IMF	OECD	ECB
2023	2.0	↗	2.6	2.2	2.2
2024	1.9	→	1.5	1.9	3.0

Inflation, %
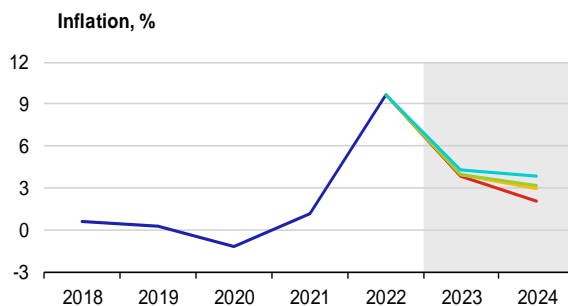
	CF		IMF	OECD	ECB
2023	3.8	↘	4.0	3.9	4.3
2024	2.0	↘	2.9	3.2	3.8

Slovakia

GDP growth, %
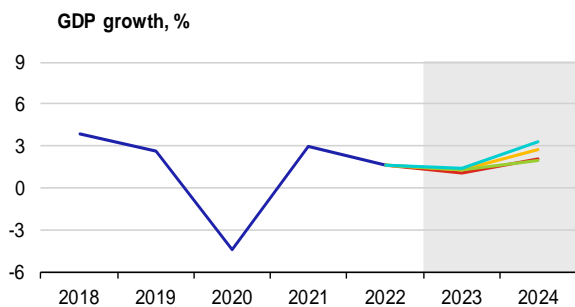
	CF		IMF	OECD	ECB
2023	1.1	→	1.3	1.3	1.4
2024	2.1	↘	2.7	2.0	3.3

Inflation, %
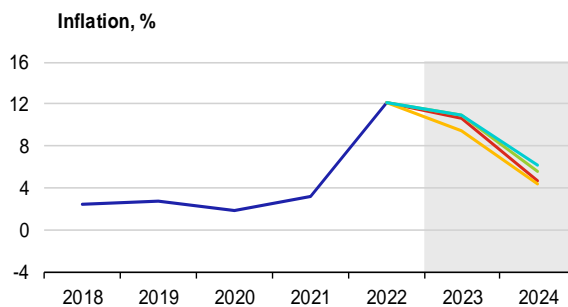
	CF		IMF	OECD	ECB
2023	10.7	↘	9.5	11.0	11.0
2024	4.7	↘	4.3	5.6	6.2

Luxembourg

GDP growth, %
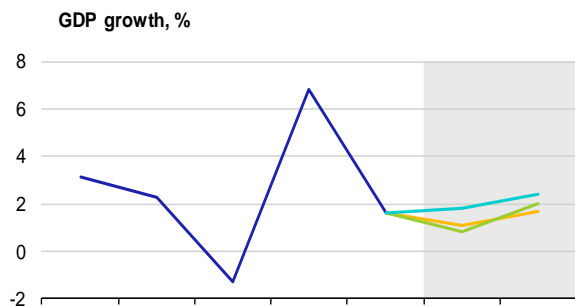
	CF	IMF	OECD	ECB
2023	n. a.	1.1	0.8	1.8
2024	n. a.	1.7	2.0	2.4

Inflation, %
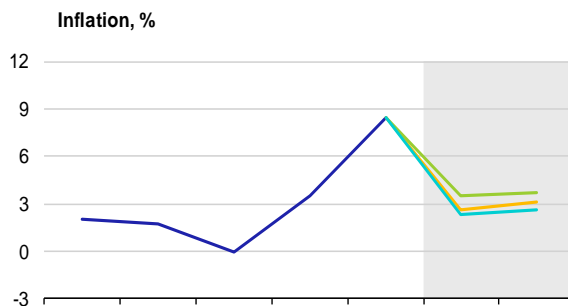
	CF	IMF	OECD	ECB
2023	n. a.	2.6	3.5	2.3
2024	n. a.	3.1	3.7	2.6

Slovenia

GDP growth, %
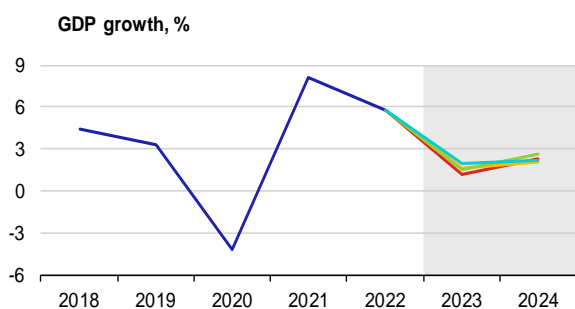
	CF		IMF	OECD	ECB
2023	1.2		1.6	1.5	2.0
2024	2.3		2.1	2.6	2.2

Inflation, %
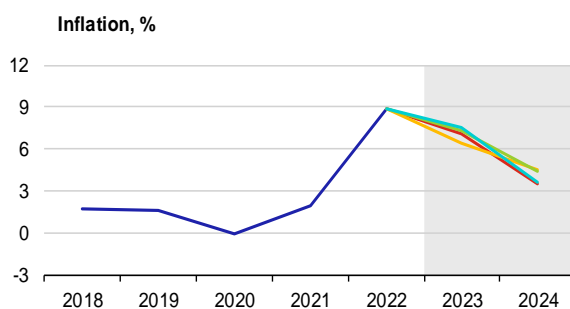
	CF		IMF	OECD	ECB
2023	7.1		6.4	7.3	7.5
2024	3.5		4.5	4.4	3.6

Lithuania

GDP growth, %
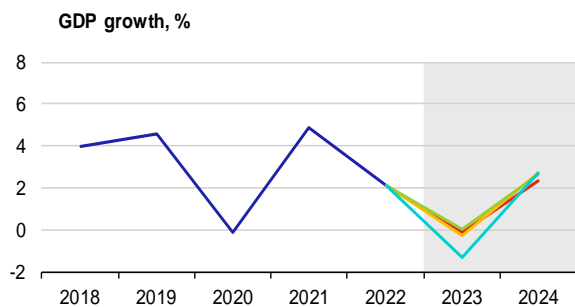
	CF		IMF	OECD	ECB
2023	-0.1		-0.3	0.0	-1.3
2024	2.3		2.7	2.6	2.7

Inflation, %
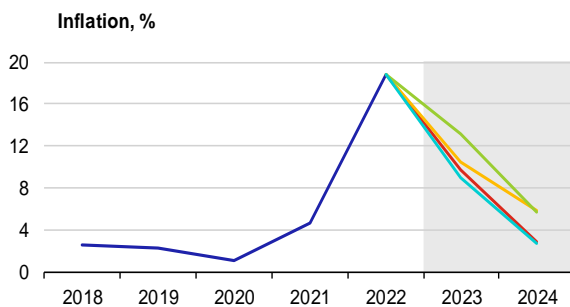
	CF		IMF	OECD	ECB
2023	9.7		10.5	13.1	8.9
2024	2.9		5.8	5.7	2.7

Latvia

GDP growth, %
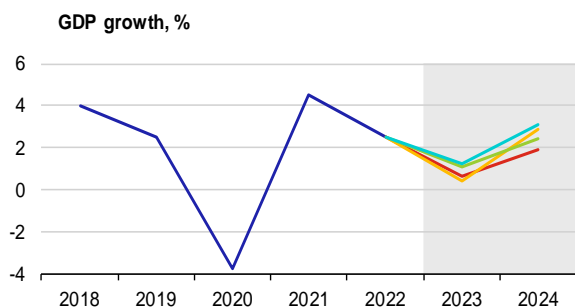
	CF		IMF	OECD	ECB
2023	0.6		0.4	1.1	1.2
2024	1.9		2.9	2.4	3.1

Inflation, %
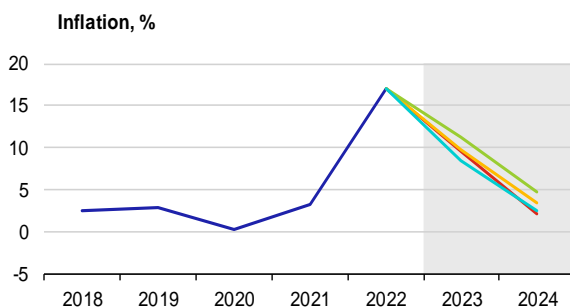
	CF		IMF	OECD	ECB
2023	9.5		9.7	11.2	8.5
2024	2.2		3.5	4.8	2.4

Estonia

GDP growth, %

Inflation, %
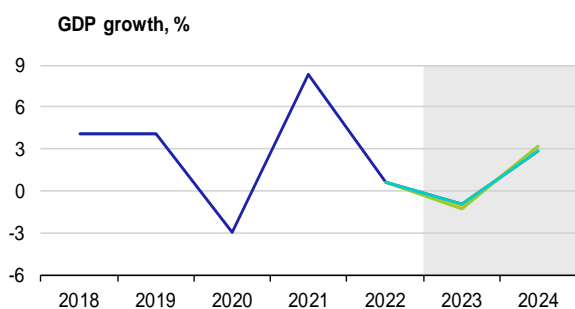
	CF		IMF	OECD	ECB
2023	-0.9	⇘	-1.2	-1.3	-1.0
2024	2.9	⇒	3.2	3.2	2.8
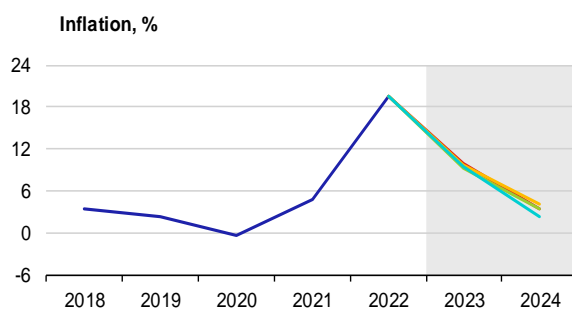
	CF		IMF	OECD	ECB
2023	9.8	⇒	9.7	9.2	9.4
2024	3.5	⇒	4.1	3.4	2.3

Cyprus

GDP growth, %

Inflation, %
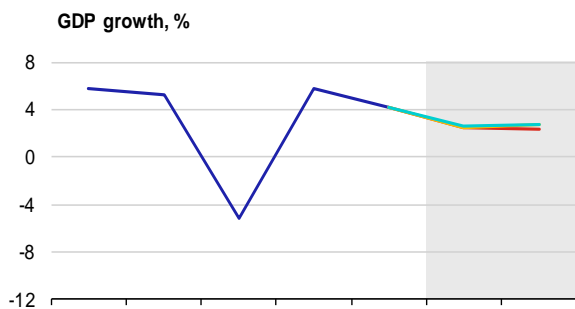
	CF		IMF	OECD	ECB
2023	2.5	⇒	2.5	n. a.	2.6
2024	2.4	⇒	2.8	n. a.	2.8
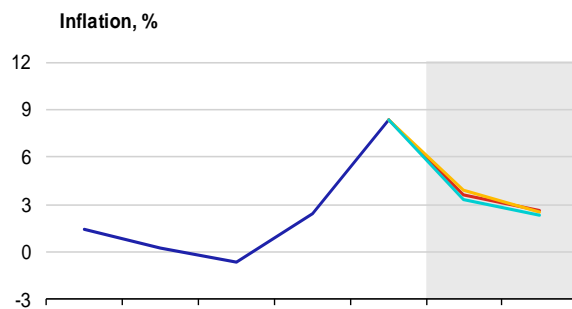
	CF		IMF	OECD	ECB
2023	3.6	⇘	3.9	n. a.	3.3
2024	2.6	⇲	2.5	n. a.	2.3

Malta

GDP growth, %
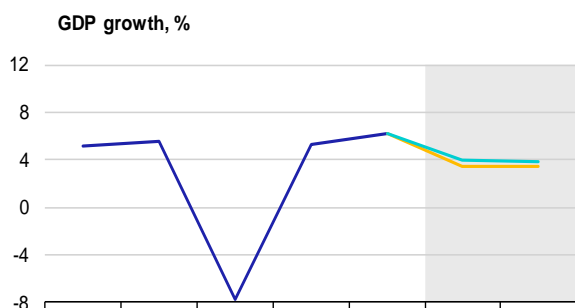
Inflation, %

	CF	IMF	OECD	ECB
2023	n. a.	3.5	n. a.	4.0
2024	n. a.	3.5	n. a.	3.8
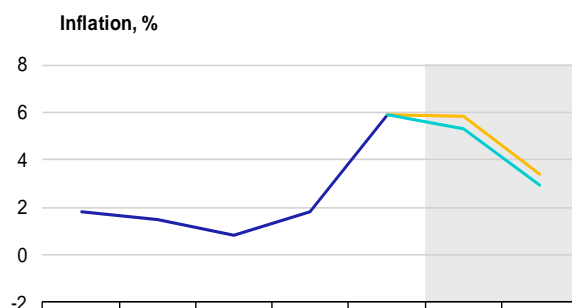
	CF	IMF	OECD	ECB
2023	n. a.	5.8	n. a.	5.3
2024	n. a.	3.4	n. a.	2.9

Ddd

Croatia

GDP growth, %
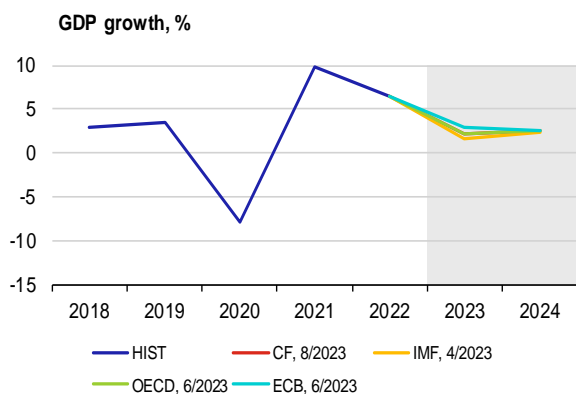
Inflation, %

	CF		IMF	OECD	ECB
2023	2.2	→	1.7	2.1	2.9
2024	2.5	→	2.3	2.5	2.6
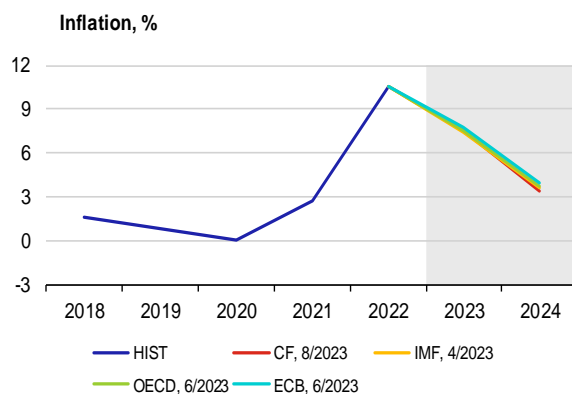
	CF		IMF	OECD	ECB
2023	7.5	↗	7.4	7.5	7.7
2024	3.4	→	3.6	3.7	3.9

A5. GDP growth and inflation in other selected countries

Romania

GDP growth, %

Inflation, %
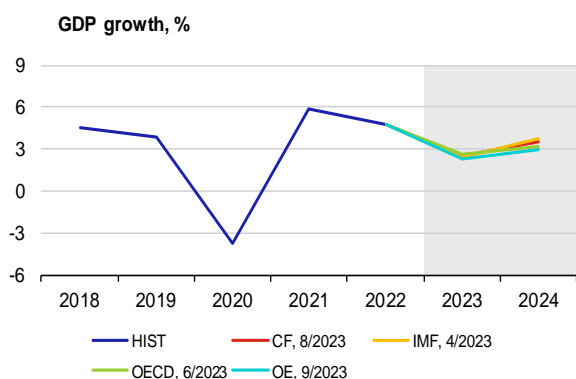
	CF		IMF	OECD	OE	
2023	2.5	↗	2.4	2.6	2.3	↗
2024	3.5	↘	3.7	3.2	3.0	↘
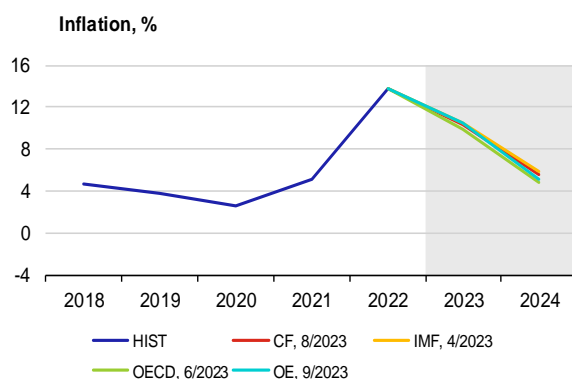
	CF		IMF	OECD	OE	
2023	10.3	↗	10.5	9.9	10.5	→
2024	5.5	↘	5.8	4.8	5.1	→

A6. List of abbreviations

AT	Austria		**IRS**	Interest Rate swap
bbl	barrel		**ISM**	Institute for Supply Management
BE	Belgium		**IT**	Italy
BoE	Bank of England (the UK central bank)		**JP**	Japan
BoJ	Bank of Japan (the central bank of Japan)		**JPY**	Japanese yen
bp	basis point (one hundredth of a percentage point)		**LIBOR**	London Interbank Offered Rate
CB	central bank		**LME**	London Metal Exchange
CBR	Central Bank of Russia		**LT**	Lithuania
CF	Consensus Forecasts		**LU**	Luxembourg
CN	China		**LV**	Latvia
CNB	Czech National Bank		**MKT**	Markit
CNY	Chinese renminbi		**MNB**	Magyar Nemzeti Bank (the central bank of Hungary)
ConfB	Conference Board Consumer Confidence Index		**MT**	Malta
CXN	Caixin		**NBP**	Narodowy Bank Polski (the central bank of Poland)
CY	Cyprus			
DBB	Deutsche Bundesbank (the central bank of Germany)		**NIESR**	National Institute of Economic and Social Research (UK)
DE	Germany		**NKI**	Nikkei
EA	euro area		**NL**	Netherlands
ECB	European Central Bank		**OE**	Oxford Economics
EE	Estonia		**OECD**	Organisation for Economic Co-operation and Development
EIA	Energy Information Administration			
ES	Spain		**OECD-CLI**	OECD Composite Leading Indicator
ESI	Economic Sentiment Indicator of the European Commission		**OPEC+**	member countries of OPEC oil cartel and 10 other oil-exporting countries (the most important of which are Russia, Mexico and Kazakhstan)
EU	European Union			
EUR	euro			
EURIBOR	Euro Interbank Offered Rate		**PMI**	Purchasing Managers' Index
Fed	Federal Reserve System (the US central bank)		**pp**	percentage point
FI	Finland		**PT**	Portugal
FOMC	Federal Open Market Committee		**RU**	Russia
FR	France		**RUB**	Russian rouble
FRA	forward rate agreement		**SI**	Slovenia
FY	fiscal year		**SK**	Slovakia
GBP	pound sterling		**SPF**	Survey of Professional Forecasters
GDP	gross domestic product		**TTF**	Title Transfer Facility (virtual trading point for natural gas in the Netherlands)
GR	Greece			
HICP	Harmonised Index of Consumer Prices		**UK**	United Kingdom
HR	Croatia		**UoM**	University of Michigan Consumer Sentiment Index - present situation
ICE	Intercontinental Exchange			
IE	Ireland		**US**	United States
IEA	International Energy Agency		**USD**	US dollar
IFO	Leibniz Institute for Economic Research at the University of Munich		**WEO**	World Economic Outlook
			WTI	West Texas Intermediate (crude oil used as a benchmark in oil pricing)
IMF	International Monetary Fund			
			ZEW	Centre for European Economic Research

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