Global Economic Outlook

——— February 2023

CNB CZECH NATIONAL BANK

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I. Introduction

An entire year has gone by, and the war in Europe is unfortunately not over yet. The Ukrainian army (with the material and moral support of the West) is fighting the Russian aggressors for every last inch of its territory, and the number of needless casualties is increasing on both side. Life has also changed in other European countries, which have taken visible steps in the past year to reduce their dependence on Russian gas and oil.

After sharp price increases, the energy market has calmed, inflation is expected to fall rapidly this year, and most EU economies will avoid recession despite the war in Ukraine. This is confirmed by the European Commission's Winter

Forecast just published, which states that the EU economy will stay in the black this year with 0.8% GDP growth. The Commission is now predicting double that growth rate for 2024. Inflation in the EU countries should continue to slow, reaching 6.4% this year and 2.8% next year, in sight of the inflation target. The new IMF forecast contains a similar outlook.
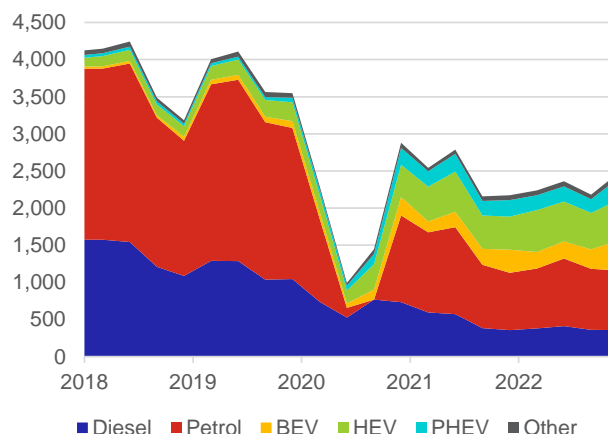
Despite this good news, we cannot ignore the much worse fiscal position of most EU countries due to anti-Covid measures and the economic effects of the war in Ukraine. Many key economies are already carrying heavy government debt burdens close to or exceeding their annual output levels (e.g. EA 96%, UK 97%, USA 129%, Japan 262%).

At the start of February, most major central banks raised their interest rates (the Fed by 0.25 pp, the ECB and the BoE by 0.5 pp). This – along with a parallel tightening of monetary conditions by reducing central banks' balance sheets bloated by the Covid era

Quarterly new car registrations in the EU by fuel, in thousands

Source: ACEA
Note: BEV = battery electric vehicle; HEV = hybrid electric vehicle; PHEV = plug-in hybrid electric vehicle.

– should further support the return of inflation towards their targets. The Fed and the BoE have already begun quantitative tightening and the ECB has indicated it will do so in spring.

The chart in the current issue shows car registrations in the EU and the growing popularity of electric models. Europe has prepared the new Euro 7 standards and now also approved a ban on new internal combustion engine cars from 2035. Demand for electric cars is growing, but most models sold are still hybrids, and they cannot be simply charged from a socket. In addition, the production ban will apply to them in 12 years. The question is what impact the prospect of this ban will have on the European industry. Recent data show that the number of new car registrations in Europe fell dramatically due to limited production during the pandemic, and this loss has yet to be recovered. China has become one of the world's leading auto exporters, having caught up with German car production at the end of 2022.

The current issue also contains an analysis: *At the crossroads of change: The 5G digital economy as a gateway to the future*. The article examines the roll-out of fifth-generation (5G) technology, which has huge transformation potential due to the possible digitisation of the economy, especially as the modern world is hugely dependent on technology and data communications..

GEO barometer for selected countries

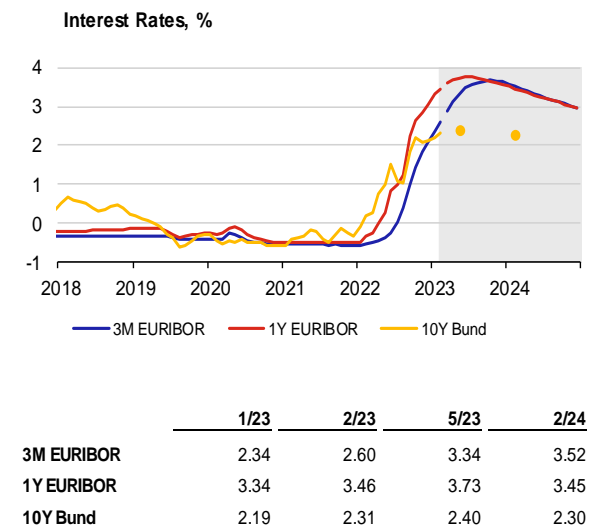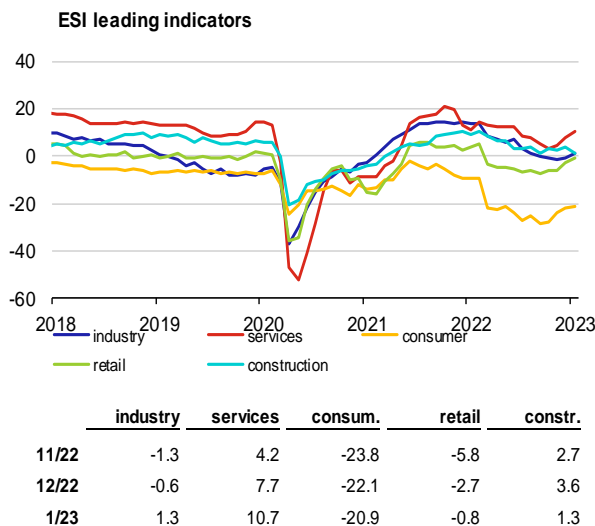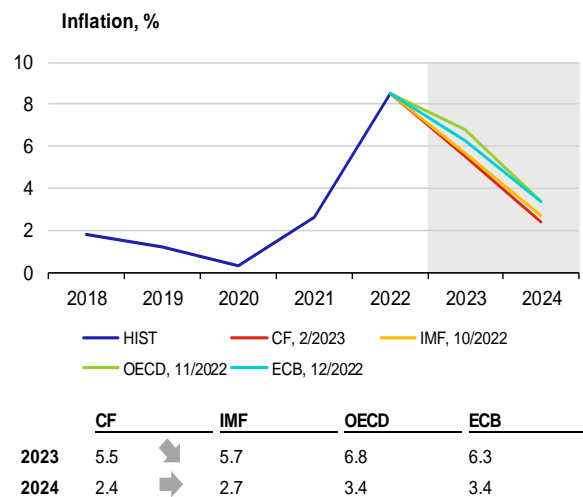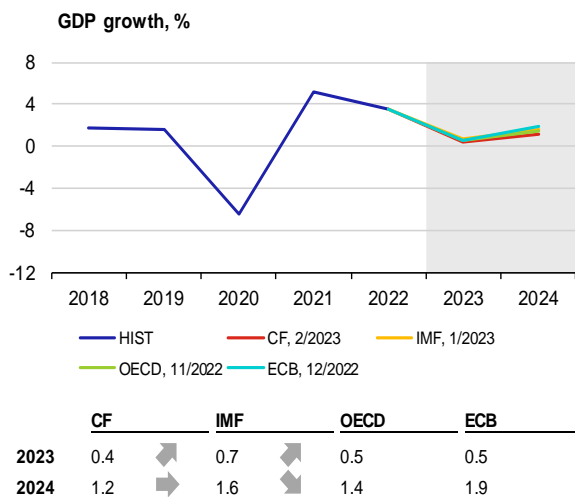|		EA		DE		US		UK		JP		CN		RU	
GDP	2023	0.4	↗	-0.1	↗	0.7	↗	-0.8	↗	1.1	↘	5.2	↗	-2.6	↘
(%)	2024	1.2	→	1.4	→	1.1	→	0.7	↗	1.1	→	5.1	↘	1.2	↘
Inflation	2023	5.5	↘	6.2	↘	3.9	↗	6.7	↘	2.1	↗	2.4	↗	6.0	↘
(%)	2024	2.4	→	2.7	↘	2.5	→	2.9	↘	1.2	→	2.3	→	4.7	↘
Unemployment	2023	6.9	↘	5.5	↘	4.1	↘	4.4	↘	2.5	→	3.5	→	4.1	↘
(%)	2024	7.0	↘	5.4	→	4.7	→	4.4	→	2.4	→	3.4	→	4.1	→
Exchange rate	2023	1.10	↗	1.10	↗			1.24	↗	126.7	↘	6.69	↘	75.4	↗
(against USD)	2024	1.12	↗	1.12	↗			1.29	↗	122.5	→	6.59	↘	79.5	↘

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

II.1 Euro area

Economic growth forecasts for the euro area this year are increasing. The euro area recorded only modest GDP growth (of 0.1%; 1.9% year on year) at the end of 2022. That said, the figures were still better than anyone would have thought only a few months ago. The euro area owes this to a major expansion in Ireland (15.7% year on year), while the large economies grew visibly less (Germany 1.1%, France 0.5%, Italy 1.7%). Output was negatively affected on the demand side by high inflation and on the supply side by rising borrowing costs and persisting (though weakening) supply chain problems. However, the outlook for the future looks promising. The signals from coincident indicators are improving every month. The composite PMI exceeded 50 points in January (due to the services sub-index). The ZEW index of economic sentiment rose sharply, with analyst optimism prevailing again for the first time in ten months. The European Commission's ESI also shows a further improvement in sentiment in industry and services and among consumers. The labour market remains stable. Unemployment is only a tenth of a per cent above its historical low and employment is rising steadily. CF moved the outlook for economic activity in the euro area to 0.4% for this year (in January it was expecting activity to be flat). The new IMF outlook predicts even higher growth (0.7%). Next year, GDP growth is expected to accelerate to around 1.5%.

Inflation is slowing further, while the ECB is continuing to tighten monetary conditions. Slowing annual growth in energy prices is gradually reducing headline inflation (8.5% in January, -0.4% month on month). However, core inflation remains at a record 5.2%. The inflation pressures in the economy are thus much broader than they may appear, and it can be assumed that some patience will be needed to tame them. The ECB is continuing to gradually tighten monetary policy. At its February meeting, it raised its policy rate again by 50 bp (to 3%), and a similar increase is also being indicated for March. In the February issue of CF, analysts lowered the outlook for average inflation to 5.5% for this year. In 2024, they expect consumer prices to grow by only 2.4%, in sight of the ECB's inflation target.

GDP growth, %

	CF		IMF		OECD	ECB
2023	0.4	↗	0.7	↗	0.5	0.5
2024	1.2	→	1.6	→	1.4	1.9

Inflation, %

	CF		IMF	OECD	ECB
2023	5.5	↘	5.7	6.8	6.3
2024	2.4	→	2.7	3.4	3.4

ESI leading indicators

	industry	services	consum.	retail	constr.
11/22	-1.3	4.2	-23.8	-5.8	2.7
12/22	-0.6	7.7	-22.1	-2.7	3.6
1/23	1.3	10.7	-20.9	-0.8	1.3

Interest Rates, %

|	1/23	2/23	5/23	2/24
3M EURIBOR	2.34	2.60	3.34	3.52
1Y EURIBOR	3.34	3.46	3.73	3.45
10Y Bund	2.19	2.31	2.40	2.30

II.2 Germany

In the end, the German economy unexpectedly shrank in 2022 Q4. Having managed to hold up well in the first three quarters despite the difficult conditions, its output fell by 0.2% in Q4. The decline was primarily due to weakening private consumption expenditure (households' disposable income is falling due to persisting high inflation). High energy costs (rising by 34.7% for consumers in the course of 2022) have been pushing down demand, and it is becoming evident how hard manufacturing has been hit. This has therefore overshadowed recent optimism in the wake of an expected economic stagnation in 2022 Q4, and this manufacturing and exporting powerhouse is again on the brink of recession. CF has improved its outlook for this year but still predicts a 0.1% drop in GDP, while the IMF now estimates growth of 0.1%. The consensus is that GDP will grow by 1.4% in 2024. The composite PMI rose again in January (from 49.0 in November to 49.9), signalling stagnation following a six-month decline in private sector activity. The result is due mainly to positive developments in the services sector (50.7), but also to a moderate decline in activity in manufacturing (47.3). According to the Ifo and GfK indicators, January also pointed to cautiously improving business and consumer sentiment.

Inflation slowed slightly again in January, reaching a five-month low. According to preliminary data, annual consumer price inflation, as measured by the HICP, was 9.2% in January (as compared to 9.6% in December), lagging behind the expected 10%, as energy price growth continues to moderate. Consumer prices rose by 0.5% month on month amid repricing, which is usually reflected most strongly in the January inflation reading. Core inflation is likely to remain relatively high this year, thanks in part to rising labour costs. Year-on-year growth in industrial producer prices also slowed in December (21.6%), owing to the downward trend in energy price growth, and is thus at half the level of last summer's peak (45.8%). The data therefore suggest easing inflation pressures, supporting the outlook for a further gradual slowdown in inflation in the coming months. CF again lowered its inflation outlooks for this year (6.2%) and the next (2.7%).

GDP growth in selected euro area countries in 2022 and 2023, %

CF ● IMF ● OECD ● ECB 2023 ■ ECB 2024 ■
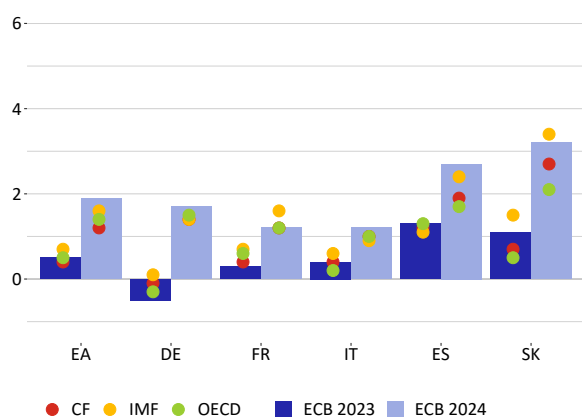
Inflation in selected euro area countries in 2022 and 2023, %

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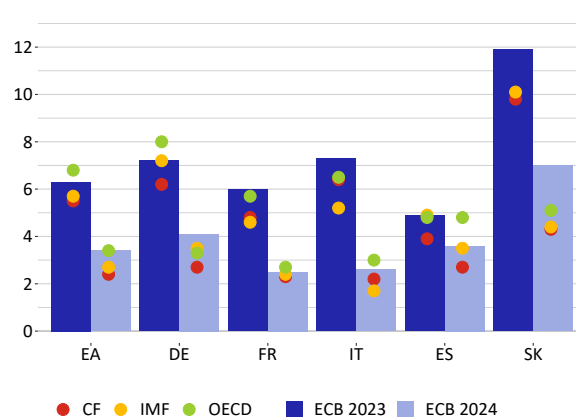
ESI leading indicators
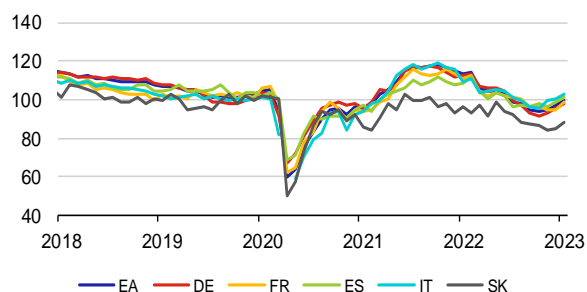
EA — DE — FR — ES — IT — SK —

Economic and inflation surprises in the euro area, %

Citi Inflation Surprise Index —— Citi Economic Surprise Index ——
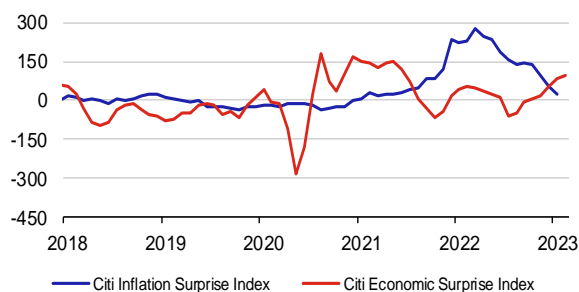
	EA	DE	FR	ES	IT	SK
11/22	95.1	93.0	94.7	96.5	99.9	84.1
12/22	97.1	95.4	94.5	98.8	100.8	85.3
1/23	99.9	97.9	98.9	101.5	102.5	88.1

Inflation expectations based on 5year inflation swap and SPF

	5y5y	SPF
12/22	2.36	2.18
1/23	2.32	2.12
2/23	2.35	2.12

II.3 United States

The consensus outlook for future US economic growth has moved upwards, but some analysts are still predicting a significant decline this year. The new IMF outlook sees real GDP growth of 1.4% this year. The high level of economic uncertainty is mainly due to contradictory data from the economy. Despite a continued very rapid rise in consumer prices (inflation reached 6.4% in January, with core inflation at 5.4%), there has been no fall in real consumption (retail sales grew by 6.4% in January), as experienced, for example, in Europe. The tight labour market shows no signs of slowing yet – non-farm payrolls rose by 517,000 in January. The US economy grew by 2.9% quarter on quarter in 2022 Q4. However, there is bad news coming in from industry. Industrial production grew by just 0.7% year on year in January, and the PMI has been in the contraction band since November. The ISM new orders index has been declining for more than a year, and other indicators also see the situation in industry in a similarly negative light.
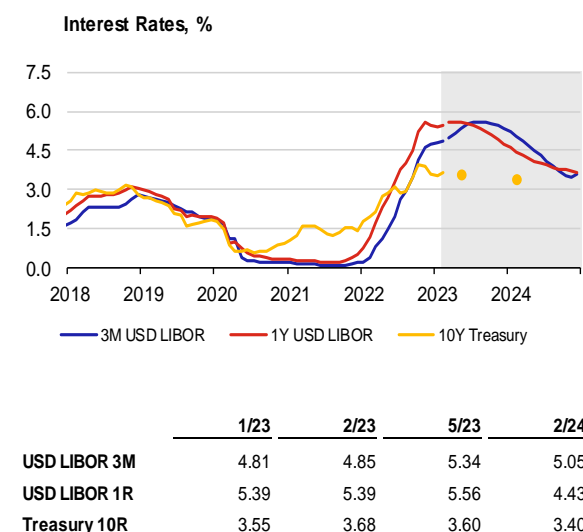
As expected, the Fed raised rates by 0.25 pp at its February meeting. It also announced that it intends to continue increasing rates. Although the new figures indicate a slowdown in consumer price inflation, the US labour market remains tight and inflation pressures are easing only very slowly. According to the latest statements by Fed officials, rates could be raised by as much as 0.5 pp at the next meeting (i.e. the pace of rate hikes could accelerate again). At the same time, the Fed is allowing its balance sheet to decrease as purchased assets mature and is not increasing the pace of purchases for the time being. The financial markets' perception of future developments differs from that of the Fed. On the one hand, they are still sceptical of the indicated level of rates and do not believe that the Fed will push them that high, while stock market growth indicates optimism about future developments. So far, the markets are not very concerned about the growth in federal government spending, which is outpacing the also growing tax revenues. In its new projection, the Congressional Budget Office warns that the Treasury will breach the current debt ceiling and run out of cash sometime around Q3.

GDP growth, %

	CF		IMF		OECD	Fed
2023	0.7	↗	1.4	↗	0.5	0.5
2024	1.1	→	1.0	↗	1.0	1.6

Inflation, %

	CF		IMF		OECD	Fed
2023	3.9	↗	3.5		3.9	3.1
2024	2.5	→	2.2		2.6	2.5

Leading indicators

	ConfB curr.	ConfB exp.	UoM curr.	UoM exp.
11/22	138.3	76.7	58.8	55.6
12/22	147.4	83.4	59.4	59.9
1/23	150.9	77.8	68.4	62.7

Interest Rates, %

	1/23	2/23	5/23	2/24
USD LIBOR 3M	4.81	4.85	5.34	5.05
USD LIBOR 1R	5.39	5.39	5.56	4.43
Treasury 10R	3.55	3.68	3.60	3.40
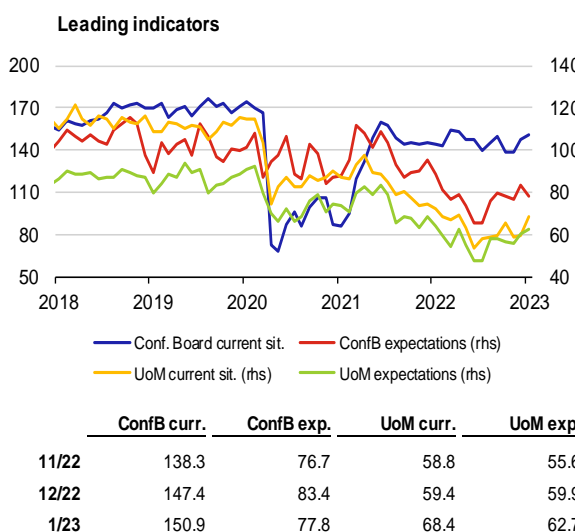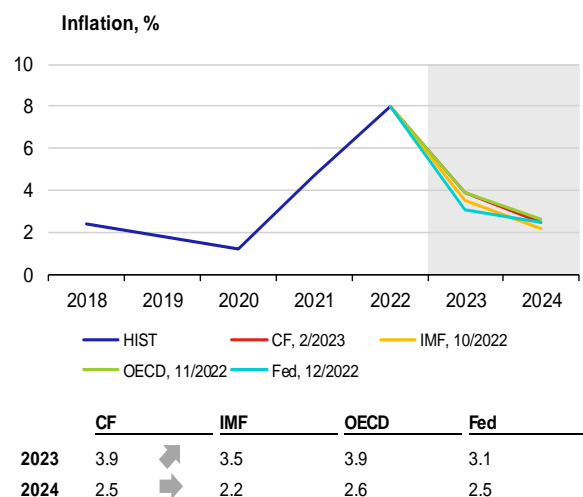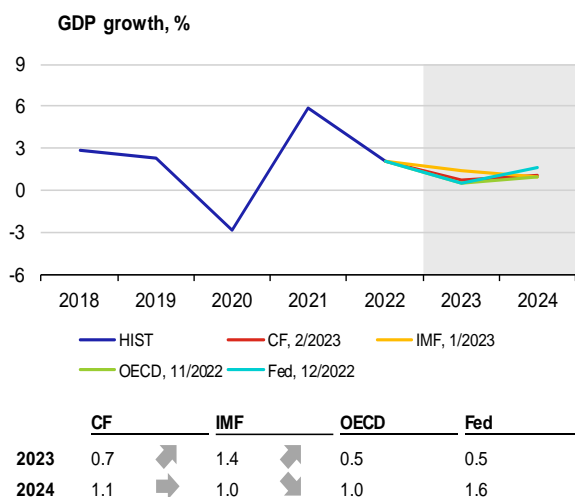
II.4 China

The Chinese economy continued to lose momentum in 2022 Q4, growing by only 2.9% year on year and 3% in 2022 as a whole, its second lowest growth rate since 1976. As usual, consumption made the biggest contribution to growth in 2022, but it gradually weakened in the course of the year, culminating in Q4, in which investment was the main driver of growth again for the first time in two years. The economy was negatively affected last year mainly by restrictions due to the spread of Covid-19. However, they were suddenly lifted at the end of 2022, resulting in a sharp increase in the number of new cases. Retail sales fell by 1.8% year on year in December, substantially less than in November. Industrial production also remained muted, slowing further to 1.3% year on year at the end of 2022. On the other hand, the easing of government restrictions should foster a faster recovery of the Chinese economy, provided that the epidemic does not get out of control again. The non-manufacturing and manufacturing PMI indices are now indicating an improvement, having risen significantly in January. According to the February CF, the year-on-year growth of the Chinese economy will be above 5% this year and in 2024. In addition to ongoing tightness in the property market, the highly uncertain global growth outlook remains a risk, due, among other things, to a greater-than-expected tightening of global financial conditions and increased geopolitical tensions. This will be counteracted by easy fiscal policy and by the Chinese central bank, which has indicated that it will keep monetary policy relatively accommodative this year. In February, it kept its key interest rate at 2.75%.

Annual consumer price inflation rose to 2.1% in January, the highest reading since October last year. The rising inflation pressures reflect the reopening of the economy and strengthening consumer demand. The increased household spending at the start of the year was also due to the earlier timing of the Chinese New Year, which fell on 22 January this year. According to the February CF, inflation will be above 2% for the next two years. By contrast, producer prices, which have been reflecting low commodity prices for some time now, dropped by a further 0.8% year on year in January

GDP growth, %

	CF		IMF		OECD	OE	
2023	5.2	↗	5.2	↗	4.6	4.5	↗
2024	5.1	↘	4.5	→	4.1	4.7	↗

Inflation, %

	CF		IMF	OECD	OE	
2023	2.4	↗	2.2	2.2	2.4	→
2024	2.3	→	1.9	2.0	2.4	→

Leading indicators

	PMI manuf.	-manufacturing	Cons. conf (rhs)
11/22	48.0	46.7	85.5
12/22	47.0	41.6	88.3
1/23	50.1	54.4	

Development of China foreign trade, bil. USD
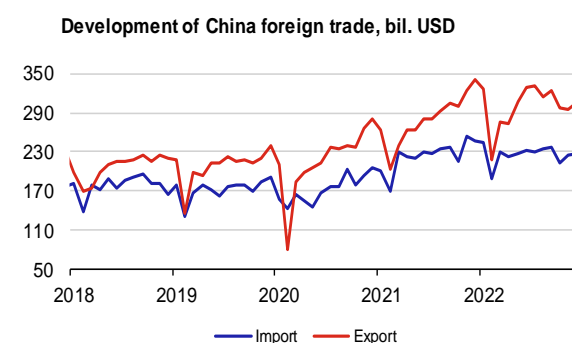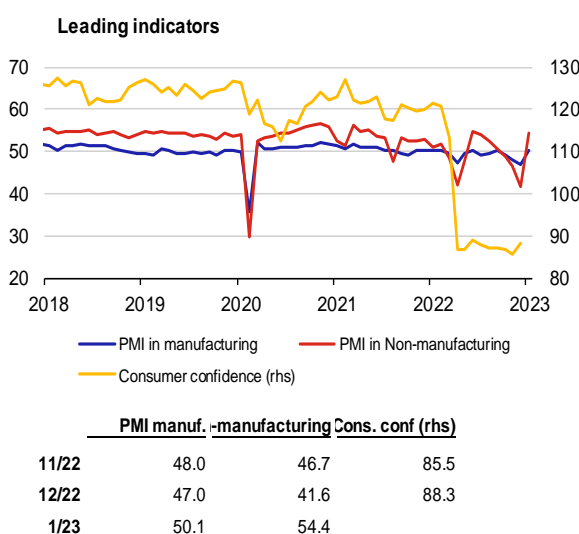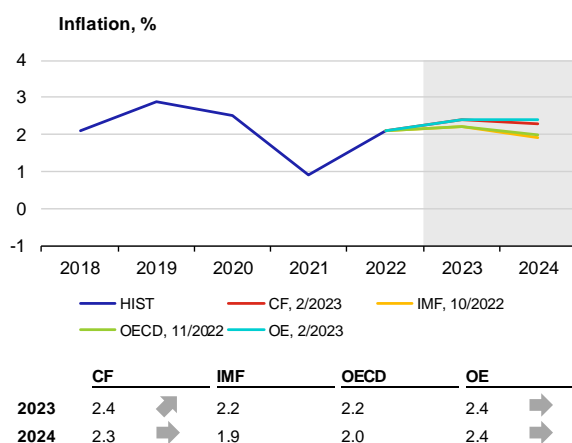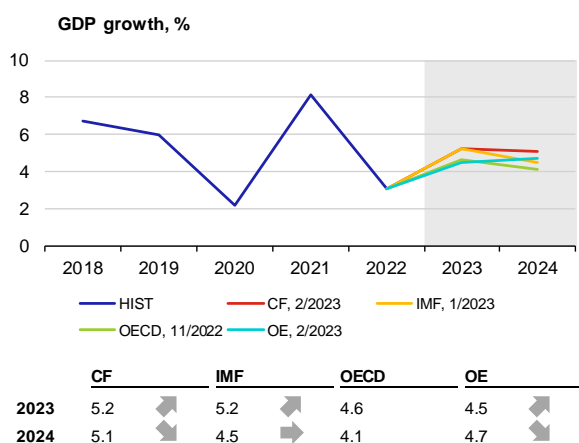
Source: Bloomberg

II.5 United Kingdom

The UK economy stagnated in the last quarter of 2022 and thus dodged a recession. However, it contracted by 0.5% between November and December and has yet to return to pre-pandemic levels. The BoE is now predicting a more moderate decline in GDP both in 2023 (-0.5%) and in 2024 (-0.3%) despite burdened household spending. The CF and IMF forecasts are a little more pessimistic for this year but predict a rise in GDP for 2024. After having peaked at 11.1% in October 2022, consumer price inflation is expected to fall sharply this year due to lower energy price growth. According to the BoE, February's interest rate hike of 0.5 pp (to 4%) should ensure that inflation falls and remains low. Inflation slowed slightly again to 10.1% in January (core inflation also slowed to 5.8%), reinforcing expectations that the tightening cycle may be coming to an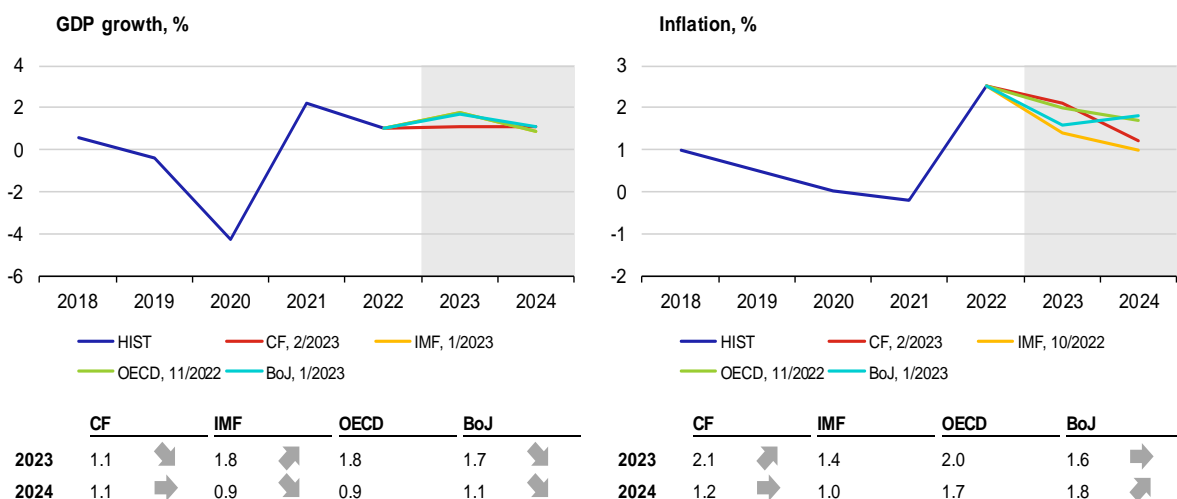 end. The composite PMI dropped from 49 in December to 48.5 in January, mainly reflecting weaker performance in the services sector. Three years after Brexit, the UK and the EU are in intensive negotiations on a possible settlement about Northern Ireland trade deal. The fact that the UK economy is lagging behind its competitors after leaving the EU is becoming increasingly evident in hindsight.

GDP growth, %

Inflation, %

	CF		IMF		OECD		BoE	
2023	-0.8	↗	-0.6	↗	-0.4		-0.5	↗
2024	0.7	↗	0.9	↗	0.2		-0.3	↗

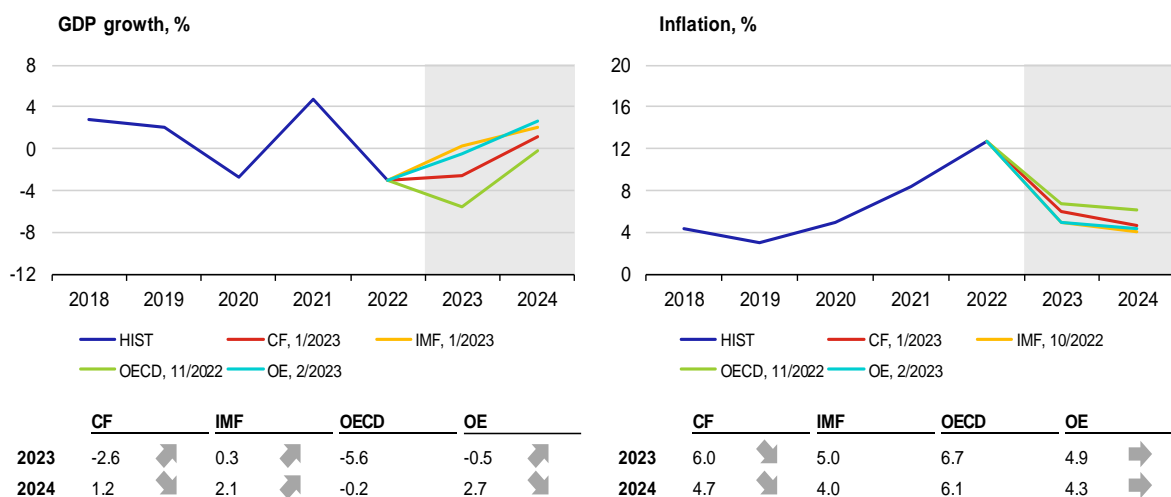|	CF		IMF		OECD		BoE	
2023	6.7	↘	9.0		6.6		4.0	↘
2024	2.9	↘	3.7		3.3		1.5	→
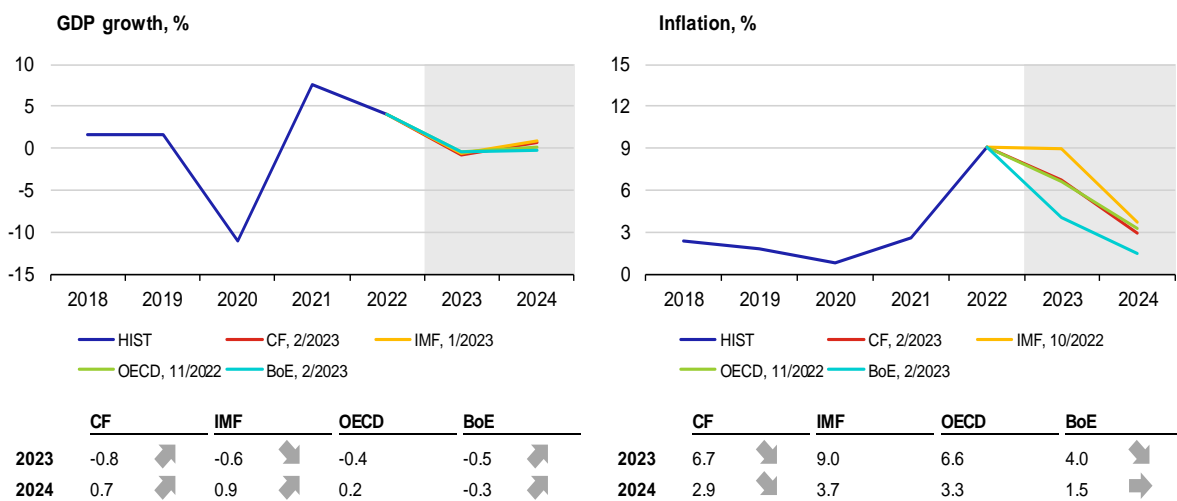
II.6 Japan

The new BoJ governor is expected to normalise monetary policy gradually, although inflation pressures remain muted for now. According to analysts, the surprise nomination of academic Kazuo Ueda, who will take over the helm of the central bank in April, will lead to faster normalisation of its record easy monetary policy. However, inflation pressures remain subdued in Japan. The growth in consumer prices seen in 2022 can be fully explained by imported food and energy. Core, median and services inflation did not exceed 1.5% even in December. Moreover, forecasts indicate that headline inflation will fall back below the BoJ's target this year as well. However, the decade of zero inflation might now be at an end. Both median inflation and the share of items in the CPI basket whose prices are going up are at their highest levels since measurements began in 2001. Wage growth is also accelerating. December saw the highest year-on-year wage growth (4.8%) since 1997 due to hefty bonuses.

GDP growth, %

Inflation, %

	CF		IMF		OECD		BoJ	
2023	1.1	↘	1.8	↗	1.8		1.7	↘
2024	1.1	→	0.9	↘	0.9		1.1	↘

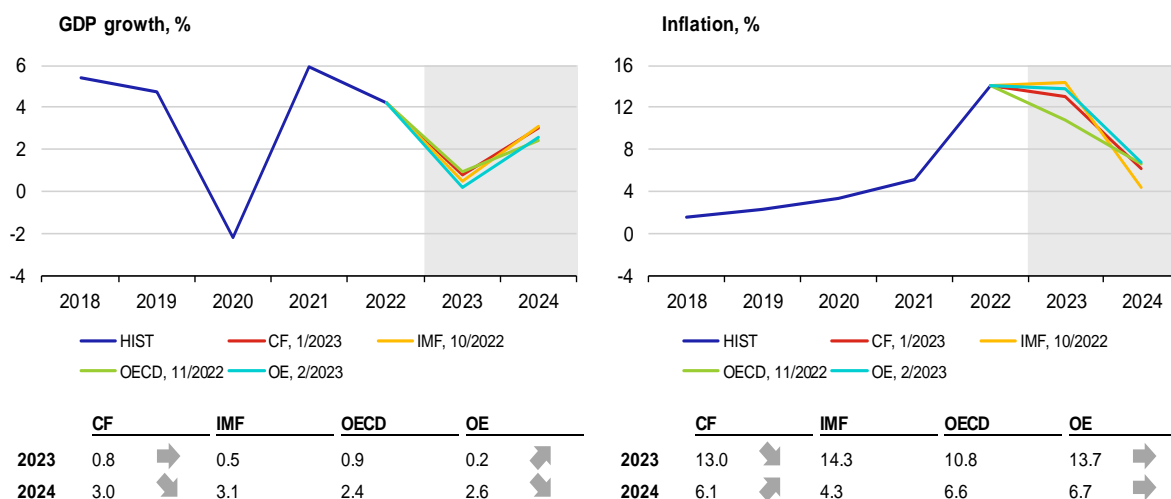|	CF		IMF		OECD		BoJ	
2023	2.1	↗	1.4		2.0		1.6	→
2024	1.2	→	1.0		1.7		1.8	↗

II.7 Russia

Last year's contraction of the Russian economy is expected to be only slightly weaker than the decline recorded at the height of the Covid-19 pandemic in 2020. According to a preliminary estimate announced by the Russian authorities, economic activity fell by 2.5%. Renewed growth is not expected this year either. The current situation is better than the CBR's October forecast, but private investment is slowing, consumption remains muted and government spending is rising. An important source of income for the government budget has traditionally been energy commodity exports, the outlook for which this year is less than impressive. In 2022, natural gas production fell by 20%, bringing it close to 2015 levels. This major decline was related to a drop in exports to the EU, which was more than twice as large as that recorded in 2021. The figure was also weaker than in 1990. Conversely, exports to China exceeded planned capacity. The two countries signed an agreement under which Gazprom is to supply 38 billion cubic metres of gas annually for a period of 30 years. Even so, gas exports to Asia will not cover the decline in exports to the EU, which exceeded 185 billion cubic metres in 2021.

GDP growth, %

Inflation, %

	CF		IMF		OECD		OE	
2023	-2.6	↗	0.3	↗	-5.6		-0.5	↗
2024	1.2	↘	2.1	↗	-0.2		2.7	↘

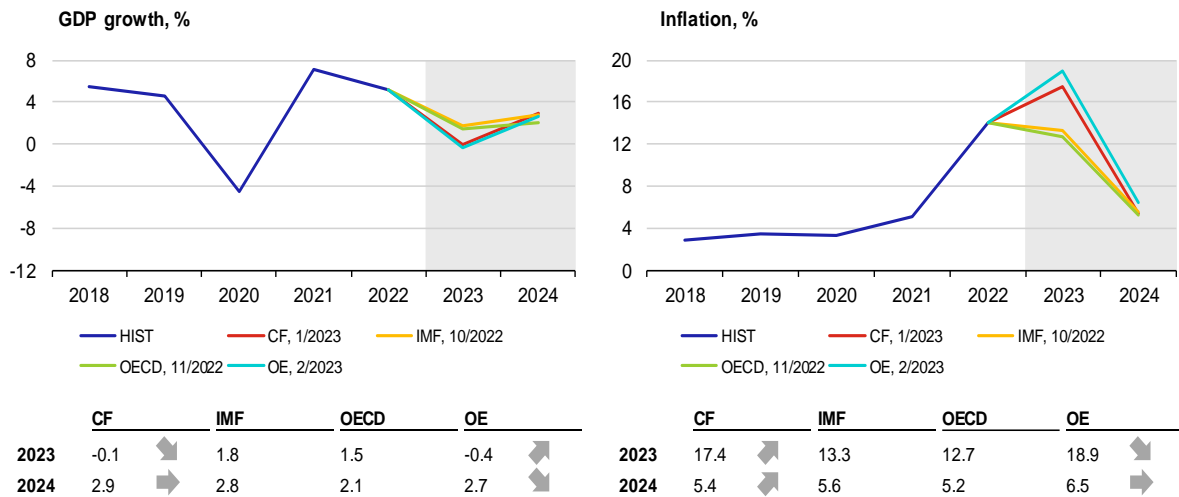|	CF		IMF	OECD	OE	
2023	6.0	↘	5.0	6.7	4.9	→
2024	4.7	↘	4.0	6.1	4.3	→

II.8 Poland

The current macroeconomic situation in Poland is rather unclear. The economy has been hit hard by the conflict in Ukraine. GDP growth was very volatile last year. In 2022 Q4, it recorded quite a significant quarter-on-quarter decline of 2.4% (year-on-year growth fell to 2.0%). Growth in industrial production slowed rapidly in the last half year, reaching just 1% year-on-year in December. The manufacturing PMI remained in the contraction band in January (production and new orders are falling, sales are decreasing). Unemployment remains low, and private sector wage growth slowed in December (but is still in double figures). The new IMF outlook expects GDP growth of 0.3% this year, while CF is more optimistic and OE more pessimistic. Inflation increased to 17.2% in January on the back of surging growth in electricity, gas and fuel prices. Core inflation rose to 11.5% in December. Despite this, the Polish central bank left interest rates unchanged again.

GDP growth, %

Inflation, %

	CF		IMF	OECD	OE	
2023	0.8	→	0.5	0.9	0.2	↗
2024	3.0	↘	3.1	2.4	2.6	↘

|	CF		IMF	OECD	OE	
2023	13.0	↘	14.3	10.8	13.7	→
2024	6.1	↗	4.3	6.6	6.7	→

II.9 Hungary

The Hungarian economy entered recession at the end of last year. According to a preliminary estimate, GDP declined by 0.4% in Q4 (year-on-year growth slowed to 0.4%). High and still rising inflation is weighing on the economy. In January, consumer price inflation exceeded 25% (with energy prices rising by 52% and food prices by 44% year on year). Both headline and core inflation stood at 25.4%. This shows that inflation pressures are extremely high across the economy and will be difficult to cool in the foreseeable future. The central bank is leaving its policy rate unchanged (13%). However, analysts believe that the likelihood of a rate hike in the near future is increasing. According to the new MNB and CF forecasts, inflation will reach around 17.5% in 2023, while OE expects even higher levels. The institutions differ on the GDP outlook. The MNB forecasts growth of around 1% for this year, while CF and OE predict a moderate decline.

GDP growth, %				
HIST	CF, 1/2023	IMF, 10/2022		
OECD, 11/2022	OE, 2/2023			

	CF		IMF	OECD	OE	
2023	-0.1	↘	1.8	1.5	-0.4	↗
2024	2.9	→	2.8	2.1	2.7	↘

Inflation, %				
HIST	CF, 1/2023	IMF, 10/2022		
OECD, 11/2022	OE, 2/2023			

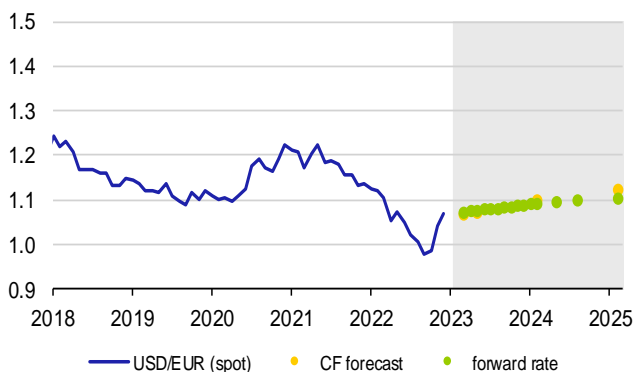|	CF		IMF	OECD	OE	
2023	17.4	↗	13.3	12.7	18.9	↘
2024	5.4	↘	5.6	5.2	6.5	→

III. Leading indicators and outlook of exchange rates

OECD Composite Leading Indicator
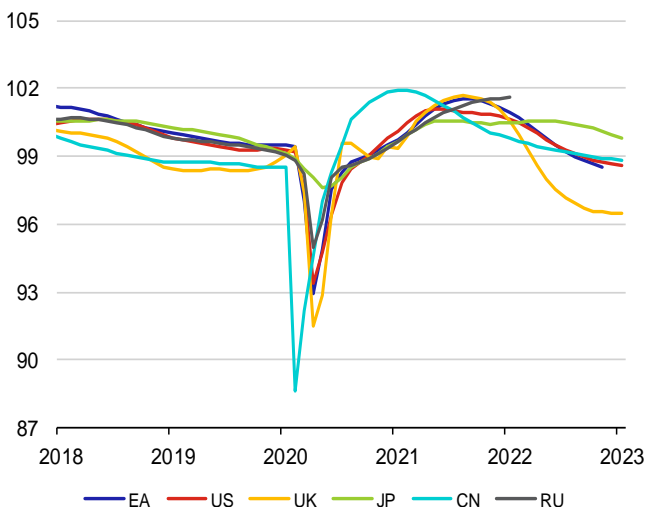
The US dollar (USD/EUR)

	13/2/23	3/23	5/23	2/24	2/25
spot rate	1.072				
CF forecast		1.069	1.074	1.101	1.123
forward rate		1.074	1.078	1.094	1.107

The British pound (GBP/USD)
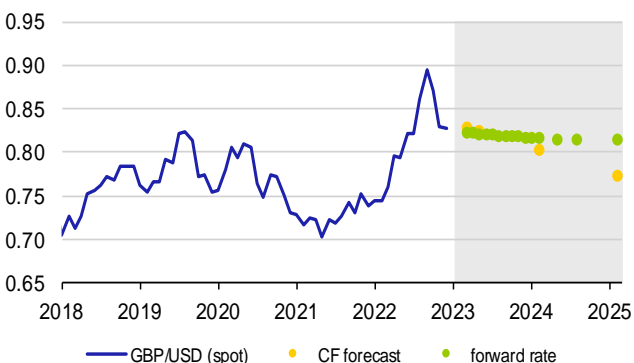
	13/2/23	3/23	5/23	2/24	2/25
spot rate	0.824				
CF forecast		0.830	0.826	0.804	0.774
forward rate		0.823	0.822	0.817	0.815

The Japanese yen (JPY/USD)
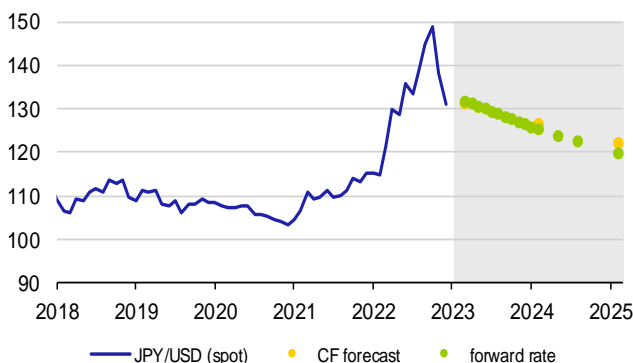
	13/2/23	3/23	5/23	2/24	2/25
spot rate	132.8				
CF forecast		131.6	130.7	126.7	122.5
forward rate		131.9	130.8	125.4	120.1

The Chinese renminbi (CNY/USD)
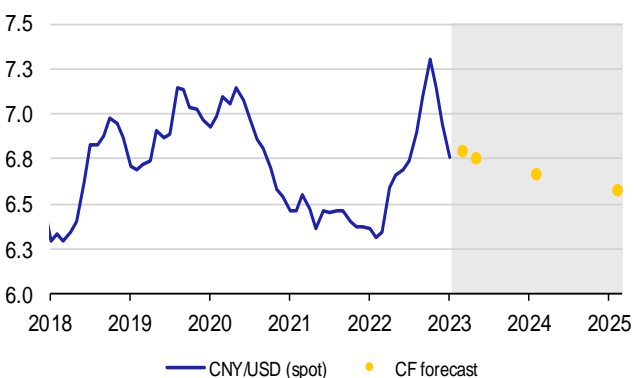
	13/2/23	3/23	5/23	2/24	2/25
spot rate	6.828				
CF forecast		6.802	6.763	6.671	6.579

The Russian rouble (RUB/USD)
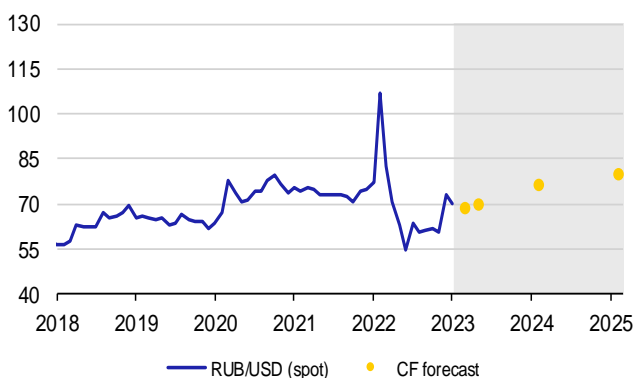
	13/2/23	3/23	5/23	2/24	2/25
spot rate	73.78				
CF forecast		68.72	70.36	76.84	80.07

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.
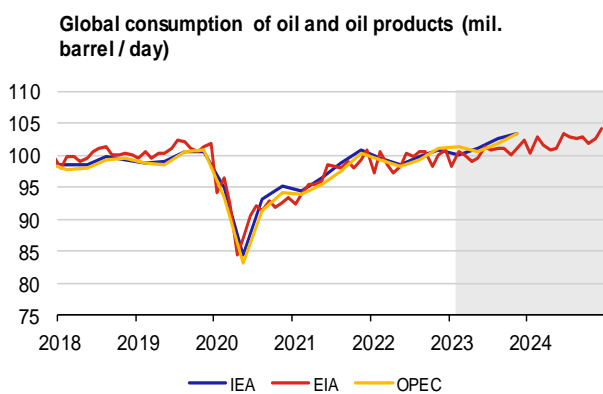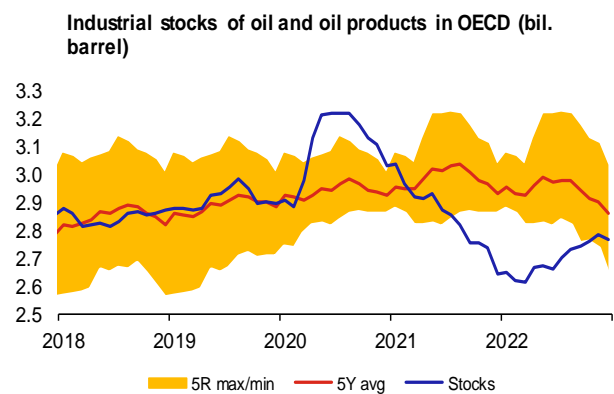
IV.1 Oil

The Brent price has been in the range of USD 78–88/bbl since mid-December with no visible long-term trend. The market outlook remains falling. After falling sharply at the start of 2023 on concerns of a slowdown of the global economy, the oil price gradually recovered due to growth in demand from China. The price was also supported by a weaker dollar and the hope that the Fed would slow the pace of growth in interest rates due to a drop in inflation at the end of 2022. In addition, the US administration virtually stopped supplying oil to the market from strategic petroleum reserves. In the second half of January, the growth halted and the oil price began to fall again. At that time, all three oil agencies were predicting a surplus of oil on the market in the first half of 2023, and concerns of a global economic slowdown prevailed again. However, oil prices recovered again in the first half of February due to the expectation that sanctions on exports of refined products from Russia to the EU would lead to a drop in Russian production. Later, Russia did indeed announce it would cut oil production by 500,000 bbl/day starting in March. The oil price was also supported by an increase in the selling price by Saudi Arabia, apparently in response to higher demand from Chinese refineries. However, oil prices began to fall again in the second half of February after the US administration announced it would proceed with the Congress-approved sale of an additional 26 million barrels of oil from the strategic petroleum reserves, in a situation where US oil inventories had risen to the highest level since summer 2021. In addition, US inflation was at a three-month high, again raising concerns about further interest rate hikes in the USA.
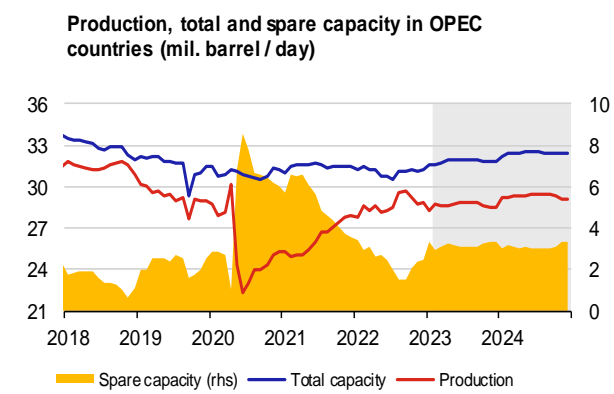
The mid-February market curve is still slightly falling, signalling a Brent crude oil price of around USD 80 and 76/bbl at the end of 2023 and 2024 respectively. The EIA forecast expects a virtually identical path. Conversely, the February CF expects the Brent price to stay close to its current level and to be at USD 84.6 /bbl at the one-year horizon.

Outlook for prices of oil (USD/barrel) and natural gas (USD / 1000 m³)
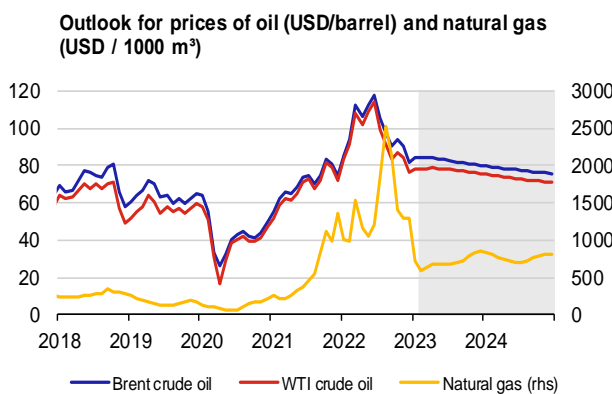
	Brent		**WTI**		**Natural gas**	
2023	82.58	↗	77.54	↗	710.60	↘
2024	77.65	★	72.96	★	765.88	★

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	101.80	↘	100.48	↘	101.87	↘
2024			102.27	★		

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

	Production		**Total capacity**		**Spare capacity**	
2023	28.66	↘	31.83	↘	3.18	↗
2024	29.30	★	32.42	★	3.11	★

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.

IV.2 Other commodities

The price of natural gas in Europe (TTF) has been falling steadily since mid-December. In mid-February, it came close to 50 EUR/MWh and converged with the global LNG price. The price of gas at the TTF attacked EUR 150/MWh in the first half of December. The decline was due to unusually warm weather in Europe and Asia this winter and reduced consumption by households and industry in Europe, which led to the use of less gas from fuller-than-usual European storage facilities. The geopolitical risk premium has thus decreased and the outlook for future natural gas prices in Europe has shifted markedly downwards, although a gradual price increase is expected in the course of this year. In December and January, the price of coal also fell sharply (by around 50% in total), due again to the warm winter and to relatively high stocks in China.

The food commodity price index rose in January and the first half of February, reaching an eight-month high. The reason is worse outlook for this year's harvest in the main growing areas due to bad weather and the continued deterioration of the geopolitical situation in Eastern Europe. The biggest price increases were recorded for sugar, coffee, cocoa and beef. The price outlook is falling for most crops; only wheat and coffee prices are flat. Conversely, meat prices are expected to go up in the near future.

The industrial metals price index grew for the third consecutive month in January but lost some of its gains in the first half of February. Basic metal prices are being fuelled by optimism about the opening of China's economy, lower energy prices and a weaker dollar. Despite moderate growth in January, the Chinese PMI in manufacturing remains deep in the contraction band, so increased demand can be observed more from European industry. Government support for China's property and construction sector is being reflected in rising prices of copper, zinc and iron ore.
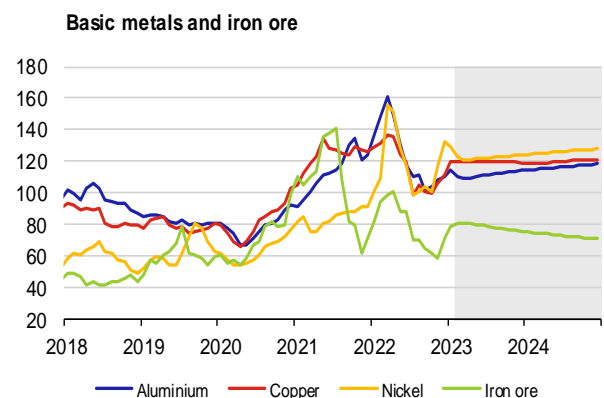
Non-energy commodities price indicies
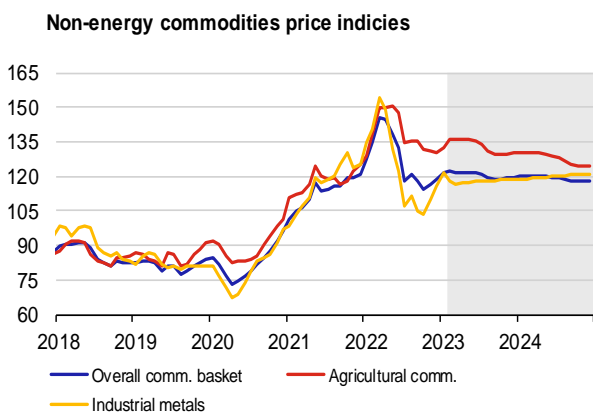
	Overall		Agricultural		Industrial	
2023	120.8	↗	133.1	↗	118.2	↗
2024	119.0	★	128.0	★	120.0	★

Food commodities
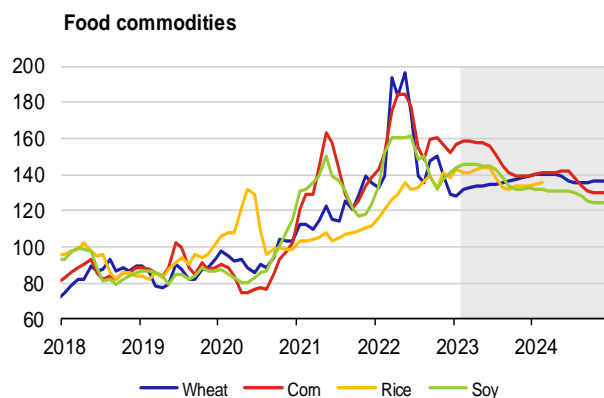
	Wheat		Corn		Rice		Soy	
2023	134.7	↗	150.0	↗	138.3	↗	140.1	↗
2024	137.7	★	136.7	★	135.1	★	128.5	★

Meat, non-food agricultural commodities
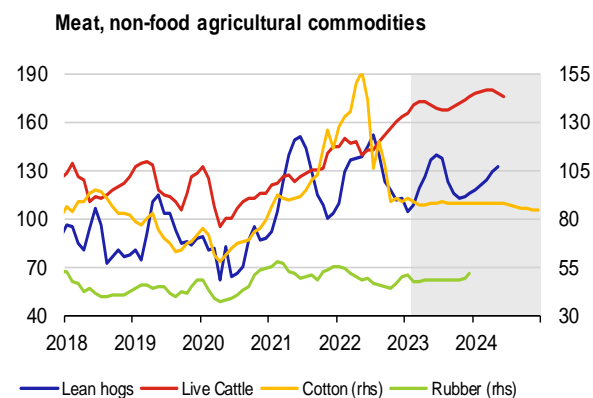
	Lean hogs		Live Cattle		Cotton		Rubber	
2023	120.8	↗	170.4	↗	88.1	↗	48.6	↗
2024	124.7	★	178.3	★	86.9	★		

Basic metals and iron ore

	Aluminium		Copper		Nickel		Iron ore	
2023	112.1	↗	120.0	↗	123.3	↗	78.9	↗
2024	116.7	★	120.1	★	126.3	★	73.3	★

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.

At the crossroads of change: The 5G digital economy as a gateway to the future[1]

The roll-out of fifth-generation (5G) technology has huge transformation potential thanks to the digitisation of the economy. Three unrivalled features of 5G are crucial: its high capacity, its speed and its very low latency. As a result, the current 4G technology will gradually fall out of use globally and 5G will come to dominate, as indicated by long-term forecasts. If a suitable environment is created, 5G may become an economic driver, delivering a potential global GDP uplift of around a trillion dollars by 2030, with the 5G mid-band spectrum playing a major role. The biggest market players right now are North America, Europe and North-East Asia. The choice of 5G use cases will be important going forward, with manufacturing, healthcare, transport and public administration showing the most promise at the moment. However, the combination of 5G and other advanced technologies will also play a role, as will the advent of 6G in the longer term.

Introduction

The modern world is hugely dependent on technology. Technological progress is seen as a very important tool for long-term economic growth. Technology offered undeniable advantages during the COVID-19 pandemic, providing new possibilities in education and healthcare for example. The focus now is on 5G technology and its increasing importance, as it is gradually making a new wave of economic transformation possible.
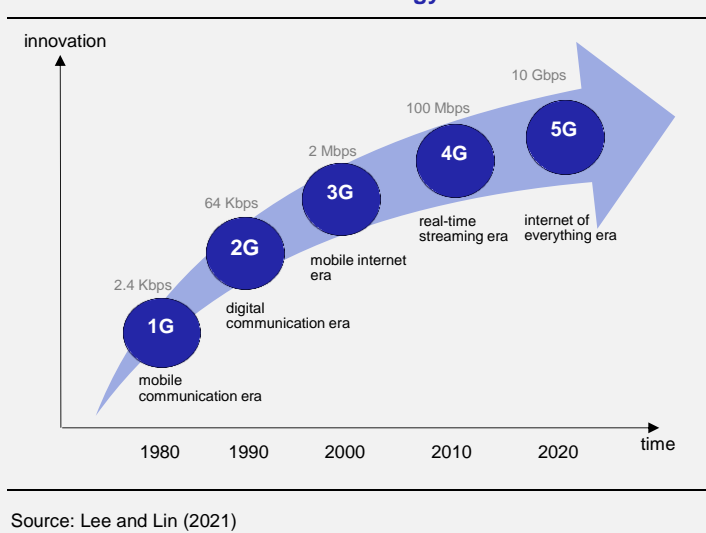
Wireless technology is expanding the potential of the digital economy and spurring economic growth. Thanks to radio-waves, technology makes it possible to transmit voice, data and video. New-generation products and services will be an integral part of life, offering greater comfort and speed. 5G has excellent capabilities. As a result, it is entering many sectors and driving competition not only between sectors, but also between entire economies and regions.

What led to 5G and what benefits does this generation of networks offer?

Wireless technology has come a long way since its introduction some forty years ago. It has huge capabilities, from the simple ability to make phone calls and sending short text messages to transmitting data at vast speeds and connecting hundreds of devices to networks using radio waves (see Chart 1). The first generation of networks (1G) in the 1980s gave rise to an analogue mobile system focused on voice transmission – mobile communication. In the 1990s, 2G networks ushered in an era of digital communication. The spectrum started to be used more efficiently to increase user numbers, and text messaging, for example, became available. The biggest benefit of 3G at the start of the new millennium was mobile internet access, along with other more diverse applications such as gaming, video calling and streaming. In the 2010s, 4G networks delivered even faster speeds, making it easier to upload and download data and use data-intensive applications (CTIA, 2022).

Lower-generation networks are gradually becoming obsolete and 5G networks are coming to the fore. 5G networks are currently the latest and most advanced, while 2G and 3G ones are slowly being deactivated. The roll-out of 5G technology began roughly in 2020, and 5G networks are being launched/deployed in more and more locations (see Chart 2). Around 70 countries had 5G networks deployed as of June 2022, up from just 38 in mid-2020. The Americas and Europe are at the forefront of 5G implementation, but investments in the technology have also been made in Asian countries, where it has also been deployed in many cases (Buchholz, 2022). 5G offers more capacity, higher speed and shorter reaction time (lower latency)[2] than 4G. It should thus handle the exponential growth in consumer and corporate demand for capacity (the number of devices connecting to the network is rising every year), speed and quality.

Chart 1 – The evolution of technology to 5G

innovation

10 Gbps
5G
internet of everything era

100 Mbps
4G
real-time streaming era

2 Mbps
3G
mobile internet era

64 Kbps
2G
digital communication era

2.4 Kbps
1G
mobile communication era

time
1980   1990   2000   2010   2020

Source: Lee and Lin (2021)

The deployment of 5G networks is beginning to increase gradually thanks to their unrivalled benefits. 4G networks are almost fully widespread (there is room for growth pretty much in developing markets only). 5G networks are steadily catching up and will overtake, sideline and replace them over time. Specifically, 5G networks are a hundred times faster than 4G, can connect a hundred times more devices (cars, smartwatches, drones, industrial robots – not just phones as

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[2] The time delay between a command being sent and being executed.

was the case with 4G) and are five times more responsive (5G's low latency will make breakthroughs such as remote surgery possible) (CTIA, 2022). Global 4G population coverage surpassed 85% in 2022 and, according to last year's Ericsson projection, is estimated to reach over 95% in 2028. 5G population coverage stood at 30% globally last year and is projected to reach almost 85% by the end of 2028 (see Chart 3).

Connecting everyone and everything. 5G is progressing from connecting people to other people and to information to a single structure that will connect people to almost everything. Massive amounts of money are being invested in network construction, as 5G offers many economic and other benefits. The 5G-driven economic transformation will give rise to a host of new types of smart devices and to digitisation and innovation in numerous sectors. It is also projected to generate millions of jobs across sectors, among other things.
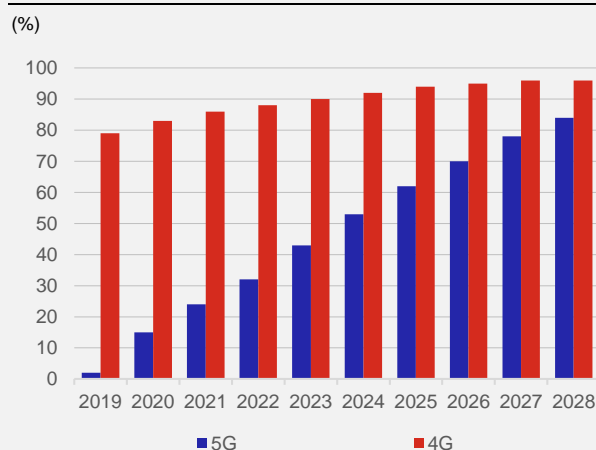
Chart 2 – Global deployment of 5G	Chart 3 – Global population coverage by technology
(countries where 5G has been deployed and investments have been made)	(%)
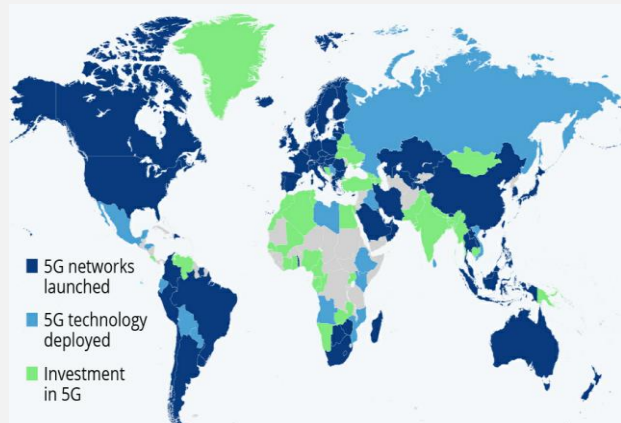
Source: Statista, GSA 5G Snapshot (data compiled as of June 2022)

Source: Ericsson (November 2022)

The 5G economy and its potential benefits

5G is an economic engine that needs to be supported by creating a strategically suitable environment. This will involve more than just building network infrastructure. The new generation of networks should be adopted quickly if there is a sufficient available bandwidth, especially in the mid-band. It is also important for the business environment to be amenable to technological innovation and for the workforce to be capable of taking advantage of it. Households, firms, the public sector and ultimately whole economies will benefit from the new opportunities offered by 5G. This will boost global economic growth. In its 2019 report, IHS Markit talks about the long-term outlook for 2035, when 5G should generate USD 3.6 trillion in economic output and support 22 million jobs. Achieving the potential benefits of 5G will require ongoing investments. This will enable innovation to spread across most sectors while also driving sales throughout the 5G value chain. New jobs will be created not only in digital sectors (entertainment, social networks), but across almost the entire economy, from agriculture through construction and education to healthcare. Unlike the previous generations of networks, this will not only involve positions requiring university education, such as software developers and AI/machine learning/data analysis engineers. The new jobs will be generated primarily in physical sectors – fitters, technicians, operators and maintenance workers for various types of equipment (robots, vehicles, drones, etc.). The human factor will be necessary for monitoring purposes, and manual skills will also be important.
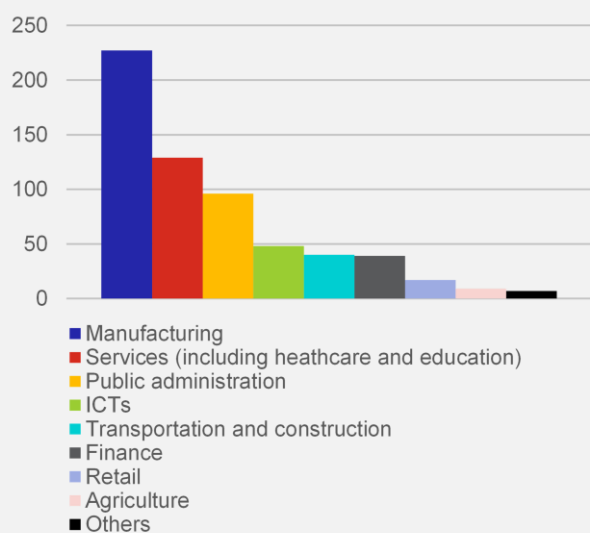
Given the speed of roll-out and expansion of 5G networks, their potential economic impact can already be estimated. Owing to its better performance, 5G will make new use cases and applications possible and thus create positive value for society as a whole via numerous sectors. For example in its 2021 study, PwC focused on five specific sectors – healthcare, smart utilities, consumer and media, industrial manufacturing and financial services – that it believes to have the biggest potential to benefit significantly from 5G technology. Specifically, it assessed the economic impact of 5G by 2030 by measuring 5G's ability to increase efficiency and productivity. According to the study, more than 80% of the economic potential appears to lie in healthcare applications (projected to contribute USD 530 billion to global GDP), smart utilities management (an additional USD 330 billion) and consumer and media applications (USD 254 billion more). The total effect of all the sectors analysed yields a potential uplift in global GDP of USD 1.3 trillion by 2030. The size and nature of the economic impact of 5G will depend on the sectors and settings in individual countries, but the expansion of 5G is projected to have an increasingly energising effect on the global economy starting in 2025. According to PwC, North America will experience the biggest percentage uplift to GDP from 5G, followed by Asia and Oceania and then by Europe.

Spectrum, most notably the mid-band, plays a critical role in realising the full extent of 5G's new capabilities. Many new applications will be dependent on mid-band spectrum (3.3 – 4.2 GHz), the importance of which for the economy will

increase in the future. A 2022 GSMA study examined the potential economic impact of mid-band spectrum. According to the results, 5G will generate USD 960 billion in GDP in 2030 (around 0.7% of global GDP in 2030), with the majority of benefits driven by mid-band spectrum (more than USD 610 billion). This will account for almost 65% of the socio-economic value generated by 5G. In terms of sectors, manufacturing is expected to make the largest contribution to GDP (it has historically been quick to adopt new technologies, and the digital transformation will increase productivity and reduce costs). However, public administration and services will also benefit greatly from 5G (see Chart 4). In contrast, the contribution in agriculture will be smaller (productivity will increase more slowly, as new technology has historically been adopted at a slower pace than in other sectors). As regards regions, according to the GSMA study, Asia Pacific (especially China, Japan and South Korea), the Americas (North American countries in particular) and Europe (most notably the UK and France) will account for the greatest share of the total global contribution to GDP generated by 5G. Despite macroeconomic differences between the regions, the impact of mid-band 5G is evenly felt in terms of percentage of GDP. While the largest economies of these regions will account for the majority of 5G's contribution to GDP, all regions will see a GDP boost of around 0.35–0.5% (see Chart 5). In the second half of the decade, countries in Africa and Latin America will start benefiting from 5G; the benefits will continue to grow beyond 2030. However, the economic benefits in the study are based on the condition that adequate spectrum is assigned to meet the exponential rise in data demand expected over the coming years.

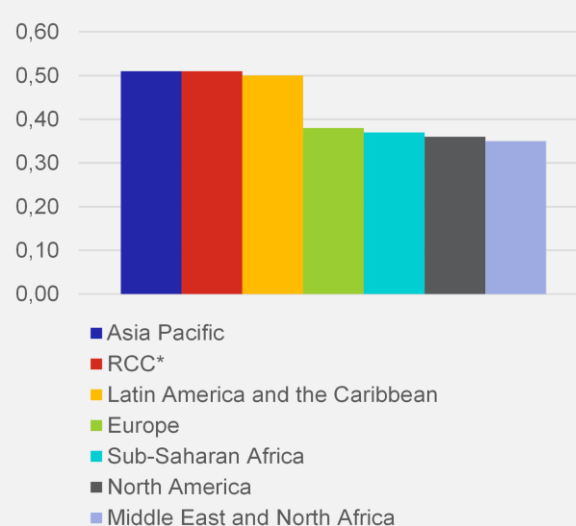| Chart 4 – Estimated global contribution of mid-band 5G spectrum to GDP by sector	Chart 5 – Regional breakdown of the GDP contribution generated by mid-band 5G
(USD billions for 2030)	(% for 2030)
■ Manufacturing ■ Services (including heathcare and education) ■ Public administration ■ ICTs ■ Transportation and construction ■ Finance ■ Retail ■ Agriculture ■ Others	■ Asia Pacific ■ RCC* ■ Latin America and the Caribbean ■ Europe ■ Sub-Saharan Africa ■ North America ■ Middle East and North Africa
Source: GSMA Intelligence	Source: GSMA Intelligence * Regional Commonwealth in the Field of Communications, which includes eleven countries from the former Soviet Union.

However, 5G needs a variety of spectrum bands to support a range of applications and services. Low bands provide coverage and indoor reach, mid-bands provide a balance of coverage and capacity, and high bands can provide capacity in densely populated urban areas and in factory settings. To better understand what a lack of adequate mid-band spectrum entails, GSMA assessed a scenario where sub-optimal spectrum allocation impacts the 5G consumer experience, reducing download and upload speeds. In this scenario, the global economy could lose up to 40% of the expected 5G benefits. The global 5G benefits could decrease from around USD 960 billion to less than USD 600 billion.

Use cases

Each sector will be uniquely transformed by 5G technology, but some sectors have more clearly defined use cases which might have positive and significant (economic and other) impacts. 5G innovation is showing promise in various areas – the above-mentioned manufacturing, healthcare and transport, as well as smart cities and agriculture. New use cases will spur innovation across sectors, creating new revenue streams. Ultimately, most sectors will benefit from 5G, but attention is focused on those which are key to monetising investments made in 5G infrastructure.

A sea change is expected in manufacturing, where interconnected systems will be built. Smart factories equipped with 5G will use these networks to improve and enhance the flexibility of automated processes and to collect and analyse large amounts of data using autonomous devices. But 5G will not only improve robotic work. The reliable use of virtual and augmented reality will also make it possible to increase productivity and worker safety thanks to better cooperation with robots (PwC, 2021). This will help reduce producers' running costs. According to Qualcomm, there is potential to increase total productivity in manufacturing by 20%–30% and up to 90% of defects could be detected.

Healthcare will achieve better, faster outcomes. 5G technology will enable healthcare providers to offer services such as reliable remote patient monitoring and even remote surgery. Doctor-patient interactions will be streamlined and the number and length of hospital stays will be reduced. In general, the efficacy of telemedicine and medical devices (and the data obtained from them) will improve. Thanks to better technology, drones will also be involved in speeding up the transport of vital equipment and therapies (PwC, 2021). According to Qualcomm, innovation could cut costs by 30%.

Traffic systems need to be transformed due to high traffic density and pressure on the environment, with 5G technology playing a crucial rule in this process. Connection and communication between vehicles and with traffic infrastructure will be key. Thanks to self-driving cars and information sharing, 5G will enable traffic optimisation to minimise congestion (CTIA, 2022). This will reduce emissions, cut travel time and generally increase safety. Specifically, Qualcomm mentions an 80% reduction of vehicle accidents and a 25% reduction in traffic.

Intelligent public services and thus smart cities. This is another area where innovation will be based on the capabilities of 5G. Less congestion thanks to sensors for critical infrastructure and lower energy consumption thanks to connected bus stops, lamp posts and other equipment will make cities more efficient. Also worth mentioning are better waste management/less waste and fewer water leaks (CTIA, 2022). Wireless solutions can thus deliver significant savings. Moreover, all of them will be connected to a wide range of apps digitising people's everyday life.
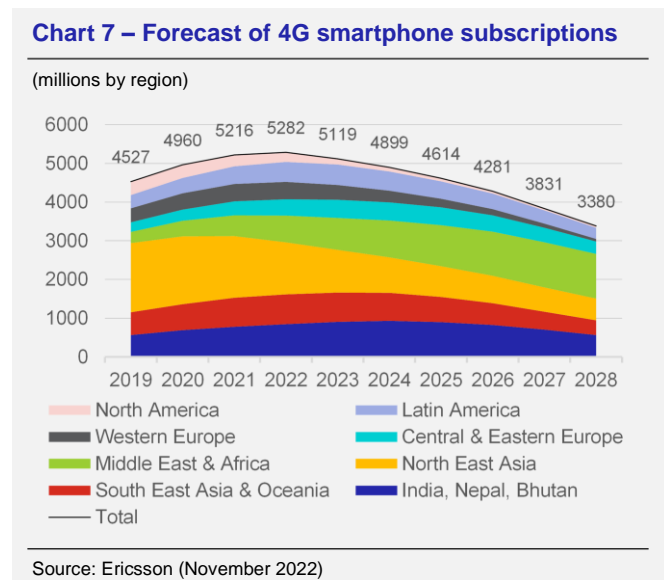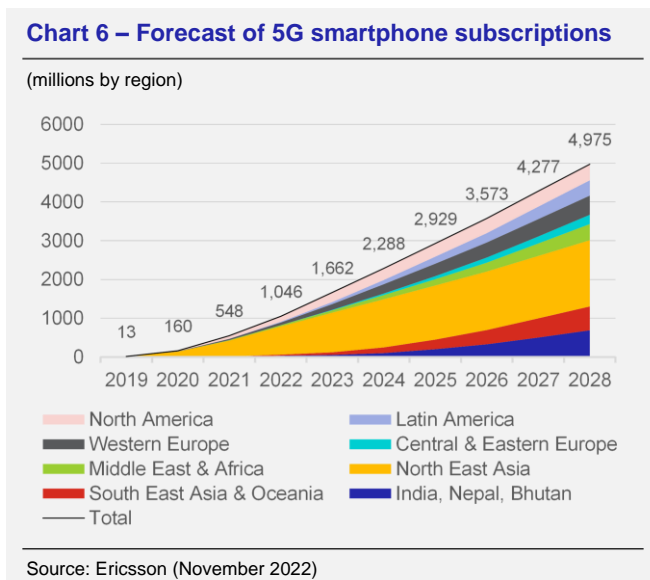
Agriculture also faces challenges, and again 5G can help. For example, there is a need to boost and streamline crop production for growing numbers of people. Better digitisation thanks to 5G will optimise irrigation and fertilisation using soil sensors. The same network can also integrate self-driving agricultural machinery. According to Qualcomm, the changes will increase productivity by up to 25% and reduce costs by 20%. Intelligent agriculture will also allow farmers to monitor harvests, animal health and so on.

Multiple stakeholders need to collaborate for 5G-driven use cases to work. A dialogue between network operators, technology providers, regulators and associations and between the private and public sectors is vital for 5G to be adopted en masse worldwide. Only then can the benefits be maximised across sectors. Networks can then be also used to provide services to individual consumers (advanced streaming of entertainment, music and games, including augmented and virtual reality, and generally high-quality experiences instantly anywhere) or to provide financial services (such as smart wallets).

A look into the future and the dawn of 6G

Provided that the environment is favourable, the uptake and economic benefits of 5G will grow. Investment in infrastructure and in R&D for new applications with great potential across sectors, will be crucial. A strategic approach – the clear choice of use cases with the highest prospective economic value – will be important for all stakeholders involved in shaping the future of 5G.

Promising 5G subscriber projections suggest great potential for long-term economic benefits. The latest generation of wireless networks has achieved considerable uptake over the last year and is spreading even faster than 4G and other previous generations did. According to Ericsson's 2022 Mobility Report, 5G mobile subscriptions are expected to have exceeded one billion globally last year, almost double the 2021 figure. In regional terms, North East Asia (mainly China) has the largest share, accounting for almost 70% of global subscriptions, followed by North America and Western Europe, which together account for almost 20%. Ericsson forecasts that there will be almost 5 billion 5G subscriptions by the end of 2028 (see Chart 6). The previous 4G is expected to have peaked at almost 5.3 billion subscriptions in 2022 and outlooks show a decline to around 3.5 billion by the end of 2028 (see Chart 7), although the number of subscriptions will remain high in subsequent years. 5G will thus gradually start to become dominant and subscribers will switch to it.

Chart 6 – Forecast of 5G smartphone subscriptions

(millions by region)

Source: Ericsson (November 2022)

Chart 7 – Forecast of 4G smartphone subscriptions

(millions by region)

Source: Ericsson (November 2022)

The combination of the capabilities of 5G with other advanced technologies will be another benefit going forward. Owing to its low latency, 5G will become a foundation for the implementation of other cutting-edge technology, from artificial intelligence and virtual and augmented reality through to the internet of things. This should ultimately enable the emergence of a mutually connected network of physical devices (cars, drones and various sensors) that communicate with each other and share data. 5G will thus also play an important role in the fourth industrial revolution. Full utilisation of technological progress should imply further economic benefits in the longer run.

Another vision is for a sixth generation of networks, 6G. Research is already ongoing in this area and should provide a strong connection between the digital and physical world for the creation of omnipresent wireless intelligence. This reality should make new modes of interpersonal interaction possible and create new job, travel and learning opportunities, that is, the ability to connect billions of wireless devices at any time and in any place as needed. Moreover, 6G will provide new intelligent connection services and thus deliver optimised information for any specific requests of users. 6G is set to become available and start to be used around 2030, when a connected intelligent and sustainable world should be created (Lee and Lin, 2021).

Not all that glitters is gold, and 5G technology has its risks and disadvantages. First, the implementation of 5G entails very high costs necessary for it to function properly. In order for firms to take full advantage of the benefits of 5G, they will have to carefully consider investing in modernisation, with prices being the deciding factor for them. Devices will inevitably become obsolete very quickly and will have to be replaced, which will not be cheap. This raises the question of growing inequality in society. Also often discussed is the risk regarding security and the protection of privacy and data in general. In this respect, 5G as a new technology needs improvement to reduce the fairly high risk of hacking attacks and data thefts, which put consumers, firms and governments at risk. Moreover, the greater the number of connected devices, the more opportunities there are for attacks.

Conclusion

A new generation of networks has been introduced almost every decade since the 1980s. New technology is always quite revolutionary, having an impact not only on people's lives in general, but also on economic growth due to better opportunities. 5G has the potential to improve the world not only for consumers and to boost growth in all sectors thanks to its availability and reliability. A particularly large impact is expected in the key sectors of manufacturing, healthcare and transport. However, the use cases depend on a range of factors, from the preparedness and availability of technology through to the skills of workers and consumers to handle it.

5G networks will mean a revolution and become a critical foundation for the digital society and economy. Capacity and performance demands are increasing, and 5G networks should be able to meet them. Greater digitisation will additionally foster innovation. In geopolitical terms, 5G is at its peak in only a few countries. Europe as a whole is doing quite well but is lagging behind North America and Asia. The Asian 5G technology market, especially that in China, will play a key role in the years ahead.

Despite all the potential 5G has for economic growth, there is still a long way to go. The digital transformation may generate many of the above positives, but they will not happen overnight. There are also other challenges: spectrum availability, network modernisation and coverage, and security and protection. On the other hand, the implementation of 5G is also generating benefits that go beyond the economic framework examined in this article.

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Keywords

5G, technology, networks, sectors, economic growth

JEL Classification

O14, O30, O40

A1. Change in predictions for 2023

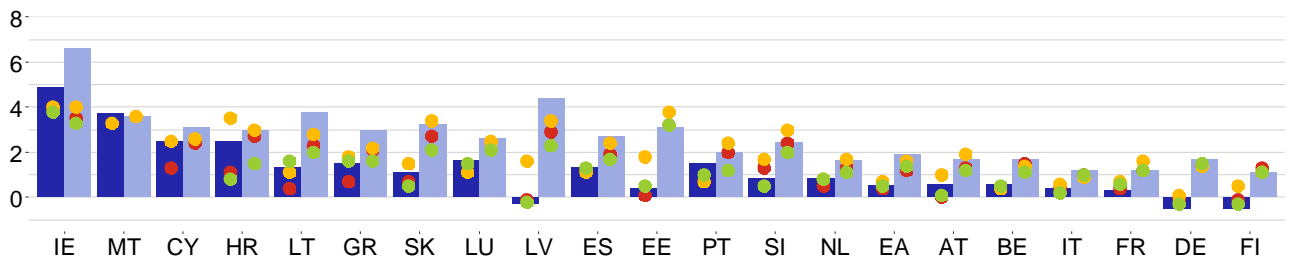**GDP growth, %**

	CF		IMF		OECD		CB / EIU	
EA	+0.4	2023/2 2023/1	+0.2	2023/1 2022/10	+0.2	2022/11 2022/9	-0.4	2022/12 2022/9
US	+0.4	2023/2 2023/1	+0.4	2023/1 2022/10	0	2022/11 2022/9	-0.7	2022/12 2022/9
UK	+0.2	2023/2 2023/1	-0.9	2023/1 2022/10	-0.4	2022/11 2022/9	+1.0	2023/2 2022/11
JP	-0.1	2023/2 2023/1	+0.2	2023/1 2022/10	+0.4	2022/11 2022/9	-0.2	2023/1 2022/10
CN	+0.6	2023/2 2023/1	+0.8	2023/1 2022/10	-0.1	2022/11 2022/9	+0.3	2023/2 2023/1
RU	+0.3	2023/1 2023/1	+2.6	2023/1 2022/10	-1.1	2022/11 2022/9	+1.6	2023/2 2023/1

Inflation, %

	CF		IMF		OECD		CB / OE	
EA	-0.4	2023/2 2023/1	+3.4	2022/10 2022/4	+0.6	2022/11 2022/9	+0.8	2022/12 2022/9
US	+0.1	2023/2 2023/1	+0.6	2022/10 2022/4	+0.5	2022/11 2022/9	+0.3	2022/12 2022/9
UK	-0.5	2023/2 2023/1	+3.7	2022/10 2022/4	+0.7	2022/11 2022/9	-1.3	2023/2 2022/11
JP	+0.2	2023/2 2023/1	+0.6	2022/10 2022/4	0	2022/11 2022/9	0	2023/1 2022/10
CN	+0.1	2023/2 2023/1	+0.4	2022/10 2022/4	-0.9	2022/11 2022/9	0	2023/2 2023/1
RU	-0.3	2023/1 2023/1	-9.3	2022/10 2022/4	-0.1	2022/11 2022/9	0	2023/2 2023/1

A2. Change in predictions for 2024

GDP growth, %

	CF		IMF		OECD		CB / OE	
EA	0	2023/2 2023/1	-0.2	2023/1 2022/10	---	2022/11 ---	0	2022/12 2022/9
US	0	2023/2 2023/1	-0.2	2023/1 2022/10	---	2022/11 ---	-0.1	2022/12 2022/9
UK	+0.1	2023/2 2023/1	+0.3	2023/1 2022/10	---	2022/11 ---	+0.7	2023/2 2022/11
JP	0	2023/2 2023/1	-0.4	2023/1 2022/10	---	2022/11 ---	-0.4	2023/1 2022/10
CN	-0.2	2023/2 2023/1	0	2023/1 2022/10	---	2022/11 ---	-0.1	2023/2 2023/1
RU	-0.1	2023/1 2023/1	+0.6	2023/1 2022/10	---	2022/11 ---	-0.4	2023/2 2023/1

Inflation, %

	CF		IMF		OECD		CB / OE	
EA	0	2023/2 2023/1	+0.9	2022/10 2022/4	---	2022/11 ---	+1.1	2022/12 2022/9
US	0	2023/2 2023/1	-0.1	2022/10 2022/4	---	2022/11 ---	+0.2	2022/12 2022/9
UK	-0.2	2023/2 2023/1	+1.1	2022/10 2022/4	---	2022/11 ---	0	2023/2 2022/11
JP	0	2023/2 2023/1	+0.1	2022/10 2022/4	---	2022/11 ---	+0.2	2023/1 2022/10
CN	0	2023/2 2023/1	-0.1	2022/10 2022/4	---	2022/11 ---	0	2023/2 2023/1
RU	-0.2	2023/1 2023/1	-5.0	2022/10 2022/4	---	2022/11 ---	0	2023/2 2023/1

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

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

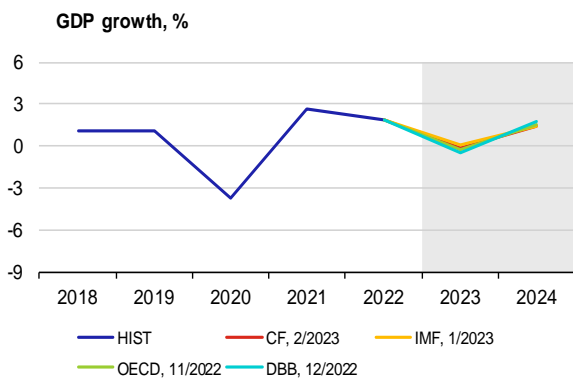### Inflation in the euro area countries in 2023 and 2024, %
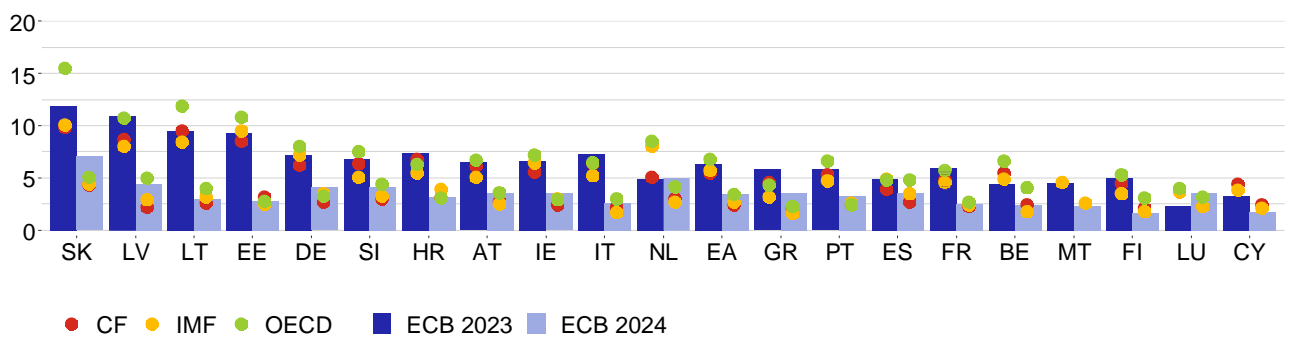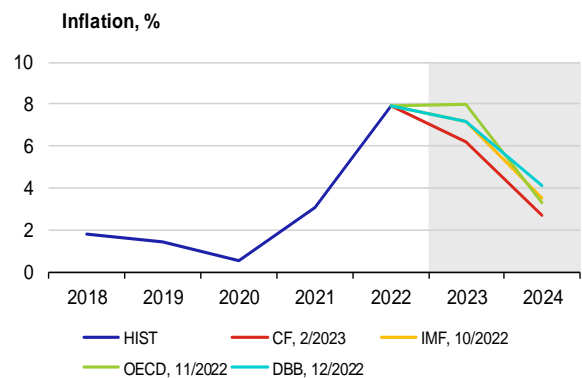

● CF   ● IMF   ● OECD   ■ ECB 2023   ■ ECB 2024

Note: Charts show institutions' latest available outlooks of for the given country.

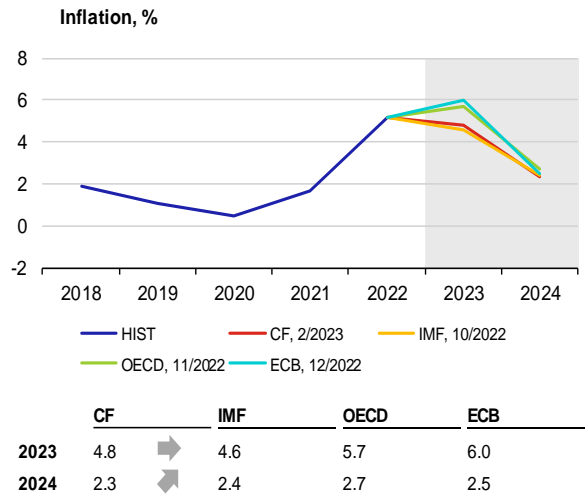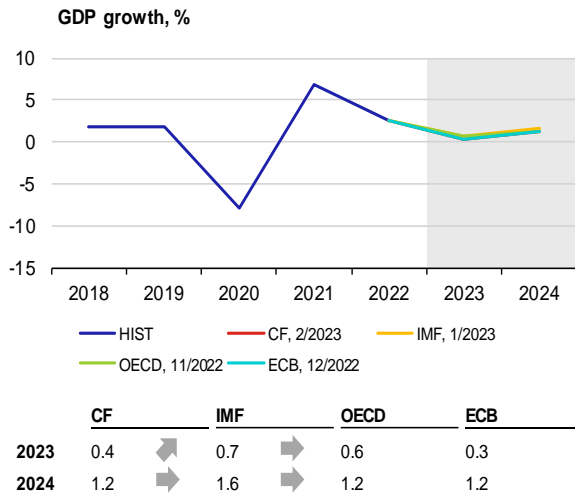## A4. GDP growth and inflation in the individual euro area countries

Germany

GDP growth, %

HIST   CF, 2/2023   IMF, 1/2023
OECD, 11/2022   DBB, 12/2022

	CF		IMF		OECD	DBB
2023	-0.1	⬈	0.1	⬈	-0.3	-0.5
2024	1.4	➡	1.4	⬊	1.5	1.7

Inflation, %

HIST   CF, 2/2023   IMF, 10/2022
OECD, 11/2022   DBB, 12/2022

	CF		IMF	OECD	DBB
2023	6.2	⬊	7.2	8.0	7.2
2024	2.7	⬊	3.5	3.3	4.1

France

GDP growth, %

HIST — **CF, 2/2023** — **IMF, 1/2023** — **OECD, 11/2022** — **ECB, 12/2022**

	CF		IMF		OECD	ECB
2023	0.4	↗	0.7	→	0.6	0.3
2024	1.2	→	1.6	→	1.2	1.2

Inflation, %

HIST — **CF, 2/2023** — **IMF, 10/2022** — **OECD, 11/2022** — **ECB, 12/2022**

	CF		IMF	OECD	ECB
2023	4.8	→	4.6	5.7	6.0
2024	2.3	↗	2.4	2.7	2.5

Italy

GDP growth, %

HIST — **CF, 2/2023** — **IMF, 1/2023** — **OECD, 11/2022** — **ECB, 12/2022**

	CF		IMF		OECD	ECB
2023	0.4	↗	0.6	↗	0.2	0.4
2024	1.0	↘	0.9	↘	1.0	1.2

Inflation, %

HIST — **CF, 2/2023** — **IMF, 10/2022** — **OECD, 11/2022** — **ECB, 12/2022**

	CF		IMF	OECD	ECB
2023	6.4	↘	5.2	6.5	7.3
2024	2.2	→	1.7	3.0	2.6

Spain

GDP growth, %

HIST — **CF, 2/2023** — **IMF, 1/2023** — **OECD, 11/2022** — **ECB, 12/2022**

	CF		IMF		OECD	ECB
2023	1.2	↗	1.1	↘	1.3	1.3
2024	1.9	↘	2.4	↘	1.7	2.7

Inflation, %

HIST — **CF, 2/2023** — **IMF, 10/2022** — **OECD, 11/2022** — **ECB, 12/2022**

	CF		IMF	OECD	ECB
2023	3.9	↗	4.9	4.8	4.9
2024	2.7	↘	3.5	4.8	3.6

Netherlands

GDP growth, %

Inflation, %

	CF		IMF	OECD	ECB
2023	0.5	↗	0.8	0.8	0.8
2024	1.3	→	1.7	1.1	1.6

	CF		IMF	OECD	ECB
2023	5.1	↘	8.0	8.5	4.9
2024	3.0	↘	2.7	4.2	5.0

Belgium

GDP growth, %

Inflation, %

	CF		IMF	OECD	ECB
2023	0.4	↗	0.4	0.5	0.6
2024	1.5	↗	1.4	1.1	1.7

	CF		IMF	OECD	ECB
2023	5.5	↘	4.9	6.6	4.4
2024	2.4	↗	1.8	4.1	2.4

Austria

GDP growth, %

Inflation, %

	CF		IMF	OECD	ECB
2023	0.0	↗	1.0	0.1	0.6
2024	1.3	→	1.9	1.2	1.7

	CF		IMF	OECD	ECB
2023	6.1	→	5.1	6.7	6.5
2024	2.7	→	2.5	3.6	3.6

Ireland

GDP growth, %

	HIST	CF, 2/2023	IMF, 10/2022
	OECD, 11/2022	ECB, 12/2022	

	CF		IMF	OECD	ECB
2023	3.9	↗	4.0	3.8	4.9
2024	3.5	↗	4.0	3.3	6.6

Inflation, %

	HIST	CF, 2/2023	IMF, 10/2022
	OECD, 11/2022	ECB, 12/2022	
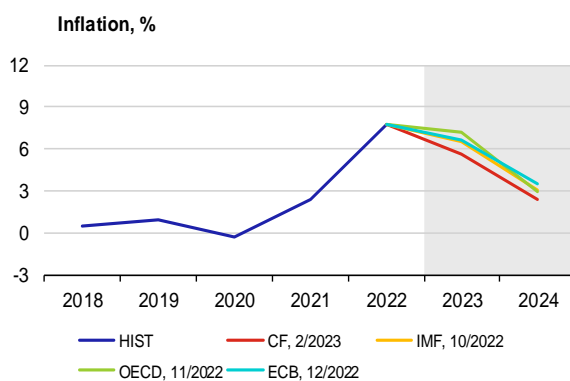
	CF		IMF	OECD	ECB
2023	5.6	↘	6.5	7.2	6.6
2024	2.4	→	3.0	2.9	3.5

Finland

GDP growth, %

	HIST	CF, 2/2023	IMF, 10/2022
	OECD, 11/2022	ECB, 12/2022	
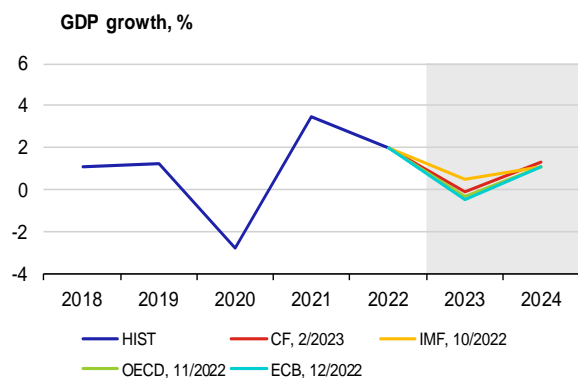
	CF		IMF	OECD	ECB
2023	-0.1	→	0.5	-0.3	-0.5
2024	1.3	↘	1.1	1.1	1.1

Inflation, %

	HIST	CF, 2/2023	IMF, 10/2022
	OECD, 11/2022	ECB, 12/2022	
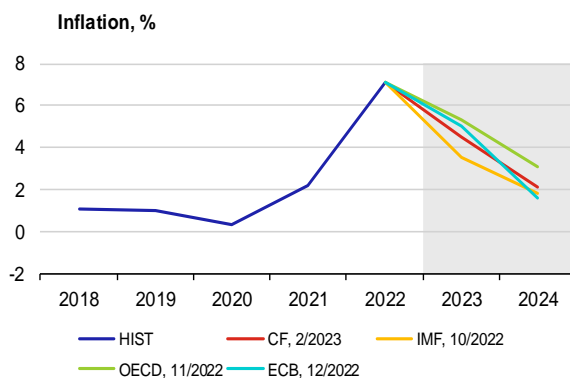
	CF		IMF	OECD	ECB
2023	4.5	↗	3.5	5.3	5.0
2024	2.1	↗	1.8	3.1	1.6

Portugal

GDP growth, %

	HIST	CF, 2/2023	IMF, 10/2022
	OECD, 11/2022	ECB, 12/2022	
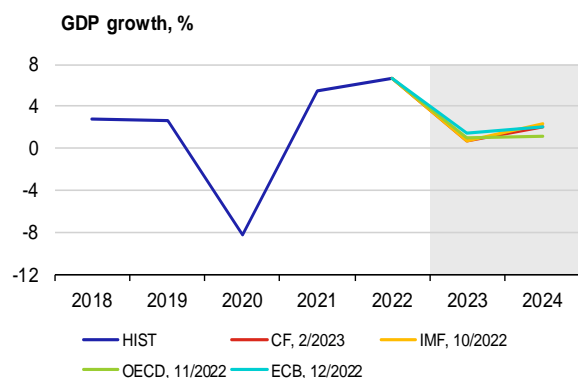
	CF		IMF	OECD	ECB
2023	0.7	↗	0.7	1.0	1.5
2024	2.0	↗	2.4	1.2	2.0

Inflation, %

	HIST	CF, 2/2023	IMF, 10/2022
	OECD, 11/2022	ECB, 12/2022	
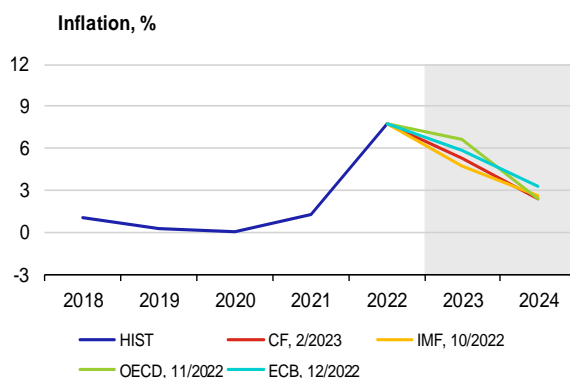
	CF		IMF	OECD	ECB
2023	5.3	→	4.7	6.6	5.8
2024	2.4	↘	2.6	2.4	3.3

Greece

GDP growth, %
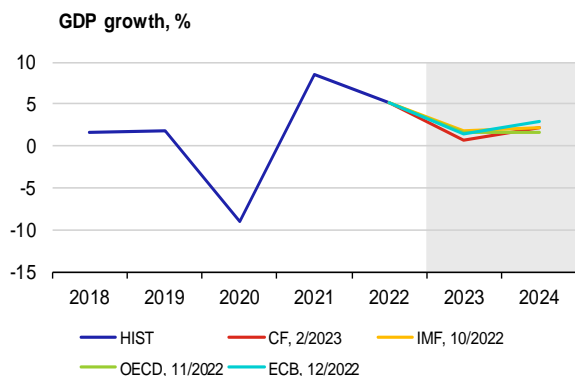
	CF		IMF	OECD	ECB
2023	0.7	↗	1.8	1.6	1.5
2024	2.1	➡	2.2	1.6	3.0

Inflation, %
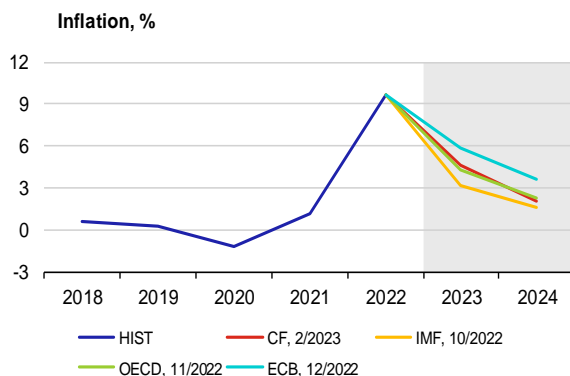
	CF		IMF	OECD	ECB
2023	4.6	↘	3.2	4.3	5.8
2024	2.1	↘	1.6	2.3	3.6

Slovakia

GDP growth, %
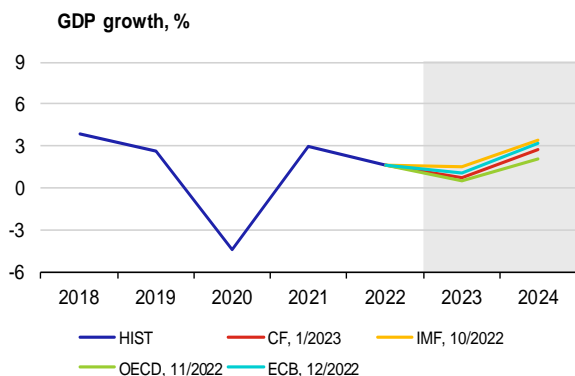
	CF		IMF	OECD	ECB
2023	0.7	↗	1.5	0.5	1.1
2024	2.7	★	3.4	2.1	3.2

Inflation, %
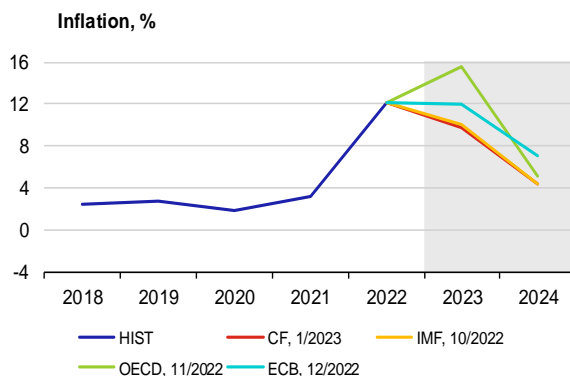
	CF		IMF	OECD	ECB
2023	9.8	↘	10.1	15.5	11.9
2024	4.3	★	4.4	5.1	7.0

Luxembourg

GDP growth, %
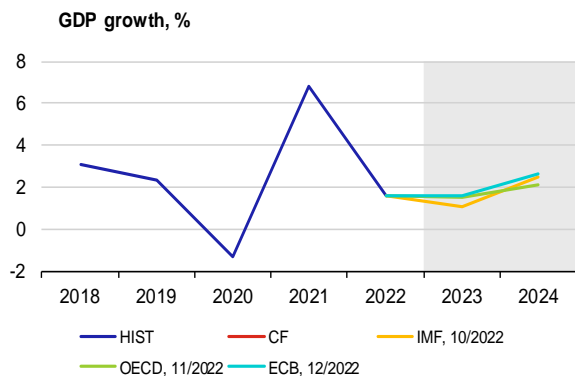
	CF	IMF	OECD	ECB
2023	n. a.	1.1	1.5	1.6
2024	n. a.	2.5	2.1	2.6

Inflation, %
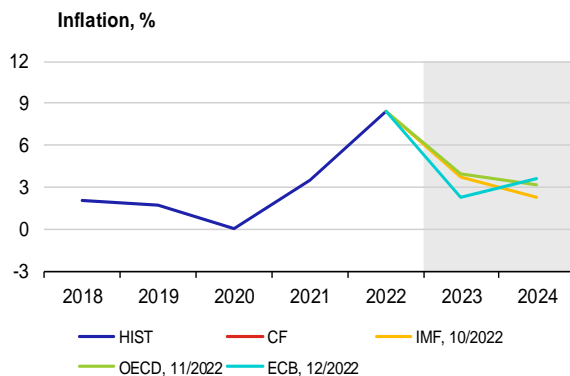
	CF	IMF	OECD	ECB
2023	n. a.	3.7	4.0	2.3
2024	n. a.	2.3	3.2	3.6

Slovenia

GDP growth, %

Inflation, %
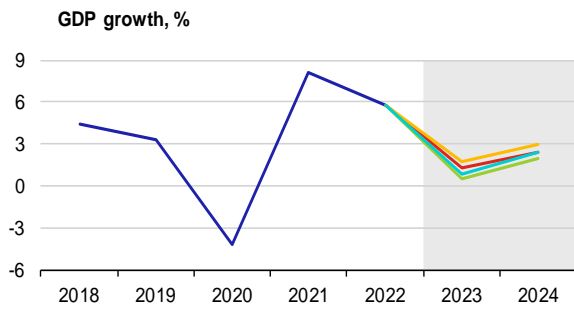
	CF		IMF	OECD	ECB
2023	1.3	→	1.7	0.5	0.8
2024	2.4	★	3.0	2.0	2.4
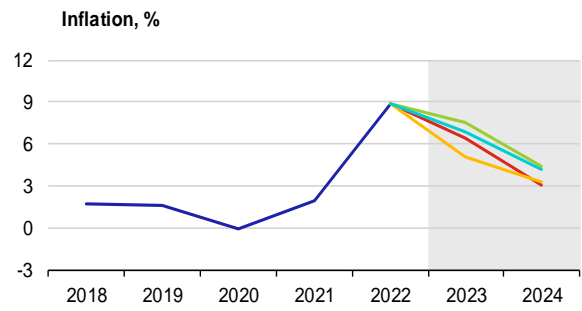
	CF		IMF	OECD	ECB
2023	6.4	↗	5.1	7.5	6.8
2024	3.0	★	3.3	4.4	4.2

Lithuania

GDP growth, %

Inflation, %
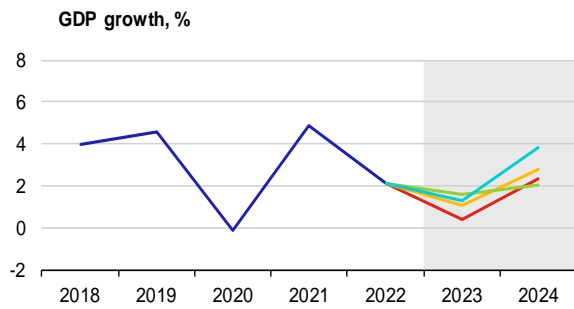
	CF		IMF	OECD	ECB
2023	0.4	→	1.1	1.6	1.3
2024	2.3	★	2.8	2.0	3.8
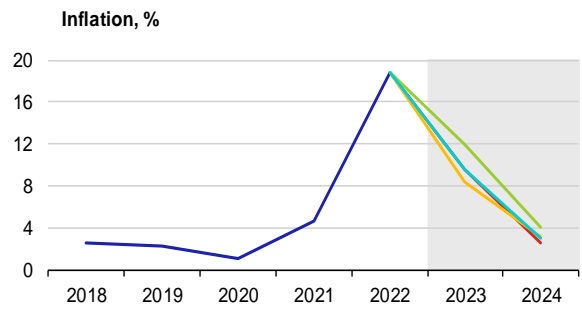
	CF		IMF	OECD	ECB
2023	9.5	↘	8.4	11.9	9.5
2024	2.6	★	3.2	4.0	3.0

Latvia

GDP growth, %

Inflation, %
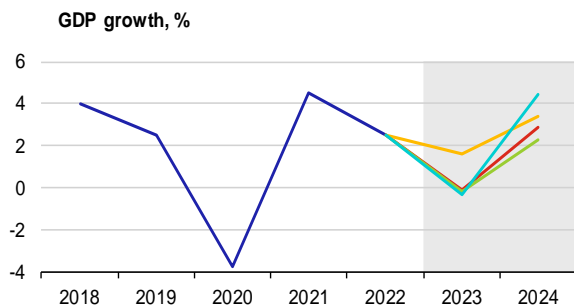
	CF		IMF	OECD	ECB
2023	-0.1	↗	1.6	-0.2	-0.3
2024	2.9	★	3.4	2.3	4.4
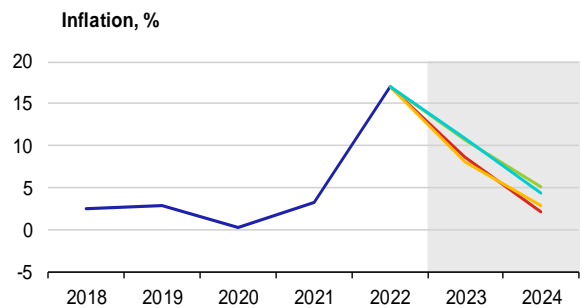
	CF		IMF	OECD	ECB
2023	8.7	↘	8.0	10.7	10.9
2024	2.2	★	2.9	5.0	4.4

Estonia

GDP growth, %
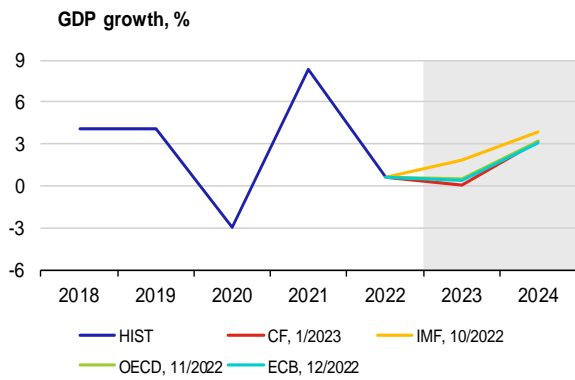
	CF		IMF	OECD	ECB
2023	0.1		1.8	0.5	0.4
2024	3.2		3.8	3.2	3.1

Inflation, %
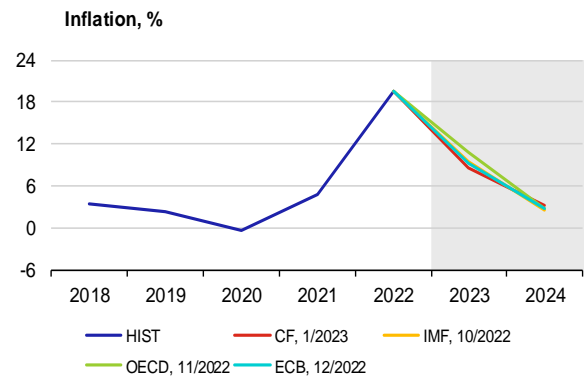
	CF		IMF	OECD	ECB
2023	8.5		9.5	10.8	9.3
2024	3.2		2.5	2.8	2.8

Cyprus

GDP growth, %
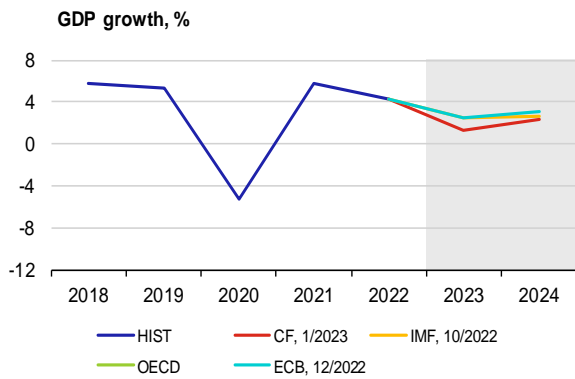
	CF		IMF	OECD	ECB
2023	1.3		2.5	n. a.	2.5
2024	2.4		2.6	n. a.	3.1

Inflation, %
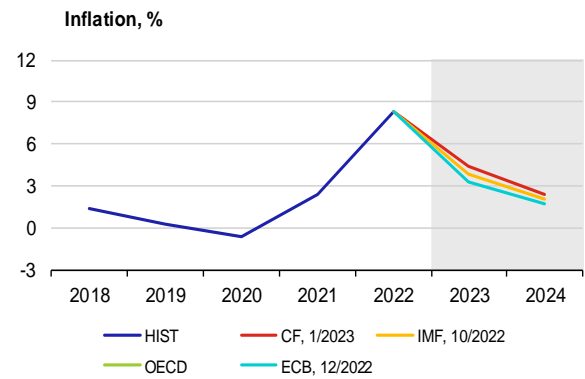
	CF		IMF	OECD	ECB
2023	4.4		3.8	n. a.	3.3
2024	2.4		2.1	n. a.	1.7

Malta
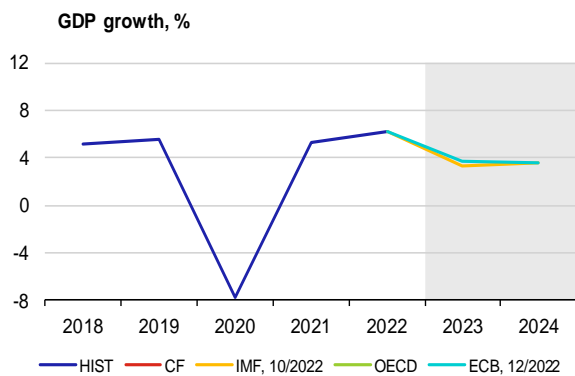
GDP growth, %

	CF	IMF	OECD	ECB
2023	n. a.	3.3	n. a.	3.7
2024	n. a.	3.6	n. a.	3.6
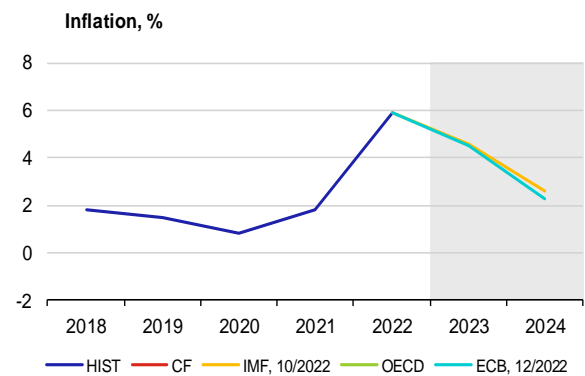
Inflation, %

	CF	IMF	OECD	ECB
2023	n. a.	4.6	n. a.	4.5
2024	n. a.	2.6	n. a.	2.3

Ddd

Croatia

GDP growth, %
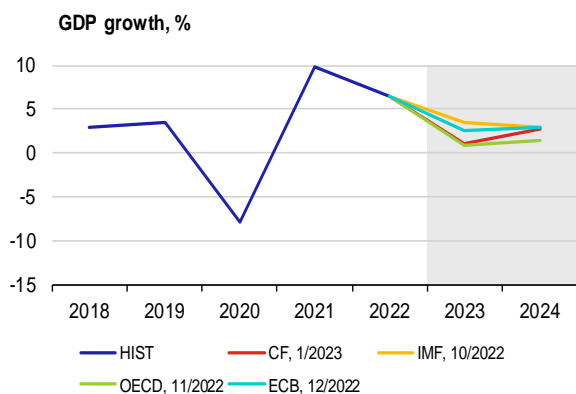
Inflation, %

	CF		IMF	OECD	ECB
2023	1.1	➡	3.5	0.8	2.5
2024	2.7	★	3.0	1.5	3.0
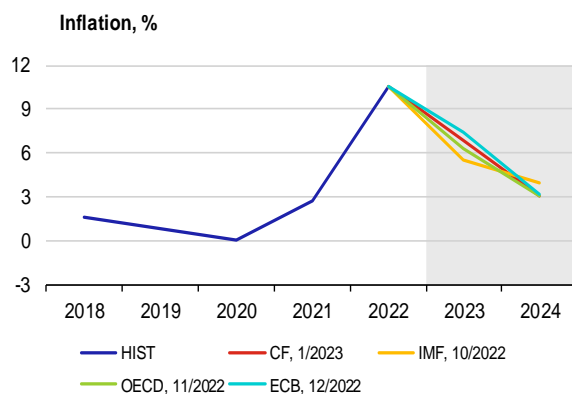
	CF		IMF	OECD	ECB
2023	6.8	↗	5.5	6.3	7.4
2024	3.1	★	3.9	3.1	3.2

A5. GDP growth and inflation in other selected countries

Romania

GDP growth, %

Inflation, %
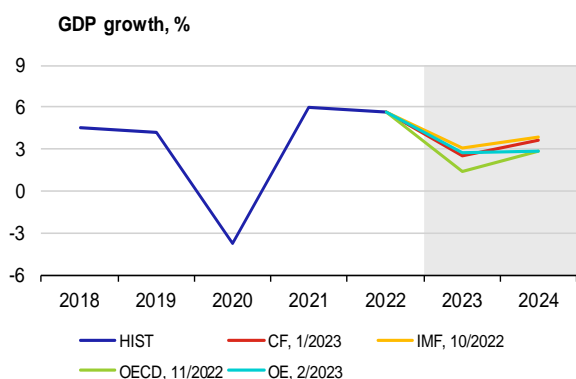
	CF		IMF	OECD	OE	
2023	2.5	↗	3.1	1.4	2.7	↗
2024	3.6	➡	3.8	2.8	2.9	➡
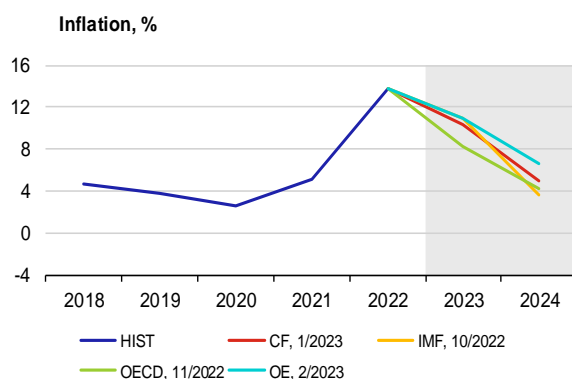
	CF		IMF	OECD	OE	
2023	10.3	↘	11.0	8.3	11.0	↗
2024	5.0	↗	3.6	4.2	6.6	↗

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	**NIESR**	National Institute of Economic and Social Research (UK)
DBB	Deutsche Bundesbank (the central bank of Germany)	**NKI**	Nikkei
DE	Germany	**NL**	Netherlands
EA	euro area	**OE**	Oxford Economics
ECB	European Central Bank	**OECD**	Organisation for Economic Co-operation and Development
EE	Estonia	**OECD-CLI**	OECD Composite Leading Indicator
EIA	Energy Information Administration	**OPEC+**	member countries of OPEC oil cartel and 10 other oil-exporting countries (the most important of which are Russia, Mexico and Kazakhstan)
ES	Spain		
ESI	Economic Sentiment Indicator of the European Commission		
EU	European Union	**PMI**	Purchasing Managers' Index
EUR	euro	**pp**	percentage point
EURIBOR	Euro Interbank Offered Rate	**PT**	Portugal
Fed	Federal Reserve System (the US central bank)	**RU**	Russia
FI	Finland	**RUB**	Russian rouble
FOMC	Federal Open Market Committee	**SI**	Slovenia
FR	France	**SK**	Slovakia
FRA	forward rate agreement	**SPF**	Survey of Professional Forecasters
FY	fiscal year	**TTF**	Title Transfer Facility (virtual trading point for natural gas in the Netherlands)
GBP	pound sterling		
GDP	gross domestic product	**UK**	United Kingdom
GR	Greece	**UoM**	University of Michigan Consumer Sentiment Index - present situation
HICP	Harmonised Index of Consumer Prices		
HR	Croatia	**US**	United States
ICE	Intercontinental Exchange	**USD**	US dollar
IE	Ireland	**WEO**	World Economic Outlook
IEA	International Energy Agency	**WTI**	West Texas Intermediate (crude oil used as a benchmark in oil pricing)
IFO	Leibniz Institute for Economic Research at the University of Munich		
IMF	International Monetary Fund	**ZEW**	Centre for European Economic Research

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