Global Economic Outlook

——— August 2024

CNB CZECH NATIONAL BANK

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I. Introduction

A landmark event in the war in Ukraine took place on 6 August 2024: the Ukrainian army penetrated Russian territory in the Kursk region. One of the side effects of "Operation Kursk" has been improved morale and self-confidence in the Ukrainian army, which has been facing Russia's war of aggression for 30 months now with material support from its allies. On the diplomatic front, reports have leaked about possible talks between the two sides in Doha, Qatar, to try to negotiate a bilateral shift away from attacks on critical infrastructure, including nuclear power plants. Material and military aid to Ukraine should soon be partially financed from confiscated Russian assets, estimated to be worth up to USD 300 billion.
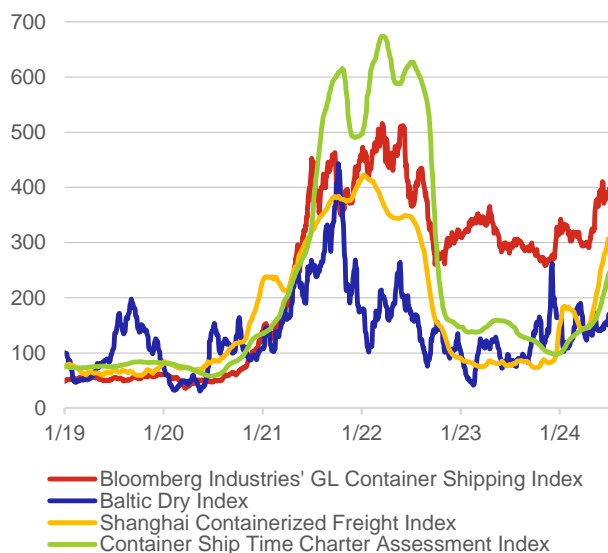
The world economy is expected to maintain growth of 3.3% this year, with emerging economies growing at 4.3% and advanced economies maintaining 1.7% growth. These figures are from an update to the IMF forecast, which also improved the growth prospects for the two most populous economies, India and China. For Germany, Europe's strongest economy, it still forecasts slight economic growth, although current indicators from the German economy (e.g. the steep fall in the ZEW index in August) suggest worse future figures. The IMF continues to pay increased attention to inflation. Although a slowdown is clearly visible in many states, it has been slower than expected. The reason is the still slowly falling inflation in the services sector. According to the IMF, the persistently higher inflation means a slower pace of interest rate cuts.

The US Fed could also join the cycle of cautious monetary policy easing in September. Meetings of other large reserve currency central banks (ECB, BoJ and BoE) are planned for the middle of September. The traditional meeting of central bankers and leading academics in Jackson Hole in the USA usually hints at much in terms of monetary policy settings.

Transport costs through several indices

- Bloomberg Industries' GL Container Shipping Index
- Baltic Dry Index
- Shanghai Containerized Freight Index
- Container Ship Time Charter Assessment Index

Source: Bloomberg
Note: 100 is the average of the given index over the 2011–2021 period.

The chart in the current issue focuses on growth in international transport prices, which intensified this spring. Although the current figures indicate price stagnation, prices are significantly higher from the perspective of the long-term average. Transport prices have risen mainly on routes from Asia to Europe and the USA, while in the opposite directions container transport prices have been and remain stable and many times lower. If transport prices stay higher in the future, it could lead to an increase in inflation pressures.

The current issue also contains an analysis: 'Blockchain use cases outside of digital currencies'. This article points out that although the blockchain topic is very closely related and understood by the public in connection with cryptoassets, this technology has a much wider use in other areas, such as security.

GEO barometer for selected countries

		EA		DE		US		UK		JP		CN		RU	
GDP	2024	0.8	↗	0.1	↘	2.5	↗	1.0	↗	0.0	↘	4.9	→	3.2	↗
(%)	2025	1.3	↘	1.0	↘	1.7	→	1.2	↗	1.2	↘	4.4	→	1.7	→
Inflation	2024	2.4	→	2.4	↗	3.0	↘	2.6	→	2.5	→	0.5	↘	6.2	↗
(%)	2025	2.0	→	2.0	→	2.2	↘	2.3	→	2.1	→	1.3	↘	4.4	↗
Unemployment	2024	6.5	→	6.0	↗	4.1	↗	4.4	↗	2.5	→	3.4	→	2.6	↘
(%)	2025	6.5	→	5.9	↗	4.4	↗	4.4	→	2.4	→	3.3	↘	2.6	↘
Exchange rate	2024	1.10	↗	1.10	↗			1.29	↗	142.6	↘	7.23	↘	92.3	↘
(against USD)	2025	1.13	↗	1.13	↗			1.31	↗	133.3	↘	7.10	↘	94.6	↘

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 2019

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

Core inflation, %

Legend: EA, DE, US, UK, JP, CN, RU (rhs)

Manufacturing production, yoy %

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

Retail sales, yoy %

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

Monetary policy rates, %

Legend: EA, US, UK, JP, CN, RU (rhs)

Supply chains development

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

Source: Refinitiv Datastream, European Commision.

III.1 Euro area

The outlook for economic growth in the euro area this year has improved slightly, but is still below 1%. Positive news that contributed to this was undoubtedly the publication of Eurostat's first estimates of economic performance in the second quarter. According to them, euro area GDP grew by 0.3% quarter on quarter, slightly above the ECB's expectations. The highest growth was recorded in Ireland and the Netherlands (1.2% and 1.0% respectively), while economic output also grew rapidly in Lithuania and Spain. On the other hand, Latvia (-1.1%) experienced a significant decline. However, the most talked-about news was certainly the slight decline in the German economy (-0.1%). A more detailed breakdown is not yet available, but services were probably the driving f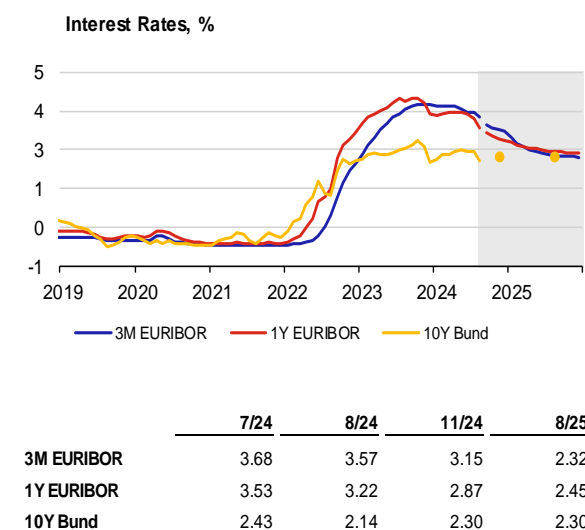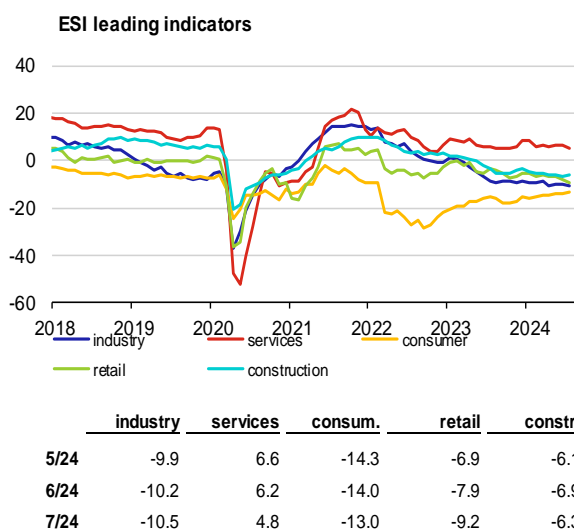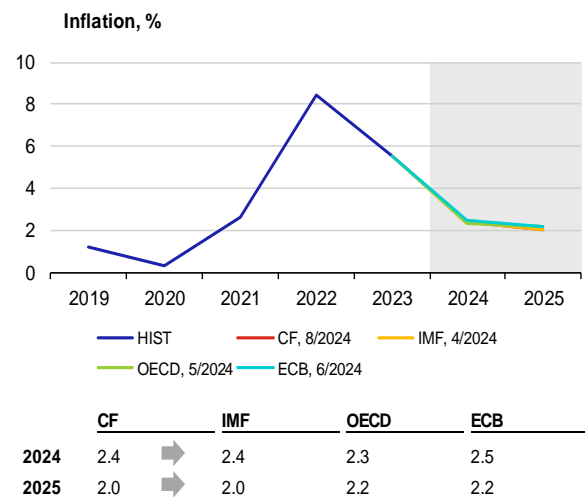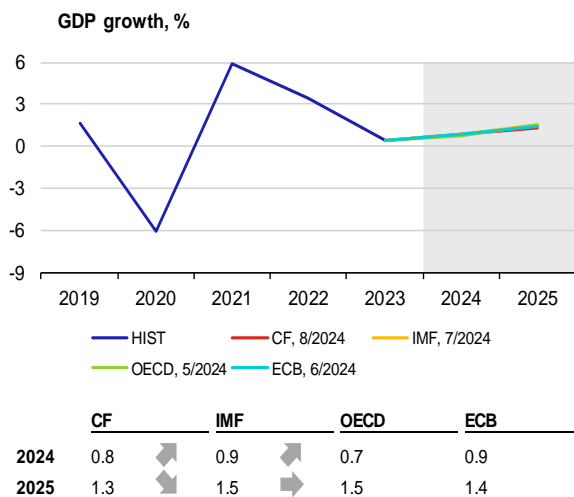orce behind the growth. Industrial production fell in June for the third month in a row and, according to the July PMI survey, continued to contract at the beginning of the holidays. Demand for services is cooling at the same time. The composite PMI thus fell to only 50.2 points. Overall sentiment as measured by the ESI also deteriorated. However, the gradual improvement in consumer sentiment continues. Employment growth reached 0.2% in the second quarter, and unemployment remains close to its historical low. The short-term outlook thus remains positive, also thanks to the expected recovery of household consumption. GDP growth could pick up slightly in the second half of the year to slightly below 1% for the year as a whole, according to the IMF's updated outlook.

The inflation outlook remains unchanged, and price growth is now likely to remain slightly above the inflation target for an extended period of time. The ECB left its key interest rates unchanged at its July meeting. A further decrease is expected by the analysts in September. According to preliminary estimates, annual consumer price inflation was 2.6% in July, while core inflation remained at 2.9%. Inflation is expected to hover around current levels for the remainder of the year, partly owing to base effects related to energy prices. It is expected to decline towards the target in the second half of next year thanks to weaker growth in wage costs, restrictive monetary policy and the fading impact of the preceding sharp rise in inflation. According to the CF analysts, inflation will thus reach the desired 2% on average next year.

GDP growth, %

Inflation, %

	CF		IMF		OECD	ECB
2024	0.8	↗	0.9	↗	0.7	0.9
2025	1.3	↘	1.5	→	1.5	1.4

	CF		IMF	OECD	ECB
2024	2.4	→	2.4	2.3	2.5
2025	2.0	→	2.0	2.2	2.2

ESI leading indicators

Interest Rates, %

	industry	services	consum.	retail	constr.
5/24	-9.9	6.6	-14.3	-6.9	-6.1
6/24	-10.2	6.2	-14.0	-7.9	-6.9
7/24	-10.5	4.8	-13.0	-9.2	-6.3

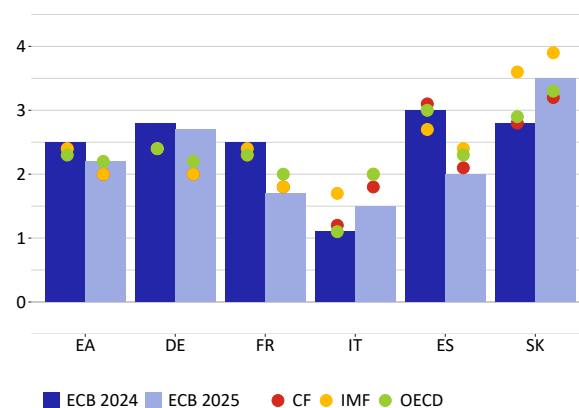|	7/24	8/24	11/24	8/25
3M EURIBOR	3.68	3.57	3.15	2.32
1Y EURIBOR	3.53	3.22	2.87	2.45
10Y Bund	2.43	2.14	2.30	2.30

III.2 Germany

Optimism about the recovery of the German economy has completely evaporated and the risk of recession is present once again. GDP in the second quarter fell short of the expectations of slight growth compared to the previous quarter. Instead, economic activity unexpectedly fell by 0.1% after increasing slightly at the beginning of the year (by 0.2% quarter on quarter). According to the Federal Statistical Office of Germany (Destatis), there was a decrease in investments in equipment and buildings. After the German economy narrowly avoided a technical recession last year, its growth rate has now declined again. There was also a major revision of the national accounts, reviewing the results since 1991. In July, for the first time in four months, the composite PMI indicator pointed to a slight decline in private sector activity (49.1). This was mainly due to the continued sharp decline in the manufacturing sector (43.2), but also to weak expansion in the services sector (52.5). Business sentiment is not developing well either, as the Ifo and ZEW indexes are showing a deterioration. The current situation is rated worse, yet scepticism is also growing about the assessment of the coming months. The weak data thus do not indicate a favourable situation in the second half of the year. As a result, the economic outlook has collapsed somewhat, with the IMF now forecasting that GDP should grow by only 0.2% this year, with growth recovering to 1.3% next year. The CF is even more pessimistic, forecasting only 0.1% growth for this year and 1% for 2025.

The Harmonised Index of Consumer Prices rose very slightly again in July after its previous fall. Consumer price inflation was 2.6% year on year (compared to 2.5% in June). The inflation rate was mainly affected by the fall in energy prices (1.7%), while services prices continued to show above-average growth of almost 4%. Core inflation excluding food and energy was flat at 2.9%. The CF now predict inflation at 2.4% this year and a slowdown to 2% next year. The decline in industrial producer prices slowed further to 1.6% year on year in June (compared to 2.2% in May), with lower energy prices and cheaper intermediate goods remaining the main reason.

GDP growth in selected euro area countries in 2024 and 2025, %

Legend: ECB 2024, ECB 2025, CF, IMF, OECD
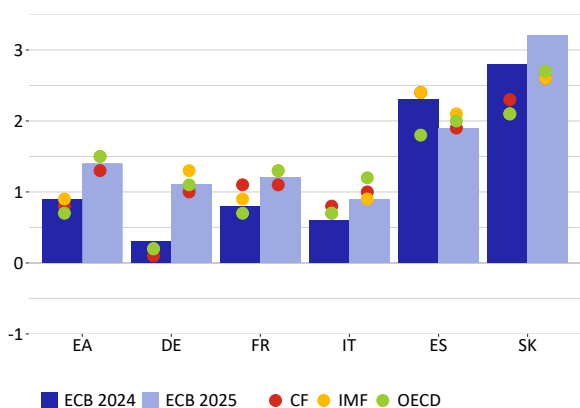
Inflation in selected euro area countries in 2024 and 2025, %

Legend: ECB 2024, ECB 2025, CF, IMF, OECD

ESI leading indicators

Legend: EA, DE, FR, ES, IT, SK
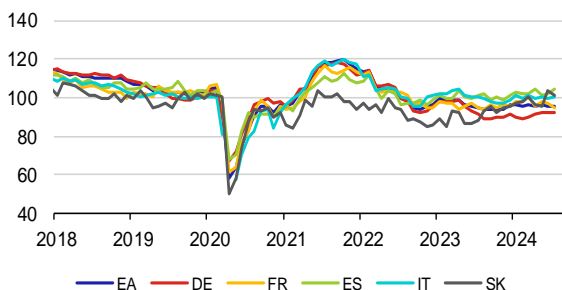
Economic and inflation surprises in the euro area, %

Legend: Citi Inflation Surprise Index, Citi Economic Surprise Index

	EA	DE	FR	ES	IT	SK
5/24	96.1	92.4	97.7	101.3	100.3	95.6
6/24	95.9	92.1	97.0	102.4	99.7	103.7
7/24	95.8	92.3	94.8	104.1	100.1	101.2
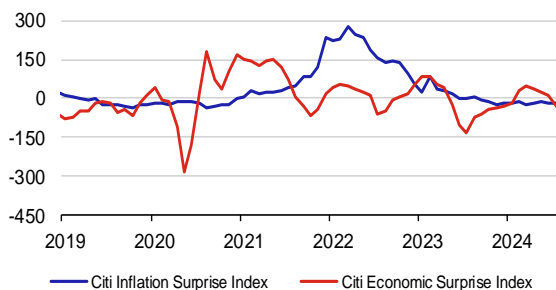
Inflation expectations based on 5year inflation swap and SPF

	5y5y	SPF
6/24	2.31	2.04
7/24	2.28	2.02
8/24	2.15	2.02

III.3 United States

At its July meeting, the Fed left its rates unchanged in line with market expectations. Even before the meeting, markets expected that the first rate cut would not take place until the September meeting, when a new forecast would also be available. Figures from the labour market indicate some cooling – the unemployment rate rose from 4.1% to 4.3% (mainly due to an increase in the workforce of 420,000, of which only 70,000 found work) and the number of jobs in non-agricultural sectors increased less than expected (114,000 compared to 175,000). The unemployment rate is estimated to increase to 4.5% by the end of the year.

There was a significant slump in financial markets at the beginning of August, attributed to uncertainty about economic development and recession fears. After weaker figures from the labour market, bets on a faster rate cut (by 50 basis points at the September meeting) also increased significantly. Later, though, the nervousness in the markets subsided to some extent, and expectations returned to a standard cut of 25 basis points. With the gradual normalisation of the labour market, price level growth is remaining at higher than equilibrium levels, mainly due to persistent core inflation. This reached 3.2% in July, while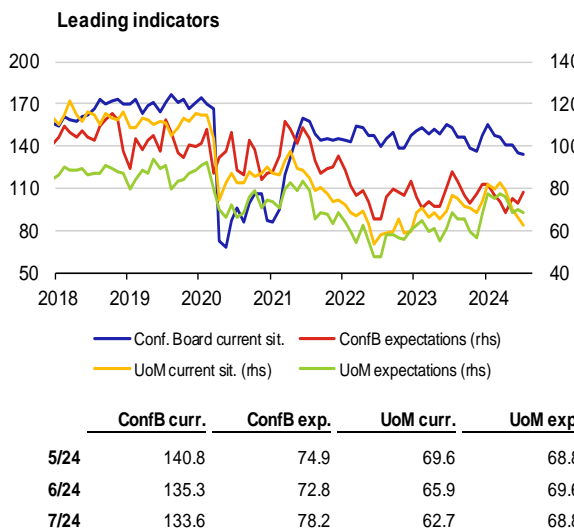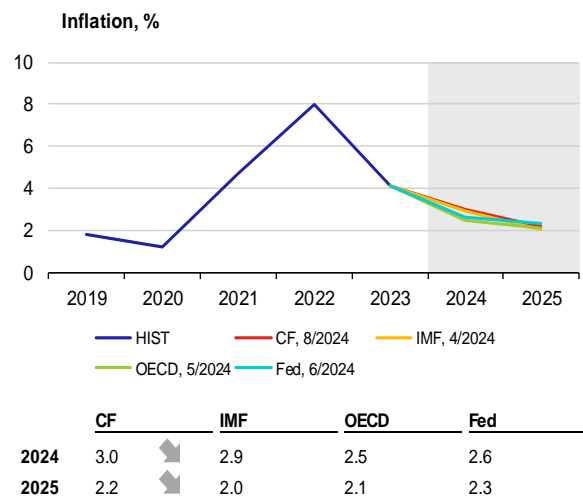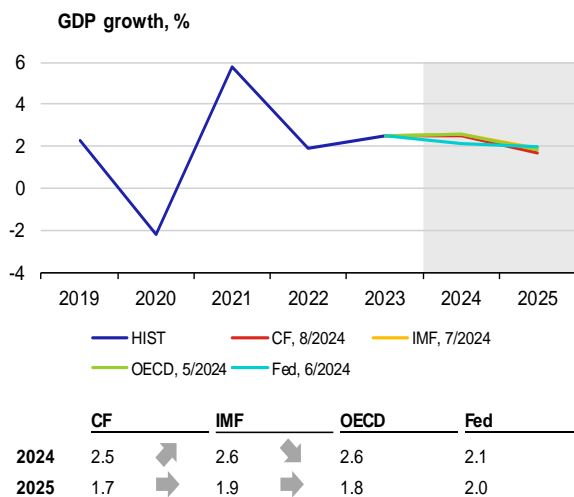 expectations of price growth in the services sector remain elevated. The traditional annual meeting of central bankers in Jackson Hole in the United States will also be very important for the future monetary policy outlook.

Current US President Joe Biden has withdrawn from the election race for another term and current Vice President Kamala Harris will run for the White House for the Democrats. Although Biden had not intended to withdraw from the election race in mid-July, he changed his position, an action the polls see as reducing the chances of Republican candidate Donald Trump winning. Kamala Harris now has a slightly higher chance of winning the presidential mandate. She chose Tim Walz, governor of Minnesota but not very well known to the public, to be her vice president. The first presidential debate is scheduled to take place on 10 September on ABC News.

GDP growth, %

	CF		IMF		OECD	Fed
2024	2.5	↗	2.6	↘	2.6	2.1
2025	1.7	→	1.9	→	1.8	2.0

Inflation, %

	CF		IMF	OECD	Fed
2024	3.0	↘	2.9	2.5	2.6
2025	2.2	↘	2.0	2.1	2.3

Leading indicators

	ConfB curr.	ConfB exp.	UoM curr.	UoM exp.
5/24	140.8	74.9	69.6	68.8
6/24	135.3	72.8	65.9	69.6
7/24	133.6	78.2	62.7	68.8

Interest Rates, %

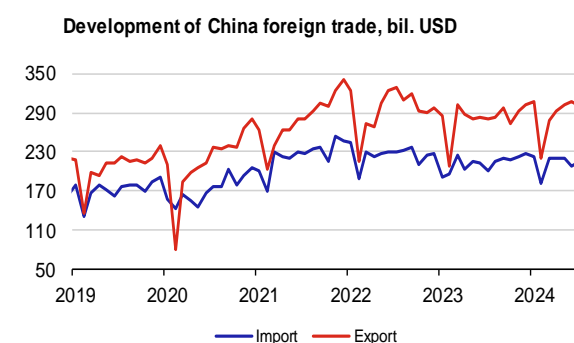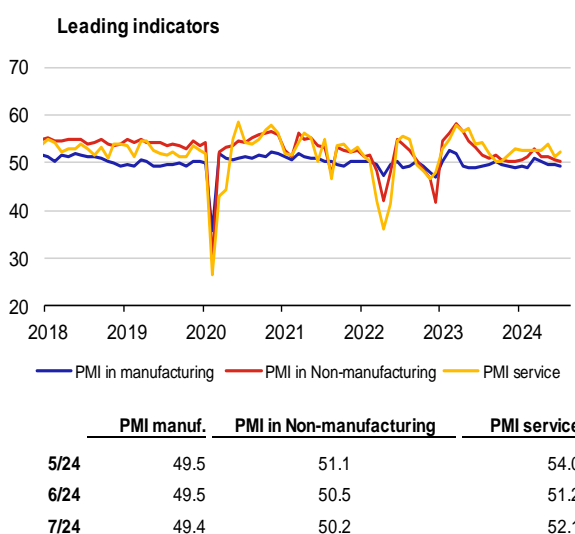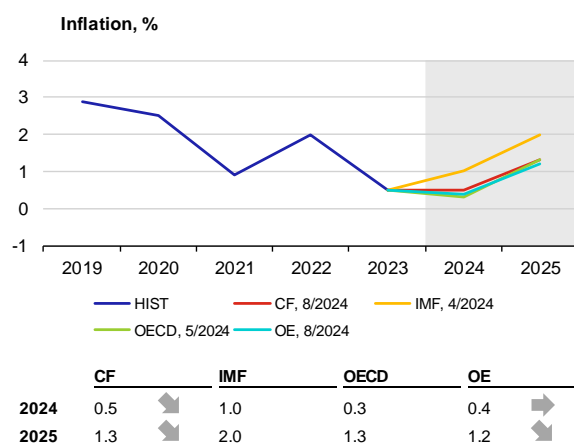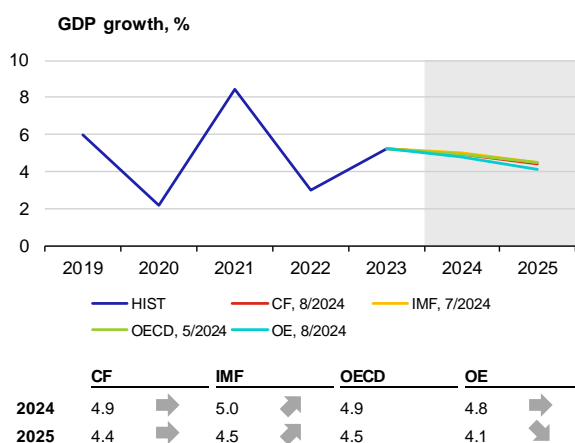|	7/24	8/24	11/24	8/25
USD LIBOR 3M	5.55	5.39	4.70	3.80
USD LIBOR 1R	4.86	4.86		
Treasury 10R	4.25	3.86	4.00	3.80
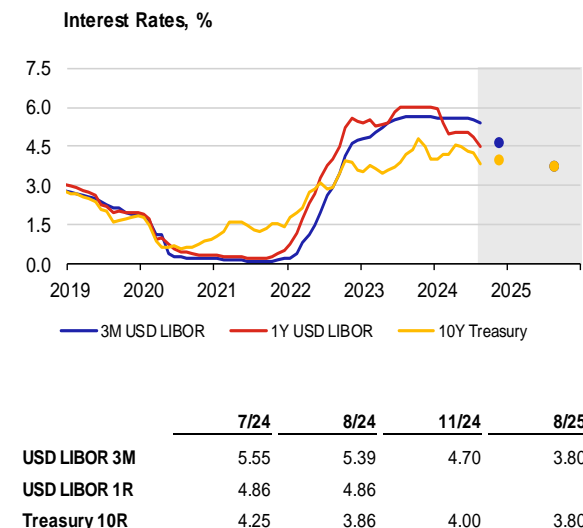
III.4 China

Consumer demand in China has lagged far behind expectations since the start of the year. On the supply side, the government stimulus measures are preventing a significant slowdown, though the continuing downturn in construction and problems of developers needing rescue from public funds remain a risk. Official unemployment figures are consistent with labour market stability (urban unemployment remained just above 5% in the first half year for the third month in a row).

The Caixin China General Manufacturing PMI fell below the 50-point mark (49.8) in July for the first time since October 2023, due to weak domestic consumption and declining export orders. A similar development was seen for the composite index (Caixin China General Composite PMI, 51.2 in July compared to 52.8 in June), which was prevented from falling below the contraction boundary by more favourable developments in services (up from 51.2 in June to 52.1 in July). In general, business sentiment in China at the beginning of the second half of the year is strongly marked by concerns about the development of global demand.

Year-on-year consumer price inflation accelerated slightly to 0.5% in July. As in previous months, prices of clothing and services in healthcare and education rose. Food prices stagnated, while transport prices continued to decline year on year. Meanwhile, producer prices continued to fall for the second month in a row. Core inflation fell to its lowest level since February (0.4%) in year-on-year terms, while month-on-month price growth was recorded after two months of deflation.

The y-o-y growth rate of Chinese exports slowed to 7% in July (from 7.6% in May and 8.6% in June). Plus, an export boom is supported by the expected start of customs measures in destination countries for some products, led by electric cars. This development has affected many territories in which a decline was evident at the start of the year (including most developed countries). Imports returned to y-o-y growth (7.2%) in July, after a fall in June, though imports from most Western states are either falling or stagnant. The Chinese leadership's steps to support the still-weak domestic demand are being reflected in greater imports from neighbouring states. The trade balance has thus been kept in surplus as per tradition.

GDP growth, %

	CF		IMF		OECD		OE	
2024	4.9	→	5.0	↗	4.9	↗	4.8	→
2025	4.4	→	4.5	↗	4.5	↗	4.1	↘

Inflation, %

	CF		IMF		OECD		OE	
2024	0.5	↘	1.0	↘	0.3		0.4	→
2025	1.3	↘	2.0	↘	1.3		1.2	↘

Leading indicators

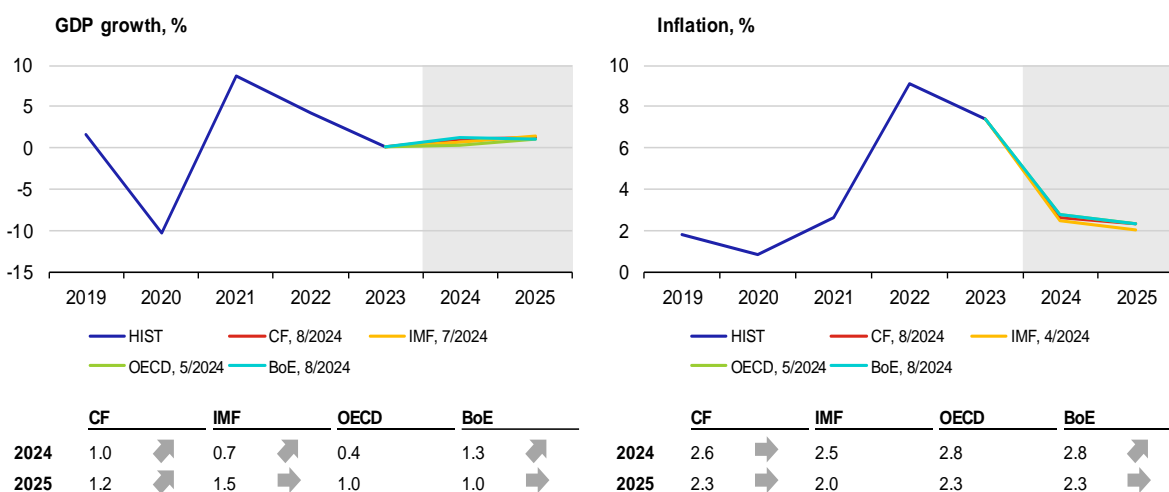|	PMI manuf.	PMI in Non-manufacturing	PMI service
5/24	49.5	51.1	54.0
6/24	49.5	50.5	51.2
7/24	49.4	50.2	52.1

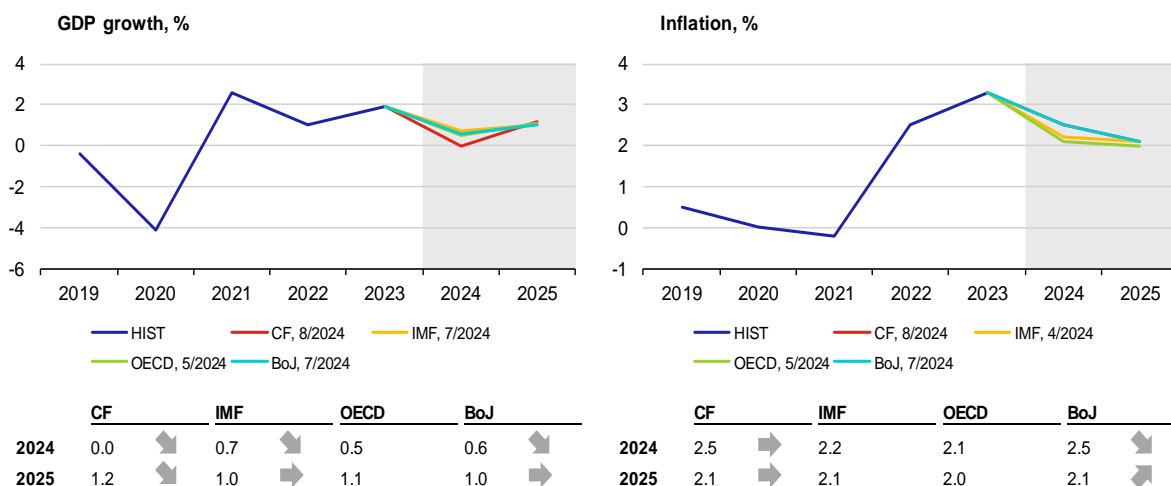Development of China foreign trade, bil. USD

Source: Bloomberg

III.5 United Kingdom

The BoE cut its benchmark interest rate to 5% for the first time since 2020 in a close vote. The decision came after consumer inflation returned to the 2% target in May and remained there in June. Although inflation rose slightly to 2.2% in July, year-on-year growth in services prices slowed significantly. The BoE now expects inflation to rise to about 2.8% this year as energy prices will hold back inflation less than before, but it will slow again to 2.3% next year. According to initial estimates, the British economy grew by 0.6% quarter on quarter in Q2, a slight slowdown compared to the strong growth in the previous three months. This means the economy has returned to growth after the technical recession at the end of last year. Better forecasts for GDP growth this year were presented by the BoE (1.3%), CF (1.0%) and IMF (0.7%). So far, the composite PMI indicator is also remaining positive, as it signalled a recovery in private sector activity again in July (52.8). In total, this is the ninth month of expansion in a row, thanks to growth in both the services and manufacturing sectors.

GDP growth, %

Inflation, %

	CF		IMF		OECD	BoE	
2024	1.0	↗	0.7	↗	0.4	1.3	↗
2025	1.2	↗	1.5	→	1.0	1.0	→

	CF		IMF	OECD	BoE	
2024	2.6	→	2.5	2.8	2.8	↗
2025	2.3	→	2.0	2.3	2.3	→

III.6 Japan

The Japanese economy recovered strongly in Q2 (3.1% annualised), mainly thanks to a solid increase in private consumption. The highest growth in wages in more than three decades, bolstered by successful wage negotiations and a government tax credit, is giving the economy a boost. The BoJ has taken a more hawkish stance, reflecting its growing confidence in the economy. In July, the BoJ surprised the markets with a rate hike motivated by solid inflation data and concerns about the possible overheating of the economy. Comments by the BoJ suggest that more rate hikes are likely as soon as in October, depending on the fulfilment of the bank's projections. The latest inflation data from Tokyo, where core inflation rose to 2.2% in July, also increased the chances of another rate hike. While this increase was influenced by a reduction in public service subsidies, the inflationary trend supports by the BoJ's tightening measures. The Japanese yen strengthened slightly against the dollar, helped by positive GDP data and comments from the Japanese finance minister.

GDP growth, %

Inflation, %

	CF		IMF		OECD	BoJ	
2024	0.0	↘	0.7	↘	0.5	0.6	↘
2025	1.2	↘	1.0	→	1.1	1.0	→

	CF		IMF	OECD	BoJ	
2024	2.5	→	2.2	2.1	2.5	↗
2025	2.1	→	2.1	2.0	2.1	↗

III.7 Russia

In July 2024, the CBR raised its key interest rate by 200 basis points to 18%, something already signalled at its June meeting and expected by the market. The central bank did not rule out a further rate hike in response to the economic conditions. July's annu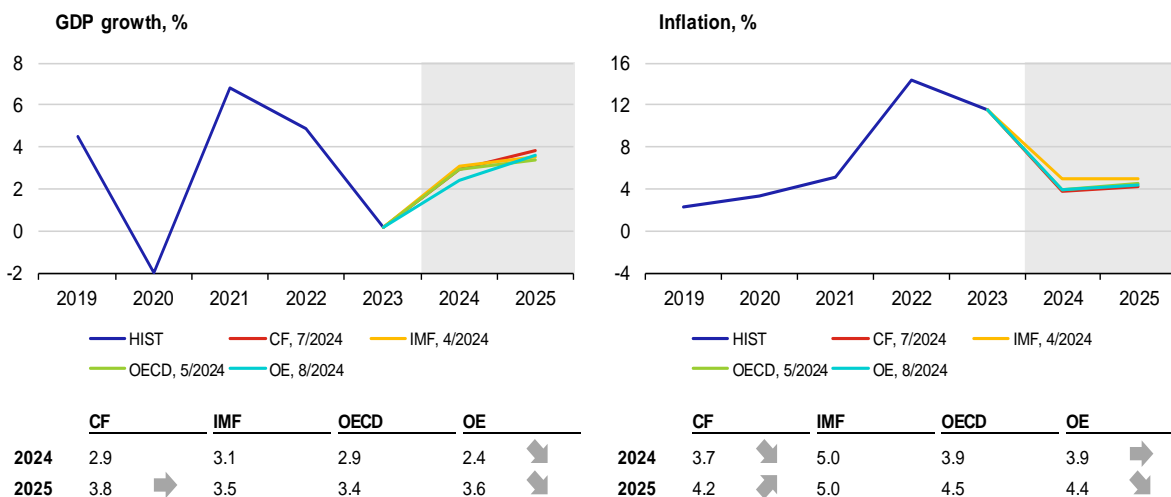al inflation of 9.13% exceeded analysts' expectations. Prices of food and services rose in particular (by 9.7% and 11.4% respectively). At the same time, Russian suppliers are warning of price increases of up to 40% on some basic food and consumer goods in the coming months due to high inflation and costly loans, along with rising costs for transport, raw materials, packaging and personnel. Unemployment reached a new historical low of 2.4% in June. In response to the inflationary pressures, Russia has extended its ban on gasoline exports until the end of 2024. The Russian economy, supported by massive government spending on military purposes in the first half of 2024, is now facing a significant slowdown. GDP growth is expected to fall from 4% to around 2% in the second half of the year.
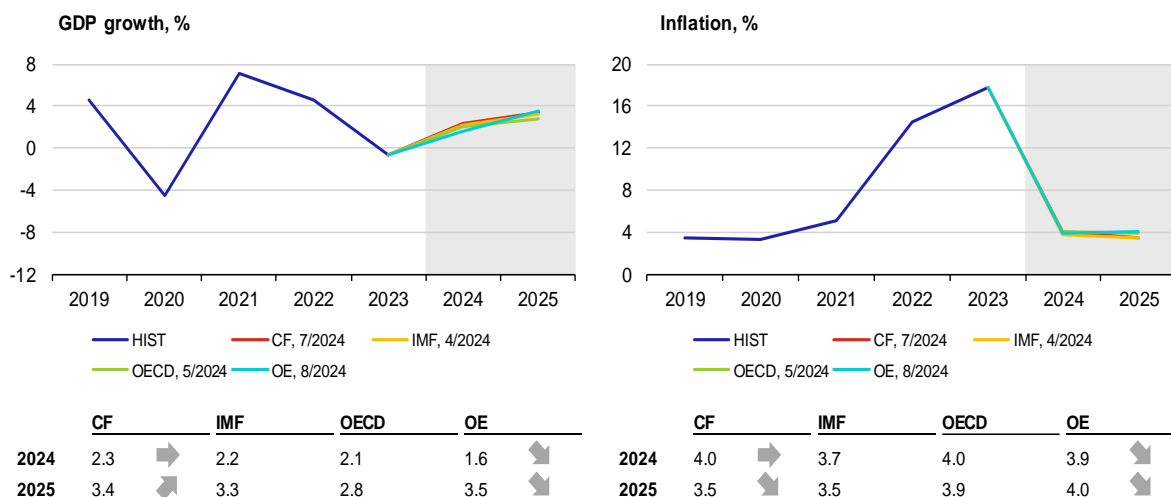
GDP growth, %					Inflation, %				
HIST	CF, 7/2024		IMF, 7/2024		HIST	CF, 7/2024		IMF, 4/2024	
OECD, 5/2024	OE, 8/2024				OECD, 2/2024	OE, 8/2024			

	CF		IMF		OECD	OE				CF		IMF	OECD	OE	
2024	3.2	↗	3.2	→	2.6	3.9	↗		**2024**	6.2	↗	6.9	7.2	7.9	↗
2025	1.7	→	1.5	↘	1.0	1.7	↗		**2025**	4.4	↘	4.5	5.3	6.2	↗
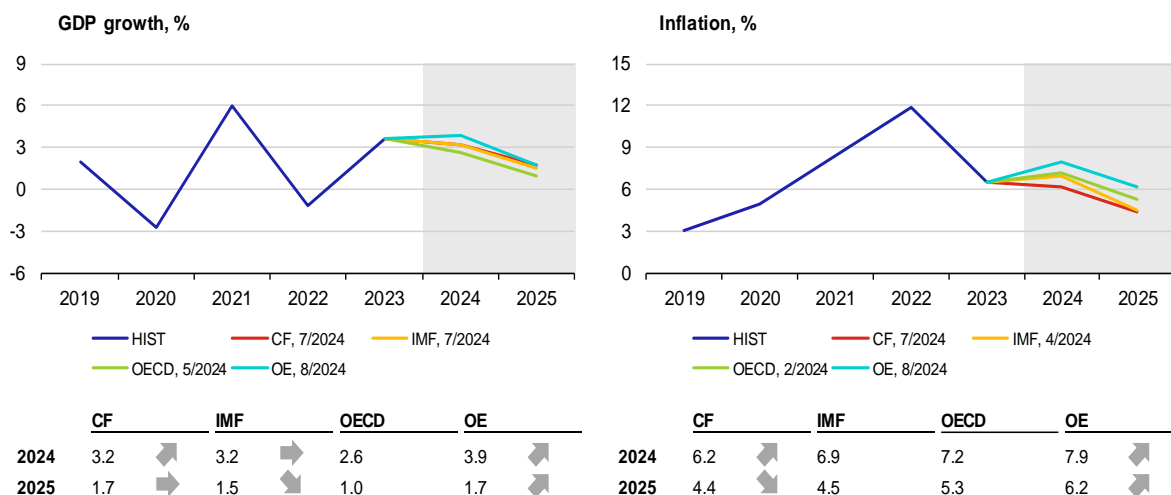
III.8 Poland

As expected, annual inflation in Poland increased significantly in July 2024 (to 4.2%). The primary cause of the rise in inflation was the increase in electricity and gas prices due to the partial abolition of the government's price caps. Monetary Policy Council member Henryk Wnorowski says inflation should not exceed 5% before the end of the year and interest rate cuts are not expected until the second quarter of 2025. However, according to Adam Glapiński, the governor of the central bank, rates could remain unchanged until 2026. Year-on-year GDP growth accelerated to 3.2% in the second quarter of this year from 2%, exceeding market estimates of 2.7%. Even as the economy faced weak demand from the EU and high domestic interest rates. Growth was mainly supported by the services sector. Poland plans to further increase its defence spending to up to 5% of GDP in 2025, reflecting the increasing geopolitical tensions in the region.

GDP growth, %					Inflation, %				
HIST	CF, 7/2024		IMF, 4/2024		HIST	CF, 7/2024		IMF, 4/2024	
OECD, 5/2024	OE, 8/2024				OECD, 5/2024	OE, 8/2024			

|	CF	IMF	OECD	OE			CF		IMF	OECD	OE	
2024	2.9	3.1	2.9	2.4	↗	**2024**	3.7	↘	5.0	3.9	3.9	→
2025	3.8	→	3.5	3.4	3.6	↗	**2025**	4.2	↗	5.0	4.5	4.4	↘

III.9 Hungary

The growth of the Hungarian economy has lagged significantly behind market expectations. Annual inflation is at its highest level since last December. Preliminary GDP estimates for Q2 point to an acceleration in annual growth from the previous 1.1% to 1.5%. The growth in the second quarter was lower than expected (2%) due to industrial production, which fell by 8.2% year on year in June (the decline was 5.2% in May). On the other hand, consumer demand is showing signs of recovery, reflected in the growth of retail sales throughout the second quarter. A new forecast from Oxford Economics has revised the GDP outlook for 2024 significantly lower to 1.6%. Inflation accelerated slightly again to 4.1% in July (from 3.7% in June), which was roughly in line with market expectations. This was the highest increase in consumer prices since December 2023. The largest price increases were recorded for food, clothing and footwear.

GDP growth, %

	CF		IMF	OECD	OE	
2024	2.3	→	2.2	2.1	1.6	↘
2025	3.4	↗	3.3	2.8	3.5	↘

Inflation, %

	CF		IMF	OECD	OE	
2024	4.0	→	3.7	4.0	3.9	↘
2025	3.5	↘	3.5	3.9	4.0	↘

IV. Leading indicators and exchange rate outlooks

OECD Composite Leading Indicator

EA — US — UK — JP — CN — RU

The US dollar (USD/EUR)
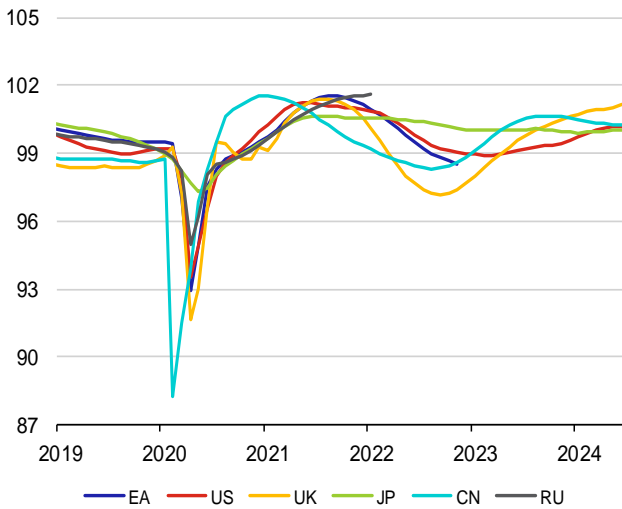
— USD/EUR (spot) ● CF forecast ● forward rate
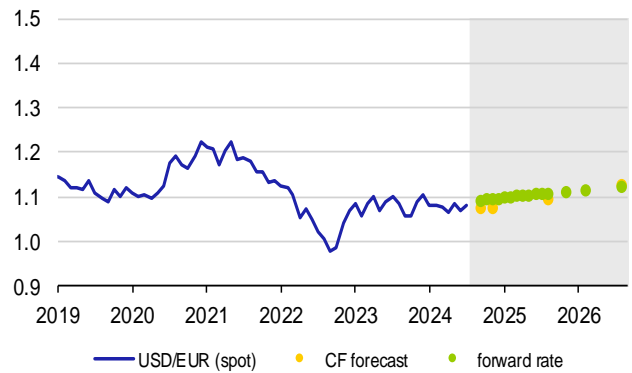
	12/8/24	9/24	11/24	8/25	8/26
spot rate	1.093				
CF forecast		1.076	1.078	1.099	1.130
forward rate		1.095	1.098	1.110	1.124

The British pound (GBP/USD)

— GBP/USD (spot) ● CF forecast ● forward rate
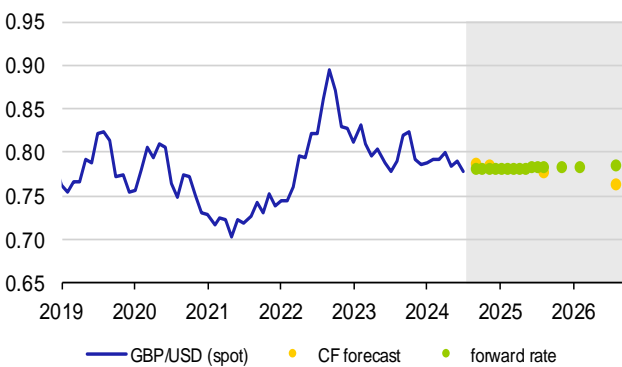
	12/8/24	9/24	11/24	8/25	8/26
spot rate	0.782				
CF forecast		0.789	0.786	0.778	0.765
forward rate		0.783	0.783	0.784	0.786

The Japanese yen (JPY/USD)

— JPY/USD (spot) ● CF forecast ● forward rate
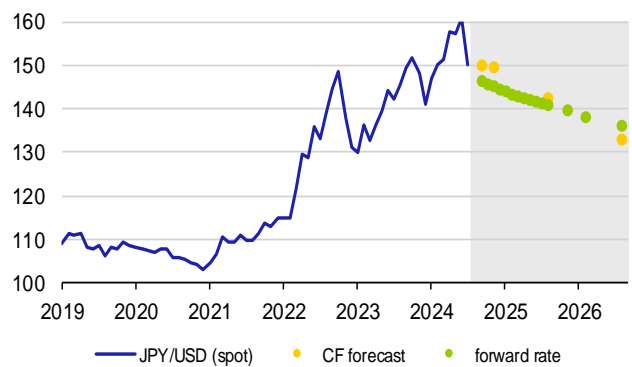
	12/8/24	9/24	11/24	8/25	8/26
spot rate	147.9				
CF forecast		150.2	149.6	142.6	133.3
forward rate		146.5	145.3	140.9	136.3

The Chinese renminbi (CNY/USD)

— CNY/USD (spot) ● CF forecast
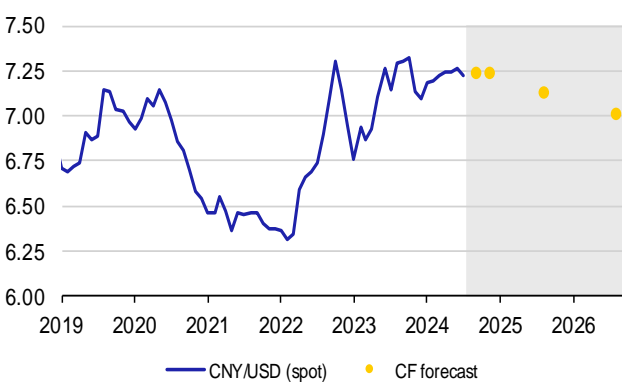
	12/8/24	9/24	11/24	8/25	8/26
spot rate	7.184				
CF forecast		7.244	7.242	7.137	7.012

The Russian rouble (RUB/USD)

— RUB/USD (spot) ● CF forecast
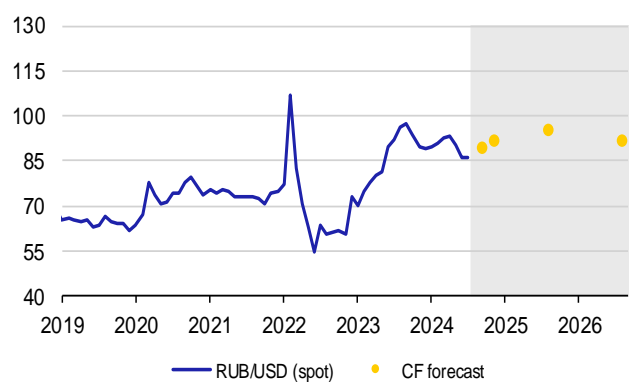
	12/8/24	9/24	11/24	8/25	8/26
spot rate	90.80				
CF forecast		89.94	91.83	95.90	92.11

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.
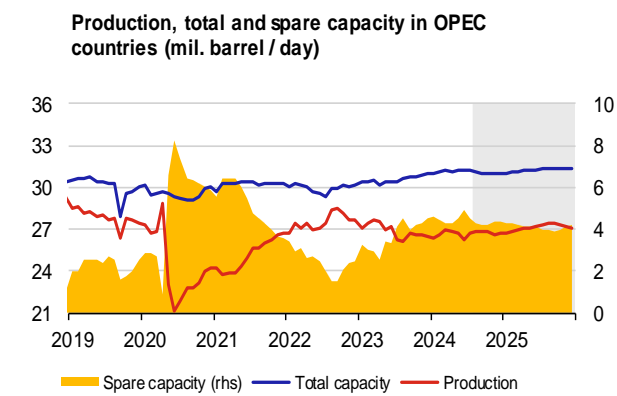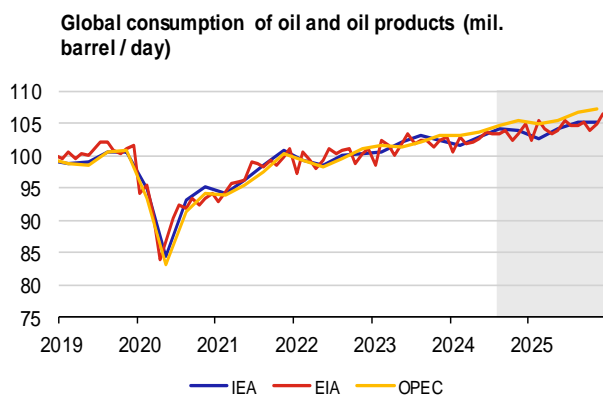
V.1 Oil

The price of Brent crude oil fell sharply in July and early August, but then compensated for some of its previous losses with a rapid rise to close to USD 80 per barrel again in mid-August. A series of unexpectedly weak macroeconomic data from China, the USA and Japan contributed to the price decline, causing risk aversion to grow in the broader financial markets. As a result, speculative net long positions of money managers (especially for Brent crude) declined sharply. A turnaround in investor sentiment might only be brought about by a possible interest rate cut in the USA, which would probably support global growth in economic activity and thus demand for oil. However, the physical market remains tense, driven by ongoing production cuts in OPEC+ countries and strong demand during the summer driving season (outside China). The EIA forecasts that global crude oil inventories will continue to decline until Q1 2025 as a result of OPEC+ production cuts. However, the OPEC cartel (traditionally the most optimistic about demand growth) lowered the expected growth of global oil consumption in its August report, mainly due to weak data from China. The continued tense situation in the Middle East, contributing to an elevated risk premium, is supporting oil prices. Refinery margins continued to decline (from already low levels) in Europe and China in July, while they rose slightly in the rest of Asia and the USA.

The market outlook for the Brent crude oil price from the first half of August has shifted significantly downwards compared to the month before. It will maintain a falling trend with USD 73.8 and USD 71.6 per barrel at the end of 2025 and 2026, respectively. The EIA, on the other hand, expects the price of Brent crude oil to rise gradually and peak at USD 89 per barrel in March 2025, before gradually declining to USD 83 per barrel at the end of 2025. The August CF forecast is, with USD 81.9 per barrel at the one-year horizon, between the above outlooks.

Outlook for prices of oil (USD/barrel) and natural gas (USD / 1000 m³)
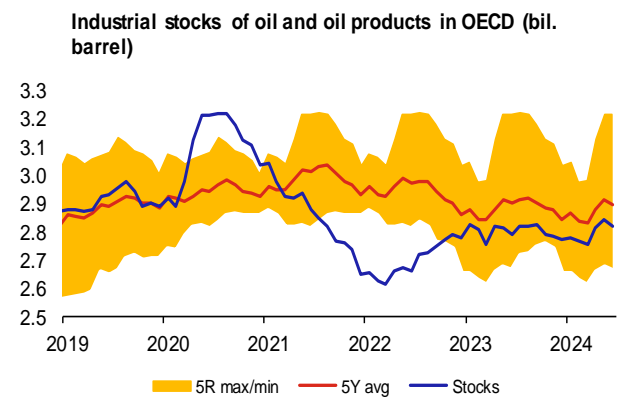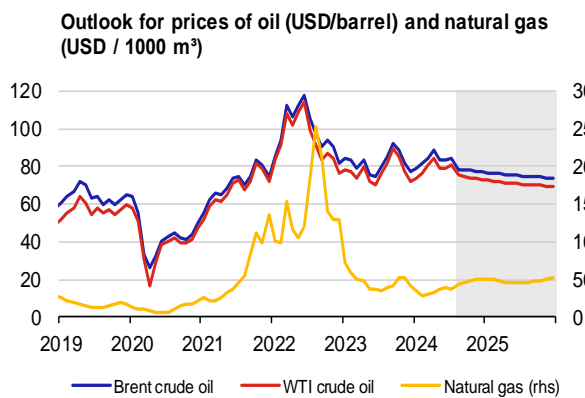
	Brent		WTI		Natural gas	
2024	81.10	↘	76.97	↘	398.90	↗
2025	75.18	↘	70.81	↘	480.99	↗

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

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

	IEA		EIA		OPEC	
2024	103.15	↘	102.94	↗	104.30	↘
2025	104.33	↗	104.56	↘	106.10	↘

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

	Production		Total capacity		Spare capacity	
2024	26.67	↘	31.09	↘	4.41	↘
2025	27.15	→	31.25	↘	4.10	↘

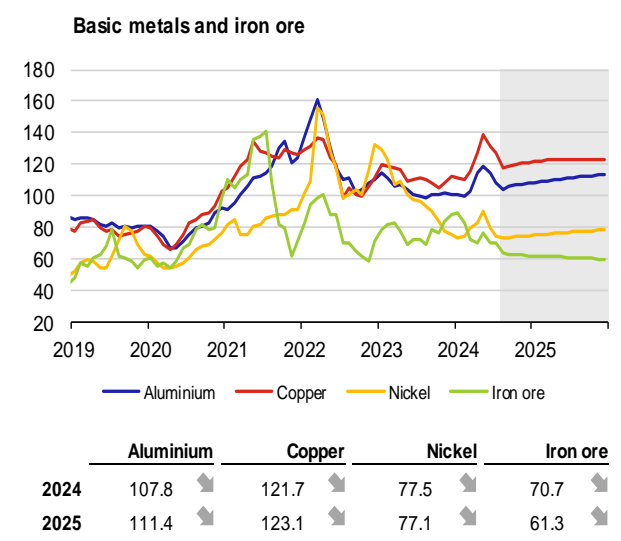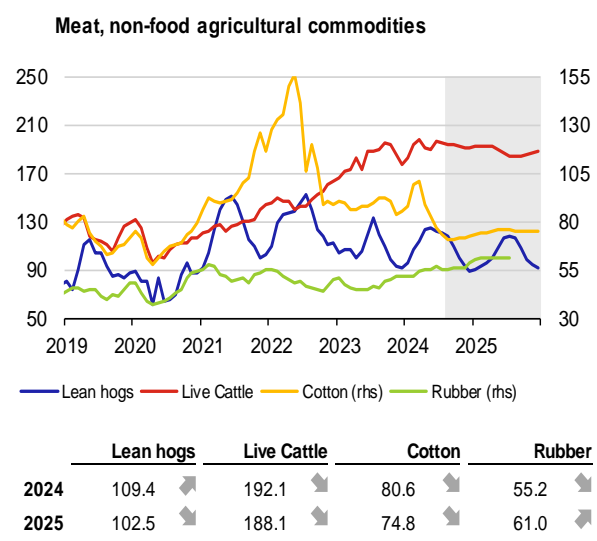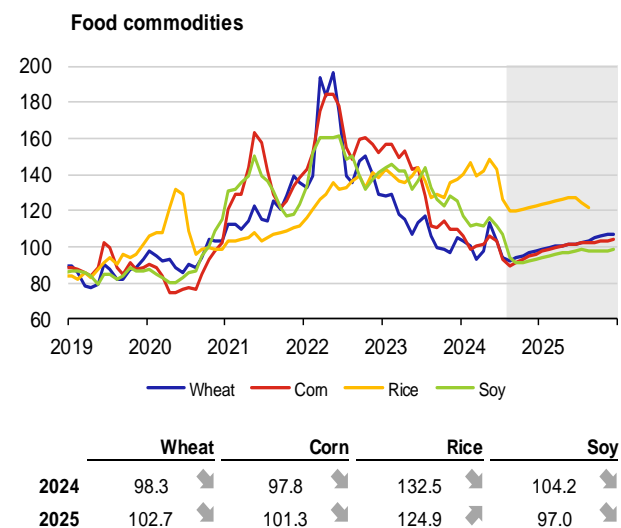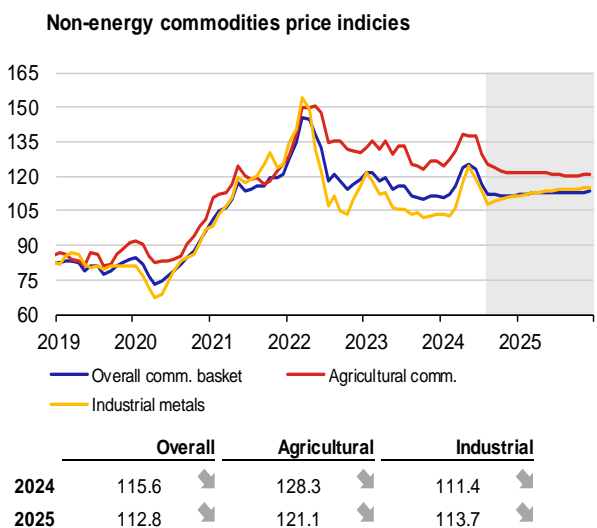Source: Bloomberg, IEA, EIA, OPEC, CNB calculation
Note: Oil price at ICE, average natural gas price in Europe – World Bank data. Future oil and gas prices (grey area) are derived from futures. Industrial oil stocks in OECD countries – IEA estimate. Production and extraction capacity of OPEC – EIA estimate.

V.2 Other commodities

In mid-August, the price of natural gas in Europe reached this year's peak (EUR 40/MWh), about five times more than in the USA, initially due to the increase in Middle East tensions and then damage to the last Russian measuring station before Russian gas enters Ukrainian transit pipelines to the EU. There was fighting between the Ukrainian and Russian armies on Russian territory near the station, and it reportedly is under Ukrainian control. Gas transport to Europe has been maintained for the time being. The price of gas in Europe has thus again approached the LNG price in Asia, but remains lower. Thus, the situation in Europe is not seen as critical as there are high stocks and weak demand. Coal prices on the European market rose sharply in response to the gas price. The growth in coal prices was also due to lower maritime exports of coal from Russia, higher demand for electricity in Asia due to high temperatures, and higher coal imports to India.

The industrial metals price index continued to decline strongly in July and the first half of August, with rising outlook. The prices of virtually all base metals fell in July, due to the worsening situation in both global and Chinese manufacturing, and concerns that the US economy is heading into recession. However, more favourable data came from the USA at the beginning of August, which, together with expectations of an upcoming start of interest rate cuts in the US, halted the decline in metal prices. Weak demand for steel in China also led to a decline in the price of iron ore.

The agricultural commodity price index also saw a strong decline in July and the first half of August, and is expected to decline until the end of the year. Wheat, rice and sugar prices stabilised after a strong decline in early July, while corn and soybean prices continued to fall due to high supply and weak demand. On the other hand, the prices of coffee, cocoa, beef and pork are at historically high levels.

Non-energy commodities price indicies

	Overall		Agricultural		Industrial	
2024	115.6		128.3		111.4	
2025	112.8		121.1		113.7	

Food commodities

	Wheat		Corn		Rice		Soy	
2024	98.3		97.8		132.5		104.2	
2025	102.7		101.3		124.9		97.0	

Meat, non-food agricultural commodities

	Lean hogs		Live Cattle		Cotton		Rubber	
2024	109.4		192.1		80.6		55.2	
2025	102.5		188.1		74.8		61.0	

Basic metals and iron ore

	Aluminium		Copper		Nickel		Iron ore	
2024	107.8		121.7		77.5		70.7	
2025	111.4		123.1		77.1		61.3	

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.

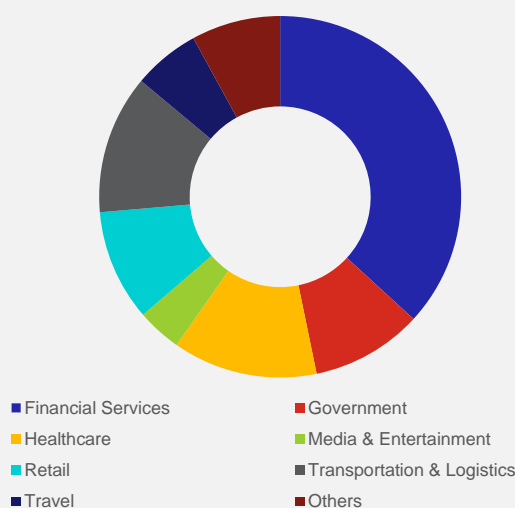# Blockchain use cases outside of digital currencies[1]

The blockchain technology originally came into the limelight because of its association with Bitcoin. Still, the technology goes far beyond transacting crypto assets. In this review, to get a better perspective on the opportunities offered by blockchains, we discuss several examples of those blockchain applications that are unrelated to digital currencies.

Introduction: why are distributed ledgers demanded

Distributed Ledger Technologies (DLT) are decentralised algorithms to manage digital logbooks containing records of assets and transactions across multiple participants or nodes within a network. The two essential elements DLT needs in order to ensure the integrity, immutability, and security of recorded information are cryptography and consensus algorithms for the network updates. Instead of one authority controlling data, DLT shares the ledger among participants, ensuring record transparency. Therefore, DLT are routinely offered as a remedy whenever bookkeeping mistakes, entry manipulation and/or past record credibility are both a major concern and an issue not satisfactorily resolved by legacy technologies. Among frequently named objectives of DLT engagement are fraud reduction, know-your-customer (KYC) requirements and cyber security. Indeed, a distributed ledger with a timestamp and batches of specific transactions with a link to another block make it increasingly hard for the hackers to break into the system without the breach source and time getting exposed. Further, KYC procedures in banking, aimed above all at combating money laundering and terrorism financing, are quite expensive to comply with. The verification time and cost of data stored on a DL network, typically a blockchain, are expected to be lowered by manifold. Finally, cases of human error, data losses and hacks are ubiquitous when business data are stored on traditional centralised servers. Putting data on a DL would usually reduce the corresponding losses dramatically. However, for an individual company, infrastructure build-up and maintenance costs may be prohibitive in view of the needed specialised in-house expertise. Here, the Blockchain-as-a-Service (BaaS, Nuseibeh, 2023) model promises a way out. BaaS allows businesses to use cloud-based solutions to build, host and use their own blockchain apps on the infrastructure developed by a vendor. Altogether, compared to the early years of blockchain, the palette of current applications in terms of market size has become quite rich (Figure 1).

Figure 1 – Most popular blockchain technology application areas in 2022

(market size is 10 bln. USD)

- Financial Services
- Government
- Healthcare
- Media & Entertainment
- Retail
- Transportation & Logistics
- Travel
- Others

Source: https://4irelabs.com/articles/blockchain-applications-use-cases-in-business/

In terms of architecture, blockchain is the original and best-known type of DLT. In it, events are stored linearly in blocks and sequentially validated by so-called miners. The notorious problems of the first blockchains with processing speed, resource consumption and scalability motivated experiments with alternative, non-linear data structures. DLTs based on Directed Acyclic Graphs (DAGs, Jungnickel, 2012) are the most actively explored alternatives. Compared to blockchains, their main advantages are asynchronous (and hence more parsimonious) validation algorithms, shorter confirmation times, and easier scalability. For example, a non-mining approach to transaction validation in a DAG-based system is known as Hashgraph, multilevel decentralisation (when each node becomes its own blockchain with locally enforced rules) is attempted by Holochain, etc. However, conceptual difficulties resulting, e.g. from non-trivial topological properties of DAGs (Bang-Jensen, 2008) have so far constrained their applicability outside specialised data-processing systems, e.g. in healthcare and genetics.

Thanks first to Bitcoin and then other crypto currencies and cryptoassets that followed, people often interchange DLT and blockchains and awareness of DLT diversity remains limited. On the other hand, the widespread understanding is that even the original blockchain concept of data organisation is potentially able to deeply transform numerous industries and activity areas. This is why BigTech companies (such as Apple, Google, IBM and others) buy up blockchain startups and also invest in this technology in-house, as do other corporations outside the tech branch (e.g.

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[1] Autor: Alexis Derviz. The views expressed in this article are those of the author and do not necessarily reflect the official position of the Czech National Bank. All errors and omissions are the author's responsibility.

Coca-Cola, Porsche).[2] Paradoxically, part of the inspiration behind the blockchain development was distrust in corporations and the hope to create an alternative interaction mechanism that would operate in a completely trustless environment. However, as time passed, the proliferation of corporate blockchains once again confronted users with the necessity to trust the central entity whose chain they have decided to access.

Users currently need to distinguish between public vs. private, permissionless vs. permissioned chains. This is because, although the data in every blockchain are transparent to all stakeholders, it still must be decided who can become one. In this regard, one encounters public (everyone can access and initiate transactions) and private (access and use are sanctioned by a designated authority), permissionless (algorithmically in-built ledger updates directly follow from the participants´ actions without further outside authorisation) and permissioned (these updates can be only conducted by pre-selected parties). There also exist multiple hybrid cases (Chatterjee, 2024). The first blockchains to attract widespread public attention, i.e. those on which cryptocurrencies such as Bitcoin and Ethereum exist, are both public and permissionless. On the contrary, when businesses, organisations, and government agencies seeking to combine security with a limited degree of record-keeping transparency resort to this technology, they rely on private and permissioned blockchains. Also trade with other digital, or tokenised real, assets often happens on private blockchains. When participants have differentiated rights, as is mostly the case in financial applications run by banks,

Figure 2 – Venture capital investment in crypto asset start-ups, 2016–2023

(bn. USD; rhs: count)

Capital invested — Deal Count (rhs)

Source: https://www.galaxy.com/insights/research/crypto-and-blockchain-venture-capital-q3-2023/

one also speaks of hierarchical chains, with the extent of ledger information access and update permissions differing across participant tiers (e.g. Dragonchain). A popular example is the modular framework of Hyperledger Fabric (Investopedia, 2023), a private, permissioned umbrella application designed with the purpose to connect public chains. One subtype of hierarchical, or hybrid category currently gaining weight in finance are consortium blockchains, in which the founding consortium members (typically banks) hold the full access and ledger update rights in the original blockchain sense, whereas clients of individual consortium members only enjoy limited viewing, access and transaction-initiation rights corresponding to their stakes in the system.

Widening the scope of permissionless blockchain abilities

Whereas Bitcoin, from its inception to this day, has remained the tool of value exchange and speculation untethered by state laws and conventional financial regulation, the second most widespread chain, Ethereum, strives to offer a wider scope of services, most importantly smart contracts. The latter are self-executing algorithms representing agreements between the network participants with terms and conditions directly written into code. Blockchain enables the verification and automatic execution of these contracts, reducing the need for intermediaries and enhancing the efficiency of various business processes. Also today, Ethereum keeps the position of the most widely used chain offering its users smart contracts, even though competition (Solana, Cardano, BNB Smart Chain, Polygon, Polkadot, Hyperledger Fabric) is steadily increasing.

On the downside, legal implications of smart contracts remain controversial. For example, they may enable ownership transfer in disregard of legal restrictions. Since state-changes of a blockchain are immutable, it is unclear how a nullification or reversal of an illegal transaction can be effectuated according to the blockchain- and smart contract-conform principles. Further, decentralised oracle networks enable smart contracts to access real-world data such as market prices, economic statistics, weather, etc. If an oracle providing such data malfunctions or its inputs are manipulated, are the affected parties entitled to damage restitution? These issues should normally be settled in courts, but the uncertain legal status of smart contracts raises concerns around enforceability, as well as consumer and investor protection in general. The difference between maintaining ownership rights in the on- and off-chain environment is exemplified by the (uneven) evolution of two crypto asset categories: security and utility tokens.

Blockchain-stored security tokens provide ownership rights in real-world assets. They allow for a transfer of value from an asset or bundle of assets to whoever holds the private keys to the token. In other words, security tokens are a decentralised digital form of traditional investments. However, in view of the strict regulatory oversight they are facing, these tokens are not yet available to retail investors, notwithstanding the hard efforts of many institutions to get them approved by

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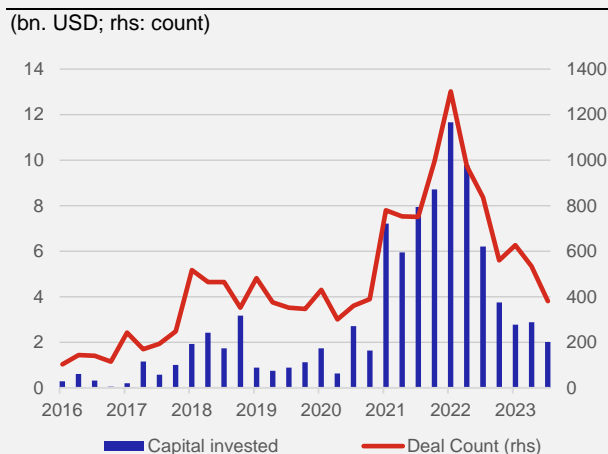
[2] Despite a visible saturation in the subsequent year, the growth of venture capital investment in blockchain start-ups between 2020–2022 (Figure 2) testifies of the sudden surge in the investor interest in the area, precisely due to the widening application scope.

regulators. Therefore, as a provisional solution, instead of Ethereum, security tokens may well take off as applications reserved for customers of the involved financial intermediaries and residing on private permissioned blockchains operated by market infrastructure providers, often with a hierarchy of rights and functions.

Unlike security tokens, utility tokens do not provide any ownership or investment stake in a project. They are a special kind of blockchain-based virtual currency that gives access to the specialised products or services the company plans to deliver. This helps issuing companies to raise capital, whereas interested investors are rewarded for their contribution in a verifiable and presumably tamper-free way. Importantly, utility tokens are used for various purposes within the blockchain ecosystem, e.g. transaction fee payments, premium service access, or governance and decision-making process participation. From a legal point of view, they have so far operated within regulatory grey areas. The earliest examples of utility tokens include Ethereum's gas token, which is used to pay transaction fees on the Ethereum network, and Binance Coin, which is used to pay trading fees on the Binance cryptocurrency exchange.

In an area not directly related to markets and trading, many proposals are heard on how to revolutionise voting systems by providing a transparent and tamper-proof blockchain-based platform for elections. Each vote would be recorded as a transaction on the pre-selected public blockchain, preventing any alteration or manipulation. This mechanism is supposed to ensure the integrity of democratic processes and enhance voter trust. Actually, in a somewhat less ambitious proposition, a private, instead of a public, blockchain within an organisation can equally transparently and credibly assist the conduct of opinion polls, surveys and elections by the employed.

Non-fungible tokens, protection and monetisation of intellectual property

According to proponents, blockchain offers a secure way to record and manage intellectual property rights. Artists, writers, and other creators can presumably timestamp their work on the blockchain, providing indisputable proof of ownership and protecting their creative assets from infringement. A practical implementation of this idea is related to the advent of non-fungible tokens (NFT, Sharma, 2024). An NFT is a blockchain-based asset representing ownership of a unique (hence the term non-fungible) digital or physical item. (On the contrary, the previously discussed utility tokens are fungible.) The NFT concept originates in a token standard on Ethereum, and, in view of the powerful network externality following from the user base size, the latter remains the dominant chain of their residence. There is a range of views on what NFTs may represent. On the one hand, NFTs are thought to be a revolution in how digital assets are marketed and monetised. On the other, critics regard them as a fad fueled by celebrities, or a money-laundering or tax-evasion scheme. The regulation of NFTs is in an early phase of evolution.

Intellectual property protection by means of an NFT is certainly innovative and conforms to the digital era, although it requires that authors accept the necessity to become on-chain merchants themselves. Indeed, NFT are the key element in the digitalisation of artwork trade. Art markets have been known for a lack of transparency, costly and error-prone provenance and copyright verification procedures, high fees and low liquidity. Tokenisation, along with a flexible and extendible infrastructure, is offered as a way to create immutable registries, copyright records, certificates, etc. Enthusiasts also expect that, thanks to NFT, efficient secondary markets with instant liquidity and low fees will soon develop.

If, instead of non-fungible, one allows fungible tokens to represent ownership, it presumably becomes possible to fractionalise (share) the ownership of any piece of art. Still, at the moment it remains unclear in which manner the execution of partial ownership rights thus emerging is supposed to look like (except in cases of a purely speculative activity). One can imagine associated mechanisms of royalty collection attached to every on-line viewing or token ownership transfer as an area in which the NFT infrastructure could be valuable. Nonetheless, there emerge multiple legal issues (such as custody, claiming, control and, last but not least, taxation) that apparently make engagement of official (and hence central) authority unavoidable. However, such an engagement would severely dilute the original vision of purely decentralised "on-chain ownership."

Both creating and transacting NFTs is expensive and lengthy. The reason can be found in the blockchain (mainly Ethereum) performance and scalability limits (e.g. minting an NFT can cost as little as $3 and as much as $500, depending on the momentary chain congestion, whereas transacting one is even costlier than minting, see https://www.ulam.io/blog/how-expensive-is-nft-minting). Therefore, the mass transfer of titles to cheap items on-chain is hardly an attractive proposition. Only expensive infrequently transacted objects justify tokenisation. Another problem is the storage of NFT-underlying data: keeping them in their entirety on Ethereum requires a lot of gas, whereas storing off-chain is vulnerable to both technical incidents and malicious attacks. And, as usual, the legal protection of property rights cannot be arranged on the underlying chain itself and requires an authority willing to accept Ethereum (or another smart contract-enabling blockchain) records as sufficient property titles. But, an authority willing to accept the legal validity of a blockchain will also want (actually, be obliged) to regulate it, thus putting an end to the anarcho-capitalist dreams popular among blockchain fans.

Permissioned and hybrid blockchain applications, existing and prospective

One area in which, by offering a solution to the traceability problem, smart contract-hosting blockchains have a clear potential to enhance market integrity and efficiency is the trade in gems. For traded jewelry articles, they can provide transparency and verification to both the regulators, e.g. with regard to compliance and KYC procedures, and other users who require it, while still preserving the privacy and specific views of the ledger that are relevant for different types of user (Cartier, 2019). This is why blockchain is being widely investigated as a promising technology in the gem industry. For example, in 2017, diamond miner De Beers launched the Tracr blockchain to track diamonds through the full value chain. Further, there has emerged the blockchain-based Trustchain Initiative (piloted by IBM), an industry collaboration pursuing traceability in diamond and gold jewelry from mine to retailer. Finally, Gübelin and Everledger have been piloting (starting in 2019) a blockchain for coloured gemstones. Apparently, the chains being explored are private ones, with a clearly identifiable responsibility of the operator.

In banking and finance, blockchains are being gradually tried out in a number of areas beyond the exchange of digital currencies. The tokenisation discussed above is just one of many approaches that are being investigated as avenues towards more efficient primary and secondary markets for financial and non-financial products. Many in the financial industry believe that, soon, investment portfolio holdings may include interest in a diversified blue-chip art fund, a jewelry collection, or carbon credits. Some other business areas into which blockchain has recently made inroads include: trade finance, cross-border payments (see more in Derviz, 2023), clearing, settlement and other post-trade infrastructure (e.g. automation of middle and back office settlement processes), and real estate. In the latter area, records, investment, transactions, escrow services, etc. are being put on-chain above all for commercial and high-end residential property (Pandya, 2024).

In big multinational supply networks, distributed ledgers are seen as a way to ensure end-to-end visibility and traceability. By recording every step of a product's journey on the blockchain, from raw materials to manufacturing, shipping, and delivery, companies can ensure authenticity, reduce fraud, and optimise the supply chain's efficiency. For example, Walmart uses a blockchain to enable its employees to scan the goods in the store's app and then track them from the harvesting stage to the time it reaches the store floor. On the other hand, Makers use the technology to monitor cargo ships. All these are chain examples with access restricted to trading parties.

Blockchain technologies promise to help in medical data management and medical supply tracking. This would benefit both patient care and medical research, and quite importantly, ensure the authenticity of drugs circulating in global markets. The World Health Organization has estimated that one out of ten medical products that are offered in the low or medium income countries are not just sub-standard but outright falsified. A decentralised immutable publicly accessible database of medical drugs would be able to lower the instances of pharma fraud. An example is a smartphone app Verifier that uses the phone's camera to conduct a spectral analysis on the drug and loads it on its blockchain for verification of the drug's medical footprint.

As regards treatment, blockchain is expected to guarantee patient privacy without jeopardising (or rather, enhancing) interoperability. So far, all attempts at systems of data sharing between healthcare providers, when entrusted to a central agency, have made limited progress, despite the general understanding that such sharing would lead to more accurate diagnoses and personalised treatments. Therefore, the vision of breaking this spell is associated with encrypted medical records on-chain owned by the patient and accessible only to authorised personnel. Here, the involved blockchains would be private and permissioned, desirably with the patient's (i.e. the ultimate data owner's) rights secured by construction.

Proposals and pilot projects of blockchain use abound in many burgeoning segments of the P2P economy. Indeed, this is an environment in which, on the one hand, decentralisation is the cornerstone of the operation, but, on the other, there exists a rich history of disputes between users, providers and agencies that intermediate the corresponding business. Therefore, immutable and easily verifiable records are of particular value. Accordingly, blockchain-based initiatives have appeared in the ride-sharing economy (Arcade City, https://cointelegraph.com/tags/arcade-city), microloans (exact record of the lending process from application to disbursement: Twigga, https://kenyanwallstreet.com/twiga-foods-to-offer-blockchain-based-microloans-to-food-kiosk-owners-in-kenya/), and advertising, particularly affiliate marketing (evidence of targeted recipients on a social network, visitor origin verification). Another area in which the same issues are expected to rise in the nearest future is direct trade between small independent power generation units (including the solar panel production of households), put on the same footing with larger state and national networks. It was announced in 2022 that the China Energy Administration was investigating the use of such platforms. However, the cost of on-chain energy trading, as well as implications for price stability, is still a matter of debate.

Blockchain is also advertised as a means to enhance the security of mobile apps and the Internet of Things (IoT). In this area, the vulnerability of the connected devices to glitches and hacker attacks comes as the flip side of user comfort. Presumably, a blockchain infused into the IoT ecosystem would simplify troubleshooting and attacker identification thanks to immutable use history and the available chain analysis. Similar hopes are being associated with future blockchain-powered ex-post analyses of chatbot communication, once the latter becomes sufficiently widespread.

Conclusion: experiences and challenges

Whereas the original blockchain creators were hostile to central administrators as a matter of principle, the subsequently developed applications of the technology, the examples of which were the topic of this article, are gradually returning many elements of centrality through a back door. To begin with, as blockchain networks grow, scalability becomes a significant challenge. Current public blockchains face considerable limitations on the number of processed transactions per time unit. At present, the task of overcoming scalability issues seems to be better tackled in private chains than the best known public ones. The Holy Grail of fully decentralised networks of sovereign individuals ruling over their economic life on-chain without intermediaries is therewith slipping out of reach. Another frequently overlooked pre-requisite of mass blockchain adoption is the balance between the constantly evolving requirements on user competence dictated by ongoing innovations, and consumer protection. Although authorities responsible for the latter are trying to adapt existing regulatory frameworks to the blockchain's borderless decentralised universe, legal accountability in this environment remains a conundrum. Until a generally accepted solution to the problem emerges, regulatory uncertainty around blockchain use will persist.

Benefits that come attached to the use cases of blockchain technology at large seem to have most appeal in areas grappling with two big categories of problems: security threats and a lack of transparency. In both cases, the cryptographic side of blockchain operation is the most important, as the previously mentioned product origin applications demonstrate. Still, when the virtual blockchain universe meets the real world, the confrontation of high-flying visions of blockchain enthusiasts with the abilities of alternative, including legacy, technologies makes several most-advertised blockchain advantages somewhat fade, even if not disappear completely. The outcome of the said confrontation is far from decided at the moment. Nevertheless, one emerging pattern becomes increasingly clear: the most sustained demand for blockchain solutions does not come from multitudes of users living the dream of "online democracy" and other anti-authoritarian visions, but from well-off owners of scarce objects of high value. But, such owners are better used to putting authorities to work to protect their interests than to attempting to make their officials unemployed.

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Keywords

DLT, blockchain

JEL Classification

E58, F31, F41

A1. Change in predictions for 2024

GDP growth, %

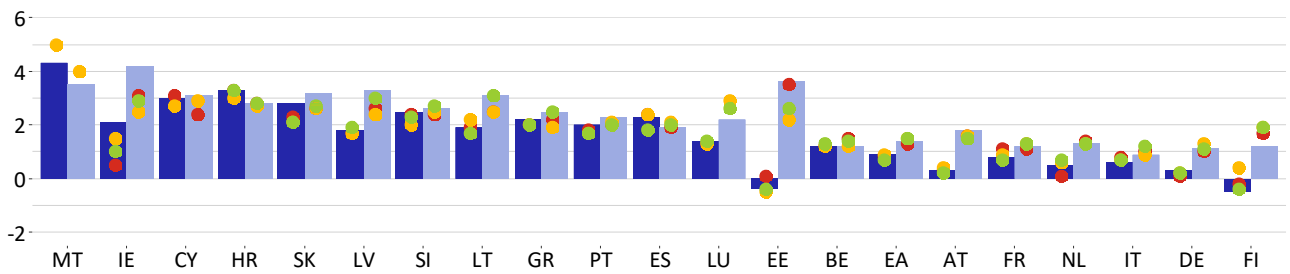|	CF		IMF		OECD		CB / OE	
EA	+0.1	2024/8 2024/7	+0.1	2024/7 2024/4	+0.1	2024/5 2024/2	+0.3	2024/6 2024/3
US	+0.2	2024/8 2024/7	-0.1	2024/7 2024/4	+0.4	2024/5 2024/2	0	2024/6 2024/3
UK	+0.2	2024/8 2024/7	+0.2	2024/7 2024/4	-0.3	2024/5 2024/2	+0.8	2024/8 2024/5
JP	-0.1	2024/8 2024/7	-0.2	2024/7 2024/4	-0.5	2024/5 2024/2	-0.2	2024/7 2024/4
CN	0	2024/8 2024/7	+0.4	2024/7 2024/4	+0.2	2024/5 2024/2	0	2024/8 2024/7
RU	+0.1	2024/7 2024/6	0	2024/7 2024/4	+0.8	2024/5 2024/2	+0.3	2024/8 2024/7

Inflation, %

	CF		IMF		OECD		CB / OE	
EA	0	2024/8 2024/7	-0.9	2024/4 2023/10	-0.3	2024/5 2024/2	+0.2	2024/6 2024/3
US	-0.1	2024/8 2024/7	+0.1	2024/4 2023/10	+0.3	2024/5 2024/2	+0.2	2024/6 2024/3
UK	0	2024/8 2024/7	-1.2	2024/4 2023/10	0	2024/5 2024/2	+0.3	2024/8 2024/5
JP	0	2024/8 2024/7	-0.7	2024/4 2023/10	-0.5	2024/5 2024/2	-0.3	2024/7 2024/4
CN	-0.1	2024/8 2024/7	-0.7	2024/4 2023/10	-0.8	2024/5 2024/2	0	2024/8 2024/7
RU	+0.6	2024/7 2024/6	+0.6	2024/4 2023/10	0	2024/2 2023/11	+0.3	2024/8 2024/7

A2. Change in predictions for 2025

GDP growth, %

	CF		IMF		OECD		CB / OE	
EA	-0.1	2024/8 2024/7	0	2024/7 2024/4	+0.2	2024/5 2024/2	-0.1	2024/6 2024/3
US	0	2024/8 2024/7	0	2024/7 2024/4	+0.1	2024/5 2024/2	0	2024/6 2024/3
UK	+0.1	2024/8 2024/7	0	2024/7 2024/4	-0.2	2024/5 2024/2	0	2024/8 2024/5
JP	-0.1	2024/8 2024/7	0	2024/7 2024/4	+0.1	2024/5 2024/2	0	2024/7 2024/4
CN	0	2024/8 2024/7	+0.4	2024/7 2024/4	+0.3	2024/5 2024/2	-0.1	2024/8 2024/7
RU	0	2024/7 2024/6	-0.3	2024/7 2024/4	0	2024/5 2024/2	+0.1	2024/8 2024/7

Inflation, %

	CF		IMF		OECD		CB / OE	
EA	0	2024/8 2024/7	-0.2	2024/4 2023/10	0	2024/5 2024/2	+0.2	2024/6 2024/3
US	-0.1	2024/8 2024/7	-0.4	2024/4 2023/10	+0.1	2024/5 2024/2	+0.1	2024/6 2024/3
UK	0	2024/8 2024/7	-0.1	2024/4 2023/10	-0.1	2024/5 2024/2	0	2024/8 2024/5
JP	0	2024/8 2024/7	+0.2	2024/4 2023/10	-0.1	2024/5 2024/2	+0.2	2024/7 2024/4
CN	-0.2	2024/8 2024/7	-0.2	2024/4 2023/10	-0.2	2024/5 2024/2	-0.3	2024/8 2024/7
RU	-0.2	2024/7 2024/6	+0.5	2024/4 2023/10	0	2024/2 2023/11	+0.2	2024/8 2024/7

A3. GDP growth and inflation outlooks in the euro area countries
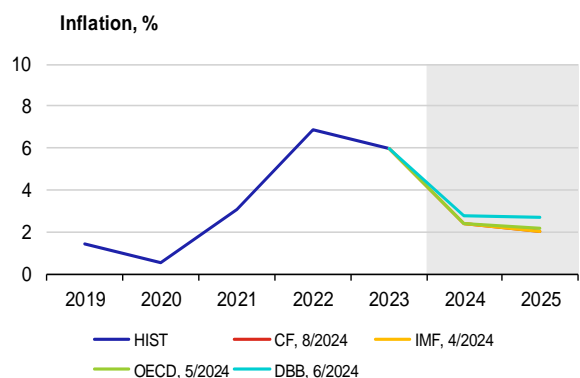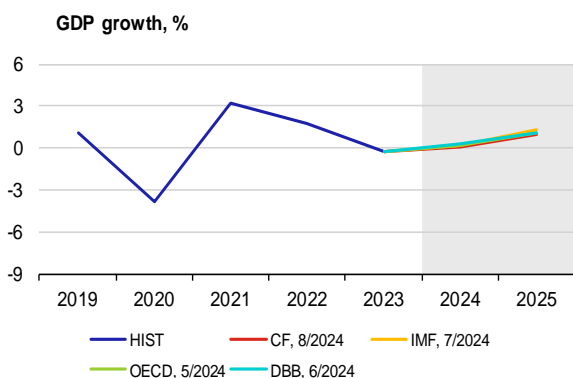
GDP growth in the euro area countries in 2024 and 2025, %

Inflation in the euro area countries in 2024 and 2025, %

■ ECB 2024 ■ ECB 2025 ● CF ● IMF ● OECD
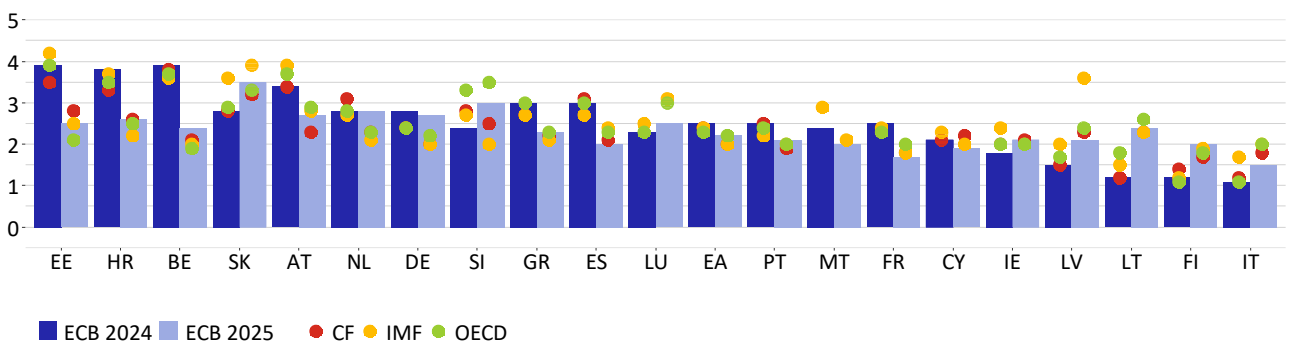
Note: Charts show institutions' latest available outlooks of for the given country.

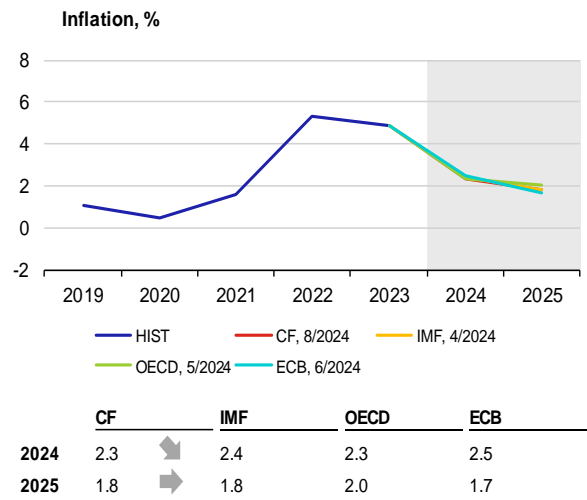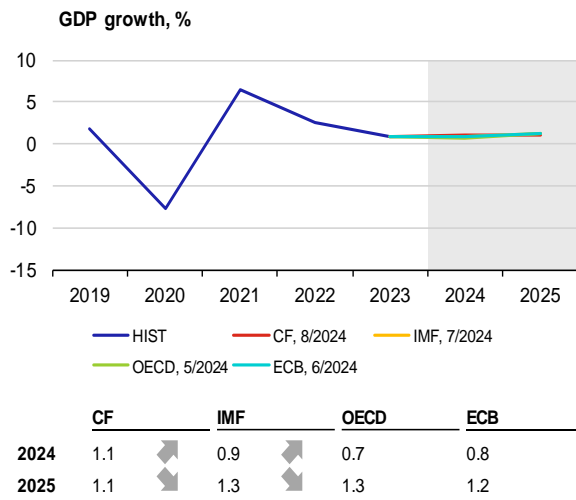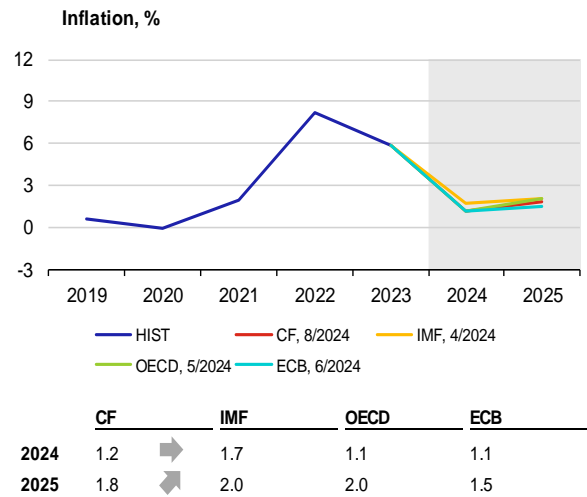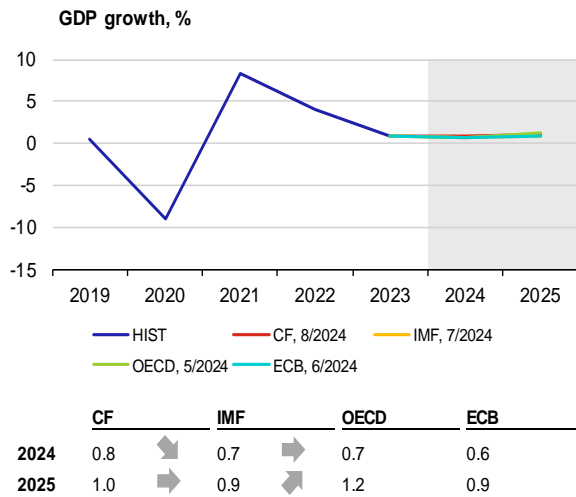## A4. GDP growth and inflation in the individual euro area countries

Germany

GDP growth, %

Inflation, %

| | HIST —— | CF, 8/2024 —— | IMF, 7/2024 —— |
| OECD, 5/2024 —— | DBB, 6/2024 —— | | |

	CF		IMF		OECD	DBB
2024	0.1	⬊	0.2	➡	0.2	0.3
2025	1.0	⬊	1.3	➡	1.1	1.1

| | HIST —— | CF, 8/2024 —— | IMF, 4/2024 —— |
| OECD, 5/2024 —— | DBB, 6/2024 —— | | |

	CF		IMF		OECD	DBB
2024	2.4	⬈	2.4		2.4	2.8
2025	2.0	➡	2.0		2.2	2.7

France

GDP growth, %

| | HIST | CF, 8/2024 | IMF, 7/2024 |
| OECD, 5/2024 | ECB, 6/2024 |

	CF		IMF		OECD	ECB
2024	1.1	↗	0.9	↗	0.7	0.8
2025	1.1	↘	1.3	↘	1.3	1.2

Inflation, %

| | HIST | CF, 8/2024 | IMF, 4/2024 |
| OECD, 5/2024 | ECB, 6/2024 |

	CF		IMF	OECD	ECB
2024	2.3	↘	2.4	2.3	2.5
2025	1.8	→	1.8	2.0	1.7

Italy

GDP growth, %

| | HIST | CF, 8/2024 | IMF, 7/2024 |
| OECD, 5/2024 | ECB, 6/2024 |

	CF		IMF		OECD	ECB
2024	0.8	↘	0.7	→	0.7	0.6
2025	1.0	→	0.9	↗	1.2	0.9

Inflation, %

| | HIST | CF, 8/2024 | IMF, 4/2024 |
| OECD, 5/2024 | ECB, 6/2024 |

	CF		IMF	OECD	ECB
2024	1.2	→	1.7	1.1	1.1
2025	1.8	↗	2.0	2.0	1.5

Spain

GDP growth, %

| | HIST | CF, 8/2024 | IMF, 7/2024 |
| OECD, 5/2024 | ECB, 6/2024 |

	CF		IMF		OECD	ECB
2024	2.4	↗	2.4	↗	1.8	2.3
2025	1.9	→	2.1	→	2.0	1.9

Inflation, %

| | HIST | CF, 8/2024 | IMF, 4/2024 |
| OECD, 5/2024 | ECB, 6/2024 |

	CF		IMF	OECD	ECB
2024	3.1	→	2.7	3.0	3.0
2025	2.1	→	2.4	2.3	2.0

Netherlands

GDP growth, %

	CF		IMF	OECD	ECB
2024	0.1		0.6	0.7	0.5
2025	1.4		1.3	1.3	1.3

Inflation, %

	CF		IMF	OECD	ECB
2024	3.1		2.7	2.8	2.8
2025	2.3		2.1	2.3	2.8

Belgium

GDP growth, %
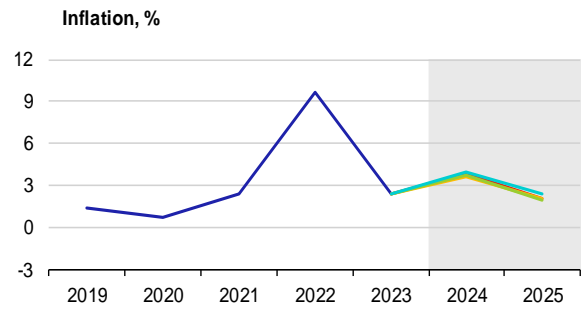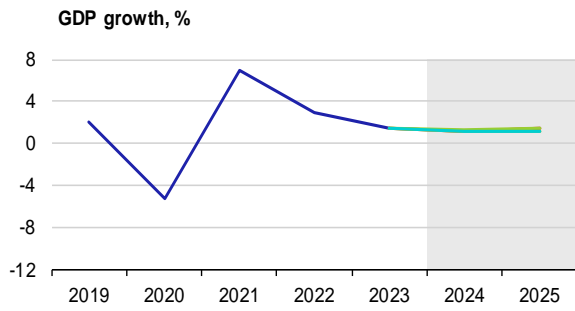
	CF		IMF	OECD	ECB
2024	1.2		1.2	1.3	1.2
2025	1.5		1.2	1.4	1.2

Inflation, %

	CF		IMF	OECD	ECB
2024	3.8		3.6	3.7	3.9
2025	2.1		2.0	1.9	2.4

Austria

GDP growth, %
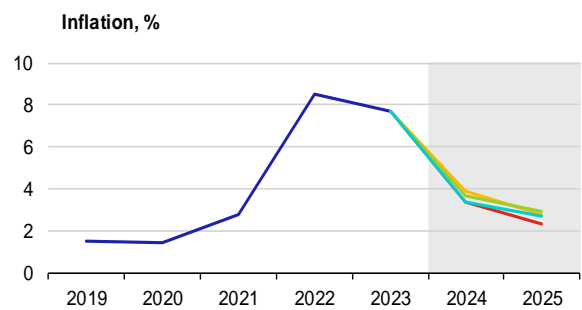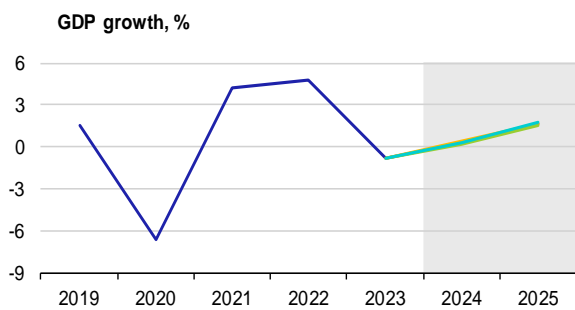
	CF		IMF	OECD	ECB
2024	0.3		0.4	0.2	0.3
2025	1.6		1.6	1.5	1.8

Inflation, %

	CF		IMF	OECD	ECB
2024	3.4		3.9	3.7	3.4
2025	2.3		2.8	2.9	2.7

Ireland

GDP growth, %
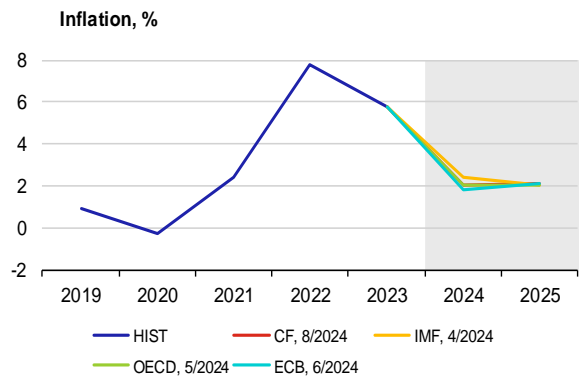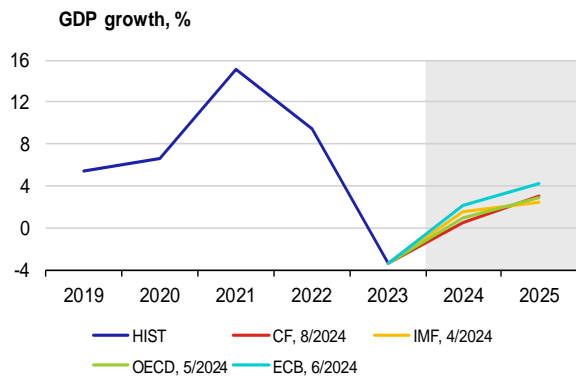
	CF		IMF	OECD	ECB
2024	0.5	↘	1.5	1.0	2.1
2025	3.1	↘	2.5	2.9	4.2

Inflation, %

	CF		IMF	OECD	ECB
2024	2.0	↘	2.4	2.0	1.8
2025	2.1	→	2.0	2.0	2.1

Finland

GDP growth, %
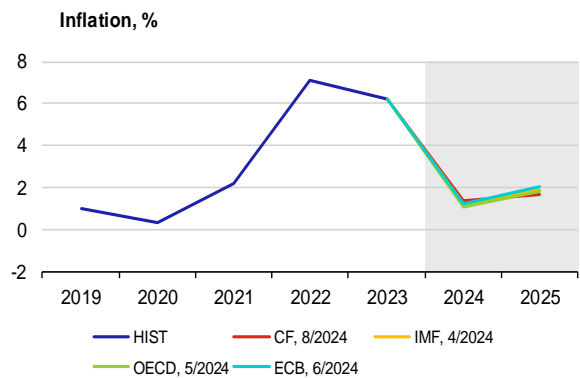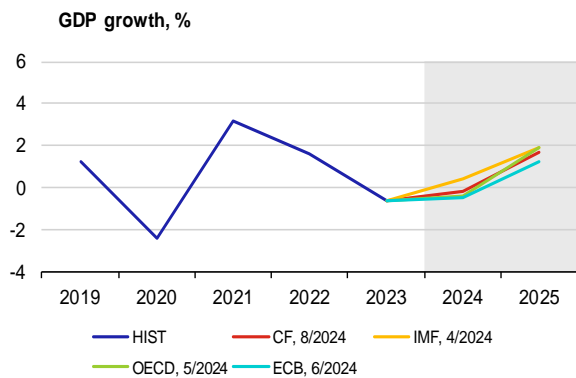
	CF		IMF	OECD	ECB
2024	-0.2	→	0.4	-0.4	-0.5
2025	1.7	↗	1.9	1.9	1.2

Inflation, %

	CF		IMF	OECD	ECB
2024	1.4	→	1.2	1.1	1.2
2025	1.7	→	1.9	1.8	2.0

Portugal

GDP growth, %
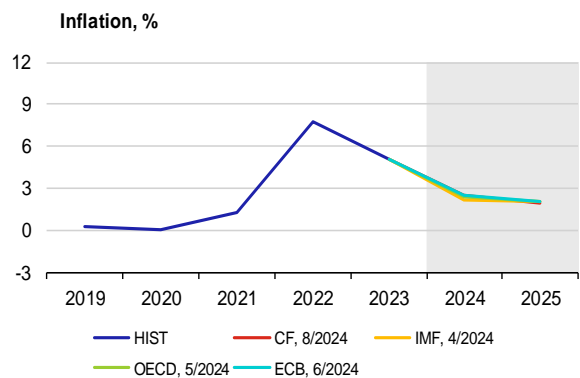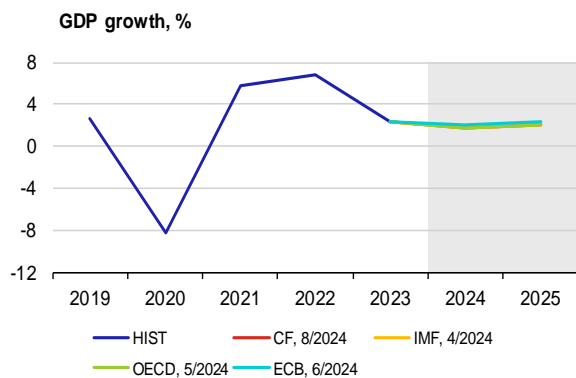
	CF		IMF	OECD	ECB
2024	1.8	↗	1.7	1.7	2.0
2025	2.0	↗	2.1	2.0	2.3

Inflation, %

	CF		IMF	OECD	ECB
2024	2.5	→	2.2	2.4	2.5
2025	1.9	↗	2.0	2.0	2.1

Greece

GDP growth, %
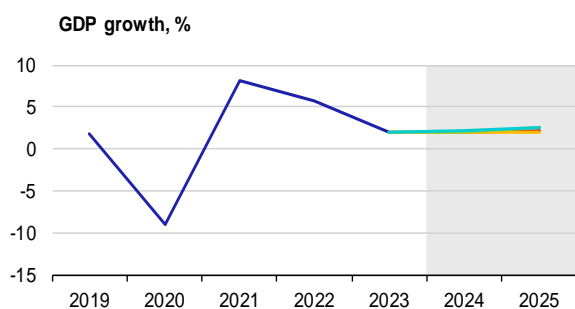
	CF		IMF	OECD	ECB
2024	2.0	→	2.0	2.0	2.2
2025	2.2	↗	1.9	2.5	2.5

Inflation, %
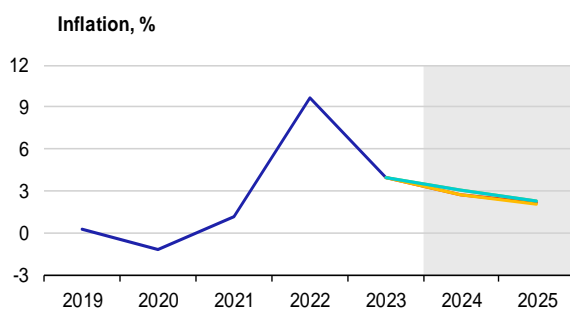
	CF		IMF	OECD	ECB
2024	2.7	↗	2.7	3.0	3.0
2025	2.2	↗	2.1	2.3	2.3

Slovakia

GDP growth, %
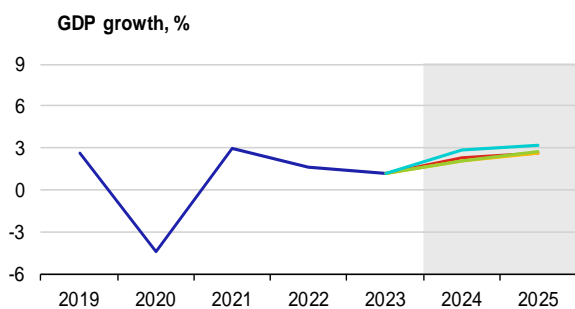
	CF		IMF	OECD	ECB
2024	2.3	↗	2.1	2.1	2.8
2025	2.6	→	2.6	2.7	3.2

Inflation, %
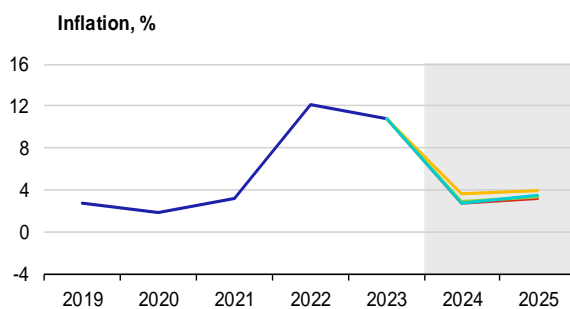
	CF		IMF	OECD	ECB
2024	2.8	→	3.6	2.9	2.8
2025	3.2	→	3.9	3.3	3.5

Luxembourg

GDP growth, %
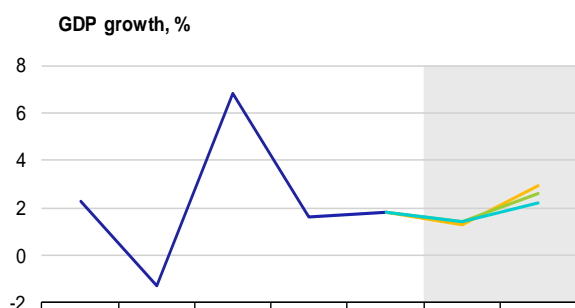
	CF	IMF	OECD	ECB
2024	n. a.	1.3	1.4	1.4
2025	n. a.	2.9	2.6	2.2

Inflation, %
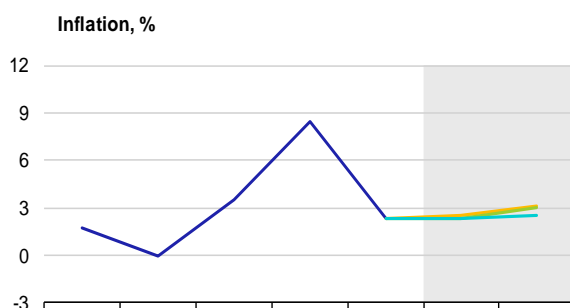
	CF	IMF	OECD	ECB
2024	n. a.	2.5	2.3	2.3
2025	n. a.	3.1	3.0	2.5

Slovenia

GDP growth, %
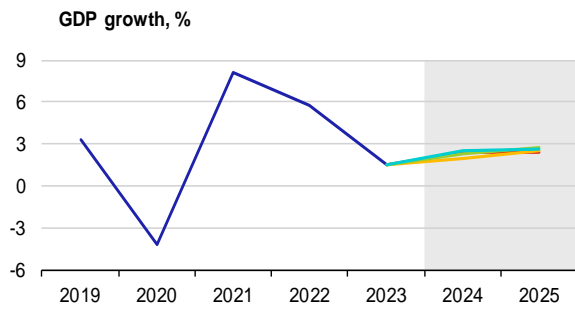
	CF		IMF	OECD	ECB
2024	2.4	➡	2.0	2.3	2.5
2025	2.4	➡	2.5	2.7	2.6

Inflation, %
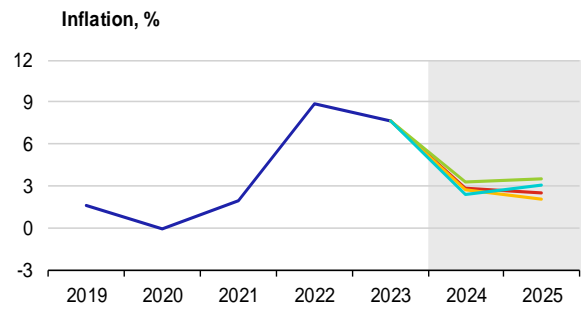
	CF		IMF	OECD	ECB
2024	2.8	➡	2.7	3.3	2.4
2025	2.5	⬊	2.0	3.5	3.0

Lithuania

GDP growth, %
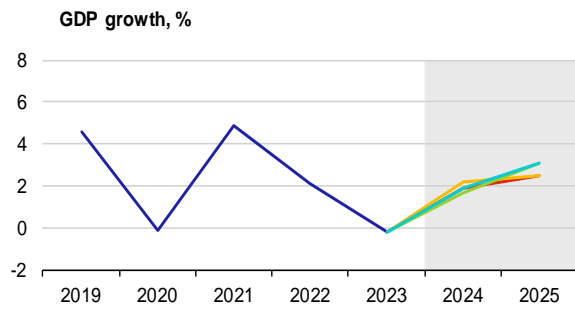
	CF		IMF	OECD	ECB
2024	1.9	➡	2.2	1.7	1.9
2025	2.5	⬊	2.5	3.1	3.1

Inflation, %
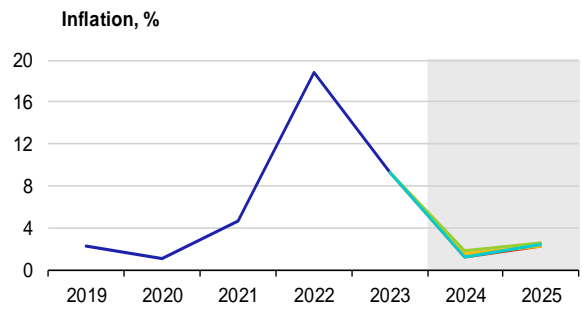
	CF		IMF	OECD	ECB
2024	1.2	⬊	1.5	1.8	1.2
2025	2.3	⬊	2.3	2.6	2.4

Latvia

GDP growth, %
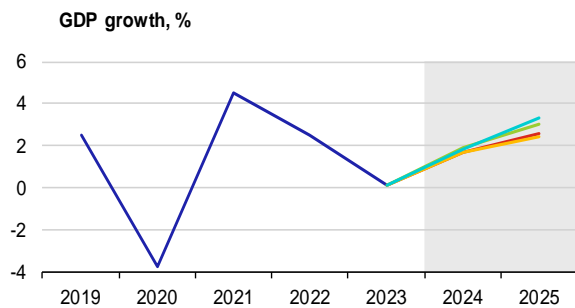
	CF		IMF	OECD	ECB
2024	1.7	➡	1.7	1.9	1.8
2025	2.6	⬊	2.4	3.0	3.3

Inflation, %
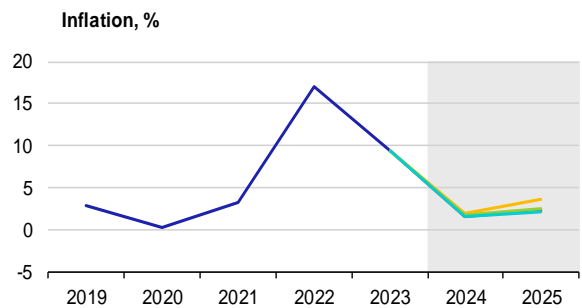
	CF		IMF	OECD	ECB
2024	1.5	⬊	2.0	1.7	1.5
2025	2.3	⬊	3.6	2.4	2.1

Estonia

GDP growth, %

Inflation, %
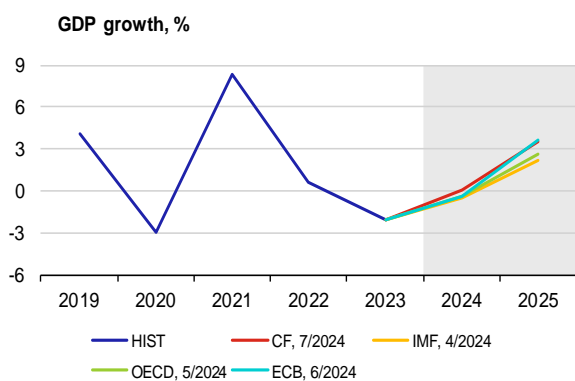
	CF		IMF	OECD	ECB
2024	0.1	↘	-0.5	-0.4	-0.4
2025	3.5	↘	2.2	2.6	3.6
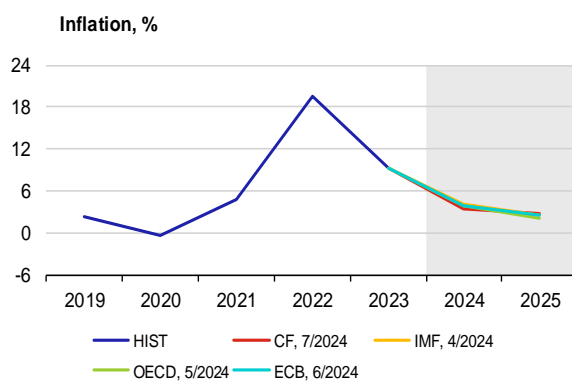
	CF		IMF	OECD	ECB
2024	3.5	↘	4.2	3.9	3.9
2025	2.8	↘	2.5	2.1	2.5

Cyprus

GDP growth, %
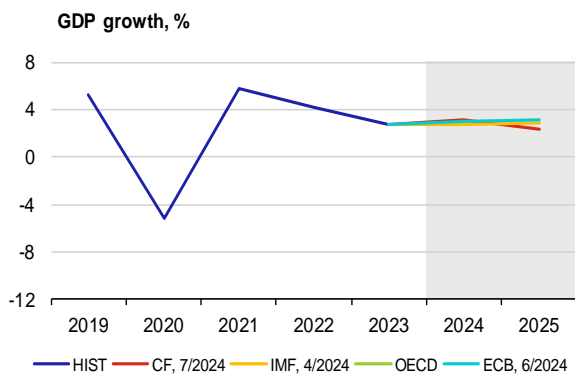
Inflation, %

	CF		IMF	OECD	ECB
2024	3.1	↗	2.7	n. a.	3.0
2025	2.4	→	2.9	n. a.	3.1
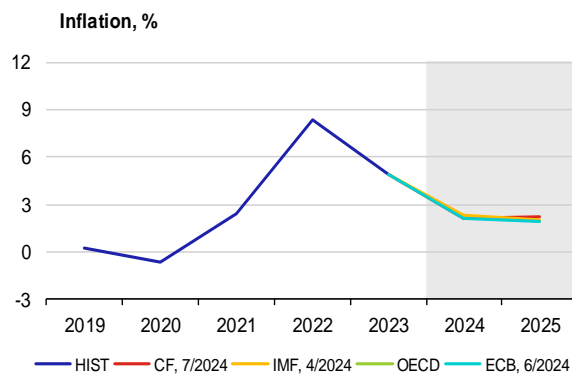
	CF		IMF	OECD	ECB
2024	2.1	→	2.3	n. a.	2.1
2025	2.2	↗	2.0	n. a.	1.9

Malta

GDP growth, %
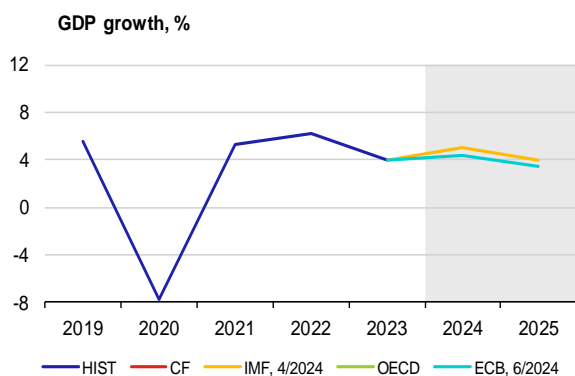
Inflation, %

	CF	IMF	OECD	ECB
2024	n. a.	5.0	n. a.	4.3
2025	n. a.	4.0	n. a.	3.5
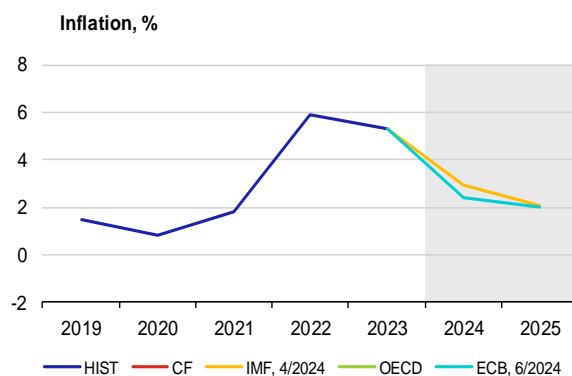
	CF	IMF	OECD	ECB
2024	n. a.	2.9	n. a.	2.4
2025	n. a.	2.1	n. a.	2.0

Ddd

Croatia

GDP growth, %

Inflation, %

	CF		IMF	OECD	ECB
2024	3.3	↗	3.0	3.3	3.3
2025	2.8	→	2.7	2.8	2.8

	CF		IMF	OECD	ECB
2024	3.3	→	3.7	3.5	3.8
2025	2.6	↘	2.2	2.5	2.6
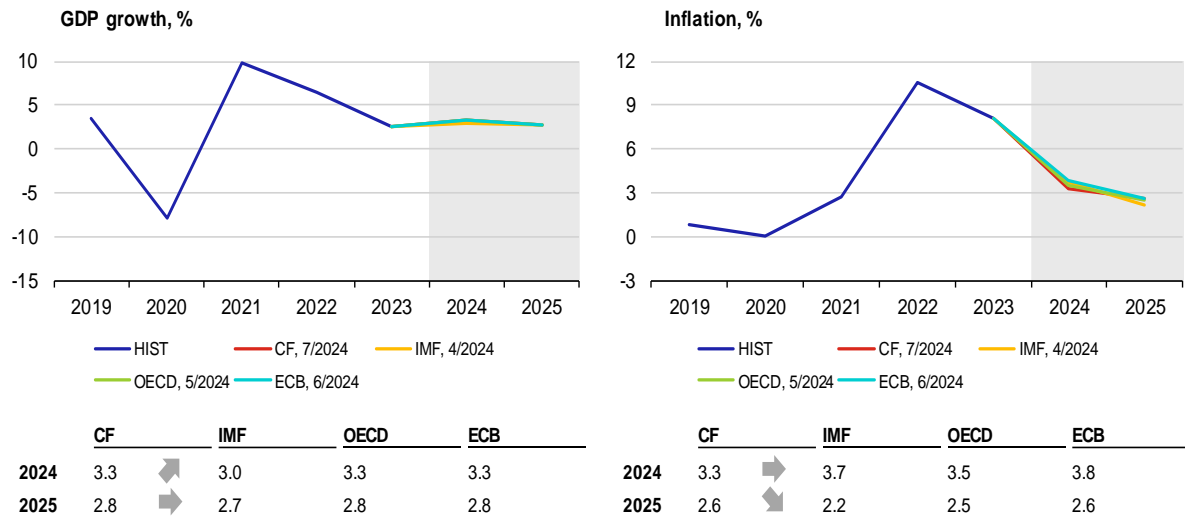
A5. GDP growth and inflation in other selected countries

Romania

GDP growth, %

Inflation, %

	CF		IMF	OECD	OE	
2024	2.8	→	2.8	2.8	2.8	↗
2025	3.5	→	3.6	3.1	3.7	↘

	CF		IMF	OECD	OE	
2024	5.4	→	6.0	5.8	5.3	→
2025	3.9	↘	4.0	3.9	3.8	↗
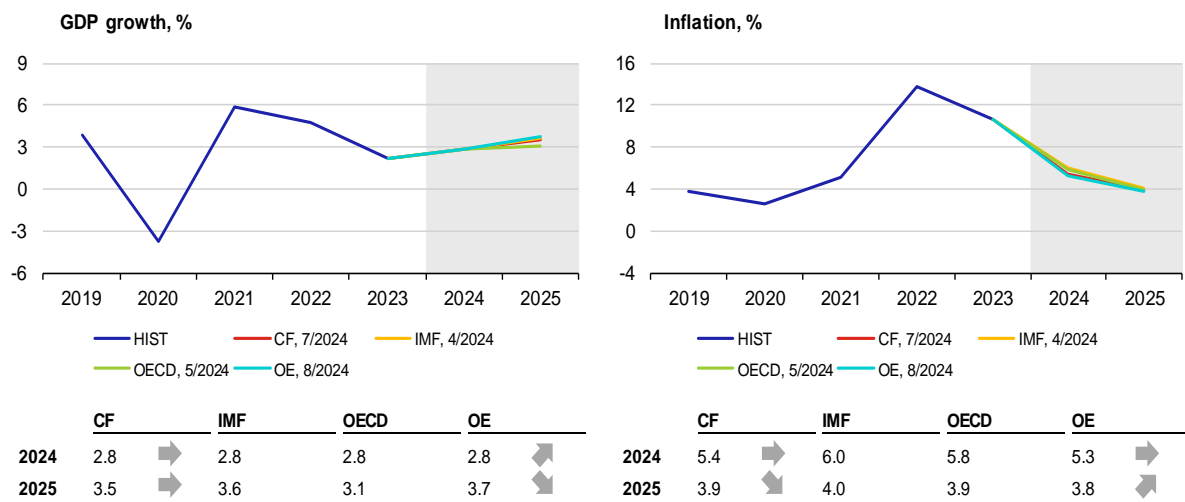
A6. List of abbreviations

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		**PMI**	Purchasing Managers' Index
EU	European Union		**pp**	percentage point
EUR	euro		**PT**	Portugal
EURIBOR	Euro Interbank Offered Rate		**RU**	Russia
Fed	Federal Reserve System (the US central bank)		**RUB**	Russian rouble
FI	Finland		**SI**	Slovenia
FOMC	Federal Open Market Committee		**SK**	Slovakia
FR	France		**SPF**	Survey of Professional Forecasters
FRA	forward rate agreement		**TTF**	Title Transfer Facility (virtual trading point for natural gas in the Netherlands)
FY	fiscal year			
GBP	pound sterling		**UK**	United Kingdom
GDP	gross domestic product		**UoM**	University of Michigan Consumer Sentiment Index - present situation
GR	Greece			
HICP	Harmonised Index of Consumer Prices		**US**	United States
HR	Croatia		**USD**	US dollar
ICE	Intercontinental Exchange		**WEO**	World Economic Outlook
IE	Ireland		**WTI**	West Texas Intermediate (crude oil used as a benchmark in oil pricing)
IEA	International Energy Agency			
IFO	Leibniz Institute for Economic Research at the University of Munich		**ZEW**	Centre for European Economic Research
IMF	International Monetary Fund			

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