

# Global Economic Outlook

— August 2020



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## Cut-off date for data

14 August 2020

## CF survey date

10 August 2020

## GEO publication date

21 August 2020

## Notes to charts

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

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

Leading indicators are taken from Bloomberg and Refinitiv Datastream.

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

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## I. Introduction

**COVID-19: Is a second wave already in sight in Europe** ☹️? The spread of COVID-19 and the growth in hospital cases in the hardest-hit US states (California, New York and Texas) slowed in the summer months, leading to very slight optimism, while in Europe the pandemic unfortunately surged again. The faster spread of the disease in Germany – the euro area’s economic engine – is raising concerns about the impacts on the European economy. A notional X-ray of the ECB’s support (the PEPP programme) reveals that purchases of Italian, Spanish, Greek and Portuguese government bonds were above the capital key, confirming the general view of the worse condition of these economies. The situation “across the pond” is not rosy either. Political leaders in the USA are still unable to find a compromise on the form and amount of the next fiscal stimulus, as no agreement was reached in August. Fitch left its US rating in the highest AAA category but downgraded its

outlook from “stable” to an unflattering “negative” due to a rising government deficit. US–China relations are expected to be tested by a review of compliance with the terms of their phase one trade deal. The financial markets largely believe that the two superpowers will keep the deal in place despite palpable tensions (due to the political situation in Hong Kong and the announced revocation of its special status by the USA, and Huawei’s problematic activities and its exclusion from 5G network construction in the USA, the UK and

### August GDP growth and inflation outlooks for monitored countries, in %

GDP	EA	DE	US	UK	JP	CN	RU
2020	-7.9 ↗	-6.1 ↗	-5.2 ↗	-9.9 ↘	-5.3 ↘	2.1 ↗	-5.4 ↘
2021	5.7 ↘	4.7 ↘	4.0 ↗	6.4 ↗	2.5 ↗	7.8 ↘	3.4 ↗
Inflation	EA	DE	US	UK	JP	CN	RU
2020	0.4 ↗	0.5 ↘	0.9 ↗	0.7 ↘	-0.1 ↗	2.7 ↗	3.8 ↘
2021	1.1 ↗	1.6 ↗	1.7 ↗	1.4 ↗	0.2 ↗	2.0 ↗	3.6 ↘

Source: Consensus Forecasts (CF)

Note.: The arrows indicate the direction of revisions compared with the last GEO.

other countries). Sentiment indicators (such as the PMIs for July) are positive, confirming a return of economic activity in the euro area, the USA and China to growth; industrial data also slightly exceeded market expectations.

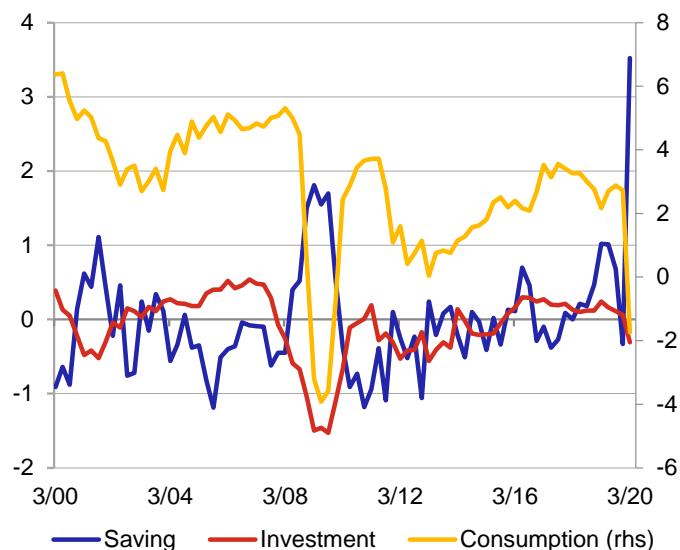
**The August GDP growth outlooks** for this year predict a slower decline of the three strongest economies, i.e. the USA, the euro area and China, but the results predicted for next year are slightly worse than previously expected. This year’s growth outlook for the UK is worse, with the decline expected to reach almost 10%. This decline might partially include the materialisation of the still non-existent but hopefully emerging Brexit deal. **Consumer price inflation outlooks** changed only slightly in August compared with July. However, the important news is that inflation this year will remain below 1% in the advanced countries under review, and even dangerously close to zero in the euro area. The outlooks for next year give hope that inflation will approach the 2% ideal in some countries. The dollar will remain at its current levels against the euro, sterling and the yen and weaken slightly against the renminbi and the rouble at the one-year horizon. The CF outlook for the Brent crude oil price at the one-year horizon is almost the same as in July, at USD 48.0/bbl (highest estimate USD 63/bbl, lowest estimate USD 33.5/bbl). The outlook for market rates is very slightly falling for the 3M USD LIBOR, while the outlook for 3M EURIBOR rates has remained negative over the entire outlook horizon for several years now.

**The chart in the August issue** shows how households behave at times of crisis. In this regard, the current situation is very similar to the period following the fall of Lehman Brothers, when consumption declined and households started to save more and invest less. The current fiscal stimuli have so far prevented such a fall in consumption, but households are saving at a record-high rate.

**The current issue also contains an analysis:** [The coal market and its future](#). The article focuses on this still very important energy commodity, which some advanced countries are trying to phase out, due mainly to a political preference for renewable resources. For developing countries, however, coal is important not only for electricity generation, but also for the production of other energy-intensive products.

### Saving, investment and consumption rates in the EU

(pp; right-hand scale %)



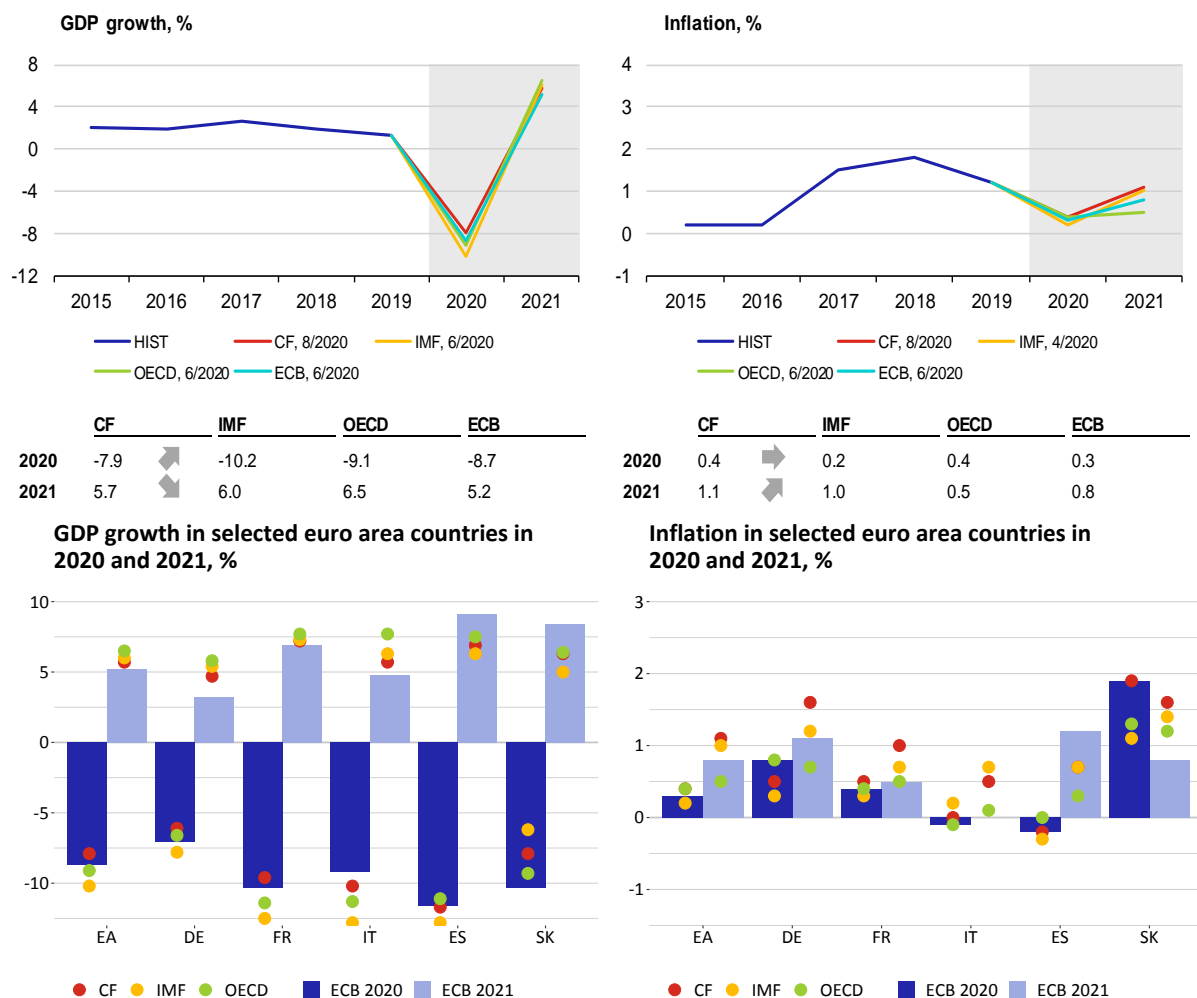
Source: Eurostat, CNB calculation

Note: Seasonally adjusted data.

## II.1 Euro area

**According to preliminary data, the euro area economy contracted by 15% year on year in Q2 due to the restrictions caused by COVID-19.** The decline was almost five times bigger than in 2020 Q1. Foreign trade, services, household consumption and investment fell sharply. Almost all sectors saw a decline. The available data show that the Spanish, French and Italian economies shrank the most. The German economy fell much less, due in part to generous government stimuli to support the economy. The government restrictions introduced in euro area countries due to the pandemic were gradually lifted by the end of June. Euro area industrial production, especially of durable goods, surged month on month in May. The available data for June suggest further, though less strong, month-on-month growth. However, the medium-term outlook remains uncertain as firms deal with the fallout of the pandemic. The most visible effect of the current situation is a drive to cut costs, reflected in a decrease in employment and the total wage bill.

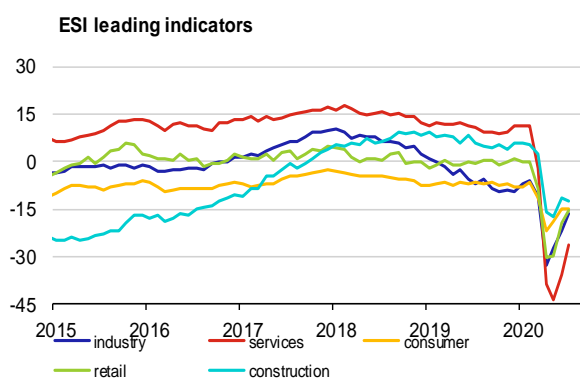
**A major recovery in economic activity, as predicted by leading indicators, can be expected in the current quarter.** The PMI in manufacturing jumped into the expansion band in July not just in the euro area as a whole, but also in Italy and Spain. The French PMI entered the expansion zone in June. The German PMI also improved considerably following previous worse results, rising above 50 for the first time since December 2018. The rallying sentiment in Germany was confirmed by an improvement in the IFO and ZEW leading indicators. Euro area retail sales continued to rise in June, especially in Spain and Italy, while sales in Germany fell slightly. Unemployment in the monetary union rose slightly further to 7.8% in the same month. The subdued economic activity was reflected in lower consumer price inflation, which stood at just 0.4% in July according to preliminary data. The low inflation was caused by a continuing year-on-decline in energy prices, while core inflation rose compared with the previous month, reaching 1.2%. Prices grew the fastest in Slovakia, whereas prices in Spain declined further.



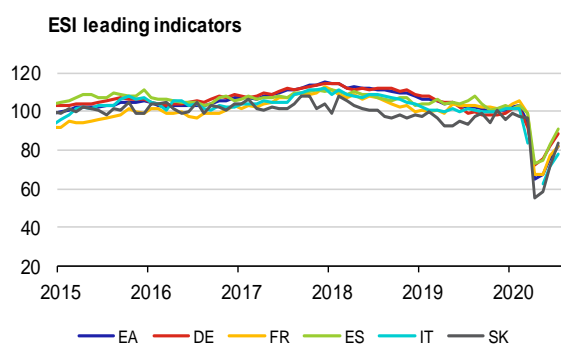
Note: Charts show institutions' latest available outlooks of for the given economy.

**According to the August CF, GDP will fall by 7.9% this year, while in 2021 the euro area economy will grow by almost 6%.** The new outlook is slightly more optimistic than the IMF forecast, which expects a deeper decline this year and a comparable recovery next year. Of the largest countries, CF expects the sharpest drops to occur in Spain (11.7%), Italy (10.2%) and France (9.6%) this year. By contrast, the decline in Germany will be 6.1%. As regards the components of GDP, the contraction in the euro area this year will be caused mainly by household consumption and gross fixed capital formation. However, government debt and unemployment will rise.

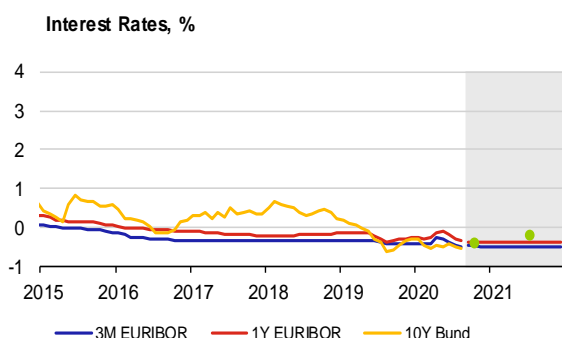
**The expected economic downturn is reflected in a lower outlook for consumer price inflation.** According to the August CF, inflation will be only slightly above zero this year. Next year, it will rise to 1.1%. Consumer prices will grow the fastest in Slovakia, while in Spain and Italy they will decline. Core inflation in the euro area will accelerate. However, inflation expectations have been stable for several months now. The ECB will hold a regular monetary policy meeting in September. The latest July meeting did not bring any change in monetary policy. The ECB is thus continuing to purchase assets under the PEPP programme with a total envelope of EUR 1,350 billion, which, according to official statements, will be used in full. Net purchases under the older APP programme are continuing at a monthly pace of EUR 20 billion, together with the purchases under the additional EUR 120 billion temporary envelope until the end of the year. Monetary conditions in the euro area are thus very accommodative. Expectations of a negative 3M EURIBOR still prevail at the one-year horizon. The ten-year German government bond yield is then expected to rise slightly from its current negative level to zero.



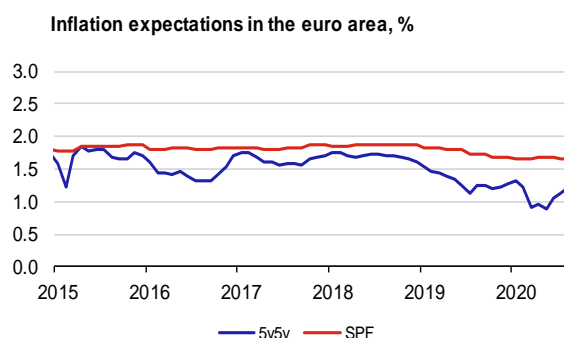
	industry	services	consum.	retail	constr.
5/20	-27.5	-43.6	-18.8	-29.8	-17.3
6/20	-21.6	-35.5	-14.7	-19.4	-11.6
7/20	-16.2	-26.1	-15.0	-15.3	-12.6



	EA	DE	FR	ES	IT	SK
5/20	67.5	75.3	67.7	74.9	63.0	59.0
6/20	75.8	81.9	77.5	83.1	71.2	71.6
7/20	82.3	88.4	82.3	90.6	77.9	83.3



	7/20	8/20	11/20	8/21
3M EURIBOR	-0.44	-0.47	-0.47	-0.49
1Y EURIBOR	-0.28	-0.34	-0.35	-0.36
10Y Bund	-0.50	-0.54	0.00	0.00



Note: Inflation expectations based on 5year inflation swap and SPF

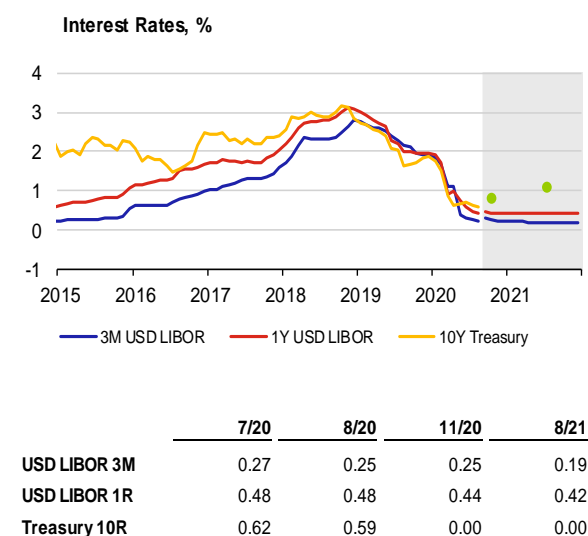
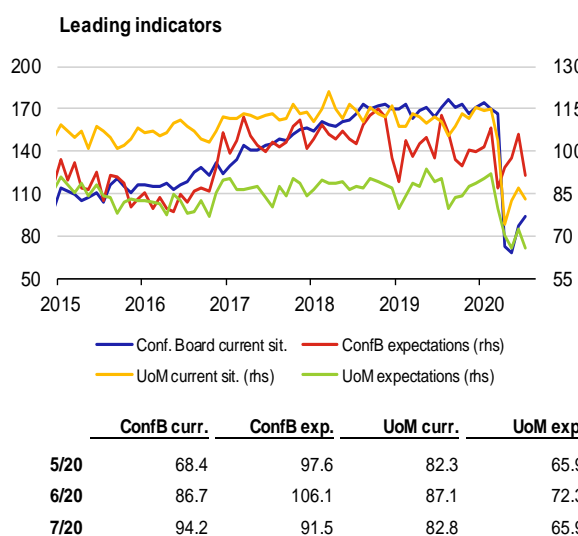
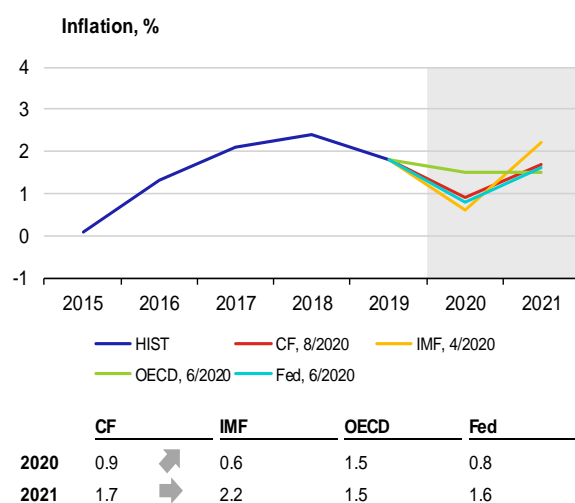
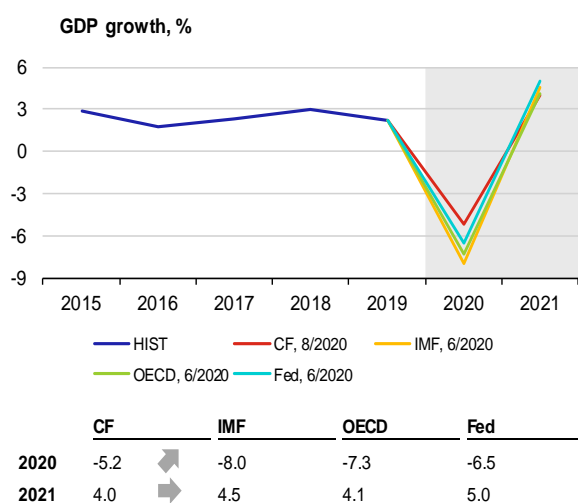
	5y5y	SPF
6/20	1.06	1.67
7/20	1.13	1.65
8/20	1.22	1.65

## II.2 United States

**The US labour market continues to recover, while the number of new coronavirus cases seems to have peaked.** The number of unemployment benefit applications dropped below one million in early August, the lowest level since early March. The unemployment rate fell by 0.9 pp to 10.2% in July. Non-farm payrolls rose by almost 1.8 million last month. Wages declined by 2.4% year on year in June. The number of new COVID-19 cases still exceeds half a million a day, but is gradually falling.

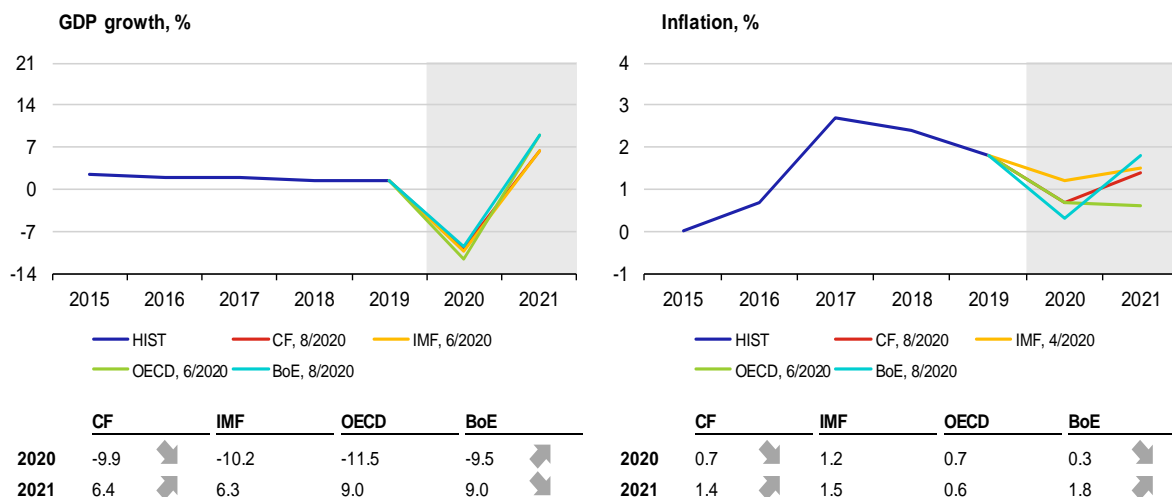
**August saw the release of figures on the US economy for Q2, the period of the biggest decline caused by the coronavirus pandemic.** GDP fell by 9.5%, private consumption by 10.1%, private investment by 8.5%, exports by 22.6% and imports by 17.4%. According to the CF outlook, GDP will drop by 5.2% this year, a slight upward revision compared with the previous month. Retail sales grew by 7.5% month on month in June. The number of new orders also increased. Business sentiment is very positive and forward-looking indicators moved into the expansion band in both industry and services. Inflation went up to 1% in July, driven mainly by growth in food prices (4.1%) and prices of meals in restaurants (3.4%), while energy prices dropped by 11.2%. According to the CF outlook, inflation will be at 0.9% in 2020 as a whole.

**The US government extended its support measures, while disputes between the Democrats and the Republicans regarding support continue.** US President Donald Trump approved executive orders that maintain extraordinary support, including a supplement to unemployment benefits, though only to a limited extent. However, President Trump was criticised for the step, as it affects the budget and should have been taken by the Congress. In addition, the president Trump signed orders restricting full use of the Chinese TikTok and WeChat apps by US citizens from mid-September, stating that they pose a threat to national security. He also said that the popular TikTok video app should be sold to a US company; interest was expressed by Microsoft, among others.



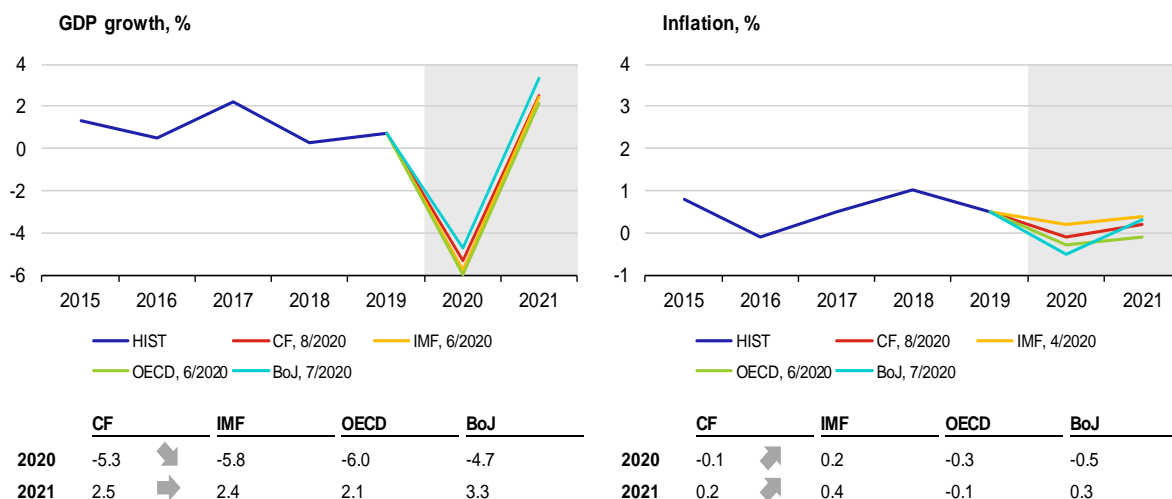
### II.3 United Kingdom

**The UK economy contracted by a record 20.4% quarter on quarter, slipping into recession for the first time in 11 years.** According to the new BoE forecast, the UK economy will recover more slowly than expected and GDP will probably not exceed the pre-crisis level until the end of 2021. The BoE also warned of a sharp rise in unemployment (to as high as 7.5% at the year-end). However, for now it provided no further support for the economy. According to the BoE forecast, GDP will fall by 9.5% this year but grow by 9.0% next year. CF expects a deeper contraction of 9.9% this year and growth of 6.4% in 2021. There was no tangible progress on future UK-EU relations in the latest round of intensive Brexit talks. October is considered to be the deadline for striking a deal if it is to take effect before the transition period ends in December. The forward-looking composite PMI climbed to 57 in July, entering the expansion band.



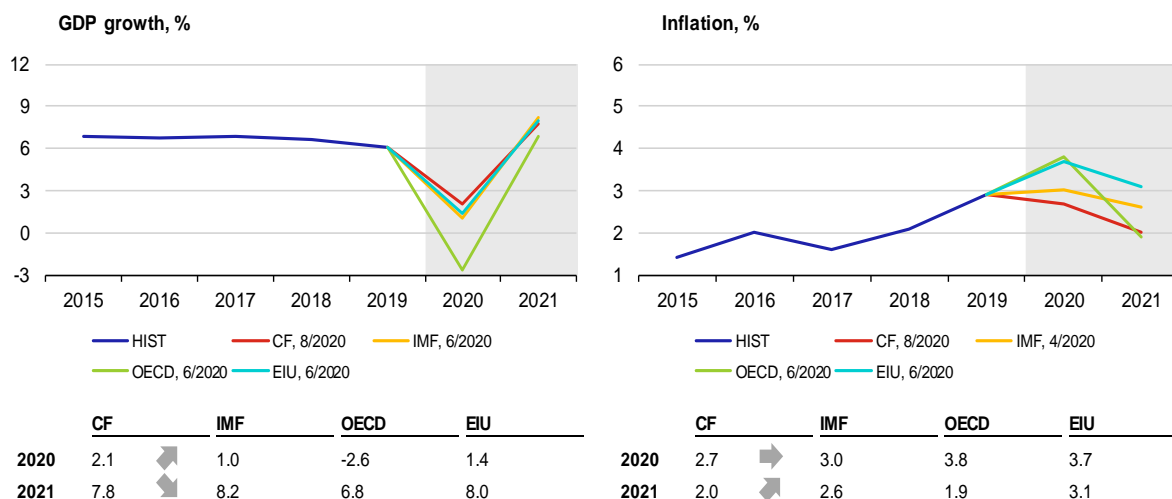
### II.4 Japan

**The Japanese economy is recovering only slowly from the impacts of the coronavirus pandemic.** The leading PMI in manufacturing continued to grow in July (from 40.1 to 45.2), but its level below 50 implies that conditions in manufacturing have not improved for 15 months now. The PMI in services is flat at around 45.4. Inflation has been close to zero since April, while unemployment fell for the first time in June, from 2.9% to 2.8%, after rising in the spring. The Japanese government is holding intensive talks on a free trade agreement with the UK. The deal should largely copy the one which the two countries have now thanks to the UK's membership in the EU. The parameters of monetary policy remained unchanged following an easing in March and April. The BoJ revised its forecast in July. It now estimates GDP to drop by 4.7% this year. The other monitored outlooks are more pessimistic, with the CF forecast falling to -5.3%.



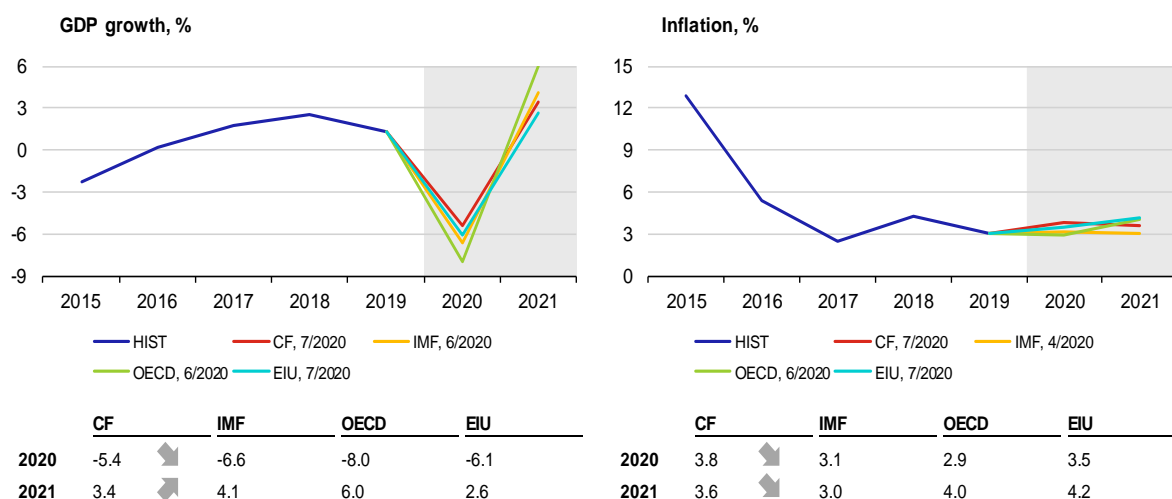
## II.5 China

**The marked recovery in Chinese economic activity is being driven by massive monetary and fiscal expansion, reflected, via investment support, in solid industrial production growth.** The still weak consumer demand, showing up as a continued decline in retail sales, and growing geopolitical tensions with the USA and other advanced countries remain a risk. According to the CF analysts' August outlook, the Chinese economy will record annual growth of 2.1% in 2020 and 7.8% in 2021. Consumer inflation rose from 2.5% in June to 2.7% in July. This growth mainly reflected higher food prices, the fastest growth being recorded by the price of pork due to the spread of African swine fever. The higher price pressures also stem from increased regulation of food imports aimed at mitigating the risks associated with the COVID-19 pandemic, and from extensive floods in central and southern China. Chinese consumer price inflation will stand at 2.7% this year and slow to 2% next year.



## II.6 Russia

**The drop in Russian GDP in Q2 was more moderate than expected.** According to Rosstat's flash estimate, the Russian economy contracted by 8.5% year on year in Q2. In late July, the Russian central bank was expecting a fall of 9%–10% (the Ministry of Economic Development published a similar estimate a short time earlier). According to the central bank, the drop in industrial production and freight turnover slowed, construction rebounded and growth in agriculture continued. The bank also recorded a rise in consumer activity and faster growth in food and non-food retail sales. It expects GDP growth of 4.5%–5.5% in 2020, 3.5%–4.5% in 2021 and 2.5%–3.5% in 2022. At the end of June, the bank cut its key rate by a further 0.25 pp to 4.25%. The rouble has been fluctuating around 73.4 to the dollar over the last two weeks.

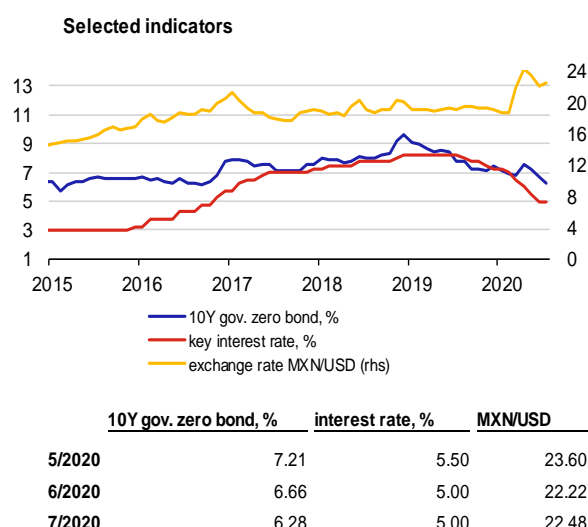
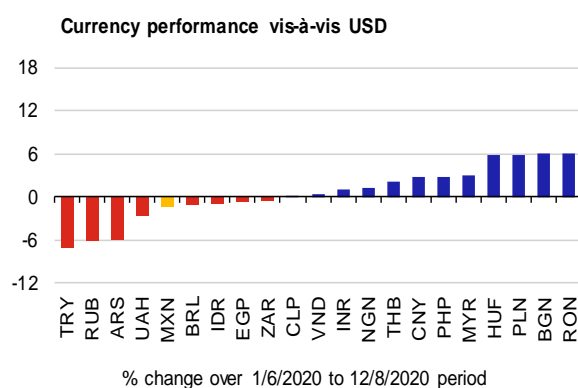
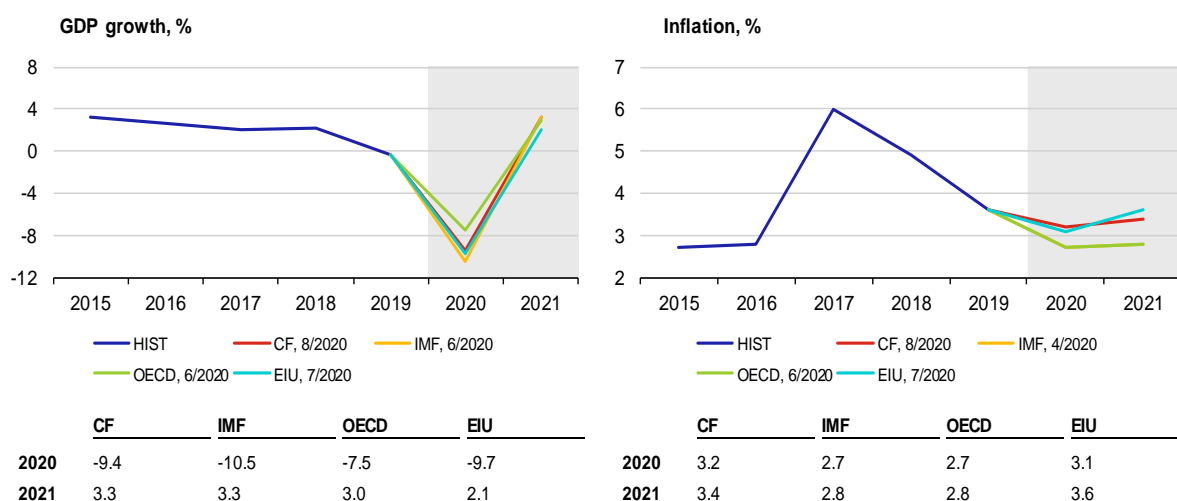




## II.7 Developing countries in the spotlight

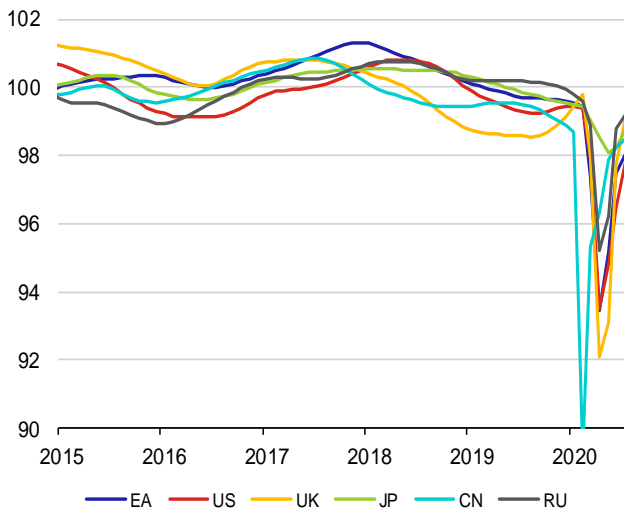
**The long-running recession in Mexico was magnified in 2020 H1 by a sharp drop in domestic and external demand as a result of the global coronavirus crisis.** Following a year-on-year fall in economic activity of 1.4% in 2020 Q1, the economy saw a record decline of 18.9% in Q2. The introduction of strict quarantine measures in April and May, aimed at preventing COVID-19 from spreading further, led to double-digit declines in industrial production and services via a significant drop in consumption expenditure and corporate investment. The effect of easy fiscal policy was only very slight as regards softening the negative impacts of the crisis. Economic activity started to recover gradually in June due to the reopening of factories and service providers. However, persisting elevated numbers of new COVID-19 cases may continue to prevent a full return to normal in the coming months. The slower recovery in domestic and external demand, coupled with moderate fiscal expansion, will be reflected in more subdued economic activity for the rest of this year as well. The Mexican economy will also be adversely affected by slow growth of tourism, where there are concerns about further spread of the virus, and also by lower financial transfers from Mexican workers abroad, which also support domestic consumption. By contrast, the signing of a trade agreement between the USA, Mexico and Canada (USMCA – the successor to NAFTA, the North American Free Trade Agreement) – helped calm the situation a little. The agreement took effect on 1 July 2020.

**Consumer prices in Mexico continued to follow an upward trend, rising by 3.6% year on year in July, close to the upper limit of the inflation target band (4%).** The consumer price inflation mainly reflects faster growth in food prices. In addition to domestic factors, prices were pushed up in 2020 H1 by a significant depreciation of the Mexican peso against the dollar. The peso weakened by as much as 25% in March in response to sharp growth in risk aversion on financial markets following the outbreak of the global COVID-19 pandemic. This was reflected in sell-offs of emerging market currencies, among other things. According to the CF analysts' forecasts, Mexican consumer price inflation will reach 3.2% this year and rise further to 3.4% next year.

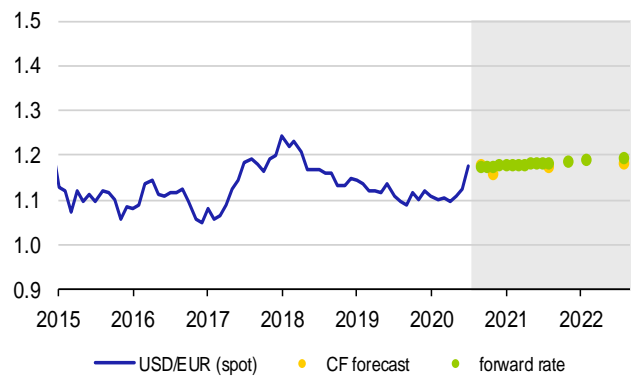


### III. Leading indicators and outlook of exchange rates

OECD Composite Leading Indicator

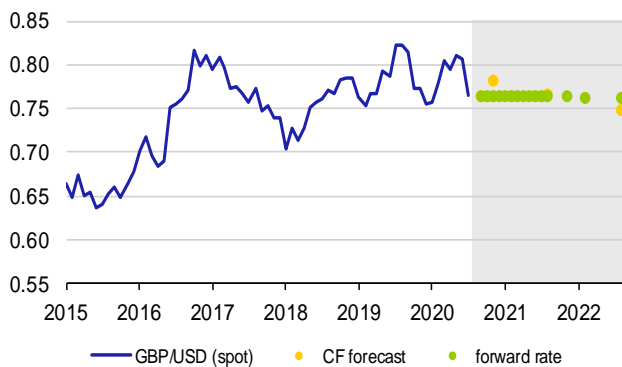


The US dollar (USD/EUR)



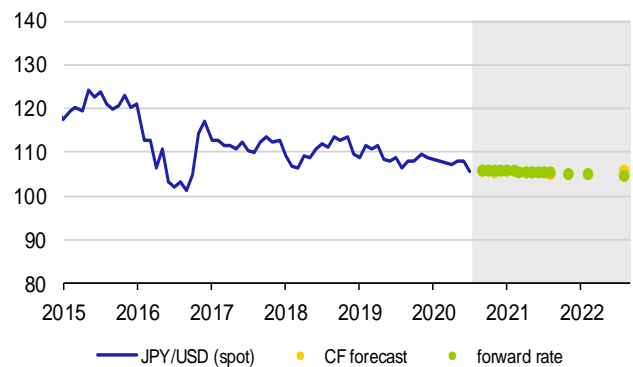
	10/8/20	9/20	11/20	8/21	8/22
spot rate	1.177				
CF forecast		1.177	1.158	1.176	1.181
forward rate		1.175	1.176	1.183	1.193

The British pound (GBP/USD)



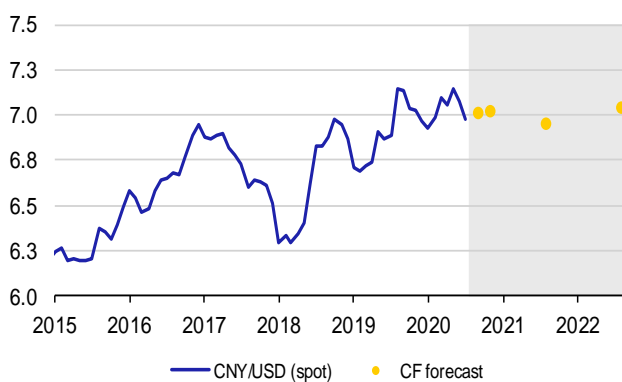
	10/8/20	9/20	11/20	8/21	8/22
spot rate	0.764				
CF forecast		0.764	0.782	0.765	0.747
forward rate		0.765	0.765	0.764	0.762

The Japanese yen (JPY/USD)



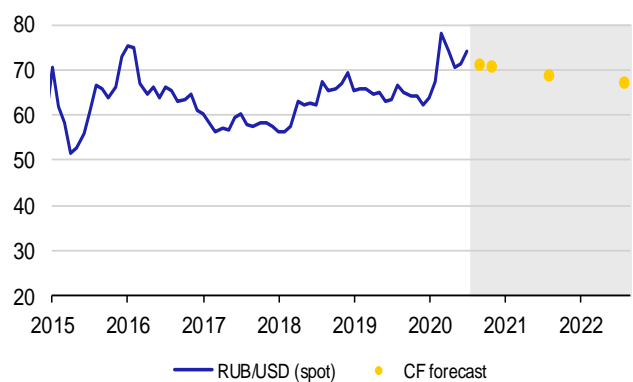
	10/8/20	9/20	11/20	8/21	8/22
spot rate	105.8				
CF forecast		105.8	105.6	105.2	105.9
forward rate		105.9	105.8	105.4	104.7

The Chinese renminbi (CNY/USD)



	10/8/20	9/20	11/20	8/21	8/22
spot rate	6.970				
CF forecast		7.015	7.017	6.956	7.043

The Russian rouble (RUB/USD)

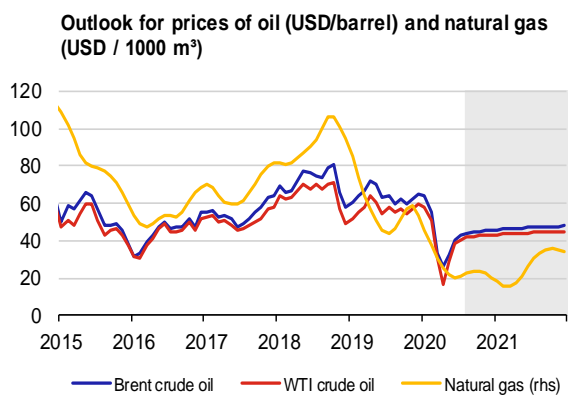


	10/8/20	9/20	11/20	8/21	8/22
spot rate	73.57				
CF forecast		71.17	70.79	68.91	67.35

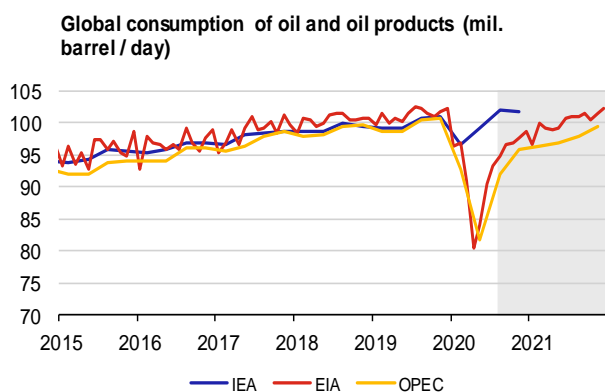
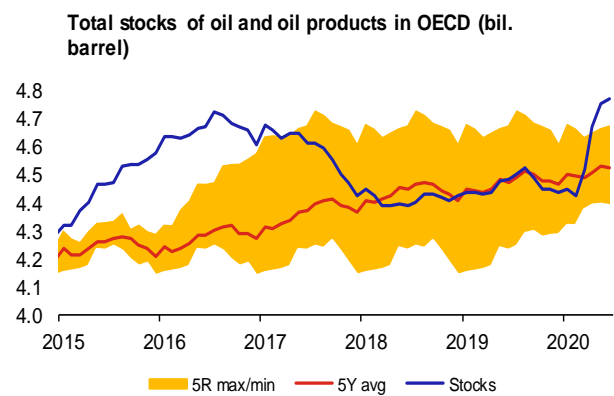
Note: Exchange rates as of last day of month. Forward rate does not represent outlook; it is based on covered interest parity, i.e. currency of country with higher interest rate is depreciating. Forward rate represents current (as of cut-off date) possibility of hedging future exchange rate.

### IV.1 Oil

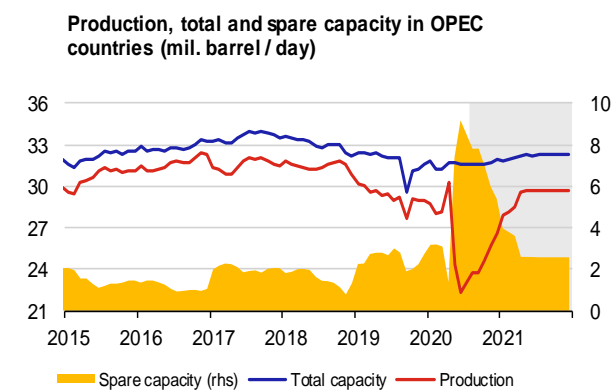
**Following a surge in April and May, growth in the Brent crude oil price slowed in June and the price has been rising only slightly amid low volatility since July.** In the first half of August, the price rose above USD 45 a barrel. The positive market sentiment is being fuelled by news of the development of a vaccine for the novel coronavirus. The oil price is also being boosted by the dollar, which has been weakening sharply again since July. However, the recovery in oil demand is geographically uneven, as the COVID-19 pandemic is not under control in many parts of the world. Stronger oil price growth has also been prevented by the planned rise in oil output and exports by OPEC+ countries since August. Oil prices received a strong, though only temporary, growth impulse from the deal between EU representatives on an unprecedented stimulus package to support European economies. However, they fell in late July after the announcement of negative Q2 data on economic growth in the USA, Germany and other countries. The gradual recovery of demand is facing other headwinds, such as serious floods in China, due to which some refineries had to close and Chinese fuel consumption fell. The import boom, during which China took advantage of low oil prices, is also fading. A further escalation of US–China political tensions is also worsening market sentiment. A renewed rise in the slope of the futures curve, which is in contango, suggests concerns about the current excess supply on the market. According to the EIA, global inventories will decline by an average of 4.2 million barrels a day for the rest of this year and 0.8 million barrels a day next year following growth of 6.4 million barrels a day in 2020 H1. The EIA expects the Brent price to stay close to its current level for the rest of this year, but to record an upswing in early 2021, reaching USD 52 a barrel at the year-end. This is a faster rise than implied by the current futures curve (with a price of around USD 48 a barrel for December 2021).



	Brent		WTI		Natural gas	
2020	43.38	↗	39.63	↗	78.59	↗
2021	47.01	↗	44.24	↗	79.61	↗



	IEA	EIA	OPEC
2020	99.89	↗	93.14
2021		↗	97.61



	Production	Total capacity	Spare capacity
2020	25.76	↗	31.58
2021	29.31	↗	2.88

Source: Bloomberg, IEA, EIA, OPEC, CNB calculation

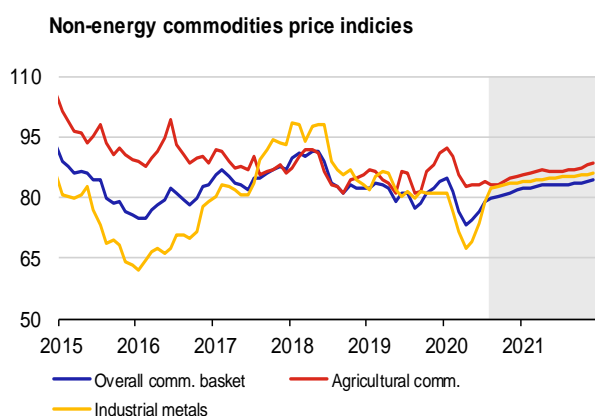
Note: Oil price at ICE, average gas price in Europe – World Bank data, smoothed by the HP filter. Future oil prices (grey area) are derived from futures and future gas prices are derived from oil prices using model. Total oil stocks (commercial and strategic) in OECD countries – IEA estimate. Production and extraction capacity of OPEC – EIA estimate.

## IV.2 Other commodities

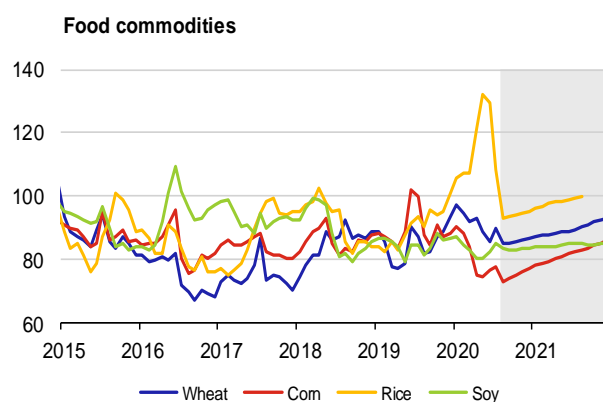
**The average price of natural gas in Europe rose slightly further in July.** This was due to lower LNG imports and lower supplies of pipeline gas caused by pipeline maintenance work. Inventories thus rose at a slower pace. Even so, they were at a record high for this time of the year at the end of July (85.5% of total capacity). Coal prices fell in July due to weakening growth in import demand from China, where production recovered from a drop in early 2020 and is now rising year on year.

**Strong growth of the industrial metals price sub-index remains the driver of the continuing growth in the aggregate non-energy commodity price index.** Base metals prices across the index have been showing a growth trend since May, and copper and nickel prices have been rising since mid-March. This is due to a gradual recovery in global manufacturing, driven mainly by growth in China. However, the growth in metals prices is also being aided by a sharply weakening dollar and improving financial market sentiment. The growth in copper prices in July was supported by a further drop in stocks on the LME. The iron ore price also rose, due mainly to growth in steel output in China. However, steel production in most other countries remains lower in year-on-year terms. Cotton and rubber prices also recorded growth, albeit more moderate.

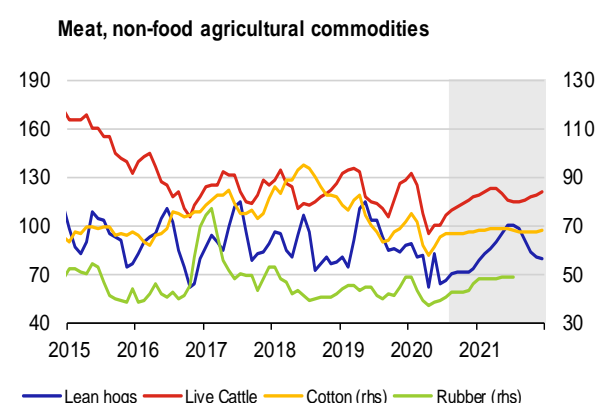
**The food commodity price sub-index returned to its May and June levels in the first half of August following slight growth in July.** Grain prices grew in early July but then gradually lost their gains. The price of corn started to decline first. The price of rice then fell sharply in mid-July, and prices of wheat and soy had also reversed their gains by the end of the month. By contrast, the price of sugar went up slightly in early August after stagnating in July. Prices of cocoa and coffee rose sharply in the second half of July, although the latter fell back partly in August. Pork and beef prices also increased slightly in the second half of July and are expected to record strong seasonal growth in the months ahead.



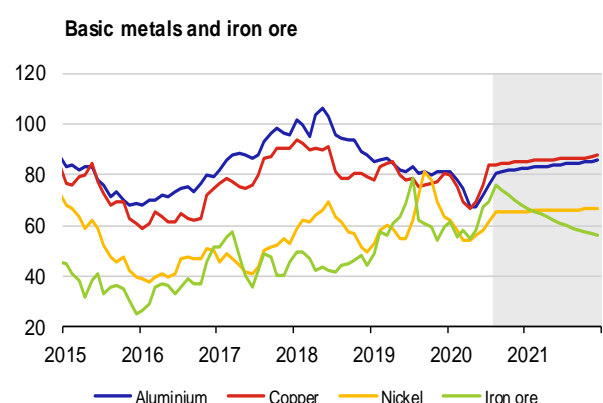
	Overall	Agricultural	Industrial
2020	79.1 ↗	85.1 ↗	77.8 ↗
2021	83.2 ↗	86.9 ↗	84.9 ↗



	Wheat	Corn	Rice	Soy
2020	89.3 ↘	78.6 ↘	107.0 ↘	83.4 ↗
2021	89.8 ↘	82.1 ↘	98.2 ↗	84.7 ↗



	Lean hogs	Live Cattle	Cotton	Rubber
2020	73.4 ↗	111.1 ↗	66.1 ↘	41.7 ↗
2021	88.6 ↘	118.5 ↗	68.0 ↘	48.4 ↗



	Aluminium	Copper	Nickel	Iron ore
2020	77.1 ↗	78.6 ↘	61.0 ↗	65.3 ↗
2021	84.1 ↗	86.2 ↘	66.1 ↗	60.9 ↗

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.

## The coal market and its future<sup>1</sup>

Despite being on the wane as an energy commodity in developed nations, coal will remain an important energy source for the production of electricity, steel, aluminium, cement and other energy-intensive products in the near future. Coal is mined in many countries and is mostly used in its country of origin. In contrast to other energy commodities, only a small proportion of output is traded internationally. A transparent coal market has developed only over the past two decades. In recent years, strong competition from natural gas and renewables and political pressures have led to coal prices falling sharply, and they are not expected to go up significantly in the long term either.

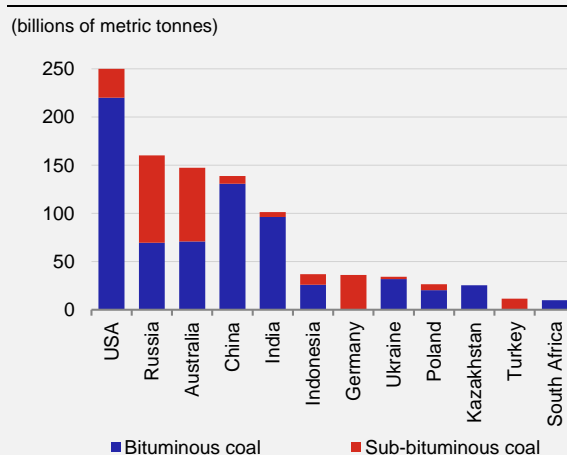
### Introduction

**Coal is a fossil fuel.** Coal reserves are distributed much more evenly around the planet than oil and gas reserves. This greatly lowers the risk of supply disruptions compared with oil or gas. In 2019, global recoverable coal reserves were around 1.07 trillion tonnes (0.75 trillion tonnes of bituminous coal and anthracite and 0.32 trillion tonnes of sub-bituminous coal and lignite). The biggest reserves of bituminous coal were in the USA (see Chart 1), followed by China, India, Australia and Russia. Russia, Australia, Germany, the USA, Turkey and Indonesia had the largest reserves of sub-bituminous coal. However, economically recoverable reserves are found in another 70 or so countries. At current rates of production and use, global coal supplies should last more than 130 years (as against 50 years for oil and natural gas at current consumption levels).

**Global coal production surged between 2000 and 2012. It peaked between 2012 and 2014 and then fell due to a decline in China and the USA, but it returned to modest growth in 2017** (see Chart 2). In 2018, global coal production reached some 7,800 million tons, most of it from underground mines and the rest from surface mining. Coal is mined in almost 70 countries, but 90% of global output was mined by the ten largest producers in 2018. The biggest producers are China, India, the USA, Indonesia, Australia and Russia. Most coal is consumed in its country of origin. Less than 20% of output is traded internationally. In 2018, the largest exporters were Indonesia, Australia, Russia, the USA, Columbia and South Africa and the biggest importers were China, India, Japan and South Korea. More and more developed countries are leaning towards cleaner sources of energy,<sup>2</sup> but coal consumption continues to grow in developing countries.

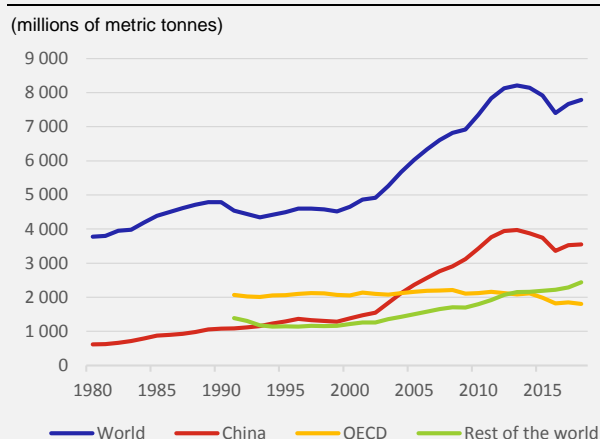
**Coal prices are determined by several main factors.** On the one hand there is growing demand from developing countries, where industrialisation, urbanisation and rising living standards are causing electricity, cement and steel consumption to surge. Acting in the other direction are the efforts of an increasing number of countries to replace coal with cleaner sources of energy. Natural gas is currently the most competitive of these. Additionally, governments, especially in developed nations, are tightening the limits on emissions, including of carbon dioxide, in an effort to slow global warming.<sup>3</sup> This is driving up the price of coal as a

Chart 1 – Recoverable coal reserves in 2019



Source: BP (2020)

Chart 2 – Development of coal production



Source: EIA

<sup>1</sup> Author: Jan Hošek. The opinions expressed in this article are those of the author and do not necessarily reflect the official position of the Czech National Bank.

<sup>2</sup> Coal is being replaced in the generation of electricity either by renewables or by natural gas, which emits more than 50% less carbon dioxide and smaller amounts of other pollutants (such as dust, sulphur dioxide and nitrogen oxides) for the same amount of electricity.

<sup>3</sup> The development and deployment of technologies to minimise the environmental impact of burning coal is also greatly increasing the cost of using coal. Desulphurisation and dust collection are common in today's coal-fired power stations. But for coal to become an "environmentally friendly" energy source, its carbon footprint would need to be lowered further. This is the purpose of CCS (carbon capture and storage)

source of energy and hence reducing the demand for it. The end cost of coal also includes the cost of transport (by rail, road or water). The transport costs depend on the cost of diesel fuel and on the transport distance, and average around 25% of the end price of coal. For longer distances, however, the transport costs can exceed the price of the coal itself at mines.

### Types and uses of coal

**Coal is a highly heterogeneous commodity and is difficult to classify into types. In general, the higher the carbon content and the lower the water and volatile content, the better the quality.** Different publications differ greatly with respect to the classification and content of the main substances and energy in coal. For example, The World Coal Association differentiates the following ranks of coal:

- **low-rank coals or brown coal** – subdivided according to the degree of coalification into:
  - **lignite or soft coal** – the youngest and lowest quality rank. It is difficult to store, has a low heat content and is not worth transporting long distances. It is used in power stations near the mine or for heating at nearby heat plants, and is cheap to produce. It makes up about 17% of global coal reserves. The largest reserves are in Germany, Poland, Greece and Romania.
  - **sub-bituminous coal** – this is better for transport and storage than lignite and is therefore suitable for burning in power stations and also for cement manufacture and industrial uses. It makes up around 30% of proved global reserves. The largest reserves are in Romania, Australia, the UK, Turkey and France.
- **bituminous or hard coal** – makes up approximately 52% of world coal reserves, is the most widely internationally traded type and is subdivided, based on rank, into:
  - **thermal or steam coal** – the main source of energy in thermal power stations; also used in cement and paper manufacture and in the chemical industry. The largest producers are Australia, Colombia, China, Russia, the USA, Indonesia and South Africa and the biggest importers are China, India,<sup>4</sup> Taiwan, Japan and Pakistan.
  - **coking or metallurgical coal** – used as a source of energy and as a reducing agent in smelting iron ore. It is also used to make coke, which is used in the steel industry. The largest producers are the USA, Canada and Australia and the largest importers are again China and India.
- **anthracite** – makes up just 1% of global coal reserves. Lower quality anthracite is used in power stations, while higher quality ranks are used in the steel industry as a substitute for coke. In the past it was used, for example, to power steam locomotives, and today it serves as a smokeless fuel. Anthracite occurs in mountainous regions, near volcanoes and in tectonically active areas, especially in the USA.

**Table 1 – Typical characteristics of coal ranks**

	Anthracite	Bituminous	Sub-bituminous	Lignite
Heat content	30-35	26-35	20-30	9-19
Moisture	< 15%	2-15%	10-45%	30-60%
Fixed carbon	85-98%	45-85%	35-45%	25-35%
Ash	10-20%	3-12%	< 10%	10-50%
Sulfur	0.6-0.8%	0.7-4.0%	< 2%	0.4-1.0%

Note: Heat content in MJ/kg, others in weight %. Another important parameter of coal is the content of volatile matter (hydrocarbons, hydrogen, oxygen and nitrogen)

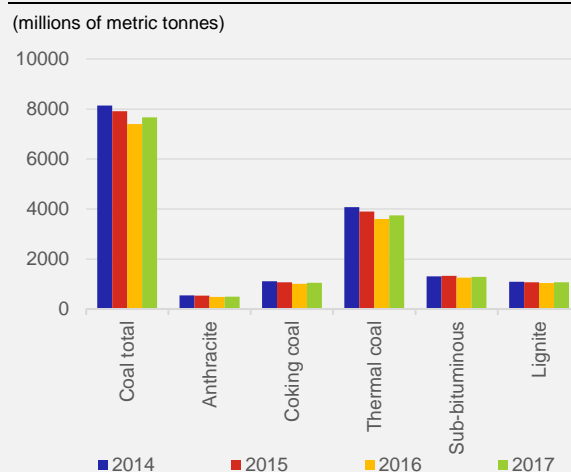
Source: *Bowen and Irwin (2008)*

### Coal consumption

**Bituminous thermal coal (steam coal) has an almost 50% share in production and consumption** (see Chart 3).

Its largest producer is China, followed by the USA, South Africa, Russia, Australia and Indonesia. The other types (besides anthracite) have roughly equal shares in global production. The largest anthracite producers are China, Vietnam, Russia and North Korea and the biggest producers of metallurgical coal are China, Australia, Russia and the USA. India is the top producer only of sub-bituminous coal, followed by the USA and Indonesia. As for lignite, China again is the top producer, closely followed by Germany. In the production of coke from coking coal, China is again the world leader by far, with Russia, India and Japan following with volumes more than ten times lower.

**Chart 3 – Coal production by rank**



Source: EIA

technology. In this process, carbon dioxide is not released into the atmosphere, but separated out of flue gases and injected into (mostly natural underground) storage reservoirs. According to the IEA, however, only a fraction of the carbon dioxide produced today is stored in this way.

<sup>4</sup> While India intends to limit coal imports and rely solely on its own coal reserves, China is winding down production in less efficient mines in an effort to reduce dust and increase hard coal imports.

**Demand for coal began to soar after 2000, especially in developing countries, primarily for power generation.** Coal provided China, India and other developing nations of South East Asia with a reliable and affordable source of electricity, allowing them to increase their pace of economic growth. Steam coal simultaneously took over the price-determining role from coking coal at this time.

**In 2018, world coal production reached 7,757 million tonnes. The largest coal consumer by far is China.** Other major consumers include India, where consumption is rising, and the USA, which, conversely, is reducing its coal use. Germany, Russia, Japan, South Africa, South Korea, Poland and Australia are also large consumers.

**According to Finnish technology company Wärtsilä, coal-fired generation in Europe in January–April 2020 dropped nearly 30% year on year, accounting for just 12% of total power output.** Though this fall in part reflects transient factors such as reduced electricity demand due to the Covid-19 pandemic and record-low gas prices, it also reflects longer-term trends such as growing capacity of renewable energy and European governments’ efforts to reduce the share of coal in power generation.

**National and regional coal trade**

**Most coal is traded under bilateral, long-term contracts between mining companies and users, mainly within single countries or regions.** These contracts allow both suppliers and users to invest in big projects and facilitate the creation of the necessary transport infrastructure. The prices of these contracts are published only from time to time, for example, in profit statements. The prices are based on the specific quality of the coal and on transport costs. They are therefore not very comparable. Chart 5 shows the average annual coal prices in the USA according to end users. Power stations accounted for about 93% of US coal use in 2018 (while coal made up just 27% of their production). The price of coking coal was around three times higher than the average price of steam coal.

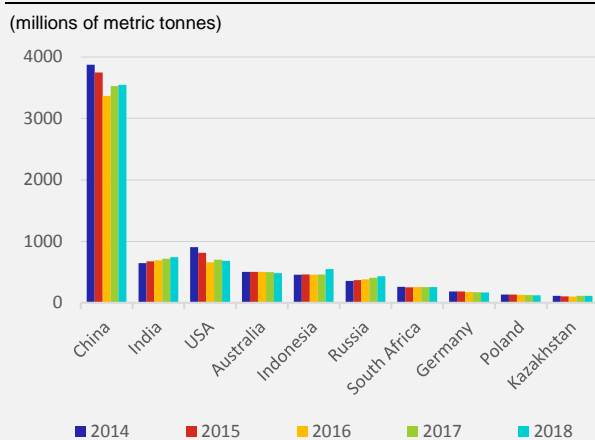
**Only a small proportion of coal is sold at spot prices.** Such deliveries are used primarily by small suppliers and users or as supplementary purchases by large users.

**Global coal trade**

**Only 18.5% of production was traded internationally in 2018.** Of that, brown coal made up only a small share. With most developed countries striving to limit coal use, global trade is being focused increasingly on Asia. The largest exporters were Indonesia, Australia, Russia, the USA, Columbia and South Africa (see Chart 7). Conversely, the largest quantities of coal were imported into China, India, Japan and South Korea (see Chart 8). The largest coal flows went from Australia to Japan, from Indonesia to China and India, and from Australia to China and India.

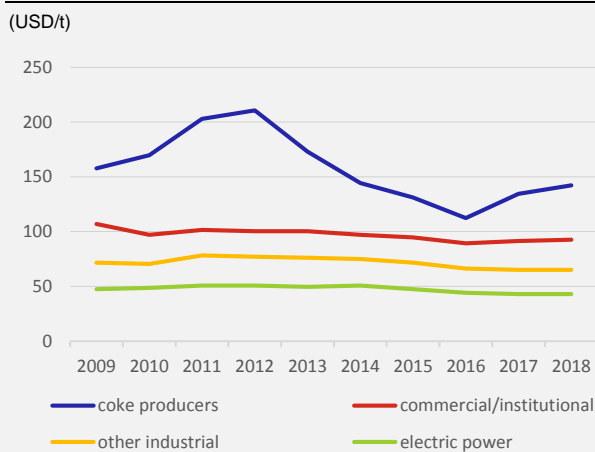
**Coal is traded in two main geographic regions – Atlantic and Asia-Pacific (see Chart 6).** The Atlantic market consists mainly of exports of coal from North and South America and Russia to Europe, while the Asia-Pacific market comprises exports of coal from Australia and Indonesia to China, India, Japan and South Korea. In the past, these two markets were relatively separate due to different transport costs. Only South Africa and Russia

**Chart 4 – Largest coal producers**



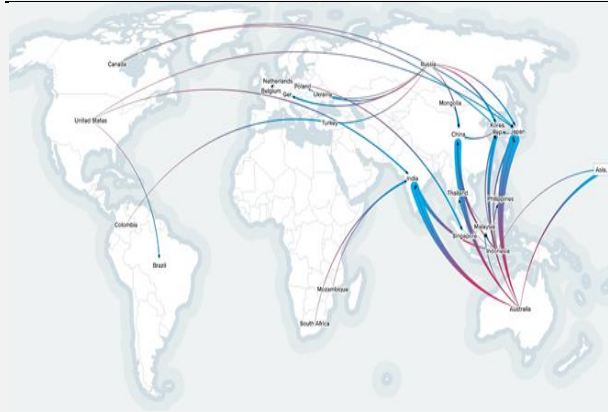
Source: EIA

**Chart 5 – Average coal prices in the USA by end-use sector**



Source: EIA

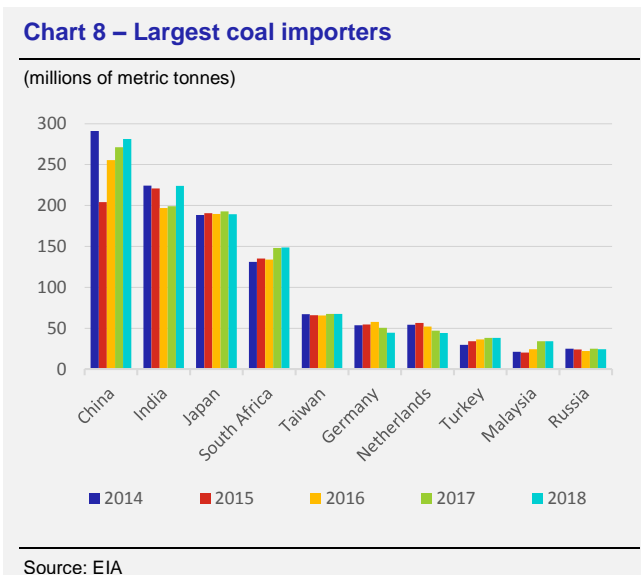
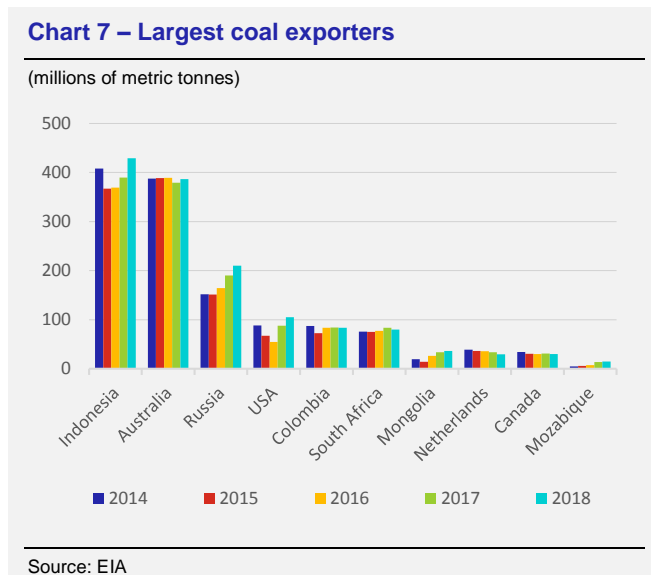
**Chart 6 – Global coal trade flows**



Source: Resourcetrade.earth

supplied coal to both regions, depending on prices. A gradual decrease in shipping costs, declining demand in importing nations, growing amounts of internationally traded coal from traditional and less traditional suppliers, and the creation of an electronic coal trading platform have gradually made the two markets more interconnected.

**Several factors contributed to the growth in internationally traded coal volumes starting in 2010.** One of these was increased coal exports from the USA, where, thanks to the shale gas revolution, natural gas dropped in price and began to replace coal in power generation. Though some producers in the USA cut coal production, others redirected part of their



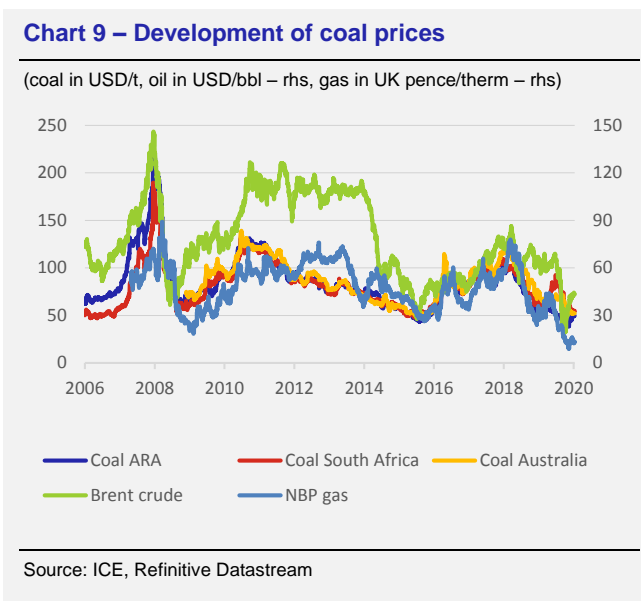
production to the international market (Asia and Europe). Due to the lower demand from the USA, Columbia also redirected its exports of thermal coal to other countries. An even stronger rise in exports was seen in Indonesia on the back of massive investment in mining. However, exports from Australia rose as well (thanks to investment in infrastructure), and Russia and South Africa also increased their output.

**The growth in demand and imports has meanwhile stemmed mainly from China, and recently from India as well.** China became a net importer of thermal coal in 2009. The rise in its consumption was dampened, however, by increased power generation at hydro-electric stations. Conversely, demand for coal in Europe was subdued, and South Korea and Japan also limited imports, with Japan opting instead for higher LNG imports to address its increased need for sources for electricity generation after shutting down nuclear power stations in 2011. In India, growth in electricity consumption has in recent years outpaced growth in domestic thermal coal production, leading to rising imports of coal. Coal imports into other developing countries in South East Asia are likewise increasing.

### Coal prices

**The public availability of coal price data was very limited until roughly the year 2000.** The market was populated mainly by mining firms and companies using coal for industrial activity. Public pricing information was obtained solely from aggregate corporate information and data and published quarterly with a delay.

**Despite coal’s heterogeneity, electronic futures and financial derivatives trading has expanded over the past 20 years.** The year 2000 saw the creation of the globalCOAL (GC) platform for pricing and global OTC coal trading. Tradable price API indices, which standardise the characteristics of the coal traded and are derived from spot prices at various export and import terminals, were developed for this platform. This enhanced pricing transparency on the coal market. Financial firms, commercial companies and hedge funds gradually joined the ranks of market participants. This rapidly increased market liquidity, and information on spot and futures prices began to be available on a daily basis. Futures contracts also started to be traded on the ICE and NYMEX exchanges. This made it possible for all market participants to manage risk, capital investments and new projects.





**The price at the export terminal in Newcastle, Australia is the benchmark for Australian coal exports (FOB).** The derived index, called globalCOAL NEWC, is based on online data from globalCOAL. It is used mainly to set prices of exports of thermal coal from Australia to Asian countries. Exports to Japan and South Korea are based on long-term contracts with annual price setting. Exports to most other destinations, including China, are based on spot market prices.

**Another FOB benchmark is the price of thermal coal at the export terminal in Richards Bay in South Africa.** The derived price index – API4 – is compiled using prices published in the Argus/McCloskey Coal Price Index Report (CPIR).

**The price at northern European ports (Amsterdam, Rotterdam, Antwerp – ARA) serves as the benchmark for coal imports (CIF) to Europe.** The API2 index (also based on the Argus/McCloskey CPIR) is used for coal imported into Europe from Russia, South Africa, Colombia, Indonesia, Australia and other countries.<sup>5</sup>

**Since the end of 2008, prices of futures contracts for coal from various areas of the world have converged. They are correlated more closely with natural gas prices than with crude oil prices (see Chart 9).** Coal prices are less volatile than both oil prices and natural gas prices. Until roughly the third quarter of 2008, there was quite a big difference between prices of supplies from different regions. However, this gap then narrowed appreciably and prices converged. As expected, coal prices are correlated much more closely with natural gas prices (in Europe the National Balancing Point – NBP) than with Brent crude oil prices. This is because oil and coal are not direct substitutes. Oil, with certain exceptions, is not used in electricity generation or in the steel industry, and, conversely, only a small proportion of coal is used as a fuel production input. Furthermore, oil prices are often also affected by OPEC policy. The prices of the two commodities thus react differently to specific supply-side factors. Nevertheless, they are both affected by demand factors over the economic cycle and by transport costs, which are highly dependent on the price of diesel fuel. Conversely, natural gas is a direct competitor to coal, and this competition is being increased by the construction of new gas-fired power stations and by a decline in prices of natural gas resulting from strong growth in output and improved transport options in LNG form.

**The decline in coal consumption in Europe has resulted in a drop in trading activity and hedging requirements, and hence also liquidity, on the coal market** (Walker, 2020). Physical liquidity on the European market has declined to a third of the level ten years ago. Along with this, coal futures volumes on the ICE are also falling.<sup>6</sup> Traders and speculators are moving to other energy commodity markets, especially the natural gas and LNG market, or to the more liquid coal markets of the Asia-Pacific region.<sup>7</sup>

**There is no unified and transparent pricing mechanism for sub-bituminous coal.** Compared with bituminous coal, sub-bituminous coal has a low energy content relative to its volume, so its transport costs are many times higher. It is therefore not economical to transport sub-bituminous coal over long distances, so trade links only exist between regional firms, and pricing is conditional on region as well. In some countries (India, for example) prices are centrally regulated.

## Coal transport

**Various means of transport are used to ship coal from mines to consumers.** Belt conveyors can be used to deliver coal to power stations near mines. Coal is most frequently transported to more distant locations by rail or river. Road transport is used for only a small fraction of coal. For long distances and between continents, ocean-going ships designed for shipping dry materials are used. The price of such shipping can thus be a significant component of the end price of coal. In terms of transport, the global market is split into two major regions – Atlantic and Asia-Pacific.

## Coal as a controversial commodity

**Coal made a big contribution to the industrial revolution, but developed nations are now phasing out its use in the energy industry.** This is because of the large quantities of greenhouse gases (carbon dioxide) released into the atmosphere when coal is burned, which contribute to global warming. With stricter environmental protection requirements, the costs of desulphurisation and installation of dust filters at coal-fired power stations are also rising. The coal mining process itself is also controversial, with its impacts on the environment and the development of cities near coal mines, not to mention work safety in mines and the effects of a dusty environment on miners' health. Also, coal mining releases methane – considered to be a more dangerous greenhouse gas than carbon dioxide – into the atmosphere. That said, oil and gas

<sup>5</sup> There is likewise a benchmark for coal imports to southern China. The derived index – API8 – is based on prices published in the CPIR.

<sup>6</sup> Contracts for thermal and coking coal with delivery in Northwest Europe (ARA) make up the largest share of coal trades on the ICE. These are used for risk management in the Atlantic region. A smaller share of trades pertains to coal loaded at the coal terminal in Newcastle (Australia). These contracts are instruments for managing risk in the Asia-Pacific region. Contracts for coal originating at the Richards Bay coal terminal in South Africa make up just a few per cent of the total. Thanks to its strategic position, Richards Bay interconnects the Atlantic and Asia-Pacific coal markets. The price of each rank of coal is based on the API price indices published in the Argus/McCloskey reports (Rotterdam, Richards Bay) or on the globalCOAL monthly NEWC index (Newcastle).

<sup>7</sup> If investors want to have their investments linked to coal prices, they have the option of investing in ETF funds, which have companies in their portfolios whose earnings derive from coal production and transport, mining equipment manufacture, and coal storage and trading. Alternatively, they can invest directly in the shares of these firms or speculate on their prices (and hence coal prices) through contracts for difference (CFDs) without needing to own these shares.

production faces the same problem. Finally, closing mines also involves major outlays on restoring the landscape to an acceptable state.

### The future of coal

**Coal was a major driver of economic development in the last century. Now, however, it has fallen out of favour<sup>8</sup> as a source of power and heat generation.** This is because burning coal generates large quantities of undesirable substances (such as dust, ash, carbon dioxide, sulphur dioxide and nitrogen oxides) that greatly contribute to environmental pollution and global warming. As part of the fight against climate change, most developed nations have committed to stop using coal as a source of heat in the energy industry by 2030. Some developing countries plan to end coal-fired generation by 2050. Coal is thus set to be replaced with renewable energy sources. Between 2013 and 2016, it seemed that coal consumption had peaked and the expected and welcome decline had begun (especially in China). But in 2017 and 2018 it started rising modestly again, indicating that it might stabilise rather than decline. The factors contributing to lower coal use include rapid growth in shale gas extraction in the USA and especially a large decrease in the cost of generating power using renewables. Another factor in Europe is the rapidly rising price of carbon emission allowances. However, coal use is declining mainly in the developed OECD nations. One of the front-runners in reducing coal consumption is France, which wants to cut its coal-fired generation to zero by 2021. The UK and Canada are following suit, aiming to achieve this state by 2025. However, in many Asian countries, where electricity consumption is growing rapidly, alternative energy sources are merely slowing the growth in coal consumption. The countries with the greatest incentive to limit coal use are those that are importers and negligible producers of this commodity. Conversely, in countries with robust mining industries (such as Germany, Poland, the USA and China), reducing coal use is a politically charged issue. Air pollution in cities in China and India is already threatening the health of the local population so much that the governments of these countries are also planning to phase out coal production and introduce new, renewable energy sources. On the other hand, investment in new coal-fired power stations is still planned, especially in India and the middle-income countries of Southeast Asia, which expect strong growth in electricity demand.

**According to an EIA forecast (2020a), less than a quarter of the world's electricity will be generated from coal by 2050.** Worldwide electricity generation is projected to grow at an average pace of 1.8% per year. However, the growth in OECD countries will be only weak. The shares of the various sources will change dramatically. Renewables are expected to account for almost half of total electricity generation by 2050. The share of natural gas will also grow strongly, while that of coal and nuclear energy will decrease. However, the trends in consumption, emissions reduction and renewables deployment will vary across regions.

**According to the Reference Case of the EIA (2019), coal production and consumption will remain near their current levels until 2050, with long-term growth expected only in India and South-East Asia.** China will remain the largest producer and user of coal in 2050, but its coal consumption will decline for both electricity generation and industrial use and thus continue to move away from its 2013 peak. In OECD countries, coal consumption will decrease until 2025 and then stabilise. In India, by contrast, coal consumption will increase both for power generation and for use in industry. Nevertheless, the share of renewables in power generation will grow sharply in India, too. Global coal trading will increase due to growing demand from India and South-East Asian countries. Trade in metallurgical coal will grow for the same reason. Australia and Indonesia will remain the largest exporters of coal.

**IEA (2019) differentiates two future coal use scenarios. Its Stated Policies Scenario is similar to the EIA's Reference Case. The IEA, however, also considers a Sustainable Development Scenario.** The IEA's baseline scenario assumes that global coal production and use stays at roughly the current level until 2040, while consumption falls in Europe (due to the high cost of carbon dioxide emission allowances and the commitments of certain countries) and in North America (due to competition from natural gas). This, however, is offset by growing coal use in the Asia-Pacific region (except China, where there is strong government pressure to improve air quality). The share of coal in power generation, however, declines in all regions, falling below that of natural gas on average. The share of renewables also rises everywhere. The Sustainable Development Scenario assumes a much steeper decline in coal use (at an annual rate of 4.2% on average until 2040). By 2040, world coal use is 60% lower than in the baseline scenario and coal's share in power generation falls towards 10%. The development and deployment of CCS technologies would foster greater coal use. For now, however, the use of these technologies lags well behind needs in terms of reducing the carbon footprint of coal power.

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<sup>8</sup> Back in 2007, MIT published a large interdisciplinary study on the future of coal, in which the authors concluded that coal, as the cheapest commodity, had a future in the form of carbon capture and storage (CCS), which would make it possible to increase electricity production from coal-fired thermal power stations with the same or decreasing emissions. However, CCS technology has not yet been deployed successfully on a large scale, and on the other hand the costs of technology for generating power using renewable sources have dropped markedly. Despite suffering from large swings in operating output, these (mostly wind and solar) power stations – when combined with flexible gas power stations, which are benefiting from a dramatic fall in natural gas prices – can currently (even without subsidies) be economically viable competitors to coal-fired power stations. The increasingly stringent requirements to capture pollutant emissions and the rising cost of carbon emission allowances are conversely making coal-fired power stations more and more expensive to run.

**Although coal's share in power generation is set to decline in all scenarios, the use of coal in industry will rise.** Coal will remain irreplaceable in the metals and steel industry, cement manufacture and the chemical industry.

**According to the IEA, investment in coal mining has been declining since 2013.** This is due to uncertainty surrounding future demand, political pressures in the fight against global warming and air pollution, and falling prices of renewables and natural gas. Most banks are not inclined to finance coal mining projects either. Unfortunately, though, the baseline scenario does not currently contain any major support for investment to reduce coal mine methane leakage or for investment in carbon capture and storage.

## Conclusion

**Coal still has the largest share in the global energy mix, but there are big differences across regions.** Thanks to its affordability, coal is by far the largest source of energy in the industries of China, India and the developing economies of South-East Asia. In the rest of the developed world, however, there is a strong tendency to replace coal with natural gas, especially outside the metals and steel industry. Besides power generation, roughly a third of coal is used in industry, and no decline in consumption is forecasted there. On the other hand, in electricity generation, coal faces stiff competition (especially in developed economies) due to falling prices of natural gas and renewables. In these countries (and in China), there are also efforts to limit coal use through political pressure in the fight against global warming and in China in the interests of cleaner air. Barring a breakthrough in the use of carbon capture and storage technology, the share of coal in the energy mix will gradually shrink, initially mainly in developed countries and later also in developing economies. Coal will be replaced in the medium term by natural gas and in the longer term by renewables. Besides technical progress, political factors will continue to play a major role, strongly affecting market fundamentals.

**Investment in coal mining is on a downward trend.** This is due to uncertainty regarding future demand, political pressures in the fight against climate change and air pollution, and falling prices of renewables and natural gas. Demand for coal will decline as outdated coal-fired power stations are shut down and not replaced with new ones.

**For the reasons given above, coal prices are not expected to go up significantly.** In real terms, they will stay roughly at their current levels.

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## Keywords

Coal production, coal use, coal prices, future of coal

## JEL classification

L71, Q02, Q31, Q32, Q35, Q37, Q41

## A1. Change in predictions for 2020

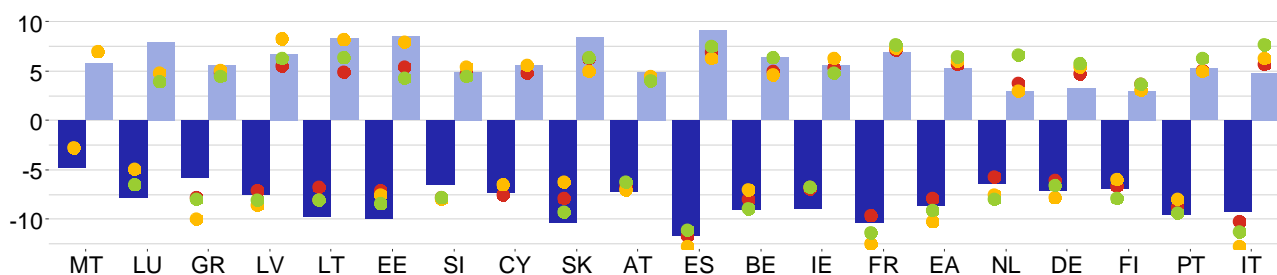
	GDP growth, %				Inflation, %			
	CF	IMF	OECD	CB / EIU	CF	IMF	OECD	CB / EIU
EA	+0.2	-2.7	-9.9	-9.5	0	-1.2	-0.7	-0.8
	2020/8	2020/6	2020/6	2020/6	2020/8	2020/4	2020/6	2020/6
	2020/7	2020/4	2020/3	2020/3	2020/7	2019/10	2019/11	2020/3
US	+0.1	-2.1	-9.2	-8.5	+0.1	-1.7	-0.6	-1.1
	2020/8	2020/6	2020/6	2020/6	2020/8	2020/4	2020/6	2020/6
	2020/7	2020/4	2020/3	2019/12	2020/7	2019/10	2019/11	2019/12
UK	-0.7	-3.7	-12.3	+4.5	-0.1	-0.7	-1.5	-0.3
	2020/8	2020/6	2020/6	2020/8	2020/8	2020/4	2020/6	2020/8
	2020/7	2020/4	2020/3	2020/5	2020/7	2019/10	2019/11	2020/5
JP	-0.2	-0.6	-6.2	-0.7	+0.1	-1.1	-1.4	0
	2020/8	2020/6	2020/6	2020/7	2020/8	2020/4	2020/6	2020/7
	2020/7	2020/4	2020/3	2020/4	2020/7	2019/10	2019/11	2020/4
CN	+0.4	-0.2	-7.5	+0.4	0	+0.6	+1.6	-0.3
	2020/8	2020/6	2020/6	2020/6	2020/8	2020/4	2020/6	2020/6
	2020/7	2020/4	2020/3	2020/6	2020/7	2019/10	2019/11	2020/6
RU	-0.2	-1.1	-9.2	-0.9	-0.2	-0.4	-1.1	-0.7
	2020/7	2020/6	2020/6	2020/7	2020/7	2020/4	2020/6	2020/7
	2020/6	2020/4	2020/3	2020/6	2020/6	2019/10	2019/11	2020/6

## A2. Change in predictions for 2021

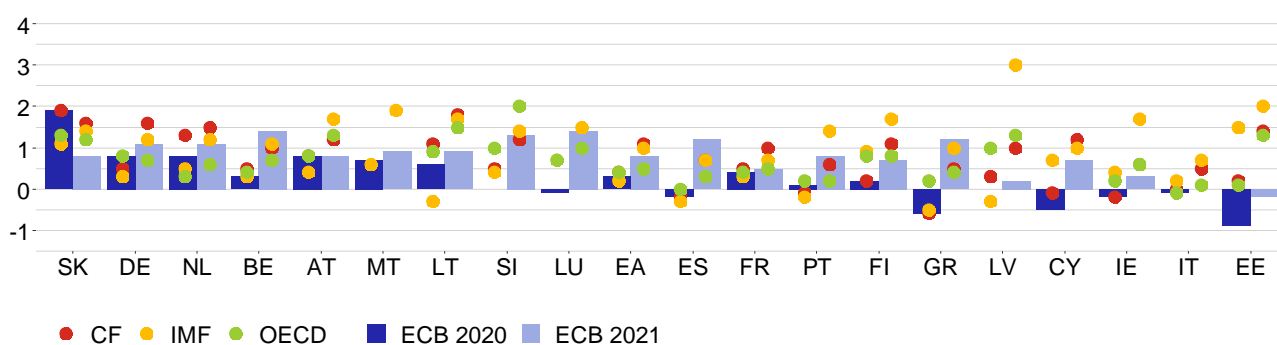
	GDP growth, %				Inflation, %			
	CF	IMF	OECD	CB / EIU	CF	IMF	OECD	CB / EIU
EA	+0.2	-2.7	-9.9	-9.5	0	-1.2	-0.7	-0.8
	2020/8	2020/6	2020/6	2020/6	2020/8	2020/4	2020/6	2020/6
	2020/7	2020/4	2020/3	2020/3	2020/7	2019/10	2019/11	2020/3
US	+0.1	-2.1	-9.2	-8.5	+0.1	-1.7	-0.6	-1.1
	2020/8	2020/6	2020/6	2020/6	2020/8	2020/4	2020/6	2020/6
	2020/7	2020/4	2020/3	2019/12	2020/7	2019/10	2019/11	2019/12
UK	-0.7	-3.7	-12.3	+4.5	-0.1	-0.7	-1.5	-0.3
	2020/8	2020/6	2020/6	2020/8	2020/8	2020/4	2020/6	2020/8
	2020/7	2020/4	2020/3	2020/5	2020/7	2019/10	2019/11	2020/5
JP	-0.2	-0.6	-6.2	-0.7	+0.1	-1.1	-1.4	0
	2020/8	2020/6	2020/6	2020/7	2020/8	2020/4	2020/6	2020/7
	2020/7	2020/4	2020/3	2020/4	2020/7	2019/10	2019/11	2020/4
CN	+0.4	-0.2	-7.5	+0.4	0	+0.6	+1.6	-0.3
	2020/8	2020/6	2020/6	2020/6	2020/8	2020/4	2020/6	2020/6
	2020/7	2020/4	2020/3	2020/6	2020/7	2019/10	2019/11	2020/6
RU	-0.2	-1.1	-9.2	-0.9	-0.2	-0.4	-1.1	-0.7
	2020/7	2020/6	2020/6	2020/7	2020/7	2020/4	2020/6	2020/7
	2020/6	2020/4	2020/3	2020/6	2020/6	2019/10	2019/11	2020/6

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

GDP growth in the euro area countries in 2020 and 2021, %



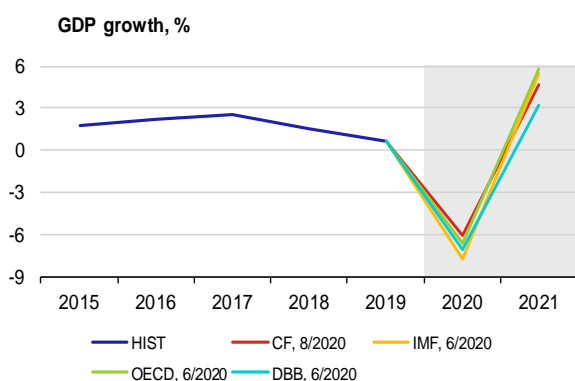
Inflation in the euro area countries in 2020 and 2021, %



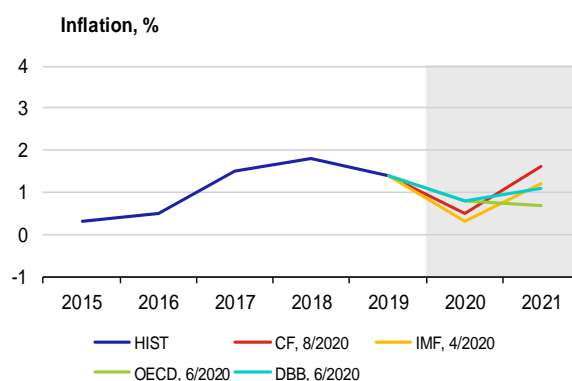
Note: Charts show institutions' latest available outlooks of for the given country.

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

#### Germany

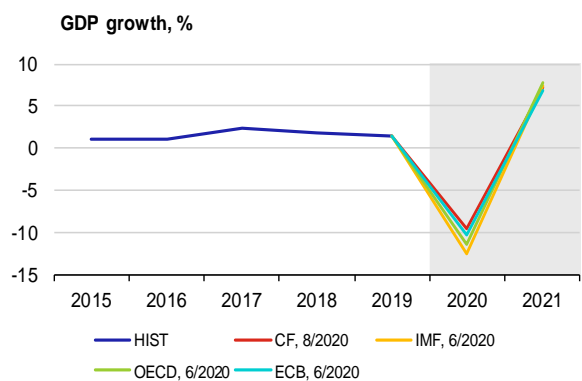


	CF	IMF	OECD	DBB
2020	-6.1	-7.8	-6.6	-7.1
2021	4.7	5.4	5.8	3.2

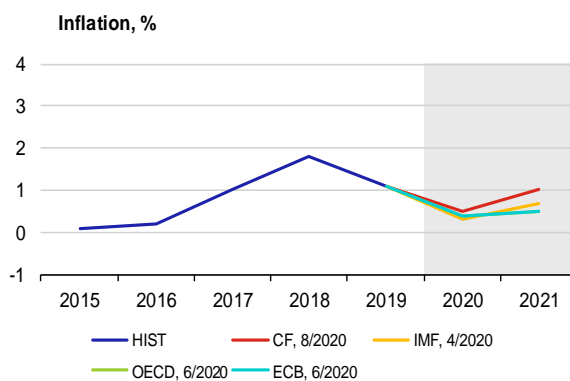


	CF	IMF	OECD	DBB
2020	0.5	0.3	0.8	0.8
2021	1.6	1.2	0.7	1.1

## France

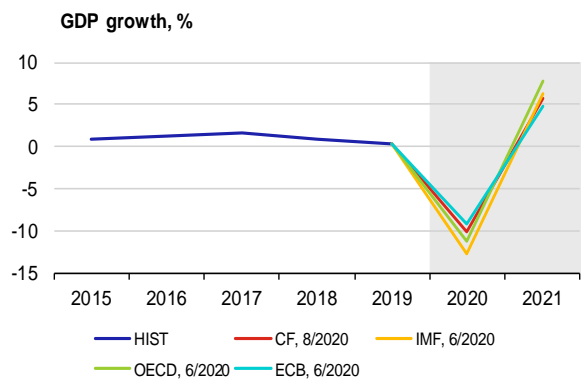


	CF	IMF	OECD	ECB
2020	-9.6	-12.5	-11.4	-10.3
2021	7.2	7.3	7.7	6.9

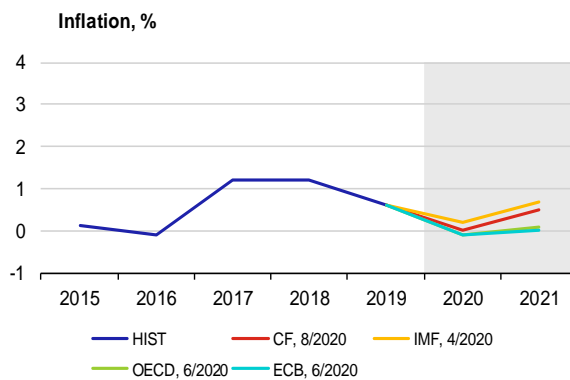


	CF	IMF	OECD	ECB
2020	0.5	0.3	0.4	0.4
2021	1.0	0.7	0.5	0.5

## Italy

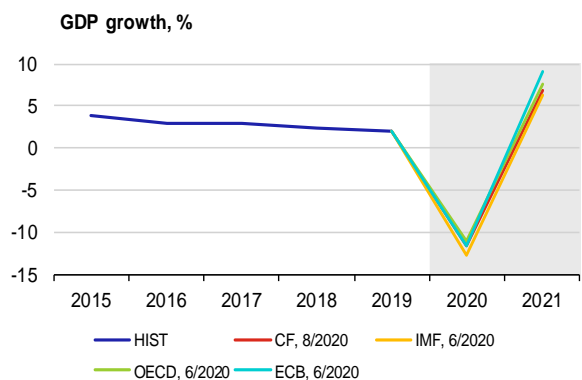


	CF	IMF	OECD	ECB
2020	-10.2	-12.8	-11.3	-9.2
2021	5.7	6.3	7.7	4.8

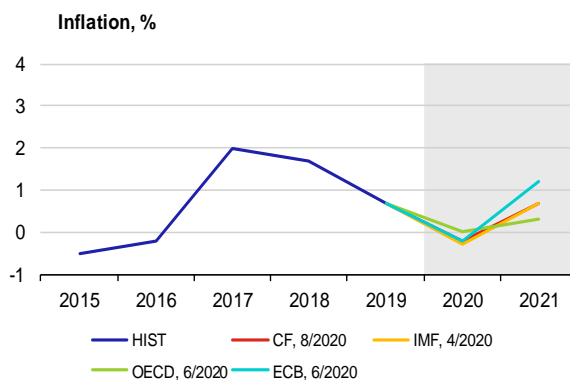


	CF	IMF	OECD	ECB
2020	0.0	0.2	-0.1	-0.1
2021	0.5	0.7	0.1	0.0

## Spain

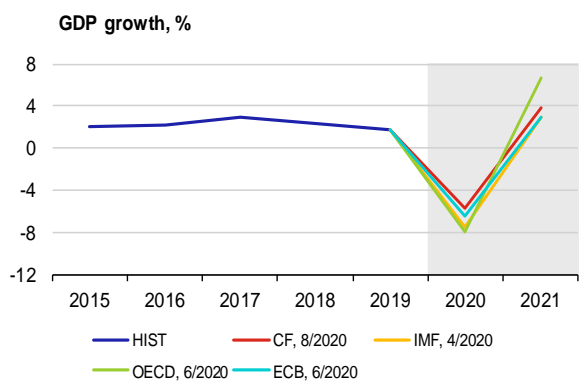


	CF	IMF	OECD	ECB
2020	-11.7	-12.8	-11.1	-11.6
2021	6.9	6.3	7.5	9.1

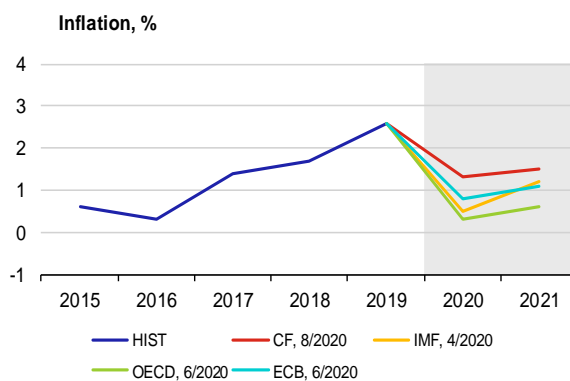


	CF	IMF	OECD	ECB
2020	-0.2	-0.3	0.0	-0.2
2021	0.7	0.7	0.3	1.2

## Netherlands

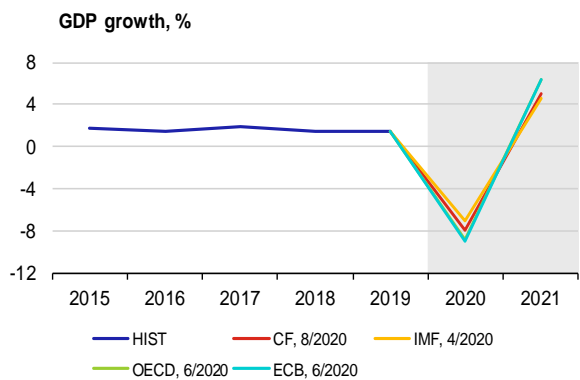


	CF	IMF	OECD	ECB
2020	-5.7	-7.5	-8.0	-6.4
2021	3.8	3.0	6.6	2.9

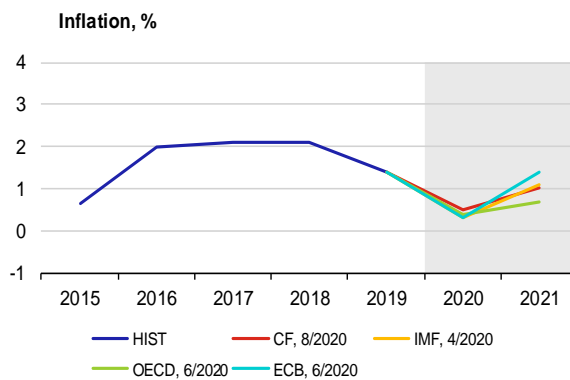


	CF	IMF	OECD	ECB
2020	1.3	0.5	0.3	0.8
2021	1.5	1.2	0.6	1.1

## Belgium

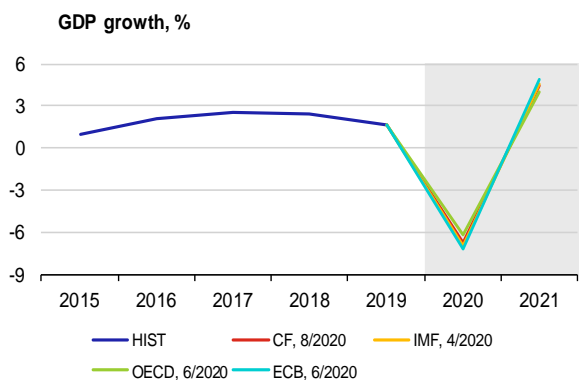


	CF	IMF	OECD	ECB
2020	-8.0	-7.0	-8.9	-9.0
2021	5.0	4.6	6.4	6.4

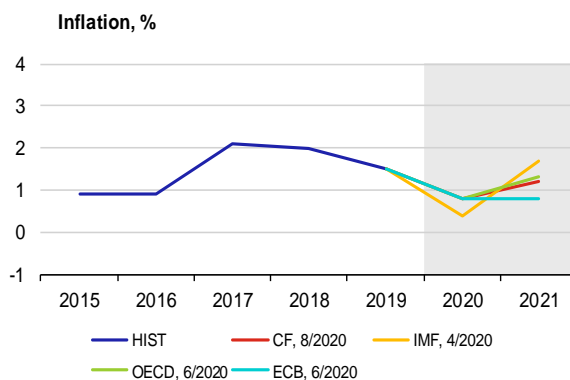


	CF	IMF	OECD	ECB
2020	0.5	0.3	0.4	0.3
2021	1.0	1.1	0.7	1.4

## Austria

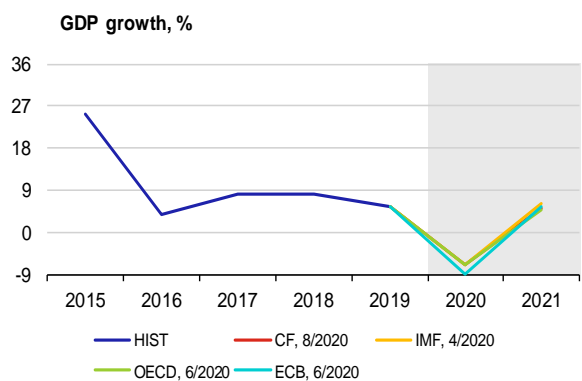


	CF	IMF	OECD	ECB
2020	-6.8	-7.0	-6.2	-7.2
2021	4.4	4.5	4.0	4.9

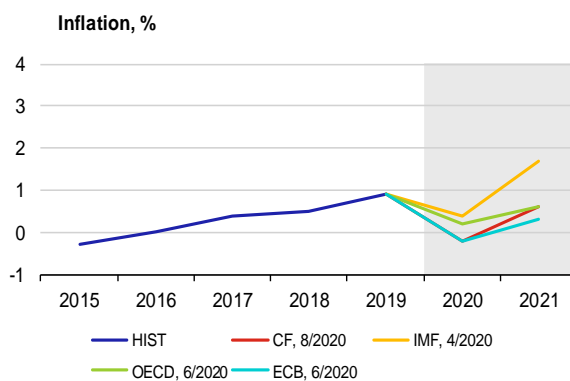


	CF	IMF	OECD	ECB
2020	0.8	0.4	0.8	0.8
2021	1.2	1.7	1.3	0.8

## Ireland

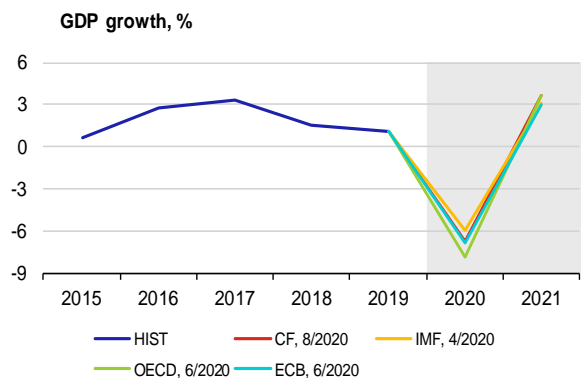


	CF	IMF	OECD	ECB
2020	-6.9	-6.8	-6.8	-8.9
2021	5.3	6.3	4.8	5.6

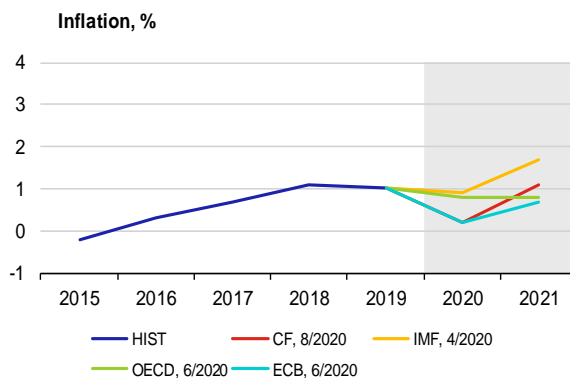


	CF	IMF	OECD	ECB
2020	-0.2	0.4	0.2	-0.2
2021	0.6	1.7	0.6	0.3

## Finland

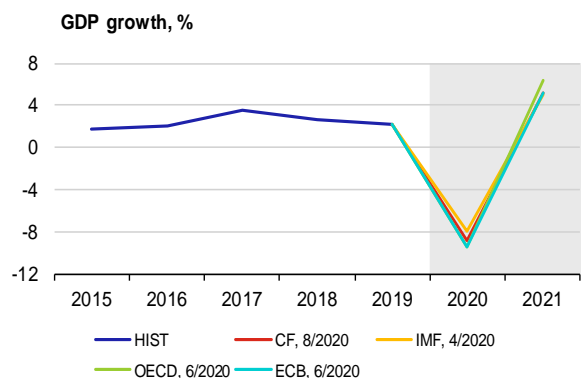


	CF	IMF	OECD	ECB
2020	-6.7	-6.0	-7.9	-6.9
2021	3.7	3.1	3.7	3.0

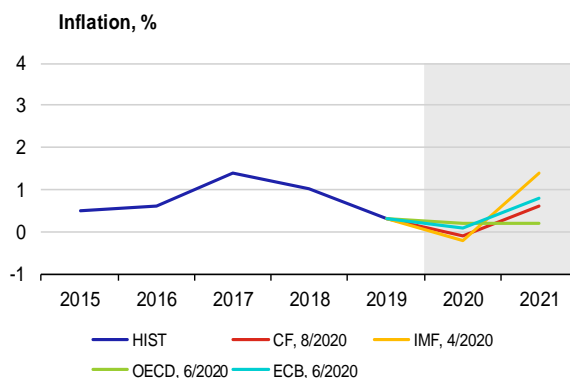


	CF	IMF	OECD	ECB
2020	0.2	0.9	0.8	0.2
2021	1.1	1.7	0.8	0.7

## Portugal



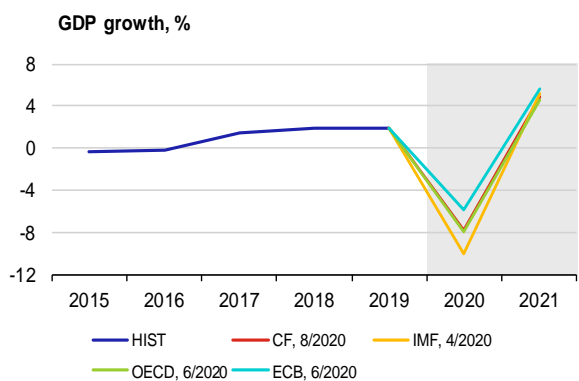
	CF	IMF	OECD	ECB
2020	-8.8	-8.0	-9.4	-9.5
2021	5.1	5.0	6.3	5.2



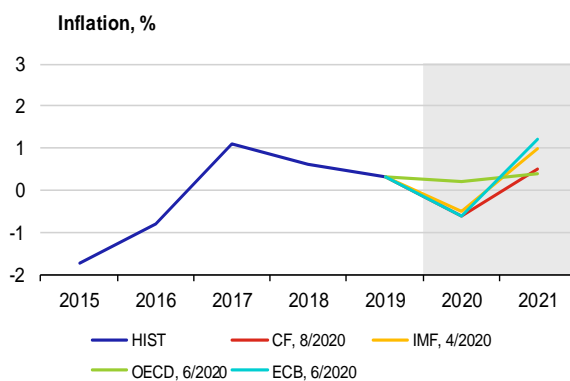
	CF	IMF	OECD	ECB
2020	-0.1	-0.2	0.2	0.1
2021	0.6	1.4	0.2	0.8



### Greece

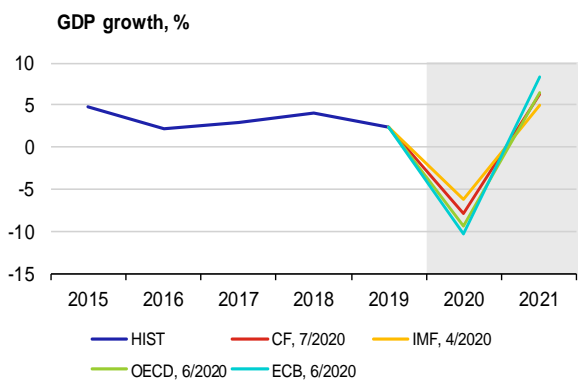


	CF	IMF	OECD	ECB
2020	-7.8	-10.0	-8.0	-5.8
2021	4.8	5.1	4.5	5.6

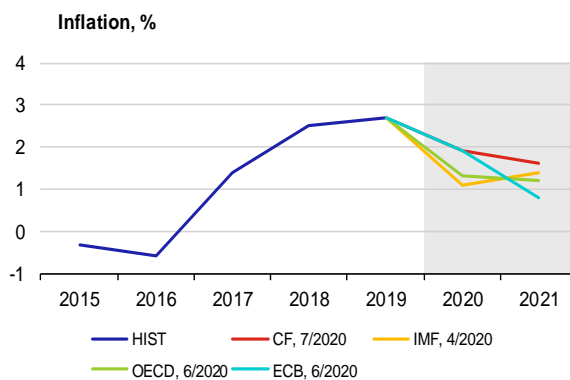


	CF	IMF	OECD	ECB
2020	-0.6	-0.5	0.2	-0.6
2021	0.5	1.0	0.4	1.2

### Slovakia

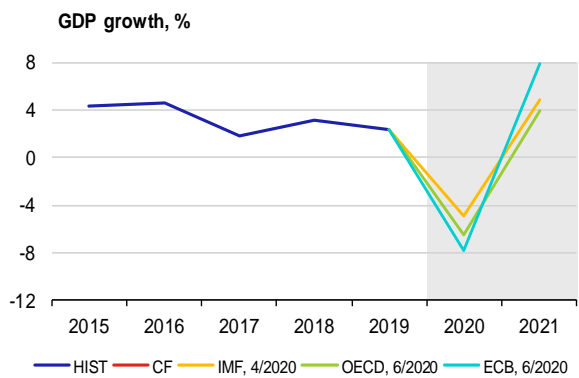


	CF	IMF	OECD	ECB
2020	-7.9	-6.2	-9.3	-10.3
2021	6.3	5.0	6.4	8.4

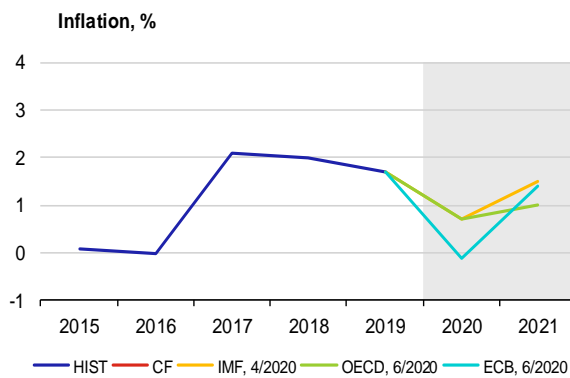


	CF	IMF	OECD	ECB
2020	1.9	1.1	1.3	1.9
2021	1.6	1.4	1.2	0.8

### Luxembourg

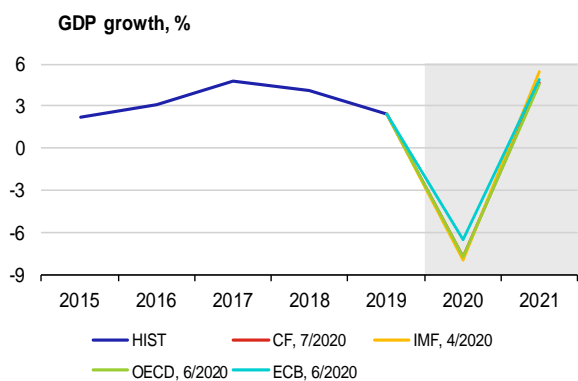


	CF	IMF	OECD	ECB
2020	n. a.	-4.9	-6.5	-7.8
2021	n. a.	4.8	3.9	7.9

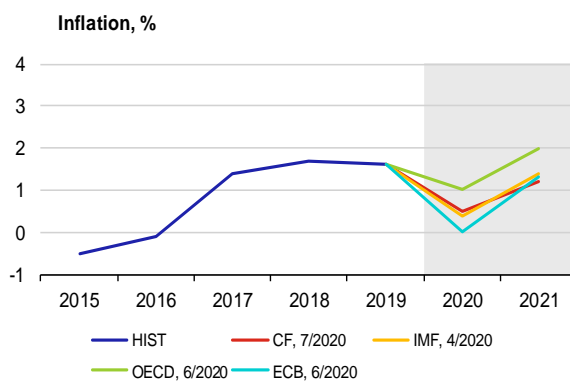


	CF	IMF	OECD	ECB
2020	n. a.	0.7	0.7	-0.1
2021	n. a.	1.5	1.0	1.4

### Slovenia

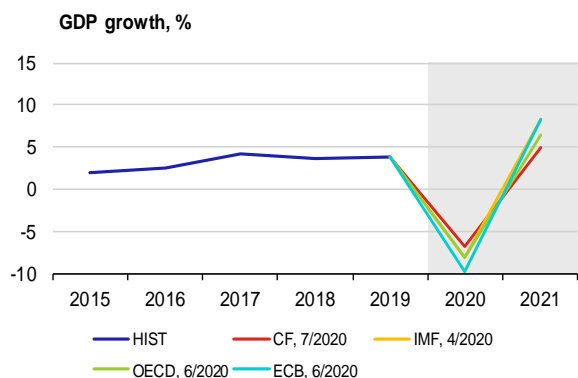


	CF	IMF	OECD	ECB
2020	-7.8	-8.0	-7.8	-6.5
2021	4.7	5.4	4.5	4.9

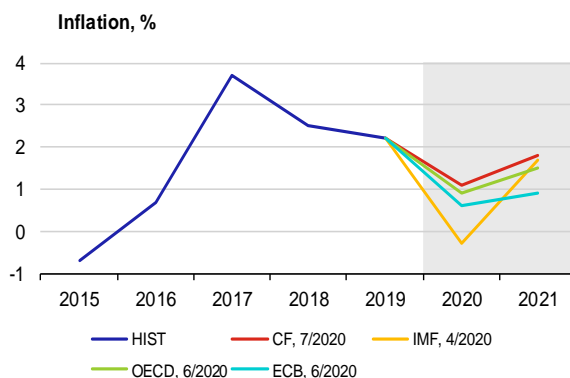


	CF	IMF	OECD	ECB
2020	0.5	0.4	1.0	0.0
2021	1.2	1.4	2.0	1.3

### Lithuania

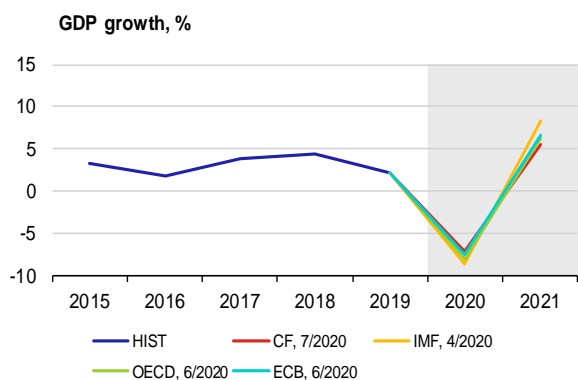


	CF	IMF	OECD	ECB
2020	-6.8	-8.1	-8.1	-9.7
2021	4.9	8.2	6.4	8.3

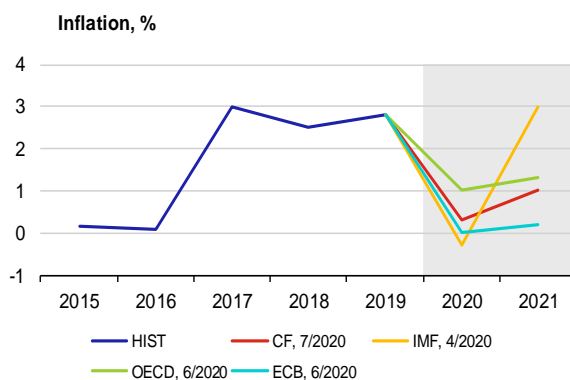


	CF	IMF	OECD	ECB
2020	1.1	-0.3	0.9	0.6
2021	1.8	1.7	1.5	0.9

### Latvia

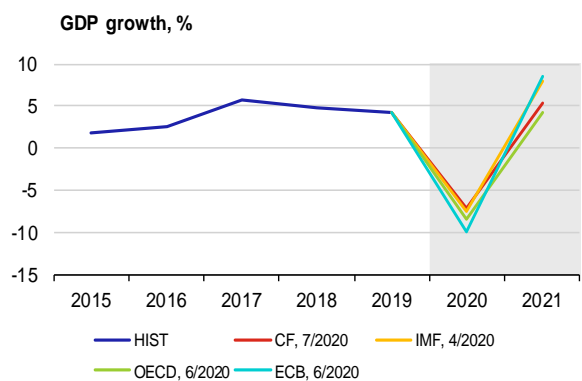


	CF	IMF	OECD	ECB
2020	-7.1	-8.6	-8.1	-7.5
2021	5.5	8.3	6.3	6.7

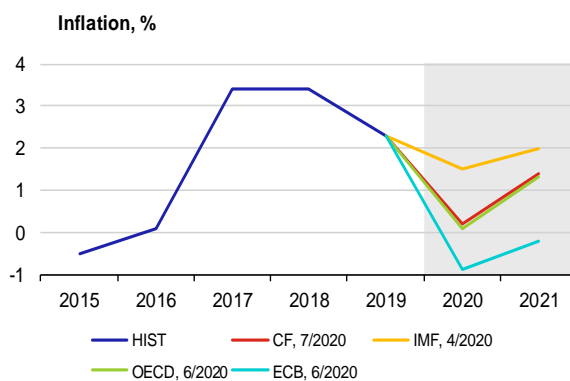


	CF	IMF	OECD	ECB
2020	0.3	-0.3	1.0	0.0
2021	1.0	3.0	1.3	0.2

### Estonia

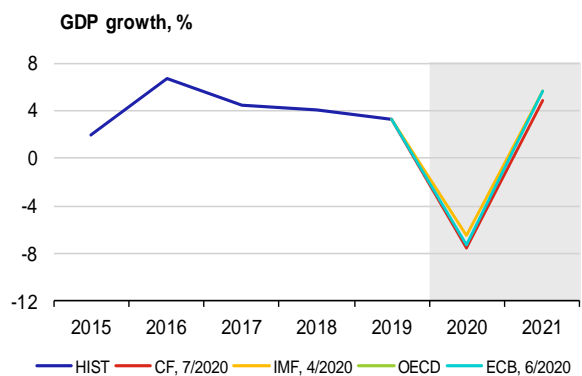


	CF	IMF	OECD	ECB
2020	-7.1	-7.5	-8.4	-10.0
2021	5.4	7.9	4.3	8.5

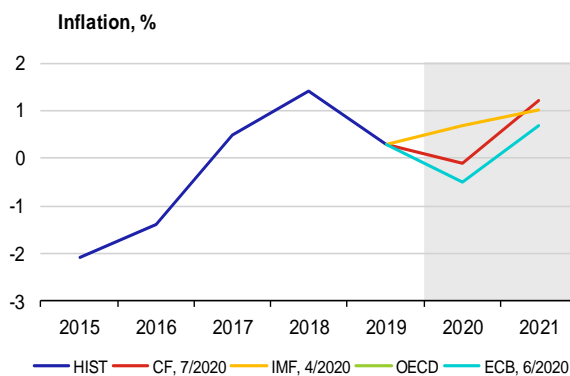


	CF	IMF	OECD	ECB
2020	0.2	1.5	0.1	-0.9
2021	1.4	2.0	1.3	-0.2

### Cyprus

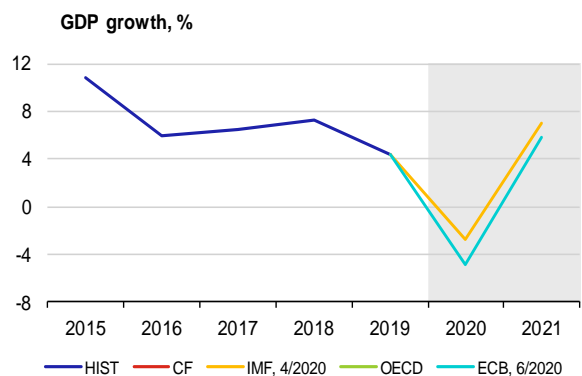


	CF	IMF	OECD	ECB
2020	-7.5	-6.5	n. a.	-7.3
2021	4.8	5.6	n. a.	5.6

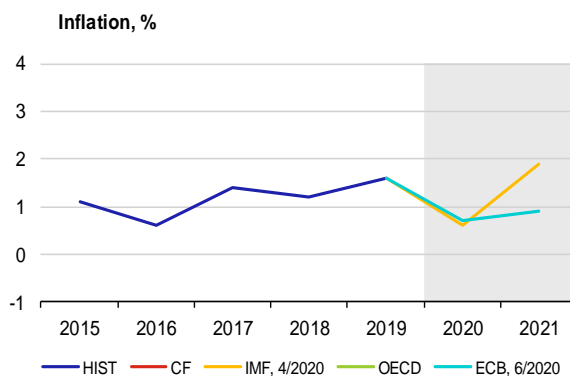


	CF	IMF	OECD	ECB
2020	-0.1	0.7	n. a.	-0.5
2021	1.2	1.0	n. a.	0.7

### Malta



	CF	IMF	OECD	ECB
2020	n. a.	-2.8	n. a.	-4.8
2021	n. a.	7.0	n. a.	5.8



	CF	IMF	OECD	ECB
2020	n. a.	0.6	n. a.	0.7
2021	n. a.	1.9	n. a.	0.9

## A5. List of abbreviations

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



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