

# Global Economic Outlook

December 2020



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## Cut-off date for data

11 December 2020

## CF survey date

7 December 2020

## GEO publication date

18 December 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: “A vaccine is on its way, but the situation isn’t improving”.** The UK became the first advanced country to roll out a vaccine, with other countries expected to gradually follow suit. With the arrival of winter, the epidemic situation is deteriorating not only in key world economies such as the USA and Germany, but elsewhere too. This is reflected in the daily increase in cases worldwide, which again exceeds 600,000. After more than four years of protracted negotiations – the cost of which alone has been huge (financial, human, time) – EU and UK leaders had still not reached a deal on 13 December 2020. A fiscal stimulus agreement has yet to be struck in the USA, but the risk of a federal freeze has so far been averted by Congress. There was also good news in December, though. The EU summit managed to break the stalemate on the seven-year EU budget and recovery fund, which had been blocked by Hungary and Poland. Among other

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

| GDP  | EA     | DE     | US     | UK      | JP     | CN    | RU     |
|------|--------|--------|--------|---------|--------|-------|--------|
| 2020 | -7.3 ➡ | -5.4 ↗ | -3.6 ↗ | -11.1 ↘ | -5.3 ↗ | 2.1 ↗ | -3.8 ↗ |
| 2021 | 4.7 ➡  | 3.9 ↗  | 4.0 ↗  | 5.3 ↗   | 2.6 ↗  | 8.0 ↗ | 3.1 ➡  |

| Inflation | EA    | DE    | US    | UK    | JP    | CN    | RU    |
|-----------|-------|-------|-------|-------|-------|-------|-------|
| 2020      | 0.3 ➡ | 0.5 ➡ | 1.2 ➡ | 0.9 ➡ | 0.0 ➡ | 2.7 ➡ | 3.9 ↗ |
| 2021      | 0.9 ➡ | 1.4 ↘ | 2.0 ➡ | 1.6 ↗ | 0.0 ➡ | 1.7 ↘ | 3.6 ➡ |

Source: Consensus Forecasts (CF)

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

things, the summit also extended the economic sanctions against Russia and approved new carbon emission limits at less than half of 1990 levels by 2030. At its December meeting, the ECB recalibrated its instruments. It increased the envelope of the PEPP pandemic programme by EUR 500 billion to EUR 1,850 billion and extended the programme by nine months to March 2022. The TLTRO III programme, providing favourable targeted loans, was extended by one year until June 2022.

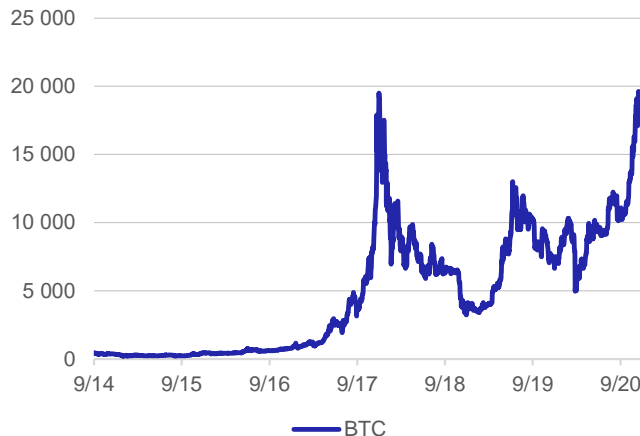
**The December GDP growth outlooks** further change the notional pandemic bill. The UK will record a double-digit contraction this year. The euro area will also see a very sizeable decline. By contrast, China will record positive growth, albeit much lower than in the past. The current outlooks also foresee an improvement in 2021, probably due to expected vaccinations. **The consumer price inflation outlooks** merely confirmed that price growth has lagged well behind the notional 2% ideal this year, especially in advanced economies. The outlooks for next year indicate an improvement in this regard. However, central bankers are still not satisfied with the situation, except, apparently, for those at the Fed.

According to the December CF, **the dollar** will depreciate modestly against sterling, the yen, the renminbi and the rouble at the one-year horizon, while strengthening very slightly against the euro. The CF outlook for the Brent crude oil price at the one-year horizon is higher than in November, at USD 51/bbl (highest estimate USD 65/bbl, lowest estimate USD 41/bbl). The outlook for 3M USD LIBOR market rates is slightly rising, while that for 3M EURIBOR rates remains negative and continues to decline gradually.

**The chart in the current issue** shows how financial market sentiment is reflected in the exchange rate of the best known virtual “currency”, bitcoin. It is based on a mathematical computing device which ensures that bitcoin cannot be influenced from a single centre. As is generally known, another distinguishing feature of this asset is that the total amount of bitcoin is final and predetermined (21 million). The current bitcoin price is at a historical high, and the record for total daily trading – an incredible USD 298 billion – fell in November. The bitcoin price is currently being driven not only by speculative purchases as in 2017, but also by the fact that institutional investors are now including cryptocurrencies in their portfolios. By some estimates, the price could now increase roughly by a further 10%. However, the world of cryptocurrency is very unstable, so there is also currently a risk of a rapid fall in prices.

**The current issue also contains an analysis:** [Consumer and industrial prices in 2020 – the year of the coronavirus](#). The article examines the consumer price and industrial price indices used most often to monitor prices and describes the differences observed in individual areas during the coronavirus crisis so far. On a general level, the industrial producer price index and the consumer price index have both declined in the euro area. Looked at in more detail, however, this finding does not apply to all economic sectors, nor does it apply to all of the components of the said price indices

### Cryptocurrency markets – Bitcoin price in USD



Source: Yahoo Finance

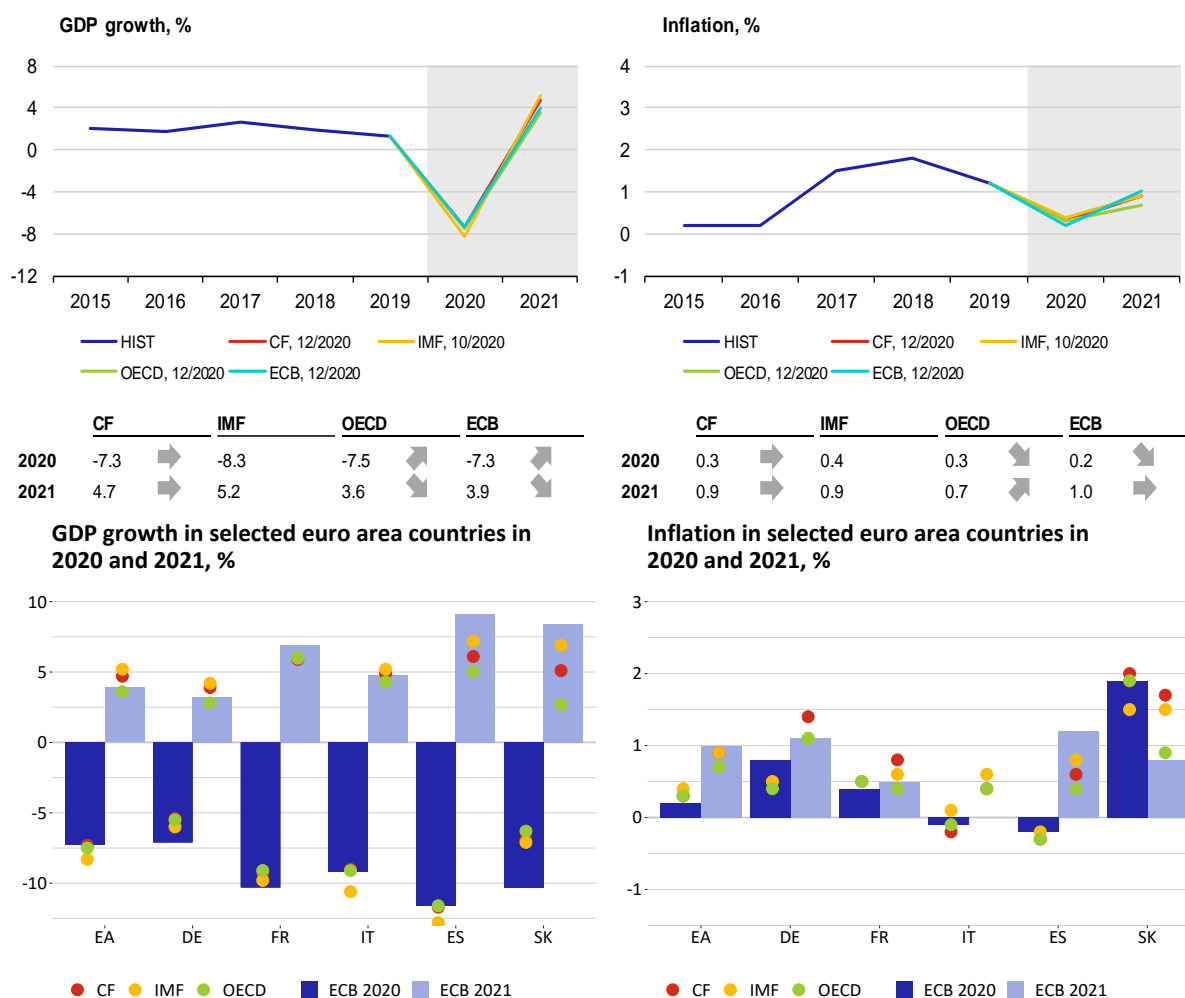
Note: The chart shows the daily closing price. Historically, the magical level of USD 20,000 per 1 BTC has now been conquered.

## II.1 Euro area

The economic recovery in the euro area exceeded expectations in 2020 Q3, with GDP rising by 12.5% quarter on quarter and the year-on-year contraction in GDP moderating to 4.3%. The relatively rapid recovery after the end of the first wave of the coronavirus pandemic – associated with the reopening of economies after government-imposed shutdowns – was thus confirmed. The recovery was reflected mainly in household consumption, although investment and foreign trade also recuperated surprisingly quickly. Activity resumed in almost all sectors, but tourism, for example, failed to recover from the crisis even during the summer. Spain and Greece were among the euro area countries hardest hit by the crisis, while the economic impact on the Netherlands, Ireland, Finland and Slovakia was smaller.

In many euro area countries, the ongoing second wave of the pandemic led to the reintroduction of government measures, which will be reflected in a renewed decline in GDP at the year-end. However, the downturn expected in Q4 will be considerably smaller compared to the first wave of the pandemic. This will be due to substantially more moderate government-imposed shutdowns than in spring of this year and to the observed resilience of industry, which has been performing well during the current quarter, as can be seen, for example, from the PMI leading indicator in October and November. The results of the IFO survey are also positive for industry (especially as regards the assessment of the current situation), as are high-frequency indicators. For example, electricity consumption in November was only slightly below last year's level. Service sectors with high levels of social contact have been affected particularly badly by the coronavirus crisis.

Retail sales were favourable despite worse consumer sentiment, which remains far below its long-term average. Retail sales rose by 4.3% year on year in October. Electronics and furniture sales increased, while demand for textiles and footwear decreased. The unemployment rate in the euro area edged down to 8.4% in October.

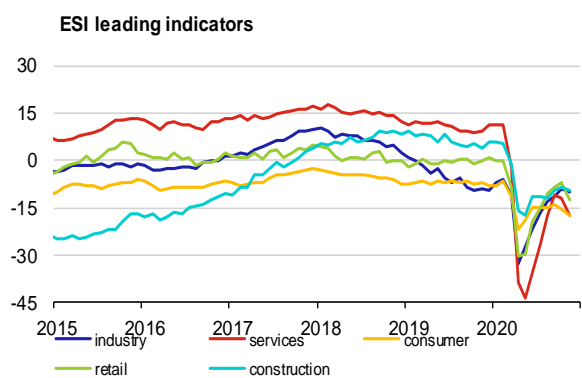


Note: Charts show institutions' latest available outlooks of for the given economy.

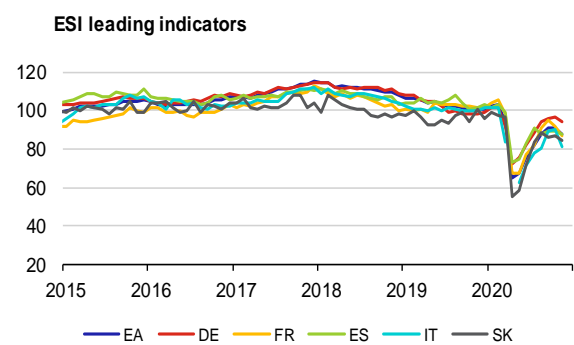
The December CF left its outlook for the contraction in euro area GDP this year at 7.3% and the pace of recovery next year at 4.7%. CF expects the biggest contractions this year to be recorded in Spain (11.7%) and France (9.3%), while Germany will see a much smaller decline (5.4%). In 2021, the French and Spanish economies will expand by around 6%, while German GDP is expected to grow by 3.9%. The OECD and the ECB have revised their outlooks for 2020 towards a smaller downturn, while expecting lower GDP growth in 2021, for which their outlooks are currently lower than CF's.

CF recorded no changes for the inflation outlook either. Following subdued inflation this year, a moderate rise is expected in 2021. In its December forecast, the ECB lowered its inflation estimate for this year and left its outlook for 2021 unchanged, roughly at the CF level. The euro area economy remained in deflation in November (-0.3%), due mainly to a drop in energy prices combined with a temporary reduction of VAT rates in Germany. Rising food and services prices had the opposite effect. Core inflation stayed at 0.2%.

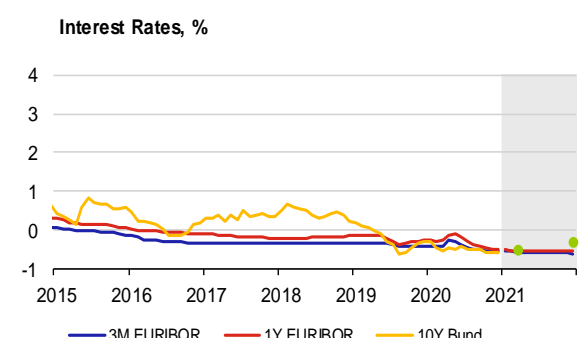
The worsening pandemic situation and its negative economic effects prompted the ECB to ease further at its December meeting. The ECB increased the envelope of its PEPP pandemic programme by EUR 500 billion to EUR 1,850 billion and extended its net purchases under this programme until at least the end of March 2022. The conditions for targeted longer-term refinancing operations (TLTRO III) were also eased. The relaxation of the collateral rules was prolonged to allow banks to make full use of the Eurosystem's liquidity operations (especially TLTROs) until June 2022. In 2021, the ECB will also offer four additional pandemic emergency longer-term refinancing operations (PELTROs). Net purchases under the APP programme will continue at a monthly pace of EUR 20 billion. The policy of refinancing maturing securities will continue. The ECB sees the risks surrounding the growth outlook as tilted to the downside and is ready to adapt its monetary policy to the current situation at any time in order to maintain favourable financing conditions. It will also monitor developments in the exchange rate with regard to their possible implications for the medium-term inflation outlook.



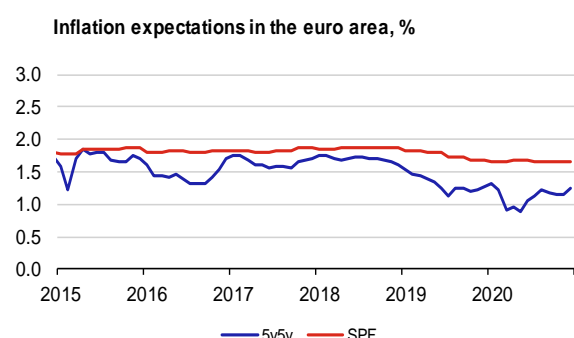
|       | industry | services | consum. | retail | constr. |
|-------|----------|----------|---------|--------|---------|
| 9/20  | -11.4    | -11.2    | -13.9   | -8.6   | -9.5    |
| 10/20 | -9.2     | -12.1    | -15.5   | -6.9   | -8.3    |
| 11/20 | -10.1    | -17.3    | -17.6   | -12.7  | -9.3    |



|       | EA   | DE   | FR   | ES   | IT   | SK   |
|-------|------|------|------|------|------|------|
| 9/20  | 90.9 | 95.5 | 94.9 | 89.7 | 89.0 | 85.9 |
| 10/20 | 91.1 | 97.0 | 91.7 | 89.5 | 90.2 | 87.2 |
| 11/20 | 87.6 | 94.2 | 86.9 | 87.5 | 81.5 | 84.6 |



|            | 11/20 | 12/20 | 3/21  | 12/21 |
|------------|-------|-------|-------|-------|
| 3M EURIBOR | -0.52 | -0.53 | -0.55 | -0.59 |
| 1Y EURIBOR | -0.48 | -0.49 | -0.51 | -0.54 |
| 10Y Bund   | -0.57 | -0.57 | -0.50 | -0.30 |



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

|       | 5y5y | SPF  |
|-------|------|------|
| 10/20 | 1.14 | 1.66 |
| 11/20 | 1.16 | 1.66 |
| 12/20 | 1.25 | 1.66 |

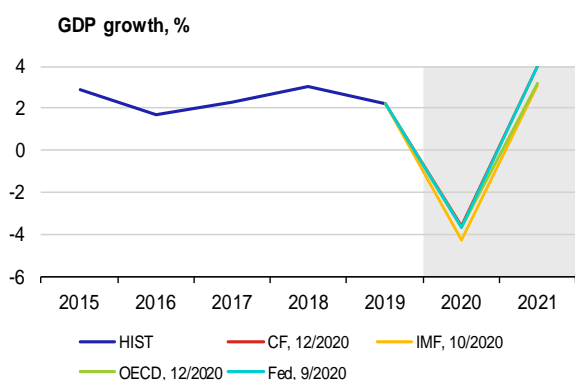
## II.2 United States

**The coronavirus still poses a major threat to the US economy, as the number of cases is rising again. Hopes are pinned on an early launch of vaccination.** Over 200,000 new cases were being recorded daily at the start of December, as against around 30,000 in the spring. Although the figures look grim, the US economy is continuing to recover. In November, non-farm payrolls rose by almost 250,000 and the unemployment rate fell by 0.2 pp to 6.7%. The leading PMI indicators in manufacturing and services increased again in November (to 56.7 and 58.4 respectively), and the composite PMI thus rose to 58.6. Retail sales and international trade also continue to grow.

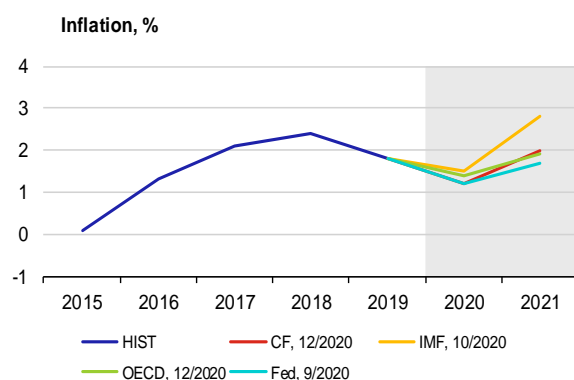
**The current US president Donald Trump has yet to give up his legal fight against the election results but has agreed to begin the transfer of power.** This step is positive not only for the markets, but also for society worldwide. President-elect Joe Biden has signalled to the EU the importance of US–EU relations for his presidency. Although he will continue in his predecessor’s footsteps in relation to China, he would like the US to coordinate its approach with its allies. This is good news for international trade in the West.

**According to the December CF outlook, the US economy will contract by 3.6% this year.** This is again slightly less than last month’s estimate. CF also revised its outlook for GDP growth for next year upwards by 2 pp to 4%. The OECD’s new outlook is less optimistic, forecasting a fall in GDP of 3.7% this year and growth of just 3.2% next year.

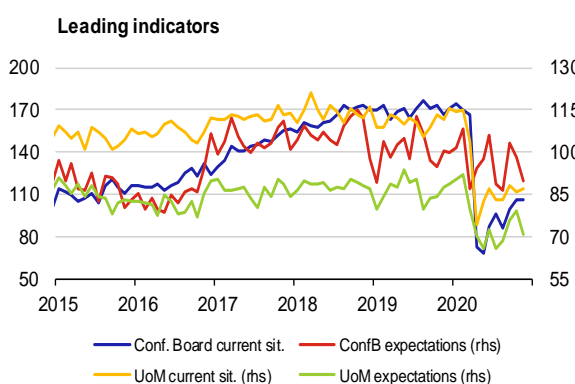
**Annual inflation in the USA reached 1.2% in October.** This was due mainly to growth in prices of food (3.7%) and services (1.7%), whereas energy prices fell by 9.4%. This would suggest we can expect no surprises at the Fed’s December meeting. According to CF, the inflation outlook remains at 1.2% for 2020 and 2.0% for 2021. The OECD’s current outlook is slightly different, with inflation forecasted at 1.4% in 2020 and just below the 2% target for next year.



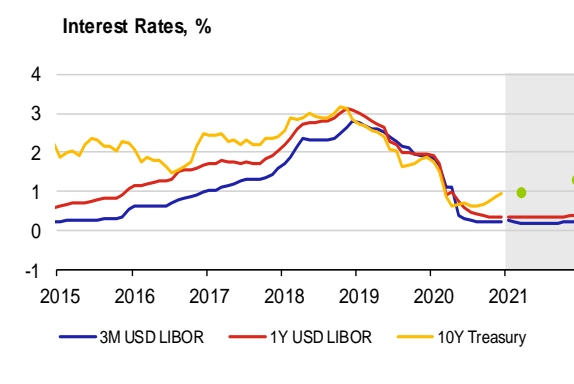
|      | CF   | IMF  | OECD | Fed  |
|------|------|------|------|------|
| 2020 | -3.6 | -4.3 | -3.7 | -3.7 |
| 2021 | 4.0  | 3.1  | 3.2  | 4.0  |



|      | CF  | IMF | OECD | Fed |
|------|-----|-----|------|-----|
| 2020 | 1.2 | 1.5 | 1.4  | 1.2 |
| 2021 | 2.0 | 2.8 | 1.9  | 1.7 |



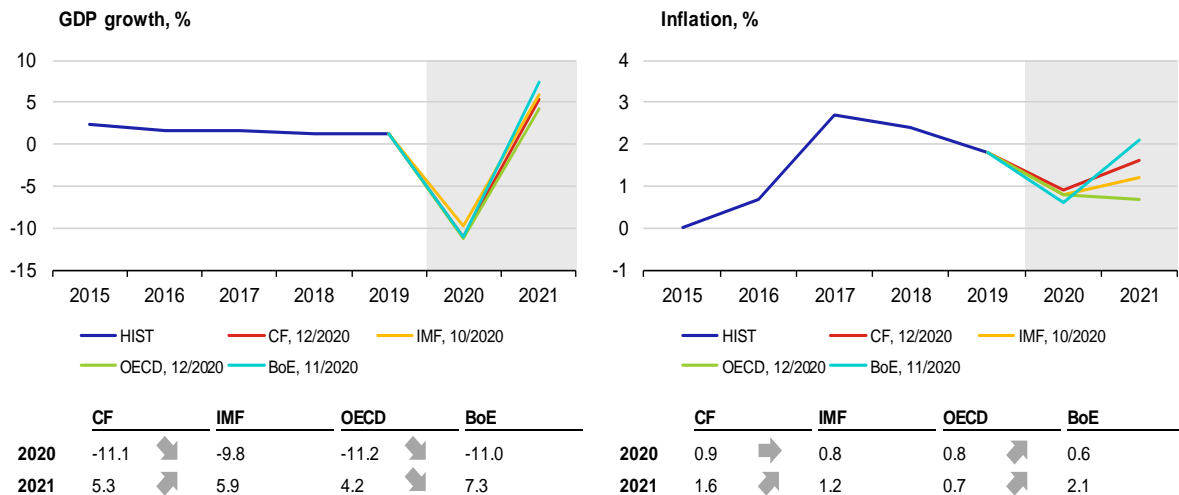
|       | ConfB curr. | ConfB exp. | UoM curr. | UoM exp. |
|-------|-------------|------------|-----------|----------|
| 9/20  | 98.9        | 102.9      | 87.8      | 75.6     |
| 10/20 | 106.2       | 98.2       | 85.9      | 79.2     |
| 11/20 | 105.9       | 89.5       | 87.0      | 70.5     |



|              | 11/20 | 12/20 | 3/21 | 12/21 |
|--------------|-------|-------|------|-------|
| USD LIBOR 3M | 0.22  | 0.23  | 0.20 | 0.24  |
| USD LIBOR 1R | 0.34  | 0.34  | 0.34 | 0.38  |
| Treasury 10R | 0.86  | 0.94  | 1.00 | 1.30  |

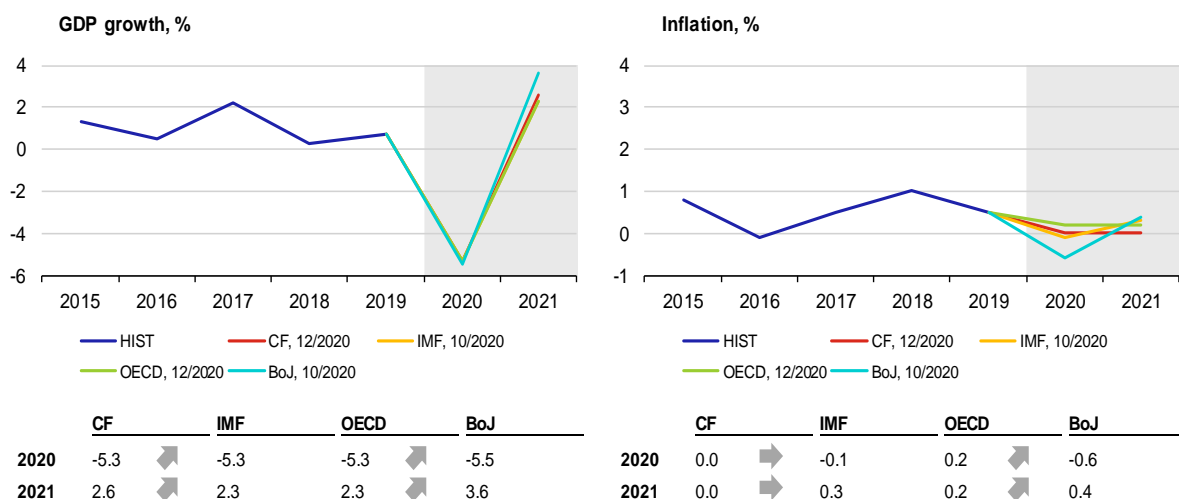
### II.3 United Kingdom

Despite the UK being the first to roll out a coronavirus vaccine, there is still great uncertainty regarding the future outlook, mainly due to Brexit. The economy is feeling the effects of the reintroduction of lockdown in November to counter the spread of COVID-19. The government is still trying to support the economy, for example with a new GBP 4.3 billion plan to avert the threat of mass unemployment. The result is a huge budget deficit of around 19% of GDP. The inability to ~~make deal~~ a trade deal with the EU is exacerbating the economic uncertainty. The likely outcome is a no-deal Brexit, but the negotiations continue. As a result of these events, sterling reached its weakest level since September. The latest OECD and CF forecasts estimate a deeper economic contraction this year, (of around 11%). Especially tThe OECD is not optimistic about the outlook for 2021 either. The composite PMI is also not positive. It fell into the contraction band (49.0) in November on the back of the sharpest decline in total business activity since June.



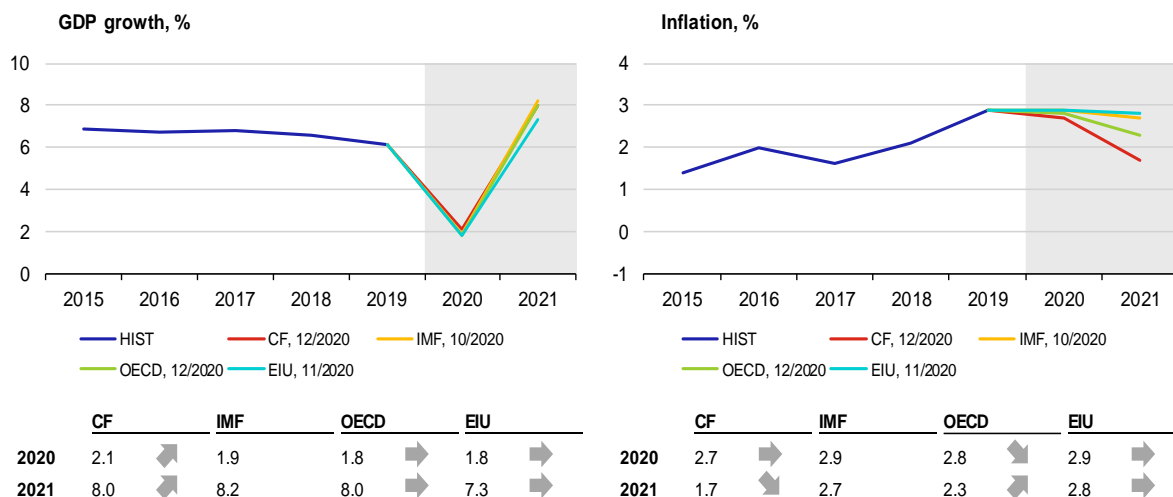
### II.4 Japan

The record-high growth of the Japanese economy in Q3 partially offset this year's downturn, but the recovery was ~~more moderate~~ lower than in Europe and the USA. Despite quarter-on-quarter growth of 5.3%, Japan's GDP remained 5.7% below last year's level in Q3. Private consumption, government expenditure and net exports increased compared to Q2. Due to a large fiscal stimulus, government consumption and investment were the only components of GDP also to increase in year-on-year terms. On the other hand, private investment disappointed. Instead of recovering ~~after Q2~~, it saw a deeper decline in Q3, unlike in the euro area and the USA. However, Japan's economy is expected to fare better in Q4 due to its handling of the epidemic situation. The Japanese government announced its third fiscal stimulus package this year, focused in part on vaccination and other pandemic-related expenditure. The bulk of the almost USD 300 billion is earmarked for long-term transformation, especially investment in green and digital technology.



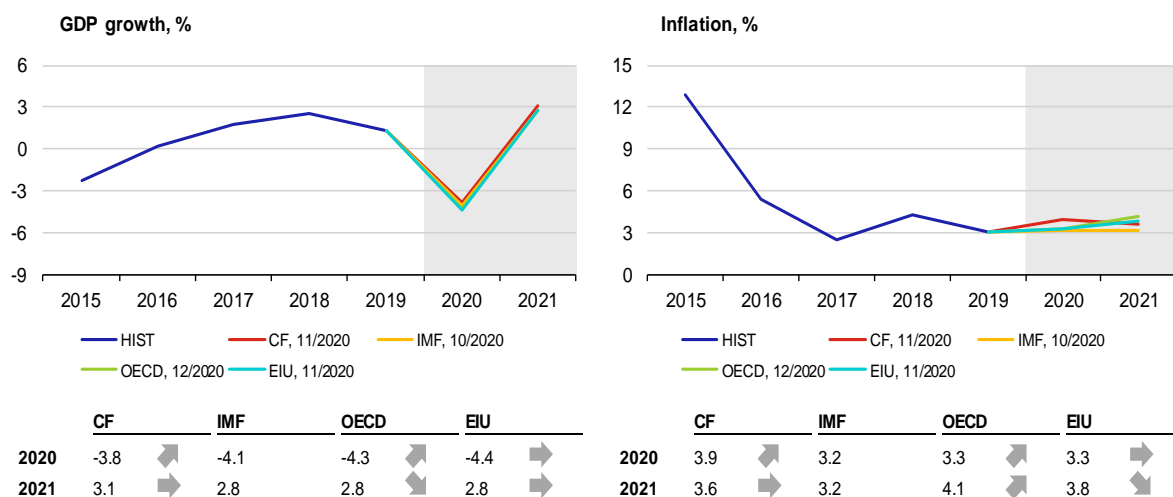
## II.5 China

**While most economies have seen a sharp decline this year, China's GDP is now almost back to pre-coronavirus crisis levels.** This reflects strong growth in investment in Q2 and Q3, which was subsequently reflected in a recovery of consumption. To a lesser extent, net exports also contributed to the more rapid growth in economic activity. This was in part due to the growing global demand for medical equipment and for technology used for working from home. The Chinese economy is also benefiting from the loss of competition caused by the outbreak of the second wave of the pandemic in other countries. According to the CF analysts' December outlook, the Chinese economy will record annual growth of 2.1% in 2020 and 8.0% in 2021. Consumer prices fell by 0.5% year on year in November, the lowest figure since November 2009. Consumer prices in China will grow at a pace of 2.7% this year, slowing to 1.7% in 2021.



## II.6 Russia

**Expectations were exceeded slightly in Q3, but the question is whether this improvement can be sustained.** The preliminary Q3 forecast expects the year-on-year decline in GDP to moderate from the previous 8% to 3.4%. Industrial production fell by almost 6% year on year in October. The mining industry recorded the worst result, dropping by 8.8%. Manufacturing fell by 4.4%. The main industrial sectors conversely recorded weak growth compared to September, especially mining (3%). Unemployment stayed at the September level in October (6.3%). The leading indicators for November are not too optimistic. The PMI in manufacturing (46.3) and in services (48.2) is falling steadily inside the contraction band for the third month in a row. The rouble gained more than 6% to RUB 73/USD by the first half of December due to rising oil prices and a calmer geopolitical situation, reaching a four-month high. Optimism was also driven by news of a COVID-19 vaccine.

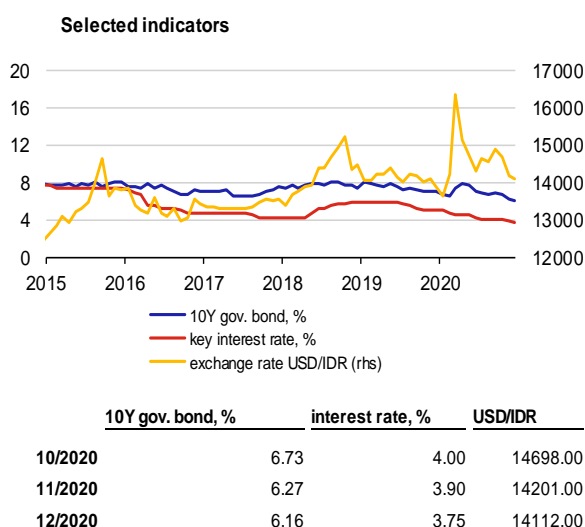
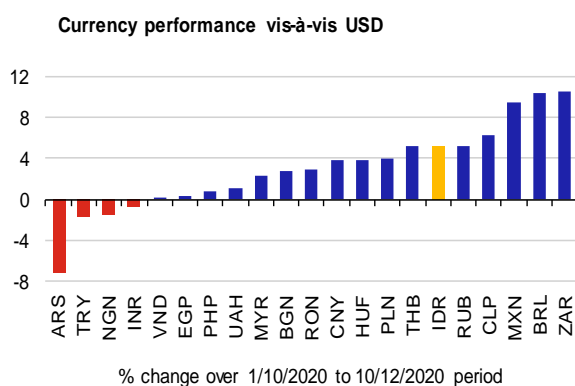
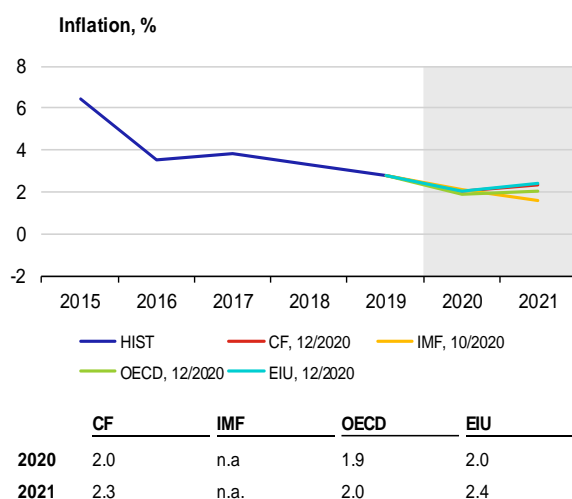
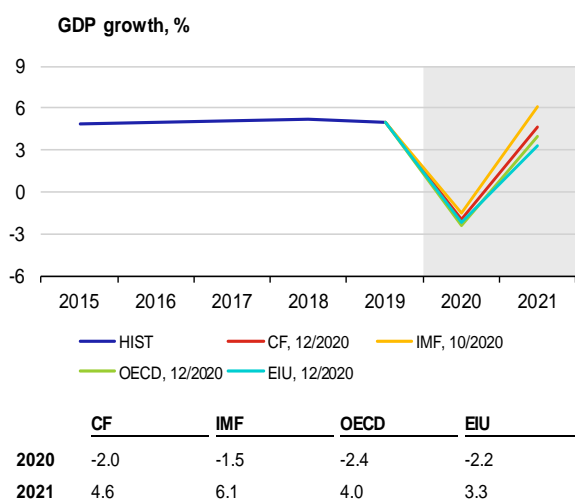




## II.7 Developing countries in the spotlight – Indonesia

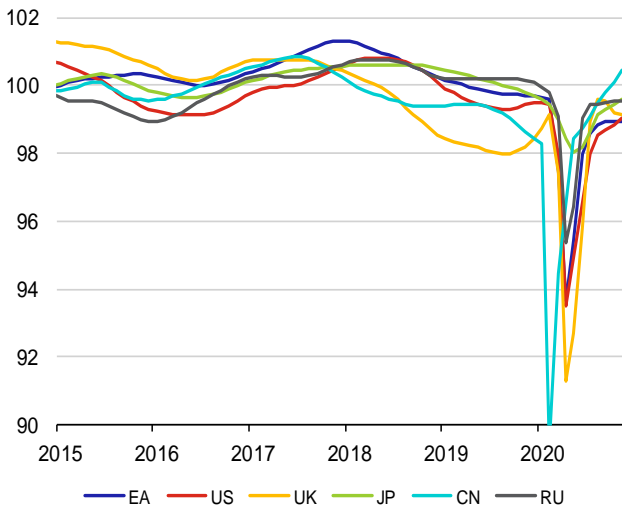
**Indonesia’s economy shrank by 3.5% year on year in Q3.** This smaller economic downturn compared to the previous quarter reflects a gradual easing of anti-epidemic measures and a recovery in external demand. This was reflected in a smaller decrease in private consumption from 5.5% to 4.0% and in fixed investment from 8.6% to 6.5%. By contrast, following a year-on-year decline of 6.9% in the previous quarter, government consumption rose markedly in Q3 (by 9.8%) due to the implementation of fiscal support measures. The stimulus packages include health care support, social assistance for low-income households, extended unemployment benefits and tax relief. Besides the government sector, net exports also contributed to mitigating the economic downturn in Q3. The December CF expects Indonesian GDP to drop by 2% in 2020. GDP will grow by 4.6% next year. However, this projection will largely depend on the course of the coronavirus crisis and the availability of the vaccine, imported mainly from China.

**In response to the significant economic downturn and slackening inflation pressures, the central bank of Indonesia has been gradually lowering its key interest rate since the start of 2020 from 5% to a current all-time low of 3.75%.** It has also cut its deposit and loan facility rates to 3% and 4.5% respectively. Furthermore, it announced the continuation of the programme to supply liquidity to the financial sector and finance the government deficit, which is likely to exceed 6% of GDP in 2020. Inflation increased from 1.4% in October to 1.6% in November. Despite reaching a five-month high in November, it is still below the lower boundary of the tolerance band around the central bank’s inflation target, set at 2%–4%. The December CF outlook expects consumer prices to grow by 2% on average in 2020. In addition to weak domestic demand, a stronger Indonesian rupee against the dollar is currently also dampening growth in prices. The rupee rebounded sharply at the beginning of November in response to a decline in risk aversion on financial markets after the announcement of the US presidential election results and news of progress in the development of a COVID-19 vaccine. Consumer price inflation is expected to accelerate to 2.3% in 2021 as the economy recovers.

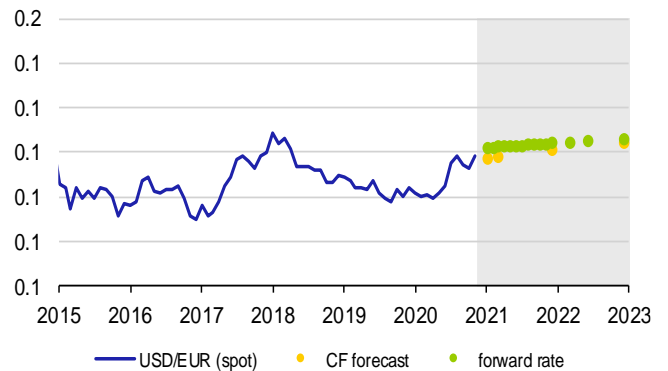


### III. Leading indicators and outlook of exchange rates

OECD Composite Leading Indicator

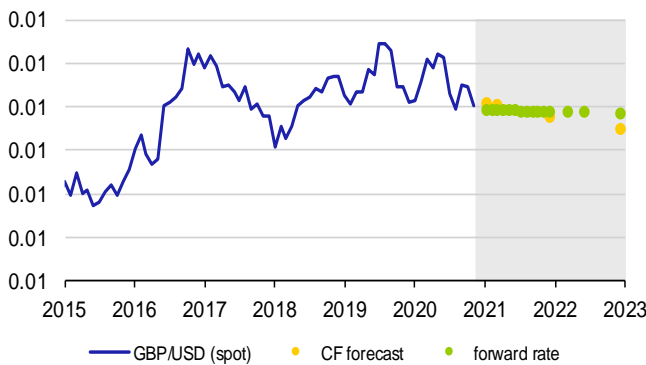


The US dollar (USD/EUR)



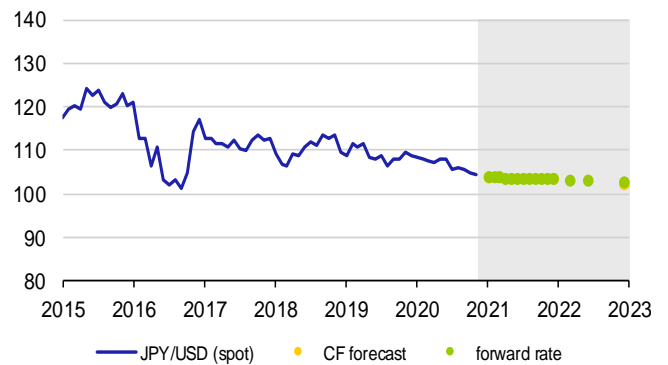
|              | 7/12/20 | 1/21  | 3/21  | 12/21 | 12/22 |
|--------------|---------|-------|-------|-------|-------|
| spot rate    | 1.213   |       |       |       |       |
| CF forecast  |         | 1.189 | 1.190 | 1.207 | 1.225 |
| forward rate |         | 1.212 | 1.214 | 1.222 | 1.233 |

The British pound (GBP/USD)



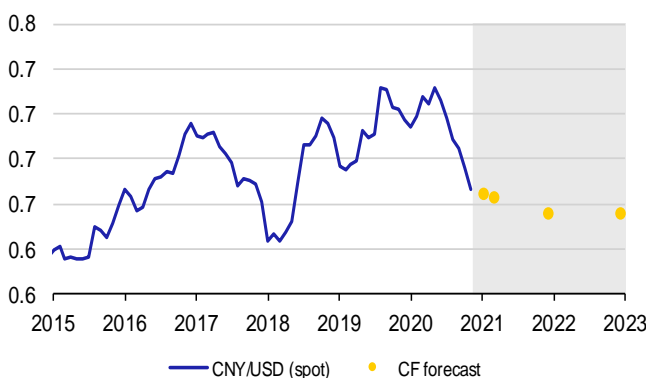
|              | 7/12/20 | 1/21  | 3/21  | 12/21 | 12/22 |
|--------------|---------|-------|-------|-------|-------|
| spot rate    | 0.751   |       |       |       |       |
| CF forecast  |         | 0.755 | 0.752 | 0.739 | 0.725 |
| forward rate |         | 0.747 | 0.747 | 0.746 | 0.744 |

The Japanese yen (JPY/USD)



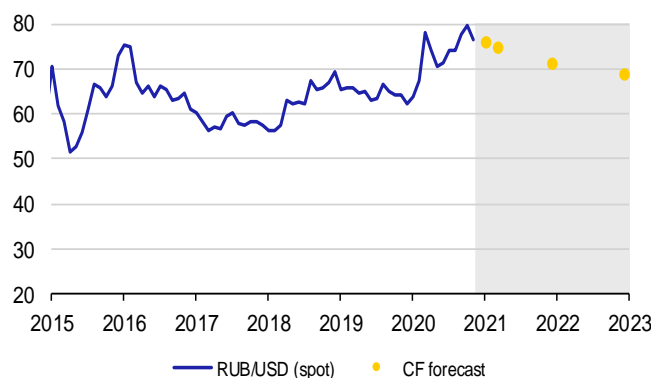
|              | 7/12/20 | 1/21  | 3/21  | 12/21 | 12/22 |
|--------------|---------|-------|-------|-------|-------|
| spot rate    | 104.0   |       |       |       |       |
| CF forecast  |         | 104.2 | 104.0 | 103.5 | 102.6 |
| forward rate |         | 104.0 | 103.9 | 103.5 | 102.8 |

The Chinese renminbi (CNY/USD)



|             | 7/12/20 | 1/21  | 3/21  | 12/21 | 12/22 |
|-------------|---------|-------|-------|-------|-------|
| spot rate   | 6.538   |       |       |       |       |
| CF forecast |         | 6.565 | 6.540 | 6.455 | 6.450 |

The Russian rouble (RUB/USD)

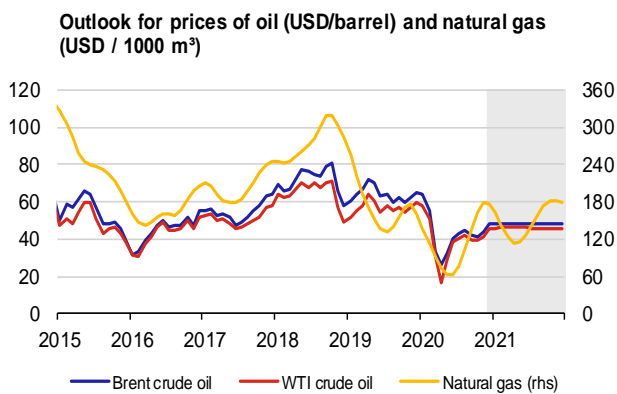


|             | 7/12/20 | 1/21  | 3/21  | 12/21 | 12/22 |
|-------------|---------|-------|-------|-------|-------|
| spot rate   | 73.48   |       |       |       |       |
| CF forecast |         | 76.18 | 74.91 | 71.45 | 68.78 |

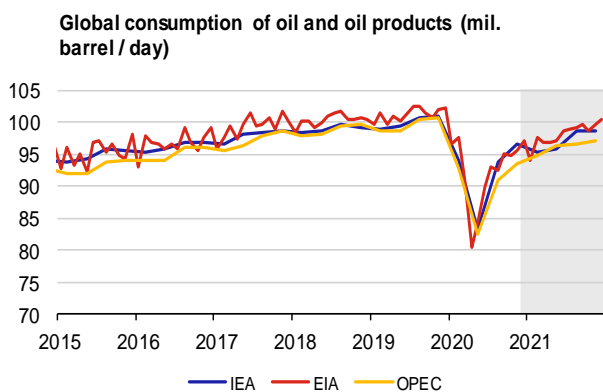
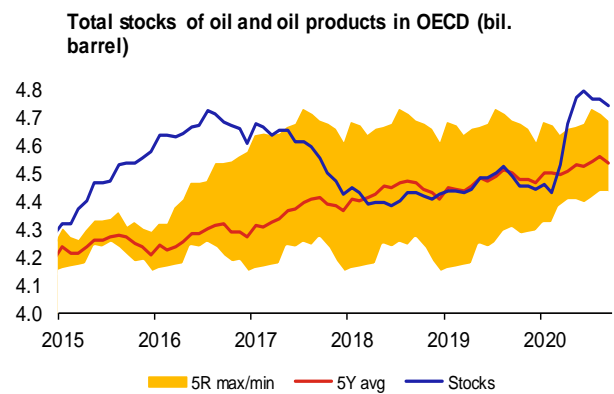
Note: Exchange rates as of last day of month. Forward rate does not represent outlook; it is based on covered interest parity, i.e. currency of country with higher interest rate is depreciating. Forward rate represents current (as of cut-off date) possibility of hedging future exchange rate.

### IV.1 Oil

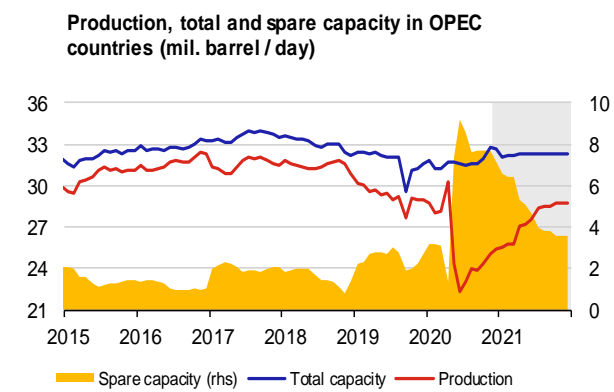
**The Brent oil price recorded strong growth in November, rising by over 25% to USD 48/bbl.** Oil prices came under pressure in late October due to the escalating coronavirus pandemic in Europe and the USA, fading hopes for the approval of the fiscal stimulus package in the USA before the election, and rising oil output in Libya. However, at the start of November news began to emerge that OPEC+ might delay production increases planned for January by 3–6 months. Oil prices then started to rise, gaining momentum on the back of increasing demand mostly from China and India and a weakening dollar and especially in response to growing reports of successful testing of multiple coronavirus vaccines. The growth in oil prices was also boosted by the closing of massive short positions in oil futures by speculative funds and later by the formal beginning of the transfer of the presidency in the USA. Due to strong growth at its nearer end, the oil futures curve gradually switched from contango to slight backwardation, signalling approximate equilibrium between supply and demand on the physical market. This could attract financial investors wishing to invest in oil long term, which has the potential to increase oil prices further. Oil prices stopped rising in late November due to disputes within OPEC about how to approach raising production. Although demand from Asia has returned practically to last year's levels, demand in Europe and the USA remains weak, and the question is when the expected roll-out of the coronavirus vaccine will boost its growth. In the end, OPEC+ reached a compromise and will increase output by 0.5 million barrels a day from January (the original plan had been to raise production by almost 2 million barrels a day). Further adjustments will be discussed at regular monthly meetings. Nonetheless, oil prices reacted by rising further. The market curve in early December is signalling that the Brent crude oil price will fall only slightly below USD 48/bbl by the end of 2022. By contrast, the EIA forecast predicts only a gradual rise in the Brent crude oil price to USD 50/bbl at the end of 2021. The December CF predicts the biggest increase – to USD 51/bbl at the end of next year.



|      | Brent   | WTI     | Natural gas |
|------|---------|---------|-------------|
| 2020 | 43.04 ↗ | 39.29 ↗ | 114.49 ↘    |
| 2021 | 48.14 ↗ | 45.94 ↗ | 150.03 ↗    |



|      | IEA     | EIA     | OPEC    |
|------|---------|---------|---------|
| 2020 | 91.93 → | 92.39 ↘ | 89.99 → |
| 2021 | 97.13 → | 98.17 ↘ | 96.24 → |



|      | Production | Total capacity | Spare capacity |
|------|------------|----------------|----------------|
| 2020 | 25.62 ↘    | 31.76 ↗        | 6.14 ↗         |
| 2021 | 27.53 ↘    | 32.26 ↘        | 4.72 ↗         |

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.

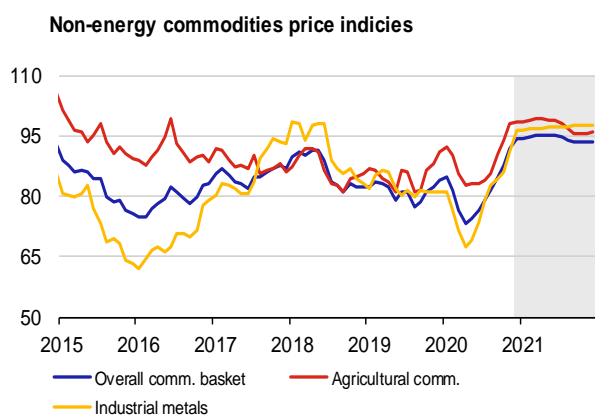
### IV.2 Other commodities

**The growth in the average price of natural gas in Europe – which began in June and gradually accelerated – came to a halt in November.** Gas inventories are at a comfortable level and the current price allows liquefied natural gas to be imported from the USA again.

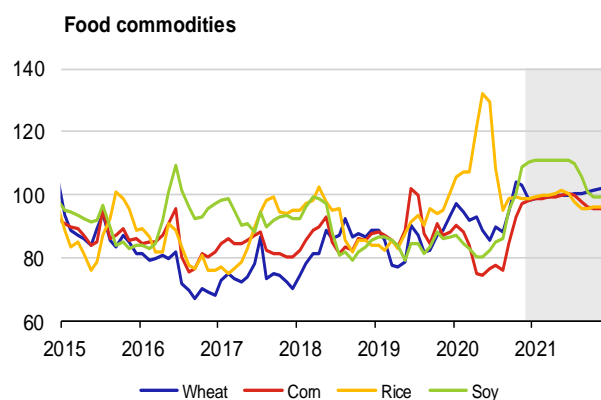
**The non-energy commodity price index also continued to rise in November and the first half of December.** Both sub-indices contributed to this in November, although the food commodity price index played a bigger role. However, its growth slowed sharply in the first half of December and its outlook is falling, while the base metals price sub-index continued to grow and its outlook is also rising.

**Virtually all the components of the industrial metals price sub-index contributed to its growth.** This growth was in response to the continued recovery of global manufacturing (mainly in China and the USA) and a depreciation of the dollar connected with the long ambiguous result of the US presidential election. The JPMorgan Global PMI in manufacturing rose in November from 53.0 to 53.7, its highest level since the start of 2018. International trade flows are also picking up. In addition to basic metals, the price of iron ore rose sharply at the beginning of December.

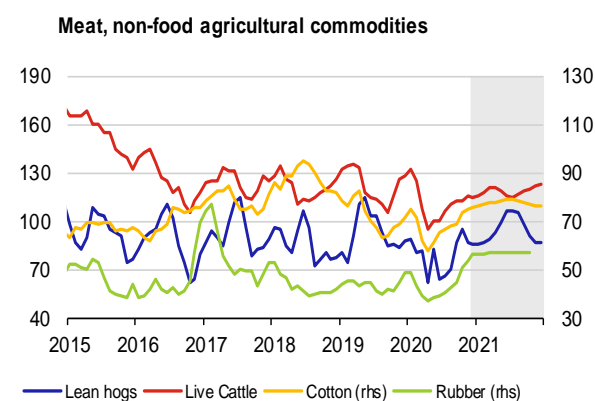
**Most of the components of the food commodity price sub-index also contributed to the slowdown in its growth.** Wheat prices were flat in November and began to fall at the start of December. Prices of corn, soy, sugar, coffee and cocoa also stopped rising in the second half of November and have been falling since then, with the exception of corn and coffee. Pork and beef prices have been broadly flat since the start of November. The same is true for cotton prices. Only the price of rubber continued to rise, reaching its highest level since March 2017.



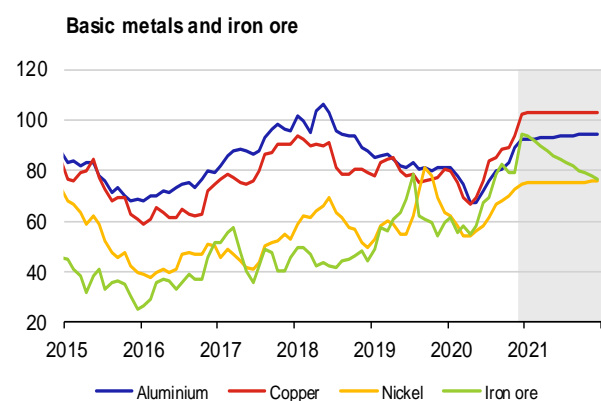
|      | Overall | Agricultural | Industrial |
|------|---------|--------------|------------|
| 2020 | 82.2 ↗  | 89.0 ↗       | 79.9 ↗     |
| 2021 | 94.4 ↗  | 97.6 ↗       | 97.2 ↗     |



|      | Wheat   | Corn   | Rice    | Soy     |
|------|---------|--------|---------|---------|
| 2020 | 94.2 ↘  | 84.7 ↗ | 108.7 ↘ | 90.5 ↗  |
| 2021 | 100.5 ↘ | 98.3 ↗ | 98.3 ↘  | 106.7 ↗ |



|      | Lean hogs | Live Cattle | Cotton | Rubber |
|------|-----------|-------------|--------|--------|
| 2020 | 79.0 ↘    | 111.0 ↘     | 68.2 ↘ | 44.4 ↗ |
| 2021 | 94.3 ↘    | 118.5 ↘     | 77.5 ↗ | 56.8 ↗ |



|      | Aluminium | Copper  | Nickel | Iron ore |
|------|-----------|---------|--------|----------|
| 2020 | 78.5 ↗    | 81.5 ↗  | 63.0 ↘ | 69.8 ↗   |
| 2021 | 93.4 ↗    | 102.8 ↗ | 75.3 ↘ | 84.2 ↗   |

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.

## Consumer and industrial prices in 2020 – the year of the coronavirus<sup>1</sup>

The current coronavirus crisis has influenced everyone's lives, as government restrictions and closures have been in place for a long time, affecting almost the whole economy. People are spending more time at home and changing their consumer habits. The lower consumption is also naturally affecting industrial producers' pricing decisions. On the other hand, the negative demand shock induced by the pandemic, which is fostering lower prices, is being dampened by fiscal stimuli introduced by governments and central banks to boost their economies. However, the end effect is always unclear in advance. This article therefore examines the indices used most often to monitor prices and describes the differences observed in individual areas during the coronavirus crisis so far. On a general level, we demonstrate that the industrial producer price index and the consumer price index have both declined this year. Looked at in more detail, however, this finding does not apply to all economic sectors.

### Industrial producer prices

**The industrial producer price index (PPI) stands in the shadow of the best-known index, the consumer price index (CPI).** Measurement of consumer prices provides an important indicator for the concept of inflation targeting. The CPI is one of the main indicators of change in the economy, even though it only measures the movement of prices for end consumers. However, prices for end consumers are divided into several components, which themselves say a great deal about current economic developments. The PPI also measures change in prices, specifically change in the average price of domestic producers' goods and services on the domestic market. One of the advantages of the PPI is that it tracks not only final products, but also intermediate goods and semi-finished products. This enables us to monitor prices through the entire production process. A disadvantage of the PPI is its impossible comparison across countries, as its structure differs from country to country, similar to the structure of industry. There is a harmonised index of consumer prices for comparing changes in consumer prices across countries, but no such harmonised index exists for the PPI.

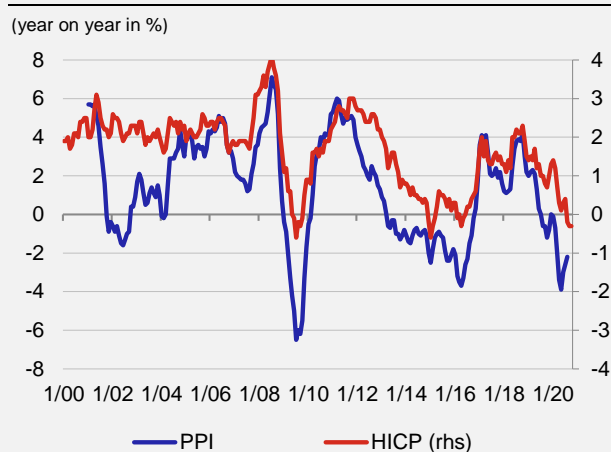
There are two basic types of PPI – output and input. The output PPI is more common and is calculated from producer prices at the time of completion of the goods production process. We explore these prices in this article. Conversely, the input PPI is calculated from purchase prices and therefore measures change in production costs.

### The relationship between the CPI and the PPI

**The path of the CPI differs from that of the PPI (see Chart 1).** The chart shows that, historically, the PPI is more volatile than the CPI<sup>2</sup>. This is mainly because the PPI is tied to the production part of the economy, where prices react much faster to the business cycle and to shocks. The fastest to react are prices of commodities, which form the basis for industrial production. Chart 1 shows developments over the last two decades. At the start of the millennium, inflation was around 2%, the level considered optimal. Consumer price inflation started to surge prior to the Great Financial Crisis (GFC) and then fell sharply. Since then it has been very volatile. Although the PPI is more volatile than the CPI, Chart 1 shows that the two have followed a similar course since the GFC.

**Intuition tells us that producer prices will affect prices for end consumers.** Clark (1995) was one of the first to focus on this relationship. This study examines the hypothesis of whether we can expect an increase in costs at the start of the production process to move through the production chain, leading to growth in consumer prices. As much as this relationship might seem intuitive, Clark (1995) emphasises that it is important to bear in mind how firms make decisions and how they set prices. Microeconomic theory assumes that firms set their prices as a mark-up over production costs depending on market competition. Therefore, if production costs rise, final prices also logically increase. When analysing this, it is also important to consider the differences in the construction of the two indices, as briefly outlined in the previous

Chart 1 – The PPI and the HICP in the EU



Source: Eurostat

<sup>1</sup> Authors: Petr Polák and Filip Novotný. The views expressed in this article are those of the authors and do not necessarily reflect the official position of the Czech National Bank.

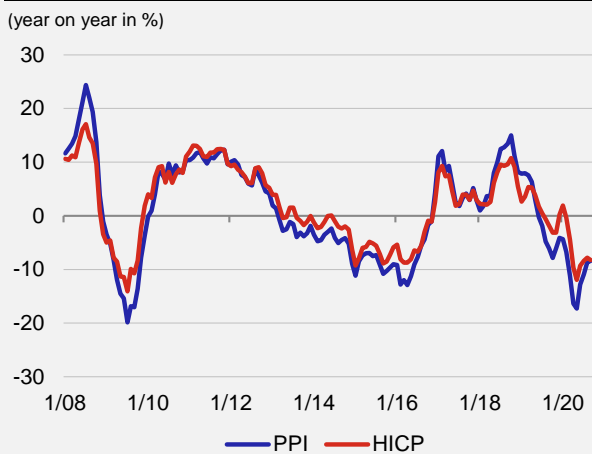
<sup>2</sup> According to the standard deviation measure PPI was three times more volatile between January 2001 and August 2020.

section. One of the findings of Clark (1995) is that the relationship between the PPI and the CPI is weak – changes in the PPI can sometimes help predict changes in the CPI, but not systematically.

**The academic literature focuses primarily on ascertaining the relationship between the PPI and CPI and how they influence one another.** For example, da Rocha (2019) examines this relationship in the Brazilian economy, Khan (2018) for Central and Eastern European countries, Tiwari (2014) for Mexico, Gang (2009) for China, Caporale (2002) for the G7 countries (the USA, Canada, Germany, France, Italy, the United Kingdom and Japan) and Kadeřábek (2007) for the EU countries. The general finding of these studies, which is also consistent with intuition based on the production process, is that the PPI can be used as a leading indicator for the CPI. However, the studies find varying degrees of dependence and time shifts. Other studies find bidirectional relationships or, by contrast, opposite relationships. For example, Akcay (2011) finds a bidirectional relationship for Germany. Akdi et al. (2006) examined the relationship between the PPI and the CPI for Sweden, the UK and Canada and found that the CPI leads the PPI.

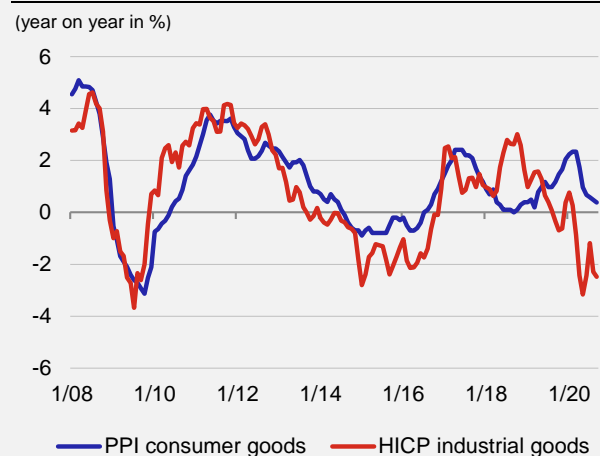
**Energy prices are the common important factor of both industrial prices and consumer prices (see Chart 2).** Energy price patterns are virtually the same in both price categories. Until recently, prices of PPI consumer goods and prices of HICP industrial goods also co-moved (see Chart 3). However, this relationship loosened in 2018. In the euro area, the year-on-year decline in HICP industrial goods prices accelerated with the onset of the coronavirus crisis, while the year-on-year growth in the comparable category of the PPI merely slowed. This contrasts with the GFC, when prices of PPI consumer goods fell more sharply, in line with HICP industrial goods prices.

Chart 2 – Development of energy prices



Source: Eurostat

Chart 3 – Development of prices of industrial goods



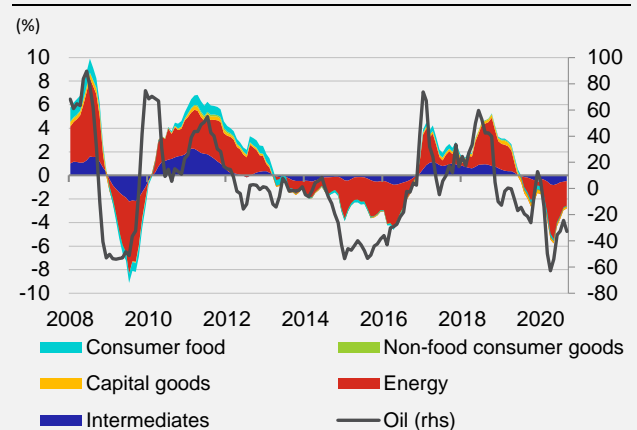
Source: Eurostat

## Change in the components of the PPI in Europe

**The volatility of industrial producer prices (PPI) is due mainly to their energy component.** Owing to sharp swings in oil prices during the GFC, producer prices recorded their largest fluctuations precisely in this period (see Chart 4). Another sizeable year-on-year decline in oil prices followed between mid-2014 and 2016, causing a long period of deflation in the production sector. The sharp fall in the price of oil due to government shutdowns of economies and the subsequent decline in demand in the first half of this year was also naturally reflected in industrial producer prices, deepening their decline. Annual industrial producer price inflation in the euro area has averaged 0.8% over the entire period under review since 2008, and has even been zero on average since 2015. Adjusted for energy prices, the growth in prices has been slightly higher (0.9%). Since 2015, prices excluding energy have averaged 0.6%.

**The decline in industrial producer prices has accelerated since the onset on the coronavirus crisis.** Nevertheless, this decline had been evident since mid-2019

Chart 4 – Contributions of components to the PPI in the EA



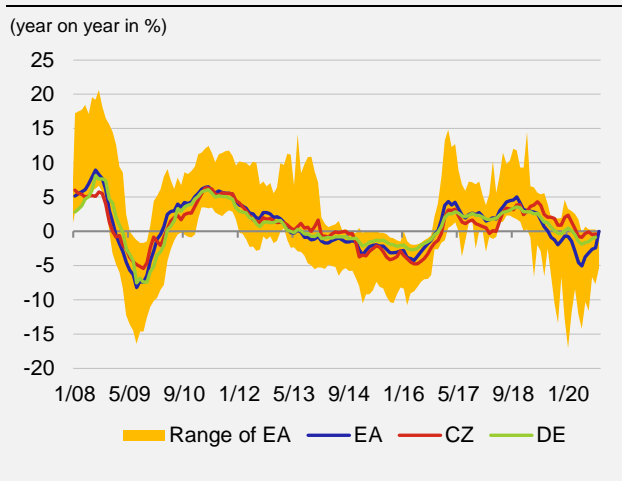
Source: Eurostat

owing to a slowdown in economic activity. The differences in PPI growth across countries have also widened. As Chart 5 shows, the fall in prices is comparable to the GFC for some countries. The orange area of the chart denotes the minimum and maximum year-on-year growth in prices across all the euro area countries. The negative impact on prices has been more moderate in Germany and the Czech Republic than in the euro area as a whole. The volatility of industrial prices has been due mainly to the above-mentioned energy component. It has reflected the sharp fall in oil prices in April 2020 and their subsequent only gradual rise. Electricity and gas prices have fallen to a similar extent as during the GFC. Adjusted for energy prices, industrial prices have also gone down, though at a much lower rate than during the GFC. The decline in the PPI excluding energy prices has been similar to that in 2013–2016, indicating that the fundamentals of the euro area economies remain undisturbed for now.

**Even before the coronavirus crisis started, however, prices of intermediates had been falling slightly since mid-2019.** Although their continuing decline this year has been smaller than the deep drop recorded during the GFC, intermediates prices are not currently indicating increased inflation pressures due to disruption of supply relationships. Furthermore, intermediates prices have shown similar movements across the countries under review. Capital goods prices in the euro area have been characterised by long-term stability, and this trend has not been disrupted this year. These prices have been more volatile in the Czech Republic, where they have accelerated year on year this year. However, with the onset of the coronavirus crisis and the resulting fall in demand, growth in prices of PPI consumer goods has slowed (see Chart 6).

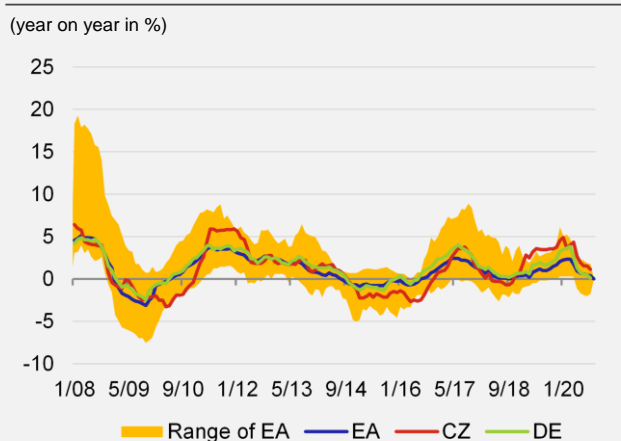
**Turning to manufacturing alone, prices took on a downward trend again in March 2020.** The sharpest drop (3.5%) was recorded in May of this year, and manufacturing remained in deflation in September (the last known value). For comparison, the fall in prices in manufacturing in July 2009 was more than twice as big. In terms of individual sectors, the coronavirus crisis – unlike the GFC – has negatively affected textile prices. Their year-on-year decline has gradually strengthened since April this year. As during the GFC, the price of paper has been falling since mid-2019, and a similar trend has also been observed for prices of chemicals. Conversely, prices in the pharmaceutical industry have continued to follow a modest upward trend this year, unlike during the GFC, when they recorded a drop.

**Chart 5 – PPI total in Europe**



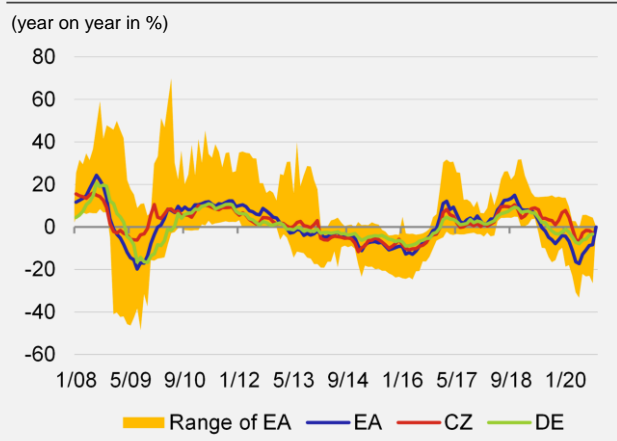
Source: Eurostat  
Note: Range is calculated for the Eurozone countries.

**Chart 6 – Prices of PPI consumer goods**



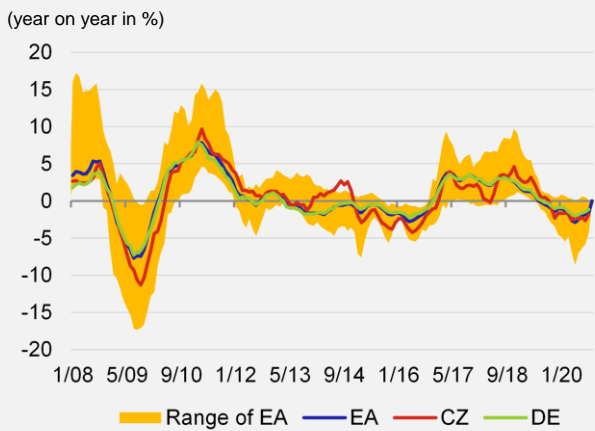
Source: Eurostat  
Note: Range is calculated for the Eurozone countries.

**Chart 7 – Energy prices**



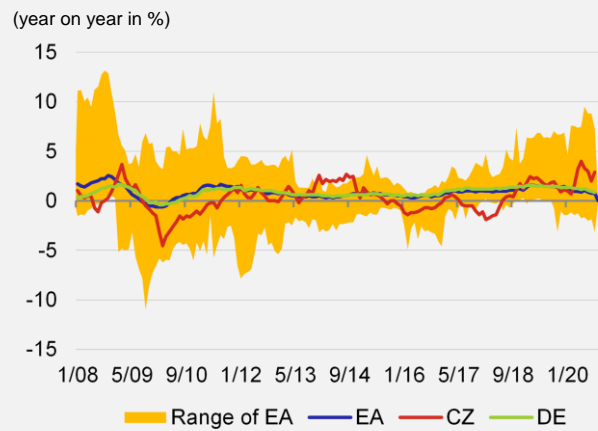
Source: Eurostat  
Note: Range is calculated for the Eurozone countries.

**Chart 8 – Prices of intermediaries**



Source: Eurostat  
 Note: Range is calculated for the Eurozone countries.

**Chart 9 – Prices of capital goods**

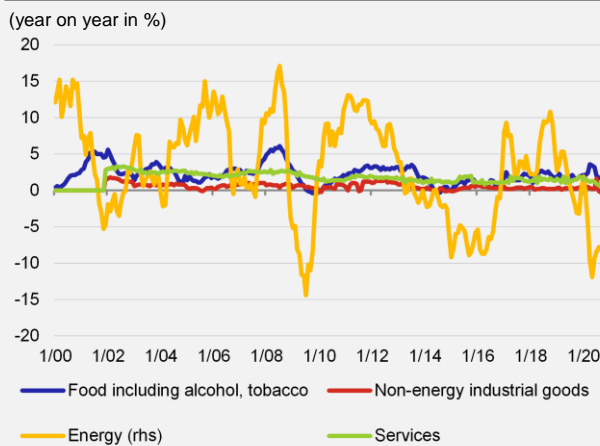


Source: Eurostat  
 Note: Range is calculated for the Eurozone countries.

**Change in the components of the CPI in Europe**

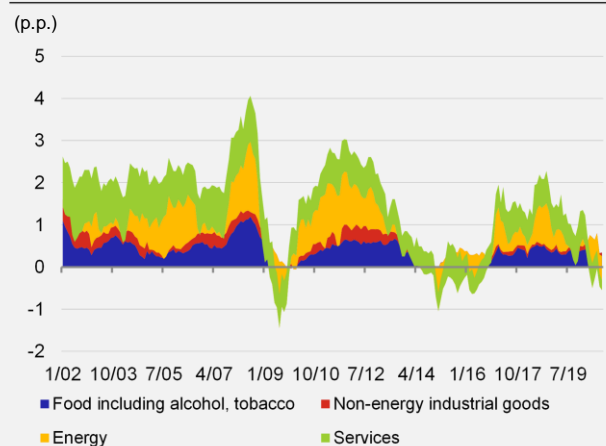
**Consumer price inflation in the euro area has long been below the 2% target.** Charts 1 and 11 show that inflation in the euro area stood at between 1% and 2% before the coronavirus crisis. The last time inflation was at the ECB’s target for a sustained period was the end of 2018<sup>3</sup>. However, inflation has not normalised since the GFC, when interest rates fell, as the ECB has not been able to lift growth in consumer prices sufficiently. Inflation in the euro area has gone down rapidly due to the coronavirus crisis, reaching negative levels at the end of this year. According to the ECB, these negative values are due to several temporary effects (a temporary adjustment to the VAT rate in Germany, clothes clearance sales, etc.).

**Chart 10 – Change in the components of the CPI**



Source: Eurostat

**Chart 11 – Contributions of the components to the CPI**



Source: Eurostat

However, this does not alter the fact that the ECB is under pressure once again. The ECB has used its existing instruments and some new ones to boost consumer price inflation and economic growth. The Pandemic Emergency Purchase Programme (PEPP) and the Targeted Longer-Term Refinancing Operations (TLTRO) programme are among the ECB’s most effective and heavily used instruments this year. The ECB has managed to safeguard financial stability (in terms of financial market perceptions), but its impact on inflation has been relatively limited. Despite making massive purchases (the

<sup>3</sup> Development of inflation in recent decade describes e.g. Bobeica and Sokol (2019), Bonam et al. (2019), Ciccarelli et al. (2017), and Miccoli and Neri (2019).



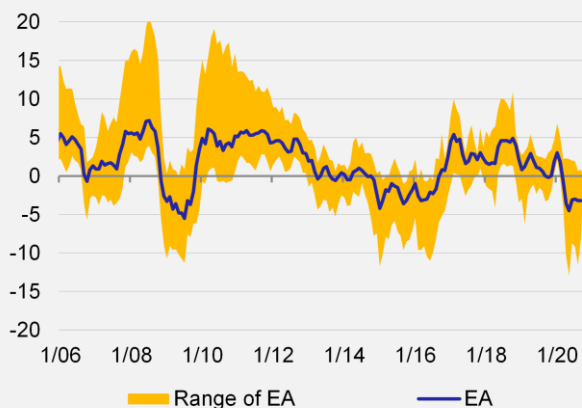
ECB's balance sheet total has risen from 39% to 60% of euro area GDP in 2020), it has yet to get inflation on target<sup>4</sup>. Chart 10 shows the change in the components of the CPI. It is evident, as with the PPI, that energy prices, which have fallen sharply, have had a great impact. Inflation is being supported by growth in food prices and still rising prices of services.

**In some euro area countries, however, price growth in the services sector is rapidly slowing, and in others (Estonia, Greece, Italy and Portugal) prices are even falling.** Services – the driver of growth in advanced economies – are under immense pressure in the current crisis, as most of the restrictive government measures apply mainly to the services sector. As could have been expected, the expected demand shock generated by the coronavirus pandemic caused services prices to fall in hotels and restaurants, entertainment, and tourism. The biggest drop was seen in transport (see Chart 12), where prices fell by 4.5% year on year in May at the euro area level. The record-holder was Luxembourg, where prices dropped by almost 13%. At the other end of the scale was Malta, where prices rose by 2%. Overall, the decrease in prices in this area of services is comparable to that recorded during the GFC.

**Price developments in the areas of tourism and restaurants differ greatly from country to country.** The closing of borders and restrictions on travel and movement of people in spring was a big shock to the tourism sector and restaurants. So far, however, there has been no drop in prices in hotels and restaurants at the euro area level (see Chart 13), although the price growth is the smallest on record (only 0.2% year on year in September). Of the large euro area countries, Italy has recorded the biggest decline in this area (0.7%). By contrast, prices in Germany are rising at a rate of almost 2%.

#### Chart 12 – Transport

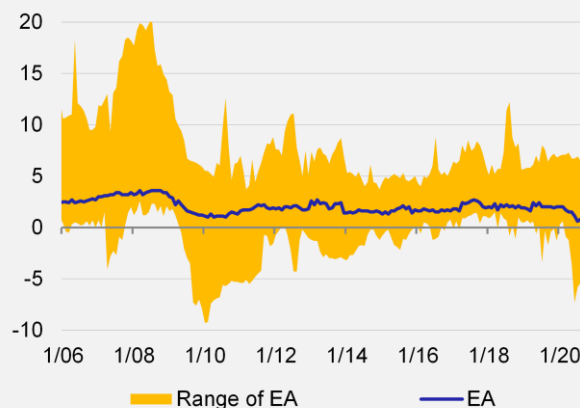
(year on year in %)



Source: Eurostat  
Note: Range is calculated for the Eurozone countries.

#### Chart 13 – Hotels and restaurants

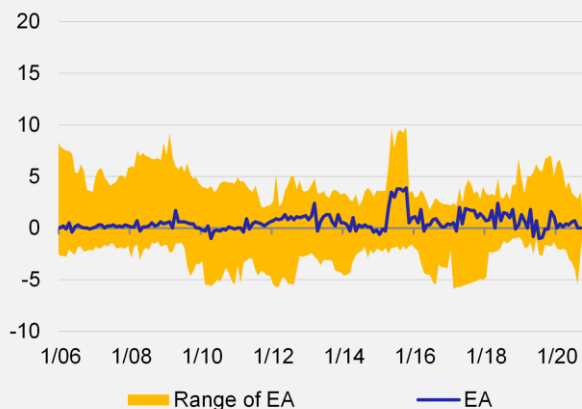
(year on year in %)



Source: Eurostat  
Note: Range is calculated for the Eurozone countries.

#### Chart 14 – Recreation and culture

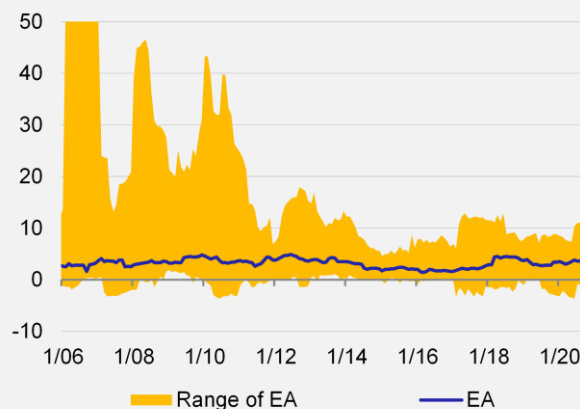
(year on year in %)



Source: Eurostat  
Note: Range is calculated for the Eurozone countries.

#### Chart 15 – Alcohol

(year on year in %)



Source: Eurostat  
Note: Range is calculated for the Eurozone countries.

<sup>4</sup> The impact of ECB unconventional monetary policy on inflation is described e.g. by Boeckx et al. (2017), Gambetti and Musso (2017), and Zabala and Prats (2020).

**Consumer prices in recreation and culture are flat in the euro area (see Chart 14).** Despite the drastic restrictions imposed on people meeting up and by extension on social events, prices have not changed at all dramatically so far from a historical perspective.

**The current crisis is fostering a rise in prices of legal drugs (see Chart 15).** Prices of alcoholic beverages, cigarettes and narcotics are rising at a rate of over 3% in the euro area. The largest price growth has been recorded by the Netherlands, where inflation in this area was around 2% before the crisis and is currently running at over 11%. In Europe, a similar trend can also be observed in Denmark (currently 10%) and the Czech Republic (10.5%). Consumer prices have fallen in this area only in Portugal and Cyprus, where they have dropped by less than 1%.

**Communication technology prices are falling steadily, unaffected by the increased demand caused by working from home and distance learning.** Paradoxically, the current crisis has thus generated no change in prices in an area that is now very important for the economy, namely communication technology. Since the start of the millennium, prices in communications have been falling continuously in the euro area, with the exception of 2016, when they were flat. This price trend is continuing even in the current situation, where the number of employees working from home is rising and demand for communication technology should be increasing due to school closures and a switch to distance learning but prices are continuing to decrease.

## Conclusion

**From a historical perspective, the consumer price index and the industrial producer price index co-move, although the latter is roughly three times more volatile.** The higher volatility of the PPI is due mainly to its more rapid response to the current state of the economy and its more direct link to commodity prices, which react the fastest. Available literature doesn't find direct link between both indexes. Apart from a high correlation between HICP and PPI energy subindices there was until recently high correlation between industrial goods subindex of HICP and consumer goods subindex of producer prices. Nevertheless, this relationship weakened since 2018. The CPI is meanwhile important in monetary policy, as central banks use their instruments to target inflation and thus stabilise consumer prices.

**Although the current coronavirus crisis is limiting demand, prices have not always responded as fully as expected, due to government support measures.** In general, the demand shock has caused prices to fall. However, according to the available data, the downward trend is continuing and has yet to reverse. Given the second wave of the pandemic, inflation – and in particular consumer price inflation – is unlikely to recover quickly. We should also emphasise that there is great heterogeneity in the movement of prices across countries.

**Energy prices are having a big impact on current consumer price inflation and industrial producer price inflation.** Energy prices have fallen substantially this year, though to a slightly lesser extent than during the Global Financial Crisis ten years ago.

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### Keywords

Consumer credit, industrial prices, coronavirus, inflation

### JEL classification

E31, E32, L16

## A1. Change in predictions for 2020

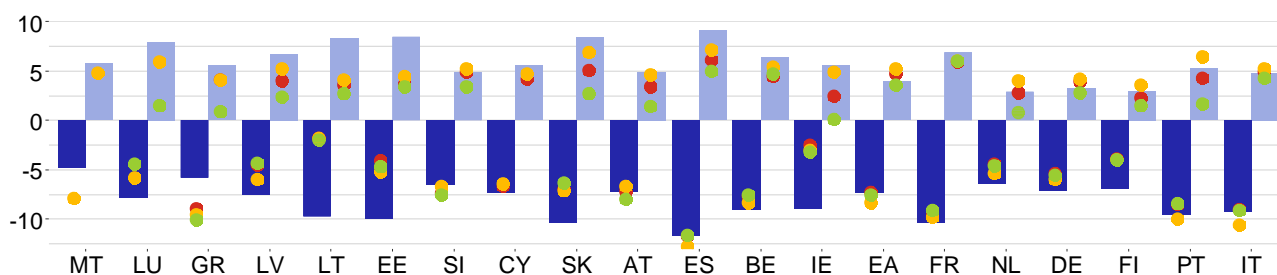
|    | GDP growth, % |      |      |          | Inflation, % |      |      |          |
|----|---------------|------|------|----------|--------------|------|------|----------|
|    | CF            | IMF  | OECD | CB / EIU | CF           | IMF  | OECD | CB / EIU |
| EA | 0             | +1.9 | +0.4 | +0.7     | 0            | +0.2 | -0.1 | -0.1     |
| US | +0.1          | +3.7 | +0.1 | +2.8     | 0            | +0.9 | -0.1 | +0.4     |
| UK | -0.1          | +0.4 | -1.1 | -1.5     | 0            | -0.4 | +0.1 | +0.3     |
| JP | +0.2          | +0.5 | +0.5 | -0.8     | 0            | -0.3 | +0.5 | -0.1     |
| CN | +0.1          | +0.9 | 0    | 0        | 0            | -0.1 | -1.0 | 0        |
| RU | +0.4          | +2.5 | +3.0 | 0        | +0.1         | +0.1 | +0.4 | 0        |

## A2. Change in predictions for 2021

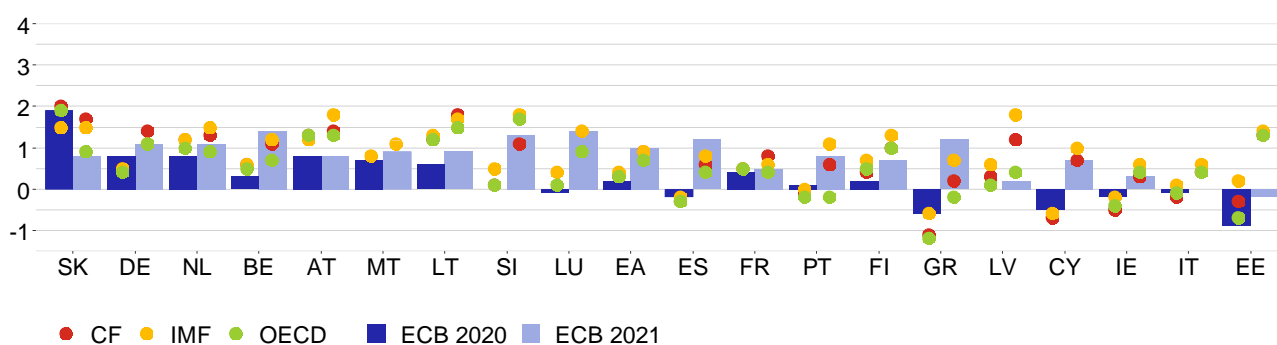
|    | GDP growth, % |      |      |          | Inflation, % |      |      |          |
|----|---------------|------|------|----------|--------------|------|------|----------|
|    | CF            | IMF  | OECD | CB / EIU | CF           | IMF  | OECD | CB / EIU |
| EA | 0             | -0.8 | -1.5 | -1.1     | 0            | -0.1 | +0.2 | 0        |
| US | +0.2          | -1.4 | -0.8 | -1.0     | 0            | +0.6 | +0.4 | +0.1     |
| UK | +0.6          | -0.4 | -3.4 | -1.7     | +0.1         | -0.3 | +0.1 | +0.3     |
| JP | +0.1          | -0.1 | +0.8 | +0.3     | 0            | -0.1 | +0.3 | +0.1     |
| CN | +0.1          | 0    | 0    | 0        | -0.2         | +0.1 | +0.4 | 0        |
| RU | 0             | -1.3 | -2.2 | 0        | 0            | +0.2 | +0.1 | -0.3     |

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

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



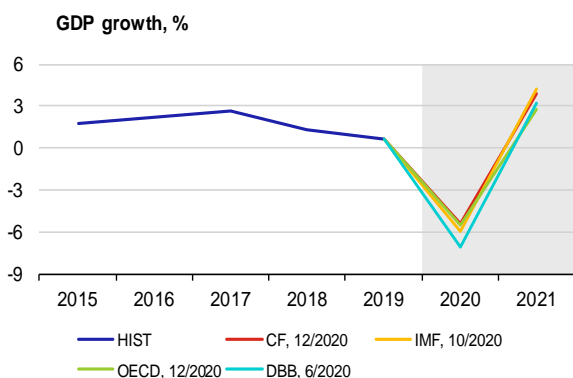
Inflation in the euro area countries in 2020 and 2021, %



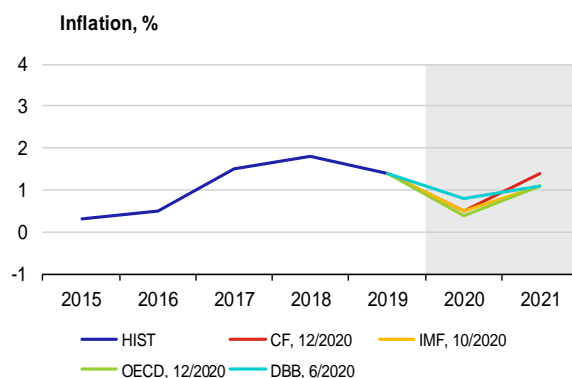
Note: Charts show institutions' latest available outlooks of for the given country.

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

#### Germany

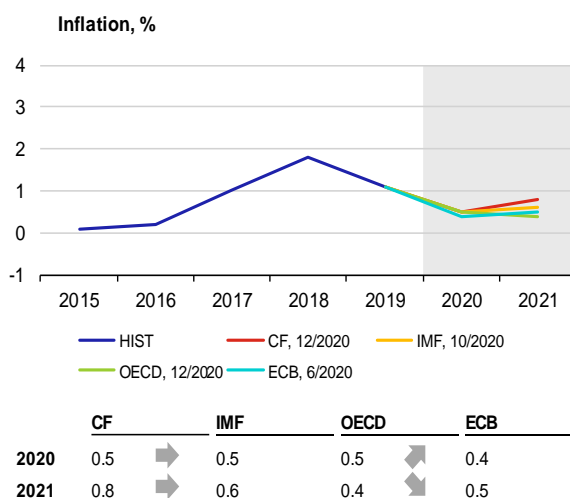
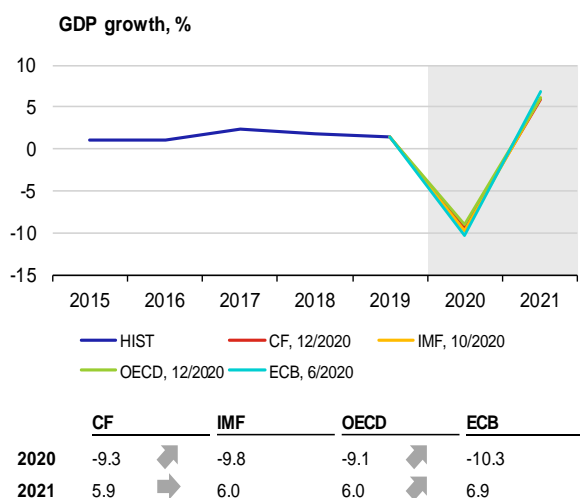


|      | CF   | IMF  | OECD | DBB  |
|------|------|------|------|------|
| 2020 | -5.4 | -6.0 | -5.5 | -7.1 |
| 2021 | 3.9  | 4.2  | 2.8  | 3.2  |

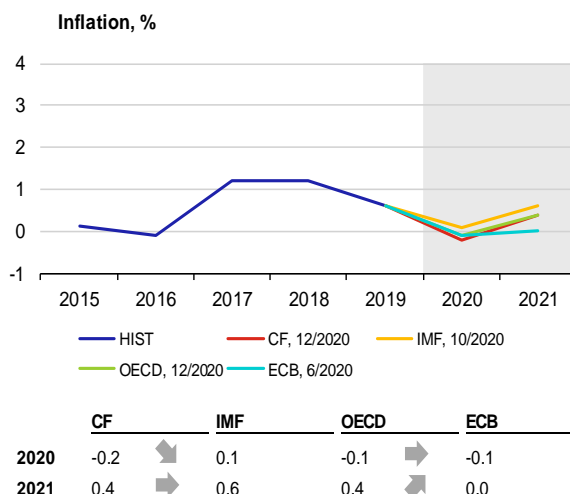
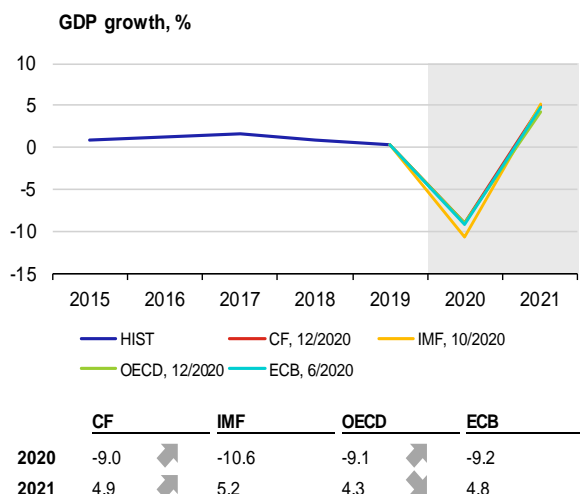


|      | CF  | IMF | OECD | DBB |
|------|-----|-----|------|-----|
| 2020 | 0.5 | 0.5 | 0.4  | 0.8 |
| 2021 | 1.4 | 1.1 | 1.1  | 1.1 |

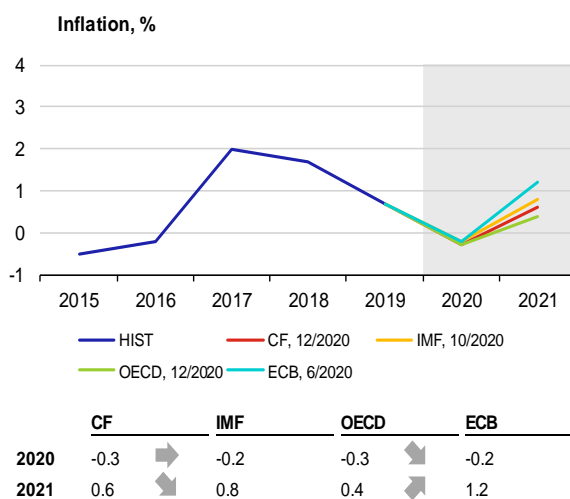
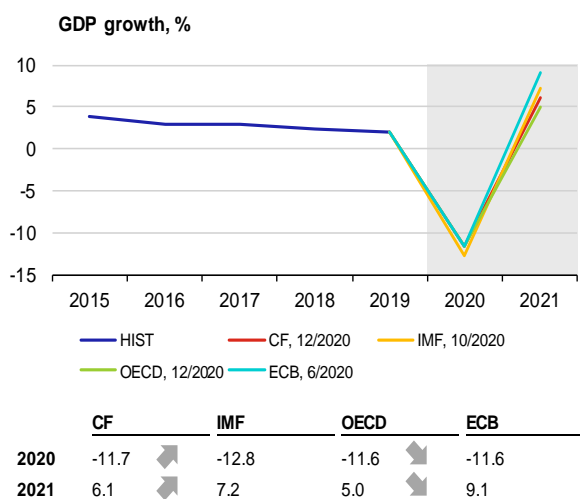
## France



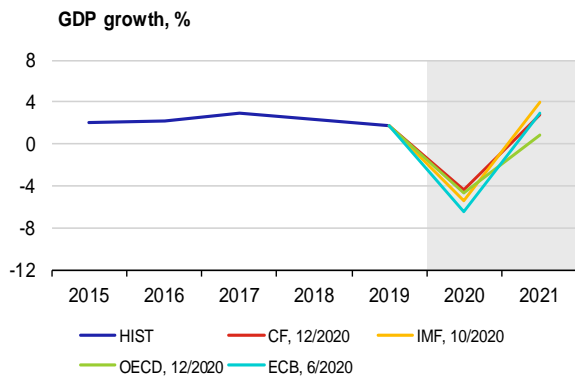
## Italy



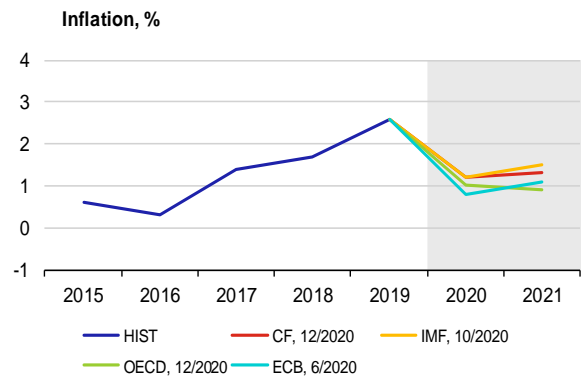
## Spain



## Netherlands

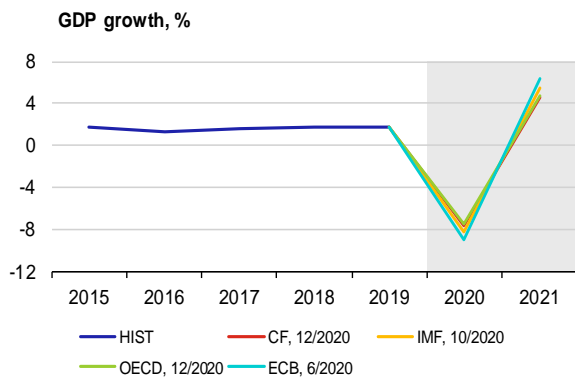


|      | CF   | IMF  | OECD | ECB  |
|------|------|------|------|------|
| 2020 | -4.4 | -5.4 | -4.6 | -6.4 |
| 2021 | 2.8  | 4.0  | 0.8  | 2.9  |

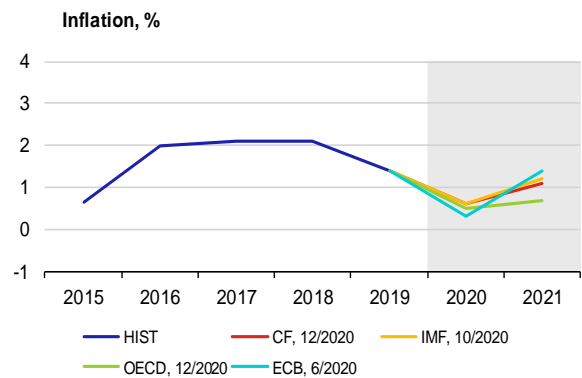


|      | CF  | IMF | OECD | ECB |
|------|-----|-----|------|-----|
| 2020 | 1.2 | 1.2 | 1.0  | 0.8 |
| 2021 | 1.3 | 1.5 | 0.9  | 1.1 |

## Belgium

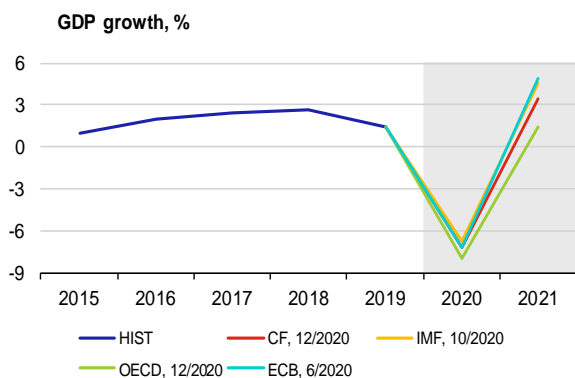


|      | CF   | IMF  | OECD | ECB  |
|------|------|------|------|------|
| 2020 | -7.7 | -8.3 | -7.5 | -9.0 |
| 2021 | 4.5  | 5.4  | 4.7  | 6.4  |

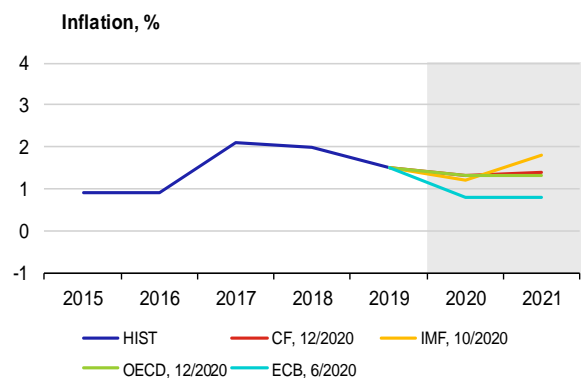


|      | CF  | IMF | OECD | ECB |
|------|-----|-----|------|-----|
| 2020 | 0.6 | 0.6 | 0.5  | 0.3 |
| 2021 | 1.1 | 1.2 | 0.7  | 1.4 |

## Austria

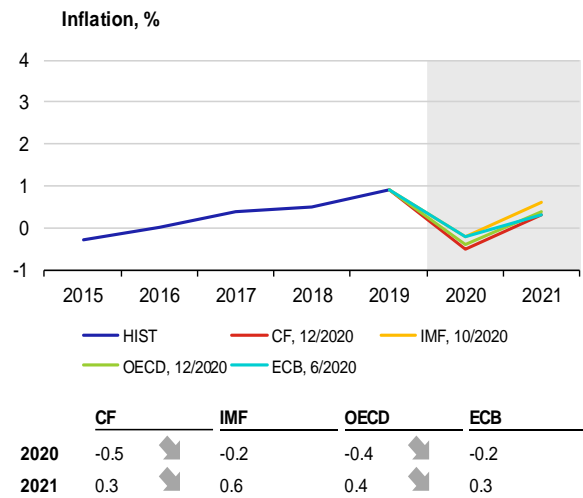
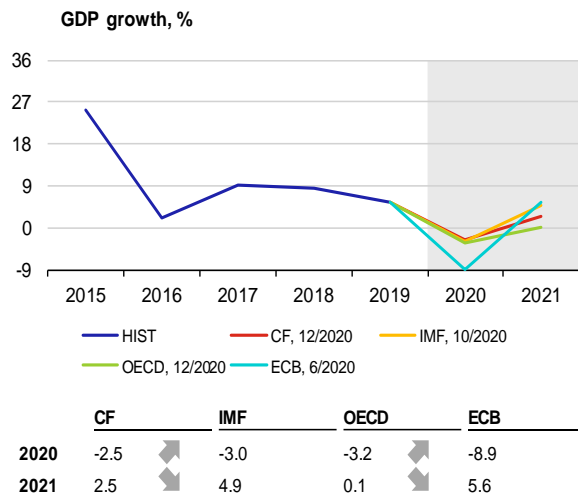


|      | CF   | IMF  | OECD | ECB  |
|------|------|------|------|------|
| 2020 | -7.2 | -6.7 | -8.0 | -7.2 |
| 2021 | 3.4  | 4.6  | 1.4  | 4.9  |

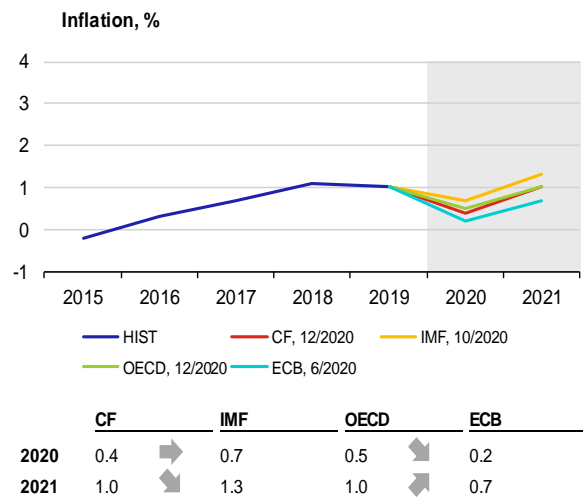
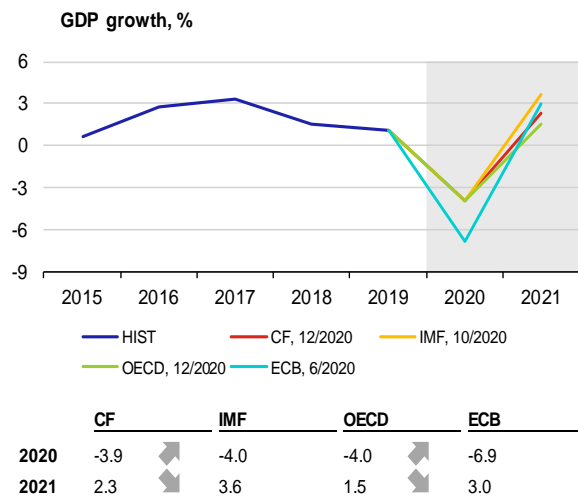


|      | CF  | IMF | OECD | ECB |
|------|-----|-----|------|-----|
| 2020 | 1.3 | 1.2 | 1.3  | 0.8 |
| 2021 | 1.4 | 1.8 | 1.3  | 0.8 |

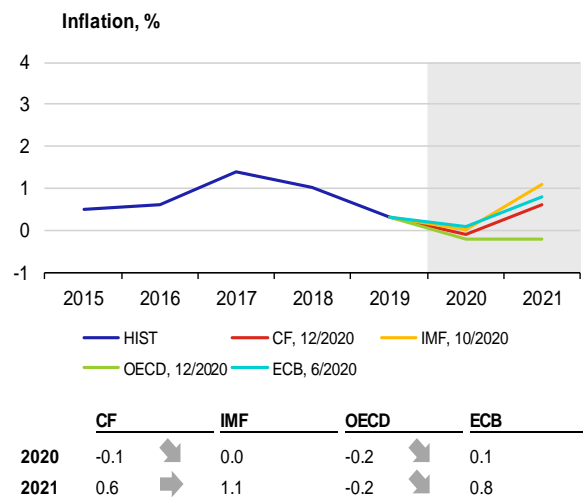
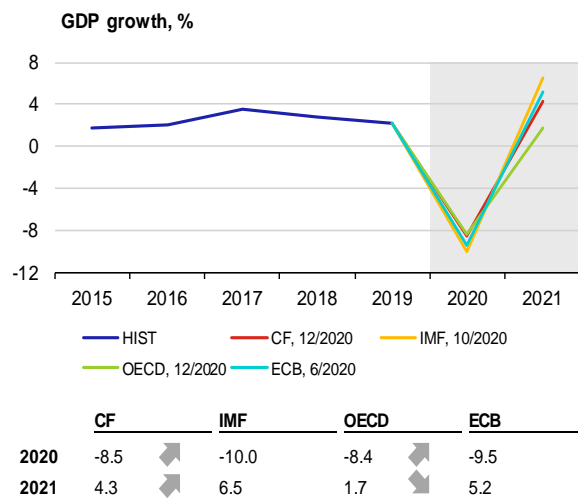
## Ireland



## Finland

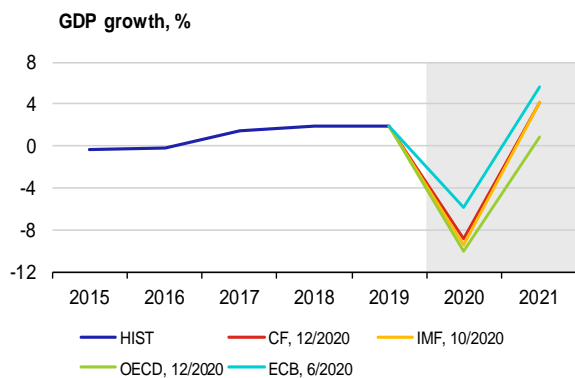


## Portugal

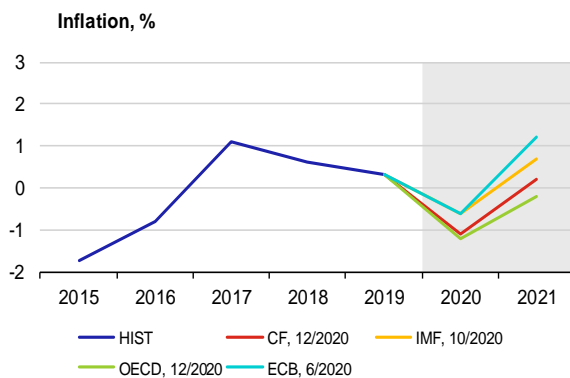




### Greece

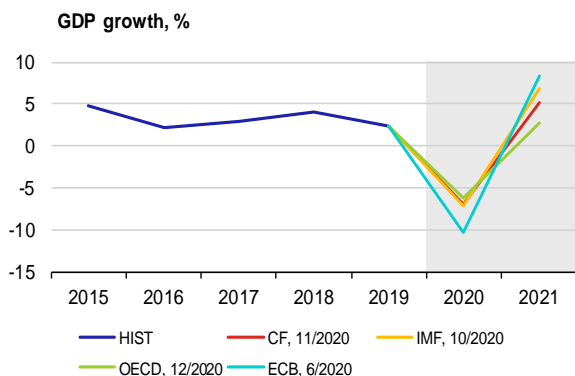


|      | CF   | IMF  | OECD  | ECB  |
|------|------|------|-------|------|
| 2020 | -8.9 | -9.5 | -10.1 | -5.8 |
| 2021 | 4.1  | 4.1  | 0.9   | 5.6  |

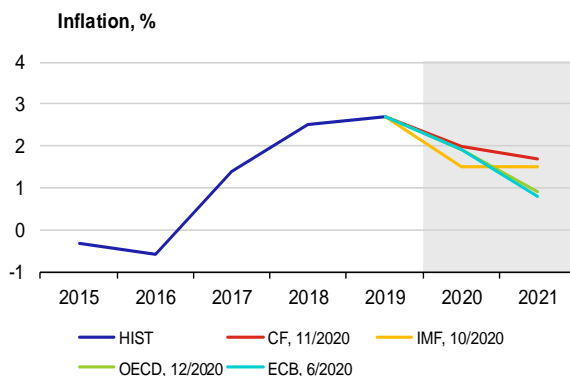


|      | CF   | IMF  | OECD | ECB  |
|------|------|------|------|------|
| 2020 | -1.1 | -0.6 | -1.2 | -0.6 |
| 2021 | 0.2  | 0.7  | -0.2 | 1.2  |

### Slovakia

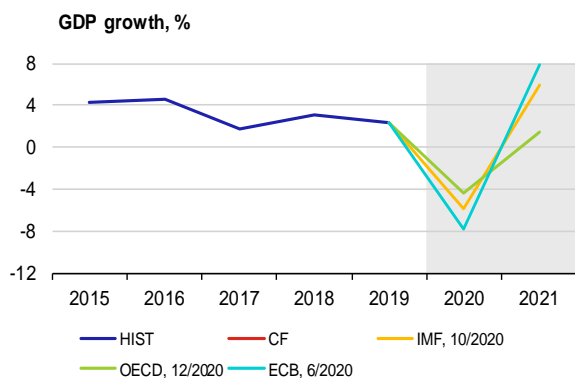


|      | CF   | IMF  | OECD | ECB   |
|------|------|------|------|-------|
| 2020 | -6.9 | -7.1 | -6.3 | -10.3 |
| 2021 | 5.1  | 6.9  | 2.7  | 8.4   |

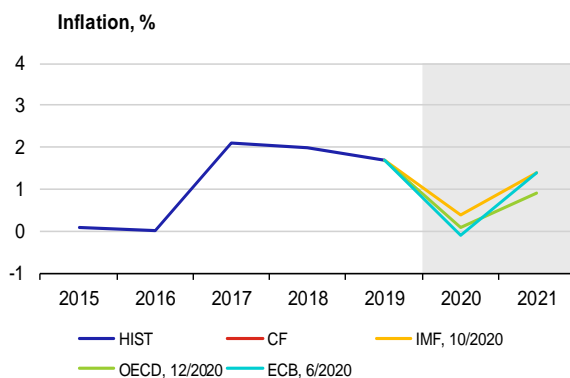


|      | CF  | IMF | OECD | ECB |
|------|-----|-----|------|-----|
| 2020 | 2.0 | 1.5 | 1.9  | 1.9 |
| 2021 | 1.7 | 1.5 | 0.9  | 0.8 |

### Luxembourg

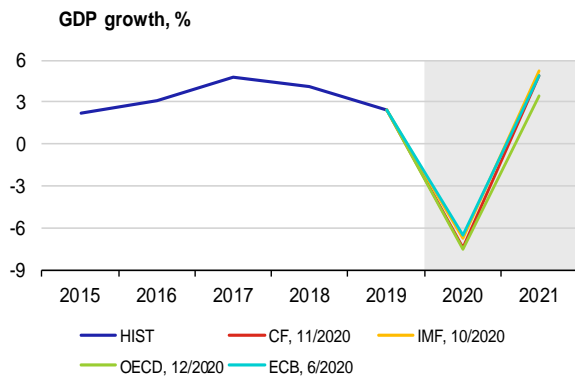


|      | CF    | IMF  | OECD | ECB  |
|------|-------|------|------|------|
| 2020 | n. a. | -5.8 | -4.4 | -7.8 |
| 2021 | n. a. | 5.9  | 1.5  | 7.9  |

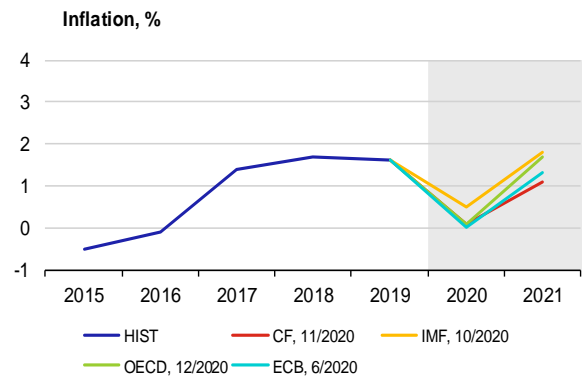


|      | CF    | IMF | OECD | ECB  |
|------|-------|-----|------|------|
| 2020 | n. a. | 0.4 | 0.1  | -0.1 |
| 2021 | n. a. | 1.4 | 0.9  | 1.4  |

## Slovenia

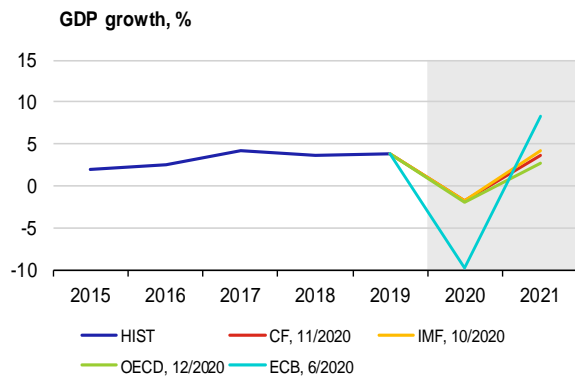


|      | CF   | IMF  | OECD | ECB  |
|------|------|------|------|------|
| 2020 | -7.4 | -6.7 | -7.5 | -6.5 |
| 2021 | 4.9  | 5.2  | 3.4  | 4.9  |

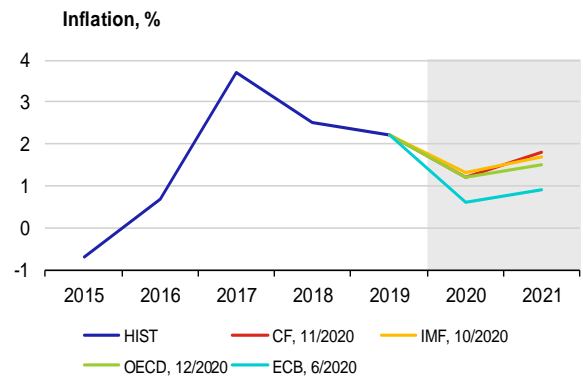


|      | CF  | IMF | OECD | ECB |
|------|-----|-----|------|-----|
| 2020 | 0.1 | 0.5 | 0.1  | 0.0 |
| 2021 | 1.1 | 1.8 | 1.7  | 1.3 |

## Lithuania

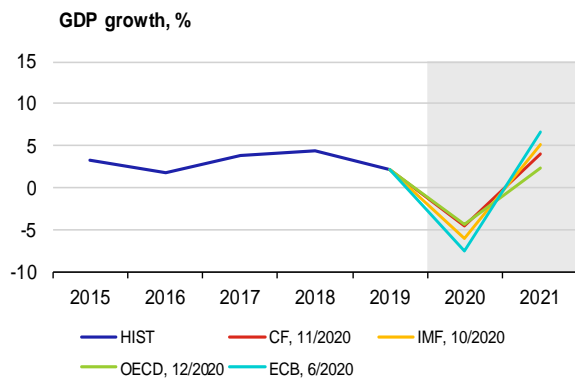


|      | CF   | IMF  | OECD | ECB  |
|------|------|------|------|------|
| 2020 | -1.8 | -1.8 | -2.0 | -9.7 |
| 2021 | 3.6  | 4.1  | 2.7  | 8.3  |

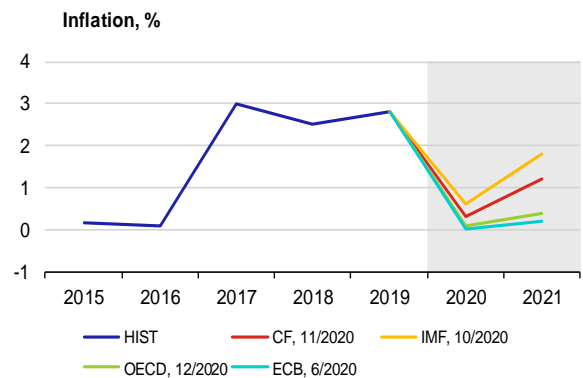


|      | CF  | IMF | OECD | ECB |
|------|-----|-----|------|-----|
| 2020 | 1.2 | 1.3 | 1.2  | 0.6 |
| 2021 | 1.8 | 1.7 | 1.5  | 0.9 |

## Latvia

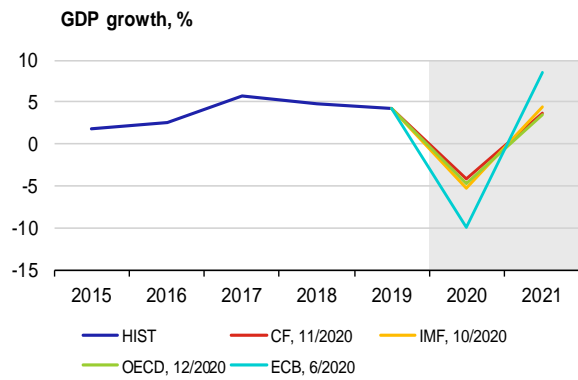


|      | CF   | IMF  | OECD | ECB  |
|------|------|------|------|------|
| 2020 | -4.5 | -6.0 | -4.3 | -7.5 |
| 2021 | 4.0  | 5.2  | 2.4  | 6.7  |

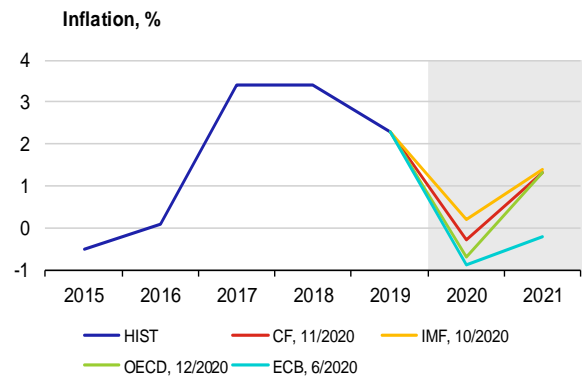


|      | CF  | IMF | OECD | ECB |
|------|-----|-----|------|-----|
| 2020 | 0.3 | 0.6 | 0.1  | 0.0 |
| 2021 | 1.2 | 1.8 | 0.4  | 0.2 |

## Estonia

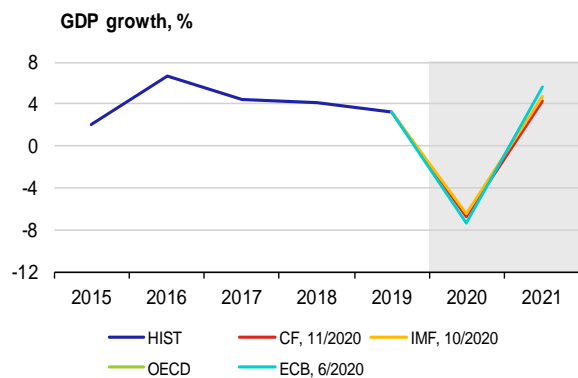


|      | CF   | IMF  | OECD | ECB   |
|------|------|------|------|-------|
| 2020 | -4.1 | -5.2 | -4.7 | -10.0 |
| 2021 | 3.7  | 4.5  | 3.4  | 8.5   |

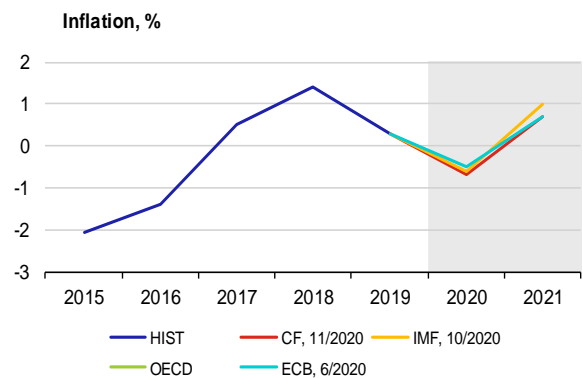


|      | CF   | IMF | OECD | ECB  |
|------|------|-----|------|------|
| 2020 | -0.3 | 0.2 | -0.7 | -0.9 |
| 2021 | 1.3  | 1.4 | 1.3  | -0.2 |

## Cyprus

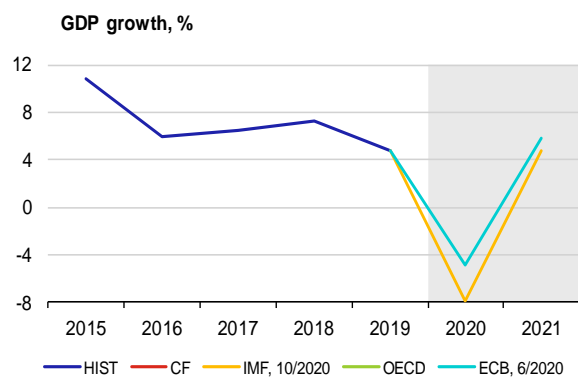


|      | CF   | IMF  | OECD  | ECB  |
|------|------|------|-------|------|
| 2020 | -6.7 | -6.4 | n. a. | -7.3 |
| 2021 | 4.2  | 4.7  | n. a. | 5.6  |

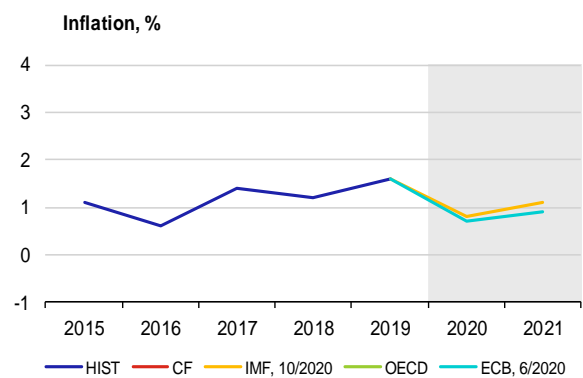


|      | CF   | IMF  | OECD  | ECB  |
|------|------|------|-------|------|
| 2020 | -0.7 | -0.6 | n. a. | -0.5 |
| 2021 | 0.7  | 1.0  | n. a. | 0.7  |

## Malta



|      | CF    | IMF  | OECD  | ECB  |
|------|-------|------|-------|------|
| 2020 | n. a. | -7.9 | n. a. | -4.8 |
| 2021 | n. a. | 4.8  | n. a. | 5.8  |



|      | CF    | IMF | OECD  | ECB |
|------|-------|-----|-------|-----|
| 2020 | n. a. | 0.8 | n. a. | 0.7 |
| 2021 | n. a. | 1.1 | 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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