GLOBAL ECONOMIC OUTLOOK - APRIL

2018

Monetary Department
External Economic Relations Division

CNB CZECH NATIONAL BANK

Cut-off date for data
13 April 2018

CF survey date
9 April 2018

GEO publication date
20 April 2018

Notes to charts

ECB and Fed: 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 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.

Authors

Luboš Komárek	**Pavla Břízová**	**Tomáš Adam**	**Filip Novotný**	**Soňa Benecká**
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| **Iveta Polášková**	**Oxana Babecká**	**Jan Hošek**	**Jan Brůha**
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I. SUMMARY

The April issue of Global Economic Outlook presents the regular monthly overview of recent and expected developments in selected territories, focusing on key economic variables: inflation, GDP growth, leading indicators, interest rates, exchange rates and commodity prices. The analytical section of this issue focuses on the differences in post-crisis macroeconomic developments across EU countries, focusing primarily on economic growth and the labour market. Using cluster analysis, we show that countries differ in their ability to successfully overcome a crisis. Our quantitative analysis reveals that this ability is determined by political stability, quality of regulation and pre-crisis fiscal space.

The current outlooks for economic growth in the advanced countries we monitor are roughly at, or slightly above, their March levels. The USA will continue to enjoy robust economic growth, which is expected to reach almost 3%. This figure should foster inflation pressures and enable the Fed to raise interest rates further as the markets expect. The situation in the euro area is rather different. It is continuing to grow at a solid rate, but probably slowed slightly at the start of the year. Along with a subdued inflation outlook and problematic developments in some euro area countries, this may lead to a postponement of the first increase in interest rates. The outlooks for the UK and Japan still indicate distinctly lower economic growth (compared to the USA and the euro area). Several Brexit-related factors combine in the case of the UK, where a significant drop in the potential of the economy coupled with depreciation of sterling caused inflation to rise. However, the fragile state of the economy limited the Bank of England's ability to actively return inflation to the target. Now the economy has stabilised, gradual increases in interest rates are expected (the earliest in May). By contrast, the inflation outlooks for Japan indicate that price growth there will, as usual, fluctuate at very low levels, i.e. around 1% only.

The current outlooks for GDP growth in the BRIC countries also provide evidence that the global economy will continue to see solid growth in the near future. Both India and China are showing strong economic growth as usual. The April outlooks indicate a slightly slower decline in Chinese GDP growth. By contrast, the Indian economy will return to more than 7.5% growth from its current slightly weaker rates. The inflation estimates for China are just above the 2% level. Price growth of almost 5% is expected for India. However, this rate can still be considered acceptable given the high economic growth in that country. The economic situation of the remaining two BRIC countries, particularly Brazil, can also be viewed as quite positive from the post-crisis perspective. The Brazilian economy will approach 3% GDP growth at the end of next year, but the Russian economy will remain slightly below 2%. The good news for these countries is that they will succeed in keeping inflation close to 4%.

According to market outlooks, euro area interest rates will remain very low for at least a year. Market outlooks are then signalling their first increase. In the case of the USA, interest rates can be expected to keep rising gradually, i.e. two more times in the rest of this year. According to CF, the US dollar will weaken slightly against the euro and the rupee, more strongly against the real and even more significantly against the rouble one year ahead. It will strengthen moderately against the pound, the yen and the renminbi. The Brent crude oil price will fluctuate around USD 67 a barrel at the one-year horizon. The outlook for prices of food commodities for this year is still rising, reflecting expected growth for most of the commodities under review (especially wheat and corn). Industrial metals prices are expected to be broadly stable.

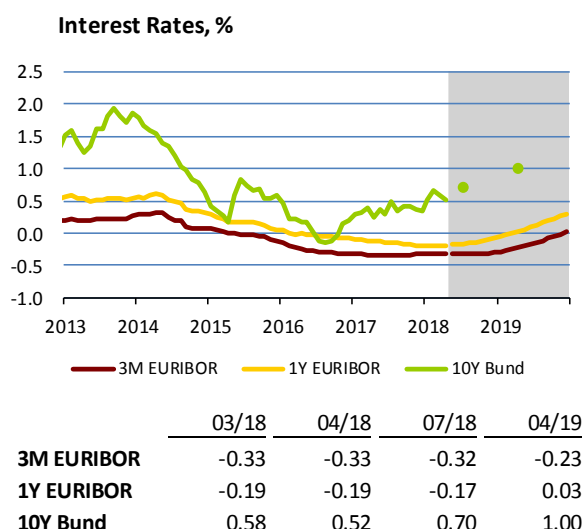## GDP growth and inflation development and outlook in monitored countries
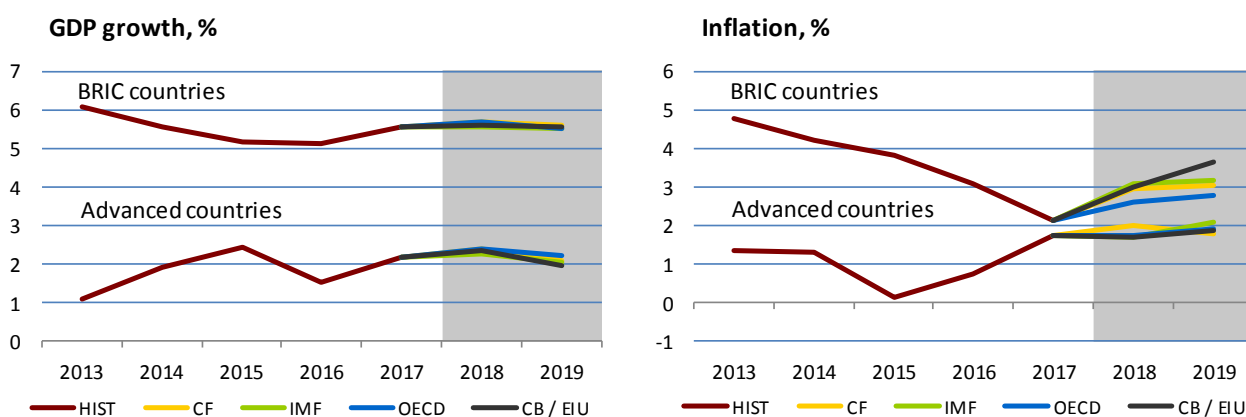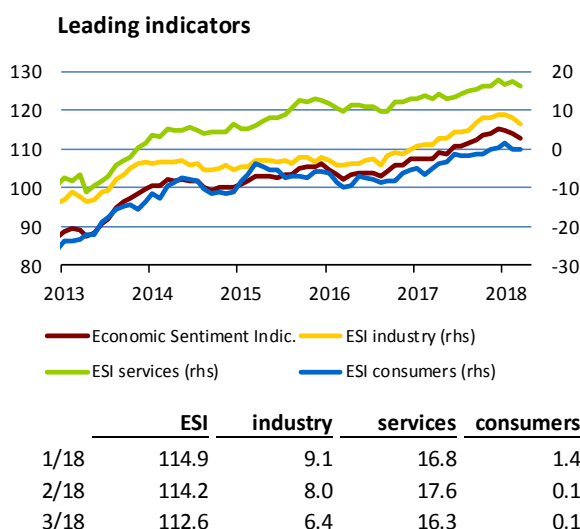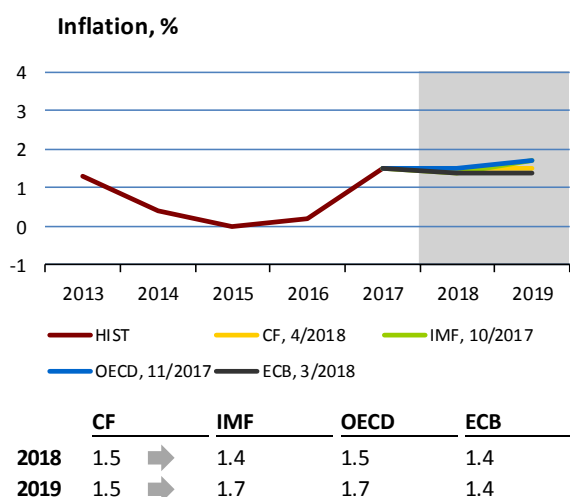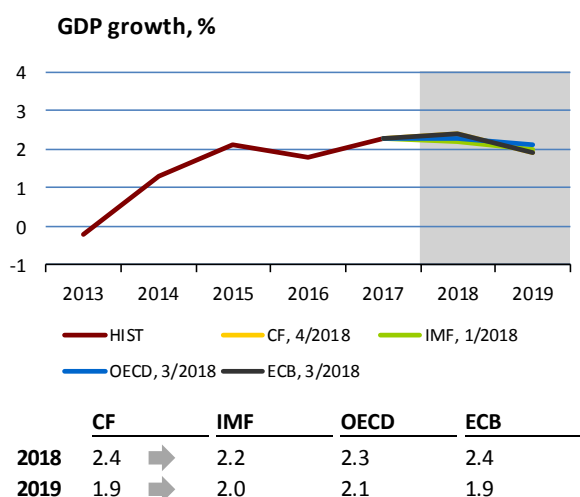

Note: The figures represent the weighted averages of historical series / outlooks in individual countries. The weights are based on nominal GDP measured in USD during 2013–2016 (source: EIU). Advanced countries: euro area, United States, United Kingdom, Japan. BRIC countries: China, India, Russia, Brazil.
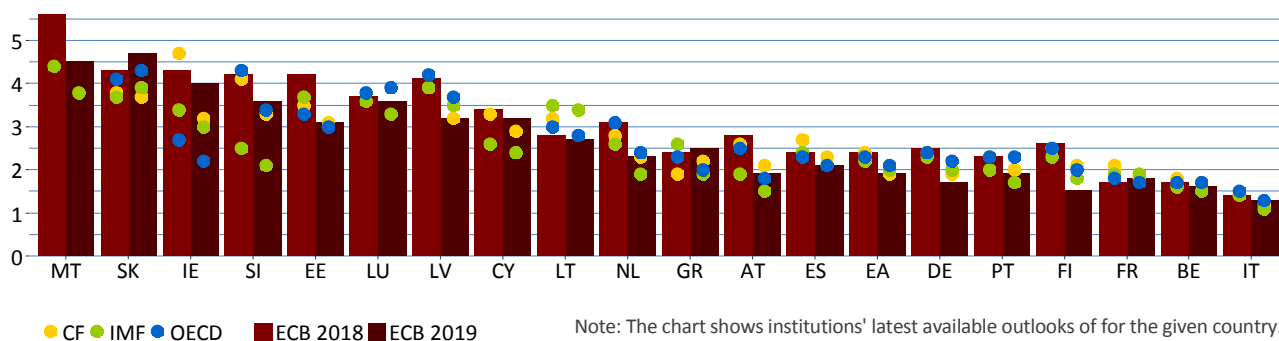
II.1 Euro area

The euro area economy continued to grow at a solid rate in 2018 Q1, although the available indicators are signalling a slowdown compared with the end of the previous year. Industrial production, for example, slowed in y-o-y terms by more than 2 pp to 2.9% in the first two months. Retail sales growth declined only slightly to 1.8% in February. Leading indicators are also pointing to slower expansion in the euro area. The PMI in manufacturing fell for the third month in a row in March, but remains safely in the expansionary territory. The March fall partly reflected one-off factors – mainly weather fluctuations, but also slightly lower optimism about the economic outlook. This is related mainly to the stronger euro, which is weighing on growth in export orders. The European Commission's leading indicators are also signalling lower pace of growth (see the chart below). Despite the weaker data at the start of the year, the April CF still expects economic growth to be similar to last year (2.4%), falling below 2% next year. The March ECB forecast expects similar growth rates.

Headline HICP inflation in the euro area rose by 0.3 pp to 1.4%, returning to its December level. This growth was due mainly to a higher contribution from food prices, while core inflation remained at 1.0%. The projected inflation rate is well below the ECB's target (at around 1.5% both this year and the next). The absence of fundamental inflationary pressures, linked mainly with low wage growth (1.7% year on year in 2017 Q4), in an environment of solid, albeit slowing, growth is thus generating uncertainty regarding the potential prolongation of securities purchases by the ECB. These purchases should continue at least until September this year at a monthly pace of EUR 30 billion. According to the ECB's March statement, key rates will remain at the current level well past the horizon of net asset purchases. Market outlooks expect no rise in rates before the end of 2019 Q1.

GDP growth, %

	CF		IMF	OECD	ECB
2018	2.4	➡	2.2	2.3	2.4
2019	1.9	➡	2.0	2.1	1.9

Inflation, %

	CF		IMF	OECD	ECB
2018	1.5	➡	1.4	1.5	1.4
2019	1.5	➡	1.7	1.7	1.4

Leading indicators

	ESI	industry	services	consumers
1/18	114.9	9.1	16.8	1.4
2/18	114.2	8.0	17.6	0.1
3/18	112.6	6.4	16.3	0.1

Interest Rates, %

	03/18	04/18	07/18	04/19
3M EURIBOR	-0.33	-0.33	-0.32	-0.23
1Y EURIBOR	-0.19	-0.19	-0.17	0.03
10Y Bund	0.58	0.52	0.70	1.00

GDP growth outlooks in the euro area countries in 2018 and 2019, %

● CF ● IMF ● OECD ■ ECB 2018 ■ ECB 2019   Note: The chart shows institutions' latest available outlooks of for the given country.

Inflation outlooks in the euro area countries in 2018 and 2019, %

● CF ● IMF ● OECD ■ ECB 2018 ■ ECB 2019   Note: The chart shows institutions' latest available outlooks of for the given country.
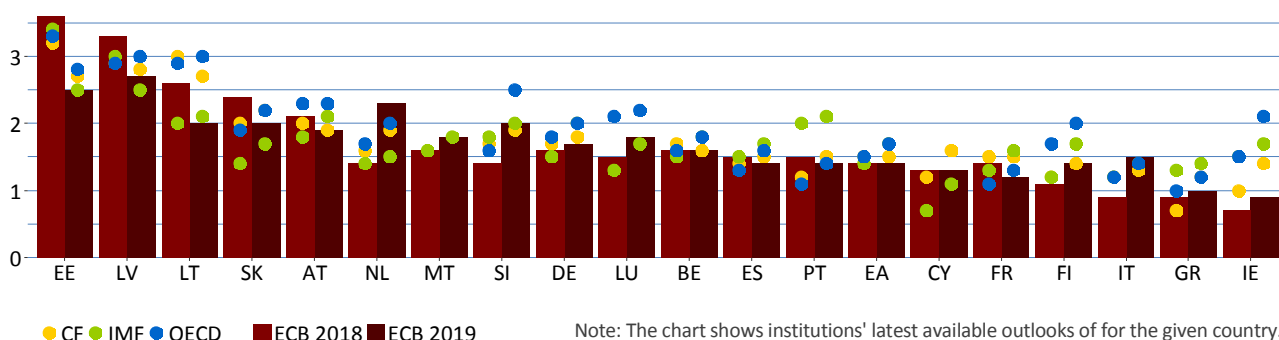
II.2 Germany

The outlooks for Germany remained unchanged from the previous month. Last year's relatively strong growth is thus expected to continue and not slow until 2019. GDP growth in 2017 Q4 was driven mainly by net exports after being dominated by household consumption in the previous period. This positive picture was clouded only by a distinct month-on-month drop in industrial production in February. At the same time, the March PMI in manufacturing is still indicating ongoing industrial expansion despite a moderate decrease in its value. Slight declines in the IFO and ZEW indices indicate concerns probably linked with the risk of protectionist trade measures. Export-oriented Germany, whose main export markets include the USA (which accounts for 8.9% of its total exports), could be hit relatively hard if these measures were to increase. Inflation is expected to remain subdued over the two-year horizon.

GDP growth, %

━ HIST   ━ CF, 4/2018   ━ IMF, 1/2018
━ OECD, 3/2018   ━ DBB, 12/2017

	CF		IMF	OECD	DBB
2018	2.4	⇒	2.3	2.4	2.5
2019	1.9	⇒	2.0	2.2	1.7

Inflation, %

━ HIST   ━ CF, 4/2018   ━ IMF, 10/2017
━ OECD, 11/2017   ━ DBB, 12/2017

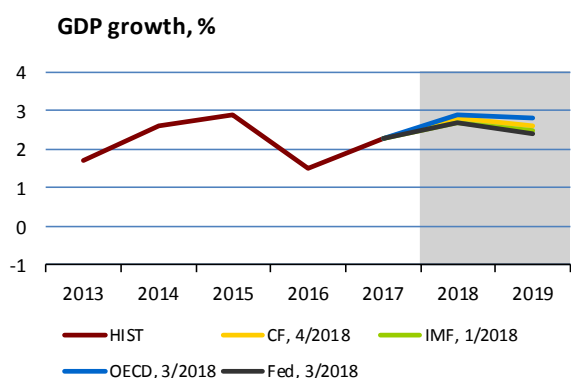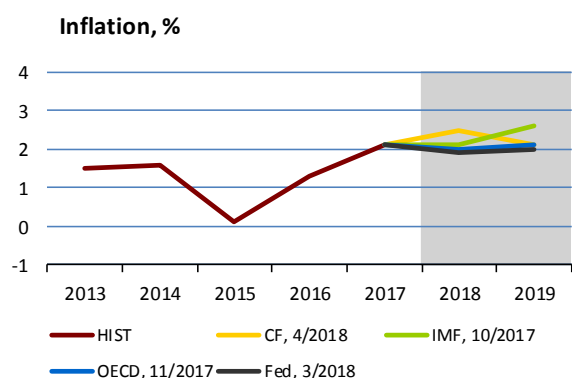|	CF		IMF	OECD	DBB
2018	1.7	⇒	1.5	1.8	1.6
2019	1.8	⇒	2.0	2.0	1.7
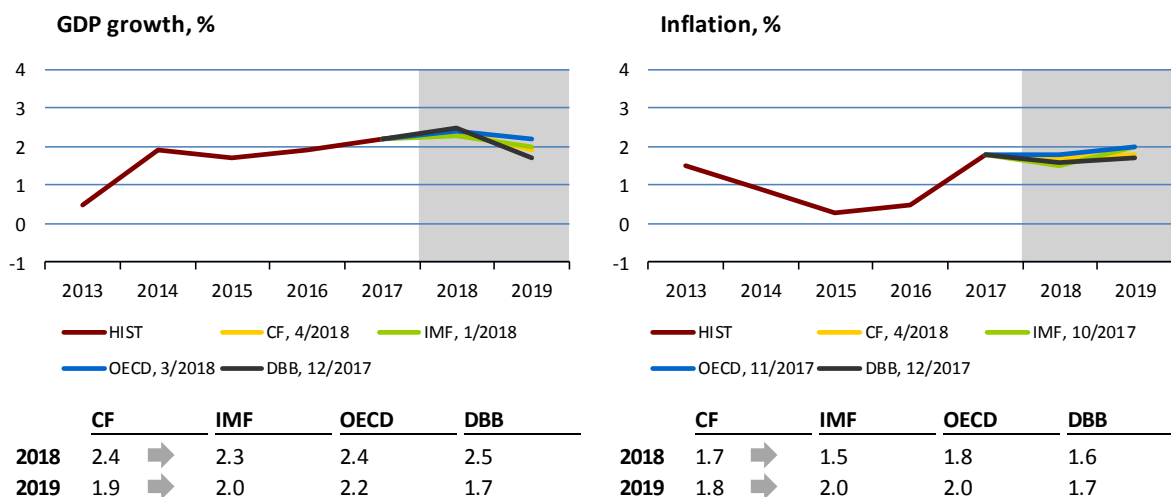
II.3 United States

Trade policy disputes between the USA and China culminated in March. The USA introduced import tariffs on steel and aluminium (and other Chinese products), while China responded in early April by imposing tariffs on imports of selected goods from the USA (soy beans, cars, chemicals, etc.). The escalation of tensions between the world's largest economies gave rise to concerns about a global trade war and hence a drop in interest in riskier assets (such as stock markets and emerging economies' currencies). The IMF warned against a sharp rise in protectionism jeopardising the global recovery. The conflict is unlikely to worsen given the financial and commercial links between the economies. However, it is possible that a platform for debate about intellectual property protection and US foreign direct investment in China (including acquisitions of majority holdings) will open soon.

The international trade tensions had some impact on business confidence. The ISM PMI fell slightly below 60 in March as firms recorded disruptions to steel and aluminium supplies. Overall, however, the economic data indicate a recovery of the US economy to continue in 2018 Q1 (currently 2% according to the Atlanta Fed), albeit to a lesser extent than in late 2017. The third estimate of growth in 2017 Q4 was even revised upwards to 2.9%, while consumer spending rose at the fastest rate in three years (4.0%).

The Fed's FOMC members also expect expansion of the US economy and higher inflation pressures. They approved an increase in the target range for the key rate of 25 bp to 1.50%–1.75% at their March meeting. They expect two more hikes by the end of the year. The rate outlooks for 2019 and 2020 shifted higher. According to the minutes, the ways in which the rates might rise faster in the future were discussed at the meeting. The new GDP growth forecasts were also revised up, while the consumer price outlook remained unchanged. Inflation should thus be close to the target. It reached a one-year high (2.4%) in March. Core inflation also increased (to 2.1%). The April CF now expects slightly higher inflation this year.

GDP growth, %

	CF	IMF	OECD	Fed
2018	2.8 ➡	2.7	2.9	2.7 ↗
2019	2.6 ➡	2.5	2.8	2.4 ↗

Inflation, %

	CF	IMF	OECD	Fed
2018	2.5 ↗	2.1	2.0	1.9 ➡
2019	2.1 ➡	2.6	2.1	2.0 ➡

Leading indicators
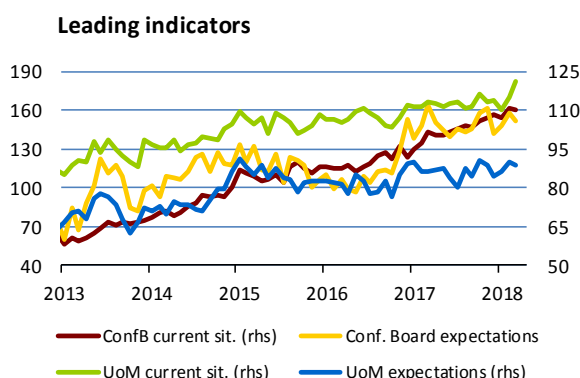
	ConfB curr.	ConfB exp.	UoM curr.	UoM exp.
1/18	154.7	104.0	110.5	86.3
2/18	161.2	109.2	114.9	90.0
3/18	159.9	106.2	121.2	88.8

Interest Rates, %
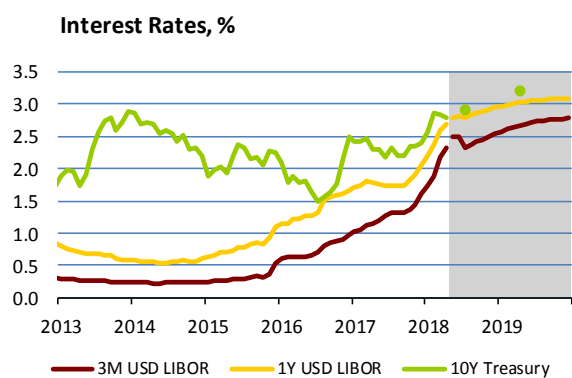
	03/18	04/18	07/18	04/19
USD LIBOR 3M	2.18	2.33	2.33	2.67
USD LIBOR 1R	2.60	2.60	2.79	3.02
Treasury 10R	2.84	2.80	2.90	3.20

II.4 United Kingdom

The final national accounts data confirmed that the UK economy slowed in late 2017. Annual GDP growth was 1.4% in Q4 (the only EU country with slower growth was Denmark). Growth in business investment was revised upwards (to 2.6%). By contrast, the final figure for labour productivity growth is slightly lower (0.7%). The household saving rate (5.3%) remains far below the long-term norm. Quarterly GDP growth was just 0.4%. According to the NIESR, it slowed further to 0.2% in 2018 Q1 (the BoE's estimate is 0.3%) due to unusually bad weather. While annual industrial production growth went up in February (to 2.2%), the decline in construction deepened (to 3%). The PMI index indicates no improvement either. In construction, it fell into the 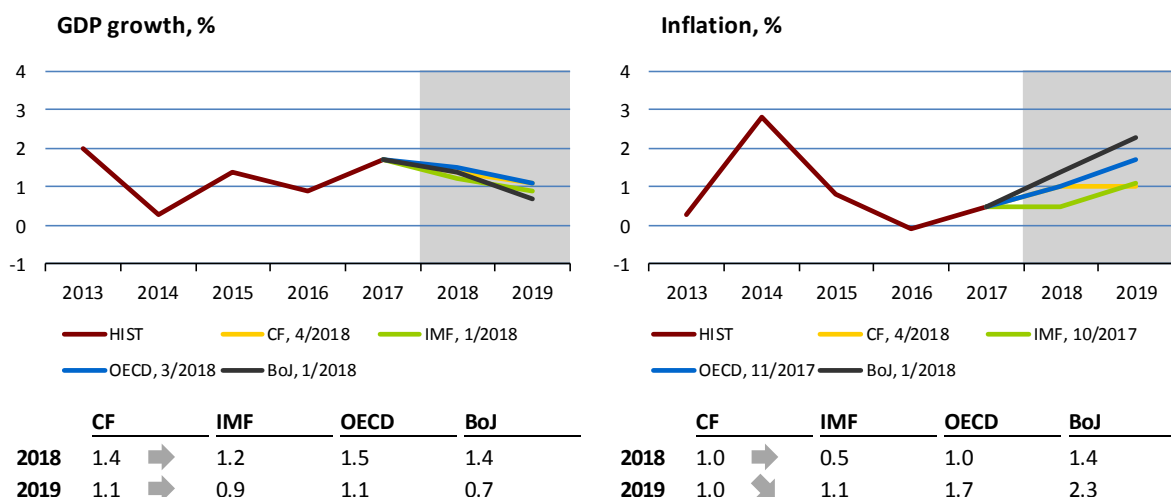contractionary territorry (47) in March, and it is also lower in services (51.7). CF responded to the data by lowering its GDP outlook for this year. Inflation slowed at last in February (to 2.7%, the lowest level since July). The BoE left rates unchanged. An increase is expected in May.

GDP growth, %

Legend: HIST | CF, 4/2018 | IMF, 1/2018 | OECD, 3/2018 | BoE, 2/2018

Inflation, %

Legend: HIST | CF, 4/2018 | IMF, 10/2017 | OECD, 11/2017 | BoE, 2/2018

	CF		IMF	OECD	BoE
2018	1.5	↘	1.5	1.3	1.8
2019	1.5	→	1.5	1.1	1.7

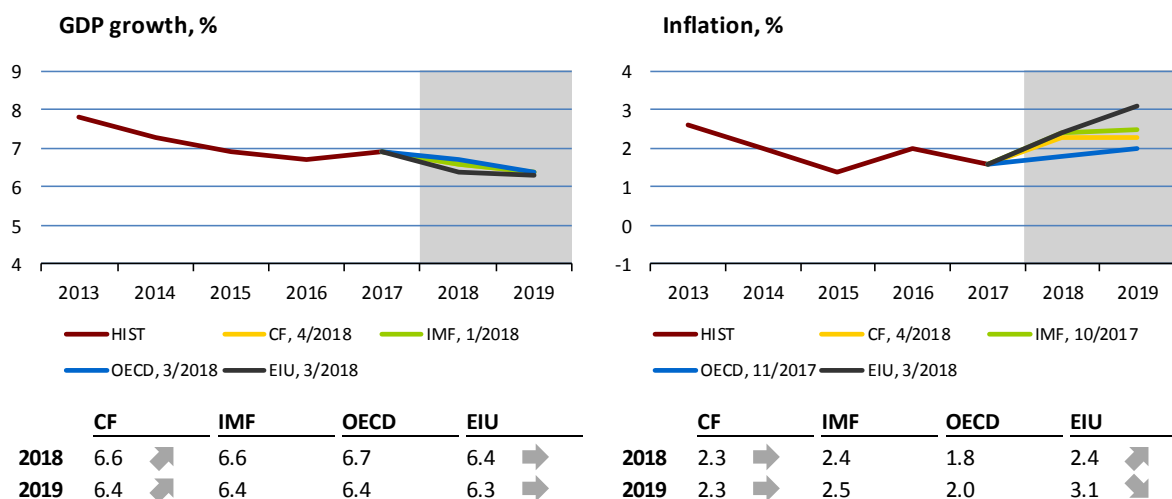|	CF		IMF	OECD	BoE
2018	2.6	→	2.6	2.6	2.4
2019	2.2	→	2.2	2.2	2.2
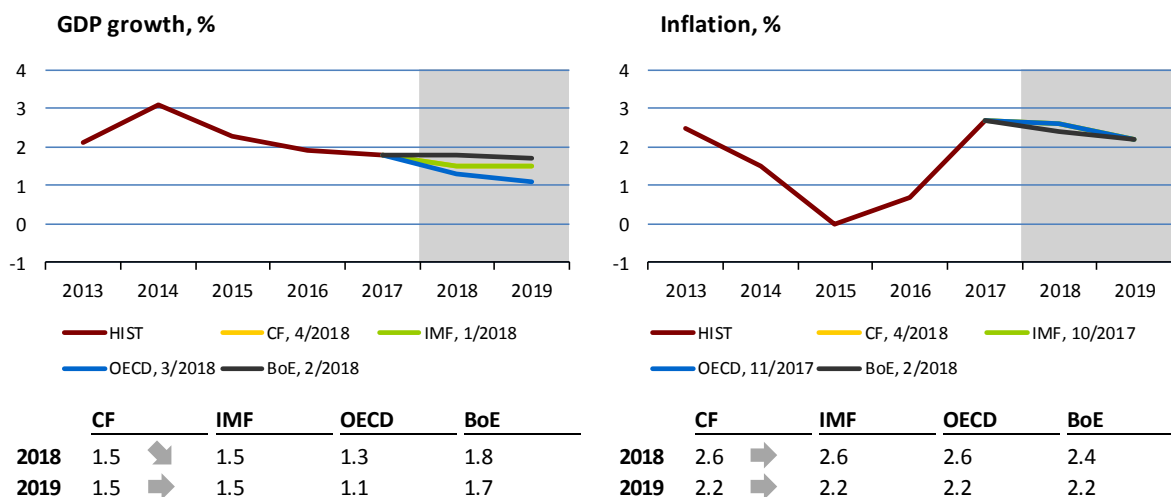
II.5 Japan

Year-on-year and month-on-month retail sales growth increased in February, as did wage growth. By contrast, household spending fell both year on year and month on month and unemployment went up slightly due to growth in youth unemployment. Industrial production growth slowed in year-on-year terms in February. However, it strengthened markedly month on month due to a recovery in output in most categories. The PMI in manufacturing dropped to 53.1 points in March. According to purchasing managers, output and employment rose at a slower rate. The GDP growth forecasts were unchanged. Annual consumer price inflation rose to 1.5% in February, driven by continued growth in food prices and a significant rise in transport prices. Inflation thus reached its highest level since March 2015. However, the April CF slightly lowered its inflation outlook for next year. It predicts price growth of 1% in both years.

GDP growth, %

Legend: HIST | CF, 4/2018 | IMF, 1/2018 | OECD, 3/2018 | BoJ, 1/2018

Inflation, %

Legend: HIST | CF, 4/2018 | IMF, 10/2017 | OECD, 11/2017 | BoJ, 1/2018

	CF		IMF	OECD	BoJ
2018	1.4	→	1.2	1.5	1.4
2019	1.1	→	0.9	1.1	0.7

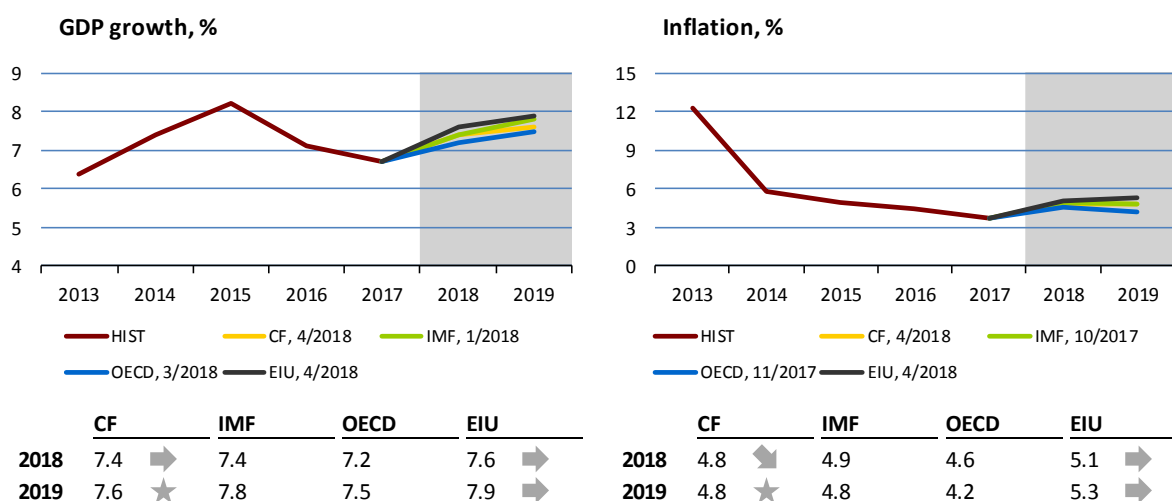|	CF		IMF	OECD	BoJ
2018	1.0	→	0.5	1.0	1.4
2019	1.0	↘	1.1	1.7	2.3

III.1 China

Despite the escalation of trade disputes with the USA, the April CF revised its outlook for Chinese economic growth upwards to 6.6% in 2018 and 6.4% in 2019. The Chinese government's official target for 2018 is 6.5%. The new data confirm an expansion in 2018 Q1. Industrial production growth remained solid at 7.2% in both January and February, as did retail sales (9.7%). The March PMI (51.3) is even indicating a further upswing in manufacturing output, as output restrictions (applied mainly in the winter due to pollution) are being reduced and construction is rising again. In March, car sales recorded year-on-year growth again (4.7%) and business confidence also improved. Consumer price inflation fell to 2.1% in March from a record high in February, while annual producer price inflation slowed for the fifth consecutive month. According to the April CF, inflation will be 2.3% both this year and the next. The new EIU outlook expects slightly higher inflationary pressures.

GDP growth, %

Inflation, %

	CF		IMF	OECD	EIU	
2018	6.6	↗	6.6	6.7	6.4	→
2019	6.4	↗	6.4	6.4	6.3	→

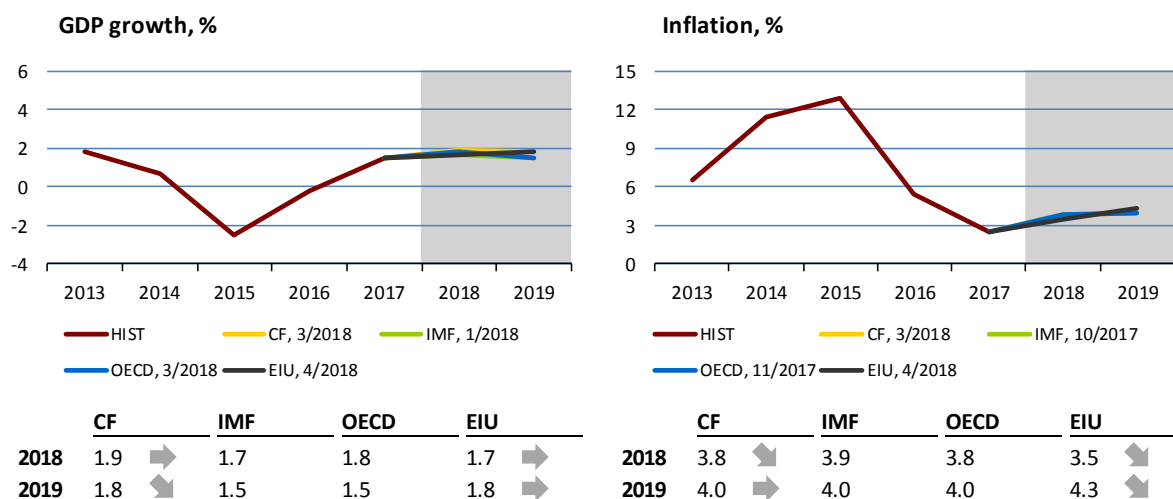|	CF		IMF	OECD	EIU	
2018	2.3	→	2.4	1.8	2.4	↗
2019	2.3	→	2.5	2.0	3.1	↘

III.2 India

Annual industrial production growth declined in February due to slower growth in electricity production and a sharper decline in mining. The PMI in manufacturing fell to 51 points in March. According to purchasing managers, the decline was due to slower growth in output and exports, a drop in employment and a deterioration in overall sentiment in the sector. The GDP growth forecasts were unchanged. CF published its outlook for the next fiscal year 2019/2020. Like the other institutions, it expects growth to increase this year compared with the current fiscal year 2018/2019. Annual inflation fell further (to 4.3%) in March due to lower growth in prices of food, particularly vegetables, and fuel and energy. CF slightly lowered its inflation forecast for this fiscal year. For the next fiscal year, it expects the same inflation as this year. The RBI left its monetary policy stance unchanged at its April meeting. Its policy rate thus remains at 6%.

GDP growth, %

Inflation, %

	CF		IMF	OECD	EIU	
2018	7.4	→	7.4	7.2	7.6	→
2019	7.6	★	7.8	7.5	7.9	→

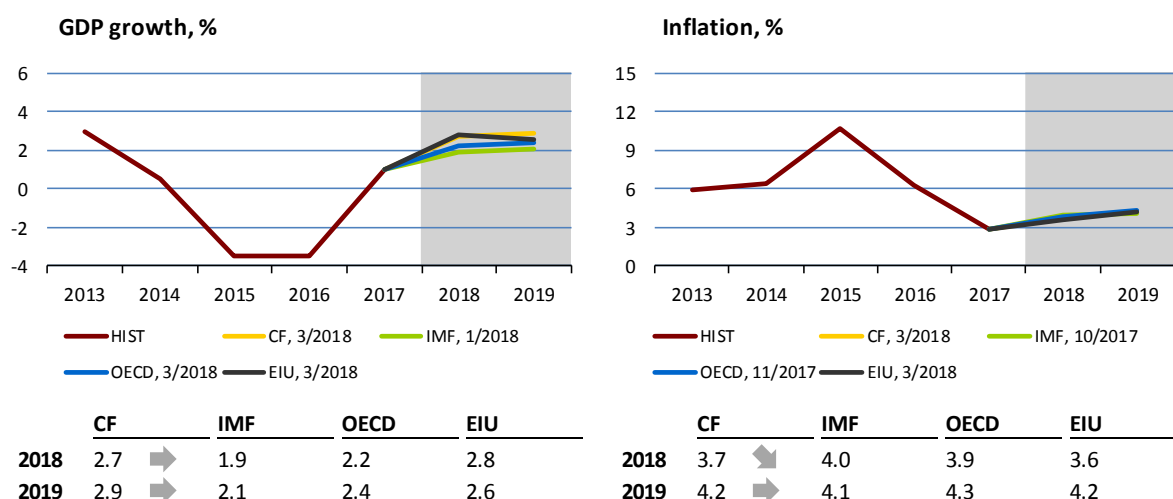|	CF		IMF	OECD	EIU	
2018	4.8	↘	4.9	4.6	5.1	→
2019	4.8	★	4.8	4.2	5.3	→

III.3 Russia

Quarterly GDP growth dropped for the first time in five quarters (to 0.4%) at the end of last year. Annual growth declined from 2.2% to 0.9%, but the full-year growth rate was unchanged. The Russian central bank continued to ease monetary policy. It cut its policy rate by a further 25 bp to 7.25% in late January. This was the fifth consecutive cut since last September, and the central bank says it will not be the last one this year. However, the CBR regards the deterioration in economic performance at the end of 2017 as temporary and expects a recovery still this year. At the same time, it believes that the economy is less sensitive to changes in oil prices. According to the CBR, the economy will grow by 1.5%–2.0% over the three-year horizon (2018–2020). This projection is in line with the latest CF and EIU forecasts, which expect GDP growth of 1.7%–1.9% in 2018–2019. According to CF and the EIU, inflation will reach the target (or even slightly exceed it) next year.

GDP growth, %

HIST — CF, 3/2018 — IMF, 1/2018 — OECD, 3/2018 — EIU, 4/2018

Inflation, %

HIST — CF, 3/2018 — IMF, 10/2017 — OECD, 11/2017 — EIU, 4/2018

	CF		IMF	OECD	EIU	
2018	1.9	➡	1.7	1.8	1.7	➡
2019	1.8	⬇	1.5	1.5	1.8	➡

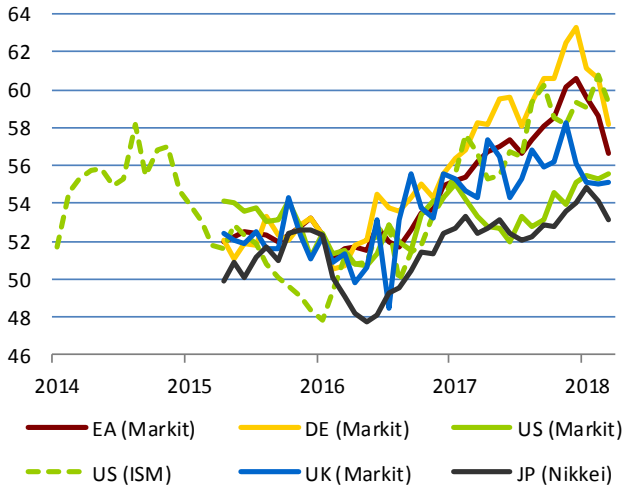|	CF		IMF	OECD	EIU	
2018	3.8	⬊	3.9	3.8	3.5	⬊
2019	4.0	➡	4.0	4.0	4.3	⬊

III.4 Brazil

Short-term developments in the Brazilian economy do not look very optimistic. Annual industrial production growth dropped by more than half in February compared with January (from 5.8% to 2.8%). Total unemployment went up to 12.6%. The March composite PMI went down, although solely because of a decline in the PMI in services (from 52.7 to 50.4). By contrast, the manufacturing trend remains quite positive as regards the PMI in that sector, which even rose slightly (to 53.4). Food price deflation increased from 1.4% to 1.6% in March. Headline inflation meanwhile slowed to 2.7%. Given the increasing risk of a protracted undershooting of the inflation target (4.5% ± 1.5 pp), the Brazilian central bank cut its policy rate further in the second half of March (by 25 bp to 6.5%) in line with expectations. CF lowered its forecast for inflation in December 2018 by 0.2 pp to 3.7%. The other monitored CF outlooks were unchanged.
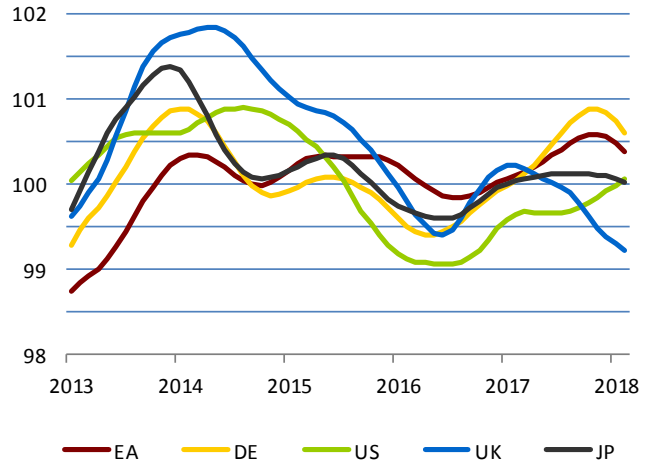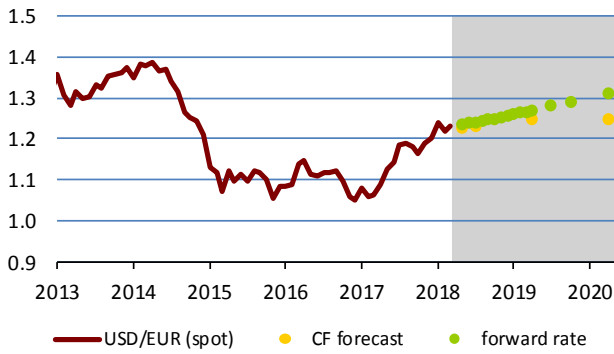

GDP growth, %

HIST — CF, 3/2018 — IMF, 1/2018 — OECD, 3/2018 — EIU, 3/2018

Inflation, %

HIST — CF, 3/2018 — IMF, 10/2017 — OECD, 11/2017 — EIU, 3/2018

	CF		IMF	OECD	EIU
2018	2.7	➡	1.9	2.2	2.8
2019	2.9	➡	2.1	2.4	2.6

	CF		IMF	OECD	EIU
2018	3.7	⬊	4.0	3.9	3.6
2019	4.2	➡	4.1	4.3	4.2

IV.1 Advanced economies

PMI in manufacturing

- EA (Markit)
- DE (Markit)
- US (Markit)
- US (ISM)
- UK (Markit)
- JP (Nikkei)

OECD Composite Leading Indicator

- EA
- DE
- US
- UK
- JP

The US dollar (USD/EUR)

- USD/EUR (spot)
- CF forecast
- forward rate

	9/4/18	05/18	07/18	04/19	04/20
spot rate	1.231				
CF forecast		1.227	1.232	1.246	1.246
forward rate		1.235	1.241	1.269	1.310

The British pound (GBP/USD)

- GBP/USD (spot)
- CF forecast
- forward rate
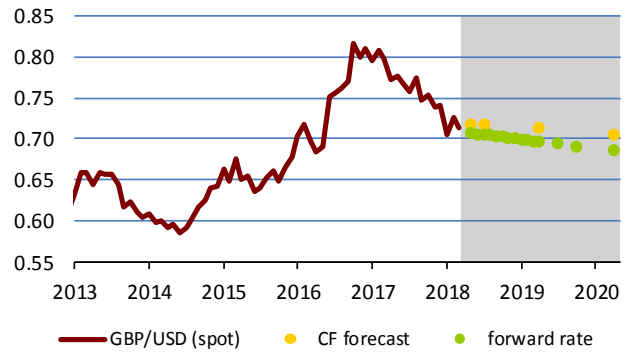
	9/4/18	05/18	07/18	04/19	04/20
spot rate	0.708				
CF forecast		0.718	0.717	0.714	0.705
forward rate		0.707	0.705	0.697	0.686

The British pound (GBP/EUR)

- GBP/EUR (spot)
- CF forecast
- forward rate
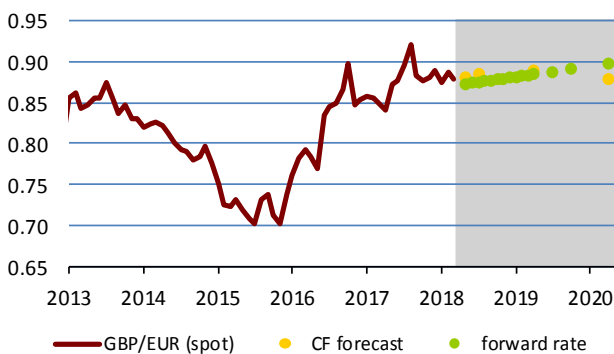
	9/4/18	05/18	07/18	04/19	04/20
spot rate	0.871				
CF forecast		0.881	0.884	0.889	0.878
forward rate		0.873	0.874	0.884	0.898

The Japanese yen (JPY/USD)

- JPY/USD (spot)
- CF forecast
- forward rate
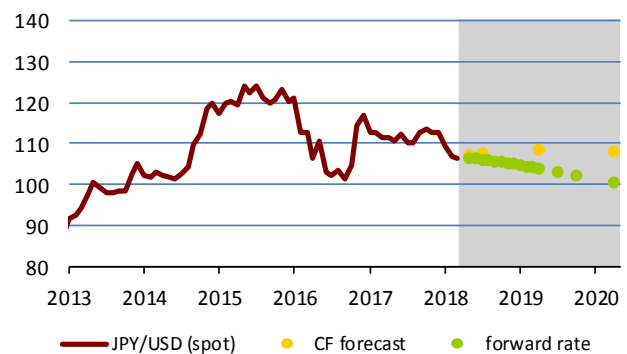
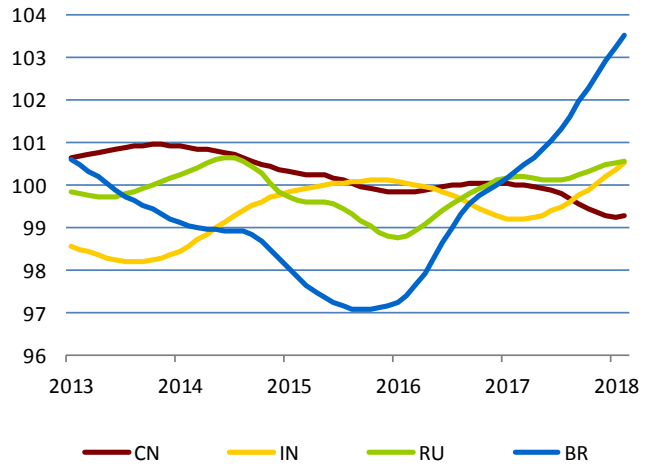|	9/4/18	05/18	07/18	04/19	04/20
spot rate	107.0				
CF forecast		107.4	107.8	108.5	108.0
forward rate		106.6	106.1	103.8	100.6

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.
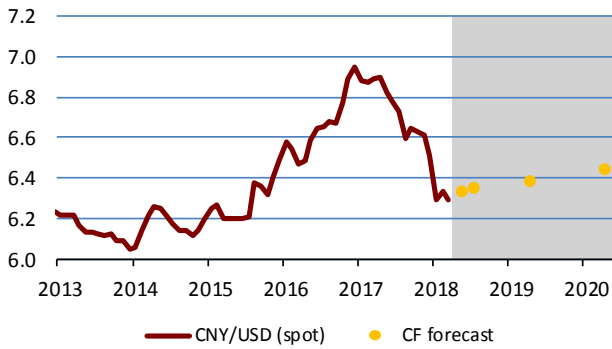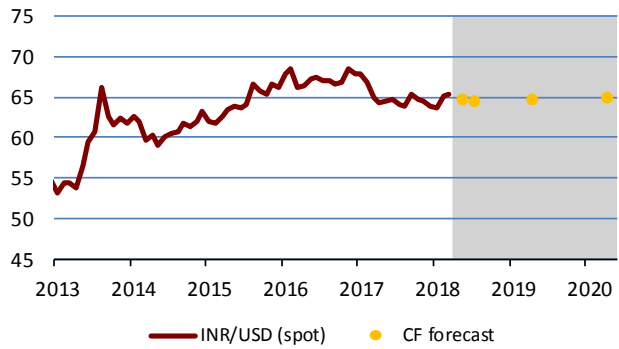
IV.2 BRIC countries

PMI in manufacturing

— CN (Caixin)   — IN (Nikkei)   — RU (Markit)   — BR (Markit)
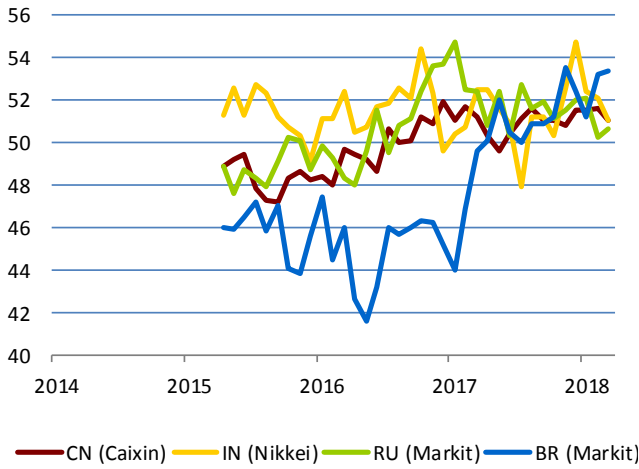
OECD Composite Leading Indicator

— CN   — IN   — RU   — BR

The Chinese renminbi (CNY/USD)

— CNY/USD (spot)   ● CF forecast

	9/4/18	05/18	07/18	04/19	04/20
spot rate	6.311				
CF forecast		6.338	6.350	6.382	6.447

The Indian rupie (INR/USD)

— INR/USD (spot)   ● CF forecast

	9/4/18	05/18	07/18	04/19	04/20
spot rate	65.01				
CF forecast		64.64	64.57	64.68	65.00

The Russian rouble (RUB/USD)

— RUB/USD (spot)   ● CF forecast

	9/4/18	05/18	07/18	04/19	04/20
spot rate	60.27				
CF forecast		57.23	57.02	56.74	59.06
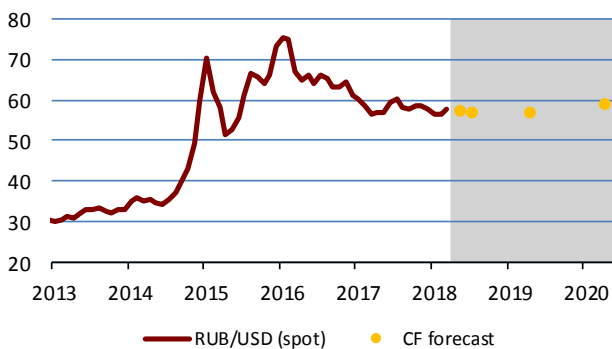
The Brazilian real (BRL/USD)

— BRL/USD (spot)   ● CF forecast

	9/4/18	05/18	07/18	04/19	04/20
spot rate	3.388				
CF forecast		3.259	3.259	3.268	3.425

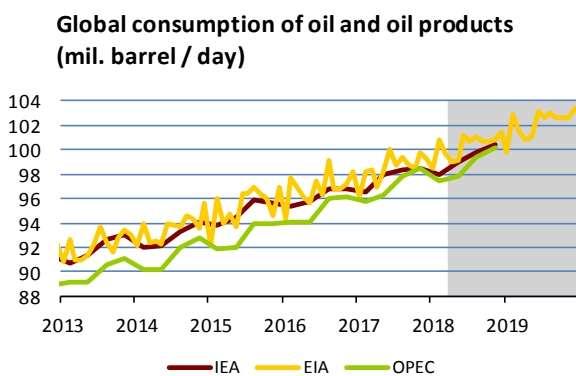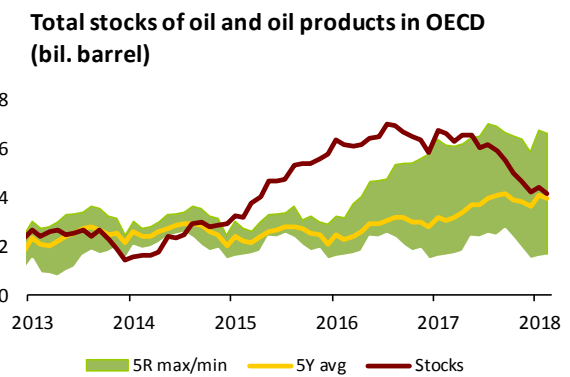Note: Exchange rates as of last day of month.

V.1 Oil and natural gas

The price of Brent crude oil fluctuated close to USD 65/bbl from mid-February to mid-March, while showing quite strong volatility in line with US stock markets. Its relatively strong level was supported by robust demand growth forecasts, falling oil stocks in the USA and worldwide, and growing geopolitical tensions in the Middle East. A higher price was also fostered by a weaker dollar and continued strict compliance with production quotas by large producers. Concerns about rising output in the USA and a potential trade war between the USA and China had the opposite effect. The oil price surged in late March on the back of a further escalation of the tensions in Syria and the threat of renewed sanctions against Iran by the USA. The growth in the Brent crude oil price above USD 70/bbl was also driven by the prospect of a further drop in oil output in Venezuela as flagged by the IEA. In mid-April, the Brent price reached its highest level since November 2014 as China and the USA resumed talks about their trade relations. Investors are holding record-high net long positions in Brent crude oil.
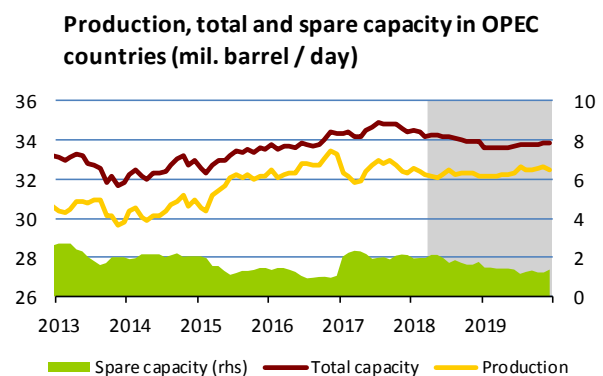
The market curve based on Brent futures shifted up again compared with the previous month (by about USD 2.5/bbl), implying an average price of USD 66.9 and USD 63.1/bbl for this year and the next respectively. The April CF expects stagnation close to USD 65/bbl. The EIA forecast is also more or less horizontal, expecting an average price of USD 63/bbl for both this year and the next. It thus evidently does not incorporate the current risk premium stemming from the tense geopolitical situation around the world and is putting more of an emphasis on expected future growth in oil production in the USA. However, US shale oil output is starting to run into capacity constraints on pipelines to processors in some areas.

Outlook for prices of oil (USD/barrel) and natural gas (USD / 1000 m³)
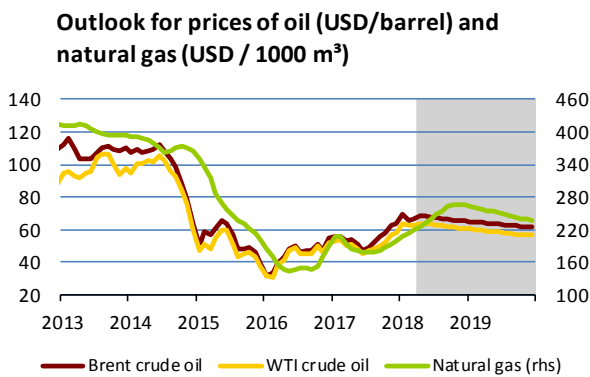
	Brent		WTI		Natural gas	
2018	66.86	↗	62.45	↗	241.37	↗
2019	63.08	↗	58.28	↗	249.66	↗

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

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

	IEA		EIA		OPEC	
2018	99.29	↗	100.31	↗	98.68	↗
2019			102.16	↗		

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

	Production		Total capacity		Spare capacity	
2018	32.29	↘	34.15	↘	1.86	↘
2019	32.36	↘	33.70	↘	1.34	→

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.

V.2 Other commodities

After two months of growth, the aggregate non-energy commodity price index dropped slightly in March and stayed at that level in the first half of April. The sub-indices showed mixed trends. The food commodity price sub-index extended its run of growth to three months in a row in March and fell only slightly in mid-April, while the industrial metals price sub-index recorded a sharp fall in March and erased its losses only partly in mid-April. The outlook for the overall index is rising this year due to the outlook for food prices. It is then flat, with both sub-indices contributing to the stability.

The March drop in the metals price index was the largest in more than two years. Prices of all components except nickel decreased. This was due to a slowdown in manufacturing, particularly in advanced countries, and uncertainty regarding trade relations between the USA and China after the former introduced import tariffs on steel and aluminium from China of 25% and 15% respectively. In March, the J.P.Morgan Global Manufacturing PMI fell from 54.1 to 53.4 (a five-month low), but the official PMI in China increased. The decline in copper and zinc prices strengthened on the back of large growth in their stocks on the LME in March. The copper price also fell on news of a deal between employers and trade unions in Chile, the largest producer of this commodity. The price of iron ore went down due to the previous cooling of the real estate market in China coupled with rising stocks and US-Chinese trade disputes. The aluminium price, and to a lesser extent the copper price, responded the renewed talks between China and the USA by rising sharply in early April. As for agricultural commodities, grains and cocoa prices increased in March. By contrast, prices of sugar, coffee and meat (pork and beef) kept falling. The price of natural rubber also dropped sharply.

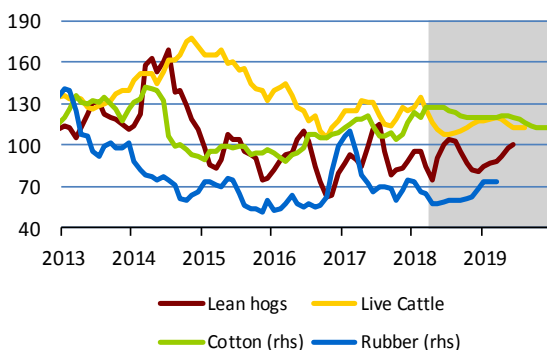**Non-energy commodities price indicies**
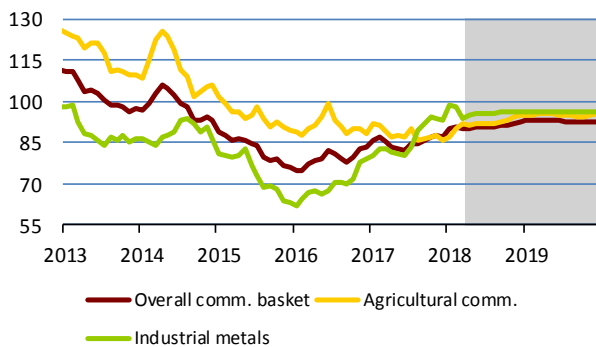
	Overall		Agricultural		Industrial	
2018	90.9	↘	92.0	↘	96.1	↗
2019	92.8	↘	95.2	↘	96.5	↘

Food commodities
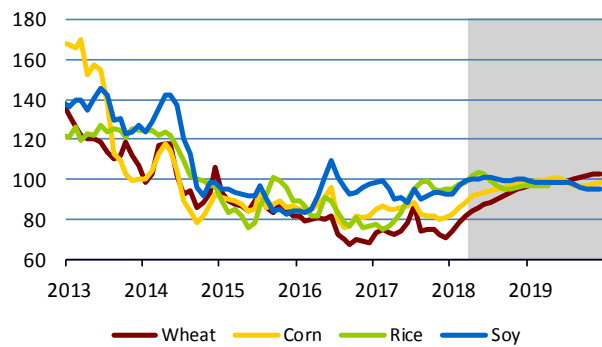
	Wheat		Corn		Rice		Soy	
2018	87.3	↗	92.8	↗	98.3	↗	99.2	↗
2019	99.6	↗	98.7	↗	96.7	↗	97.6	↘

Meat, non-food agricultural commodities

	Lean hogs		Live Cattle		Cotton		Rubber	
2018	91.3	↘	116.3	↘	85.8	↗	45.1	↘
2019	91.7	↘	116.0	↘	81.7	↗	52.3	↘

Basic metals and iron ore
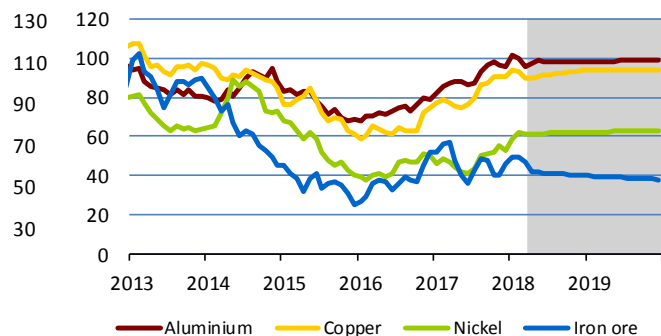
	Aluminium		Copper		Nickel		Iron ore	
2018	98.3	↗	92.0	↘	61.5	↘	43.0	↘
2019	98.5	↗	93.8	↘	62.5	↘	38.9	↘

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.

Post-crisis heterogeneity across EU countries[1]

This article documents the differences in post-crisis macroeconomic developments across EU countries, focusing primarily on economic growth and the labour market. Cluster analysis reveals that countries can be split into several classes based on their ability to successfully overcome the crisis. Countries within each class show similar GDP growth and unemployment dynamics both during and after the crisis. The classes of countries also differ in quality of institutions and regulation, pointing to the key role played by quality of the institutional environment and effectiveness of regulation in countries' resilience to shocks. A quantitative analysis shows that political stability, quality of regulation and pre-crisis fiscal space are the most important factors associated with rapid recovery from the crisis. We also demonstrate that in many countries, cumulative average wage growth outpaced cumulative labour productivity growth during the post-crisis period, so the weak wage growth observed in some European countries in past years is no macroeconomic puzzle.

Uneven impacts of the Great Recession on EU countries

The Great Recession that followed the 2007–2008 financial crisis adversely affected real economic activity and labour markets in almost all developed nations. Advanced economies saw the biggest falls in GDP in 2009. In the euro area, output decreased by 4% in real terms and the unemployment rate neared 10%. GDP in high-income economies dropped by 3.4%. This is double the decline in global GDP recorded that year.[2]

The impact of the Great Recession on economic activity and employment was very mixed across sectors. Sectors reliant on external funding were the first to be hit by the financial crisis. This was the case of construction in many EU countries. Its value added decreased by 9% on average. However, some countries saw a fall in value added in this sector of more than 20%. This was followed by a drop in external trade caused by falling global economic activity, which hit manufacturing particularly hard. The decline in external demand differed in size across countries. Open, export-oriented economies were naturally more vulnerable than larger, closed ones.[3]

The differences across EU countries due to large differences in value added structure are no less as important as sectoral differences. Chart 1 illustrates these differences using macroeconomic developments in Slovakia, France, Lithuania and Spain as typical representatives of the various classes. Real GDP declined after 2008 in all four cases. This decline was accompanied
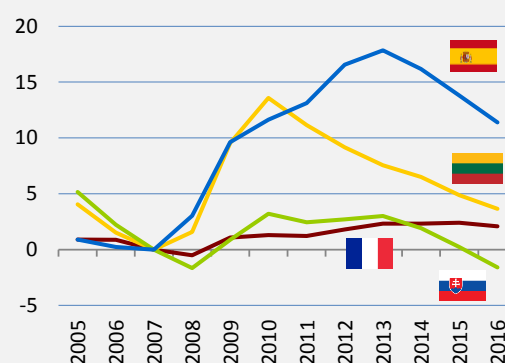
Chart 1 – Stylised facts

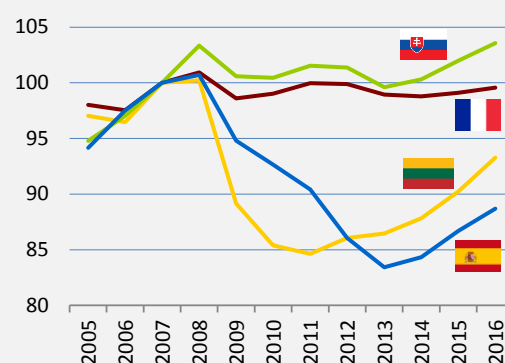**a) Real GDP growth**
(index; 2007 = 100)
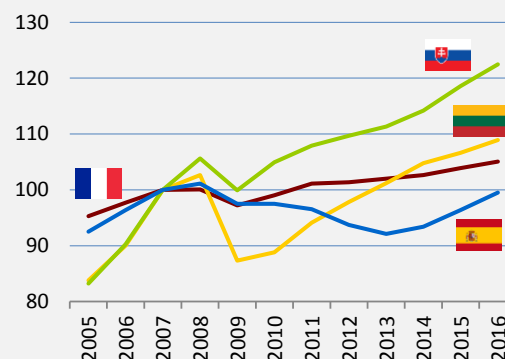
b) Unemployment
(difference versus 2007 in pp)

c) Growth in hours worked
(index; 2007 = 100)

Source: Eurostat.
Note: France (brown), Lithuania (yellow), Slovakia (green), Spain (blue)

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[1] Authors: Oxana Babecká Kucharčuková and Jan Brůha. The views expressed in this article are those of the authors and do not necessarily reflect the official position of the Czech National Bank. The article draws on research results published in the authors' working paper *An Empirical Analysis of Macroeconomic Resilience: The Case of the Great Recession in the European Union* (CNB WP 10/2017).

[2] European and Central Asian economies outside the high-income category (as defined by the World Bank) also recorded a major decline. GDP in this block of countries declined by 6.1% (with the exception of the euro area the data are in USD; constant 2010 prices; source: World Development Indicators).

[3] For instance, the simple arithmetic average of the degree of openness of the V4 countries (as measured by the ratio of total foreign trade to GDP) exceeded 160% in 2017. The figure for the EU28 is just above 90%. However, the trading openness of EU countries had almost doubled since 1995, and this also increased their vulnerability to an external shock.

by a rise in unemployment and a decrease in hours worked. In two countries (France and Slovakia), the decline in GDP was relatively modest and by 2011 the real output level was back above the pre-crisis level. In Lithuania and Spain, on the other hand, the slump was deeper and longer-lasting and unemployment growth also differs from the pre-crisis levels. In Slovakia, the unemployment rate was lower in 2015 than in the pre-crisis year 2007. This is not the case for the other three countries. This heterogeneity is reflected in heterogeneity of hours worked. In Slovakia and France, the initial decline in hours worked was similar, but in Slovakia the number of hours worked started to rise robustly after 2014. Spain and Lithuania recorded a dramatic drop in hours worked at the start of the crisis, but in Lithuania hours worked started to grow faster, so the difference relative to the pre-crisis years is significantly lower than in Spain.

This cross-country heterogeneity may be due to the size and type of the initial shock in the first few years after the onset of the economic crisis. The size of this shock depends on the trading and financial openness of the economy but fails to explain the different experiences across countries and sectors during the crisis. The fall in effective external demand, which can be viewed as a measure of the size of the external shock, is similar across the four countries (France, Lithuania, Slovakia and Spain).

Types of economic growth in EU countries post-2007

Despite the above heterogeneity, EU countries can be split into several classes showing qualitatively similar economic developments after 2007. Economic activity and labour market developments within each class display the same quantitative features, but the differences in economic developments between the classes are large. Cluster analysis seems to be suitable method for splitting countries. It clusters them in such a way that countries in one class are more similar to each other than to those in other classes. A variant of this method was applied in studies by Brůha and Babecká Kucharčuková (2017, 2018).[4] Its results showed that the patterns of economic development in the EU can be divided into four classes.

The first class of countries is characterised by an initial decline in economic activity, although this decline has since been overcome. The countries in this class recorded a relatively modest initial decline in GDP (see Table 2), while their unemployment rate rose by less than 3 pp on average. Several years later, however, economic growth resumed. This was accompanied by a gradual decline in the unemployment rate, which was lower in 2016 than at the start of the crisis in 2008 in all the countries in this class. Real wage growth was initially subdued but generally outpaced labour productivity growth. As unemployment went down, however, wages started to rise again with a lag. This real wage growth is in line with textbook examples in terms of business cycles in advanced countries.[5] The Czech Republic, Hungary, Poland, Germany and Slovakia, along with the UK and Malta, were assigned to this class on the basis of the analysis.

Table 1 – Change in unemployment compared to 2007						
(pp; average for each class of countries)	2008	2009	2010	2012	2014	2016
Class I	-0.84	0.74	1.51	1.13	-0.13	-2.17
Class II	-0.54	0.74	1.53	02.5	2.51	1.47
Class III	1.43	9.28	12.5	8.35	5.13	3.13
Class IV	0.35	2.77	4.33	9.33	10.50	7.75

Source: Authors' calculations based on Eurostat data.
Note: The mean of the values for the countries of each class.

The second class contains countries that saw renewed economic growth after the initial shock but their labour market situation did not improve. After the crisis eased, unemployment in these countries remained almost 2 pp higher in 2016 than in 2008 (see Table 1). Wage growth remained weak in these countries, yet cumulative wage growth for the period as a whole was higher than labour productivity. Given the weak labour productivity growth and persisting high unemployment, rapid real wage growth cannot be expected in these countries at present. This class comprises Austria, Belgium, Bulgaria, Croatia, Denmark, Finland, France, Luxembourg, the Netherlands, Romania and Sweden.

The third class comprises countries that recorded a significant economic downturn at the start of the crisis, but which were able to quickly overcome this severe initial shock. The initial average drop in real GDP was more than 10%, and unemployment in this class rose by almost 10 pp on average. However, the economic situation in these countries started to improve after 2010 – economic growth

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[4] Details regarding the methodology, the variables used and the sensitivity analysis can be found in the mentioned articles.

[5] This reflects the countercyclicality of the ratio of wages and salaries to GDP, which is a well-established stylised fact for advanced economies (see, for example, Brůha and Polanský, 2005).

resumed and the unemployment rate started to go down gradually. Real wage growth is an interesting feature of the countries in this class. It grew much more slowly than labour productivity (or even declined), which makes these countries specific. This class is relatively small, comprising only Ireland and the Baltic countries: Estonia, Latvia and Lithuania.

Table 2 – Cumulative real GDP growth since 2007

(%; average for each class of countries)

	2008	2009	2010	2012	2014	2016
Class I	2.43	-1.44	1.50	4.76	10.5	16.74
Class II	1.68	-3.32	-1.30	0.21	2.69	7.40
Class III	-2.65	-15.71	-15.31	-6.74	-0.30	9.87
Class IV	1.16	-3.27	-3.20	-8.90	-10.65	-7.05

Source: Authors' calculations based on Eurostat data.
Note: The mean of the values for the countries of each class.

The fourth class of countries is still showing low real GDP growth rates and high unemployment rates compared to the pre-crisis period. Typically, the real GDP level was lower in 2016 than in 2007 and unemployment was 2 pp higher. These countries had thus not yet overcome the crisis shock. Moreover, real wage growth outpaced labour productivity growth throughout the period in these countries. This class consists of the southern periphery countries: Cyprus, Greece, Italy, Portugal and Spain, along with Slovenia.

Table 3 – Cumulative growth in labour productivity and the average wage since 2007

(%; average for each class of countries)

		2008	2009	2010	2012	2014	2016
Class I	labour productivity growth	3.78	4.03	10.24	16.53	22.34	27.14
	average wage growth	4.82	6.73	11.75	18.41	23.12	28.50
Class II	labour productivity growth	4.37	3.93	8.23	15.05	19.85	25.41
	average wage growth	6.99	9.92	11.81	18.73	23.91	29.45
Class III	labour productivity growth	3.46	0.23	5.52	19.51	26.47	36.05
	average wage growth	10.80	7.59	5.58	14.57	23.27	32.39
Class IV	labour productivity growth	2.84	2.62	5.18	7.34	8.63	9.74
	average wage growth	4.82	8.35	10.74	10.11	8.09	9.76

Source: Authors' calculations based on Eurostat data.
Note: The mean of the values for the countries of each class. Growth rates are based on figures in the national currency.

An intensive debate has been going on lately about whether the post-crisis period has been a time of subdued wage growth and inflation. Wages are a significant part of household income and thus affect households' welfare and consumption. They are also an important cost factor and their growth affects domestic inflation pressures. If this post-crisis "new normal" consisted in low nominal wage growth,[6] it would have an adverse effect on central banks' ability to return inflation to the inflation target.

EU countries differ both in terms of wage growth and in terms of labour productivity growth, which is a long-run driver of wage growth. When we look at growth in wages and productivity through the lens of the above division of countries into classes, we can see that the classes also differ systematically in these two variables. In the first class of countries, wage growth was higher than labour productivity immediately following the outbreak of the crisis, whereas productivity growth was conversely higher than average wage growth after 2013 on average. The cumulative growth in the two variables over the entire period was broadly the same. The fourth class of countries recorded qualitatively similar growth, although the initial divergence of the two variables and hence also the subsequent correction were stronger. In the second class, however, wages typically outpaced labour productivity and the stronger growth in labour productivity in the later period did not offset the previous wage growth. (The differences between the classes are summed up in Table 3.)

Cumulative average wage growth was therefore higher over the entire period in many countries than cumulative growth in labour productivity. In this respect, the weak wage growth observed in

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[6] See, for instance, the October 2017 IMF World Economic Outlook.

some European countries in past years is not a macroeconomic puzzle. Renewed growth in labour productivity is thus a necessary condition for renewed growth in wages to the pre-crisis level. The situation of low wage growth in the selected economies may thus be interpreted not as the "new normal", but only as meaning that the consequences of the Great Recession have not yet been fully overcome.

Causes of the different responses of EU economies to the Great Recession

Given the countries' different responses to the crisis and subsequent recession, it is appropriate to identify the causes of those differences. An understanding of what affects the resilience of European countries to external negative shocks is important both for the economic policies of these countries, as it enables them to reduce the costs of future possible recessions, and for the Czech economy in general due to its business, financial and political links with other EU countries.

Despite continuing trading and financial integration, the EU countries differ from each other in many respects. This may explain the differences in these countries' post-2007 experiences. These differences concern institutions, economic policy, labour market adjustment mechanisms and economic structure.[7] Duval et al. (20007) associate quality of structural policy with resilience to shocks. Furceri and Mourougane (2012) and Furceri at al. (2012) point to the importance of labour market flexibility for successfully overcoming the impacts of financial crises. A recent study by Izquierdo et al. (2017) shows that the EU countries can be split into three groups,[8] with the countries within these groups differing in the form and degree of adjustment of labour inputs and wages. The authors conclude that uncertainty surrounding future developments is one of the factors which motivate firms not to hire new employees and that the degree of uncertainty is highest in countries whose labour markets were hit hardest.

The differences in market regulation between European countries have also been well documented. Sapir (2005) shows that four social models can be identified in Europe. The Anglo-Saxon model (the UK and Ireland) is characterised by a low degree of employment protection and relatively low social transfers, which are highly targeted and motivational in nature. The Nordic model (present mainly in Scandinavian countries) is also based on a low degree of employment protection, but with higher and universal social transfers. The continental system is typified by a higher degree of employment protection and higher social transfers. Finally, the Mediterranean model has the highest degree of employment protection and lower social transfers (compared to the continental and Nordic models). Sapir (2005) also argues that the Anglo-Saxon and Nordic models achieve a high level of efficiency. Moreover, an efficient social network (in the sense of a low degree of relative poverty) is most effective in the Nordic and continental models. It can therefore be summed up that an efficient social system can be achieved without sacrificing economic efficiency.

There is also convincing evidence that room for economic policy manoeuvre increases countries' resilience to crises. A recent detailed analysis by Romer and Romer (2017) shows that if economic policy has sufficient response space, defined as non-zero nominal interest rates and a low government debt-to-GDP ratio, the decline in real output following a crisis tends to be less than 1%. However, if neither monetary policy nor fiscal policy can respond (for example if nominal interest rates are at their lower bound and government debt is at a high level), a financial crisis can be expected to be followed by a decline in real output of more than 10%. Therefore, creating sufficient response space in good times is a factor that can significantly reduce the costs of future recessions.[9]

The post-crisis developments were affected by quality of regulation, political stability and the pre-crisis fiscal space as measured by the government debt-to-GDP ratio. This is shown by the results of a study by Brůha and Babecká Kucharčuková (2017), who use statistical methods to examine whether there is a relationship between various indices of quality of governance, employment protection, generosity of unemployment benefits and pre-crisis fiscal space and how fast and to what extent countries overcame the crisis shock. To this end, they use a multinomial model to estimate how likely a country is to belong to one of the four classes mentioned earlier (see section 2 of the text) and to investigate which variables are important predictors of a country belonging to a particular class. Their results reveal that political stability, quality of regulation[10] and low pre-crisis public debt significantly affect a country's class allocation and hence also its speed of recovery from recession. The effects of the other variables considered did not prove to influence the resilience of EU countries.

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[7] The structural heterogeneity of EU countries is documented by Benecká (2014, 2015).

[8] The identification of groups of countries by Izquierdo et al. (2017) is based on unemployment and output growth in 2010–2013. Group I contains countries where real GDP was increasing and unemployment falling in the given period, Group II consists of countries where real GDP was increasing and unemployment was not falling, and Group III comprises countries where real GDP was falling and unemployment was rising. Interestingly, although the country classification methodology in Izquierdo et al. (2017) is very different from that used by Brůha and Babecká Kucharčuková (2017), the resulting classification is similar.

[9] Komárek (2017) provides a similar analysis of the response space in advanced countries.

[10] Both variables were measured using the relevant World Bank indices (Kaufmann et al., 2010).

Conclusion

The post-crisis evolution of the real economy and labour market in EU countries was highly heterogeneous. EU countries can be split into four main classes differing in the extent of the initial decline in GDP, growth in unemployment and growth in wages and hours worked and whether and how fast the post-2008 downturn in economic activity was overcome. This heterogeneity is linked with quality of institutions and regulation and the economic policy response space. It turns out that European countries that are characterised by high quality of regulation and political stability were able to overcome the crisis relatively quickly. Fiscal space, as measured by a low pre-crisis government debt-to-GDP ratio, is a factor associated with fast recovery from the crisis.

Despite continuing integration, differences between European countries therefore persist. For the purposes of forecasting, analysis of macroeconomic developments and, last but not least, practical economic policy, it is desirable to pay due attention to these differences and their determinants in the future and to explore them further.

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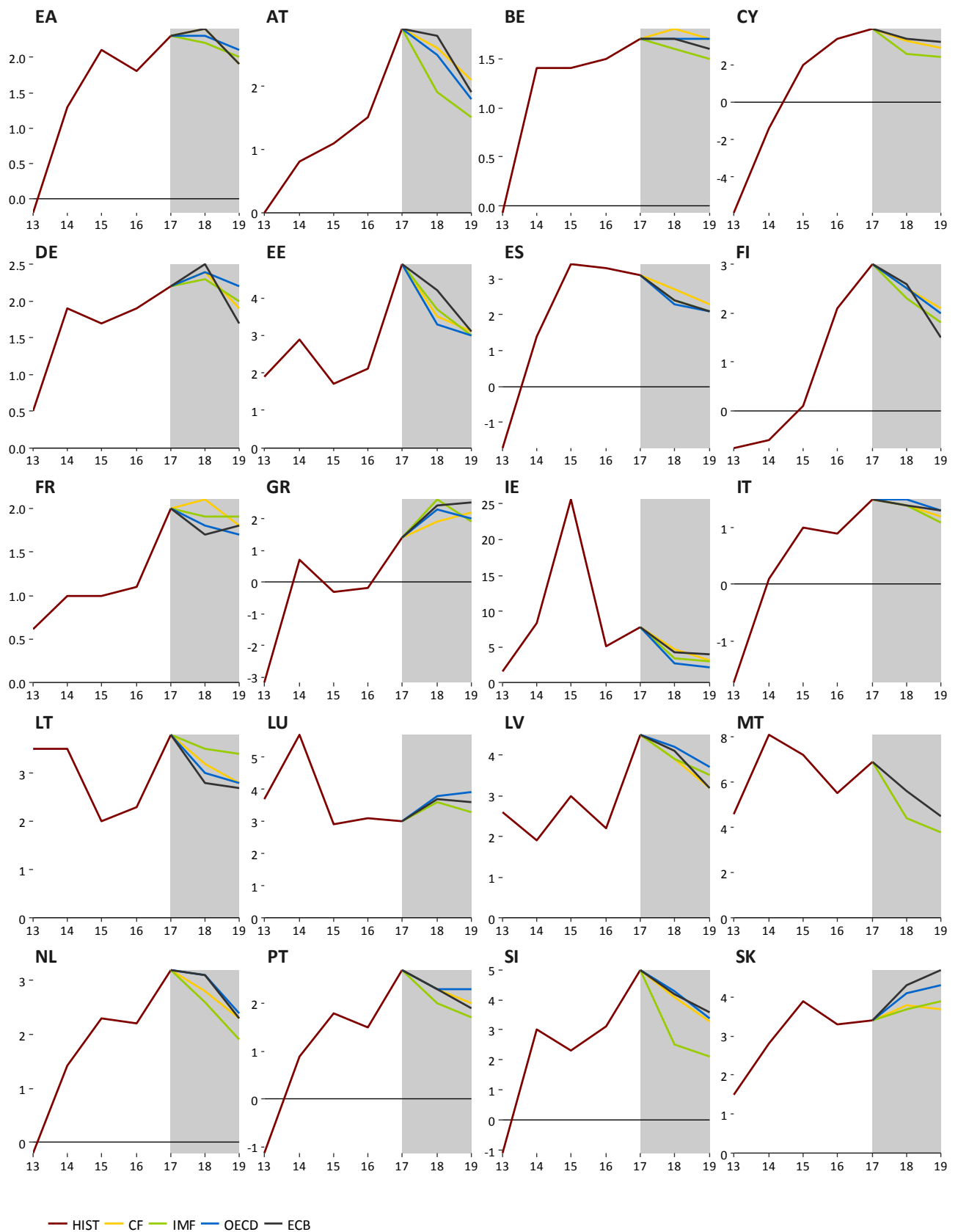
A1. Change in GDP predictions for 2018

	CF		IMF		OECD		CB / EIU	
EA	0	2018/4 2018/3	+0.3	2018/1 2017/10	+0.1	2018/3 2017/11	+0.1	2018/3 2017/12
DE	0	2018/4 2018/3	+0.5	2018/1 2017/10	+0.1	2018/3 2017/11	+0.8	2017/12 2017/6
US	0	2018/4 2018/3	+0.4	2018/1 2017/10	+0.4	2018/3 2017/11	+0.2	2018/3 2017/12
UK	-0.1	2018/4 2018/3	0	2018/1 2017/10	+0.1	2018/3 2017/11	+0.2	2018/2 2017/11
JP	0	2018/4 2018/3	+0.5	2018/1 2017/10	+0.3	2018/3 2017/11	0	2018/1 2017/11
CN	+0.1	2018/4 2018/3	+0.1	2018/1 2017/10	+0.1	2018/3 2017/11	0	2018/3 2018/3
IN	0	2018/4 2018/3	0	2018/1 2017/10	+0.2	2018/3 2017/11	0	2018/4 2018/3
RU	0	2018/3 2018/2	+0.1	2018/1 2017/10	-0.1	2018/3 2017/11	0	2018/4 2018/1
BR	0	2018/3 2018/2	+0.4	2018/1 2017/10	+0.3	2018/3 2017/11	0	2018/3 2018/1

A2. Change in inflation predictions for 2018

	CF		IMF		OECD		CB / EIU	
EA	0	2018/4 2018/3	-0.1	2017/10 2017/4	+0.1	2017/11 2017/6	0	2018/3 2017/12
DE	0	2018/4 2018/3	-0.2	2017/10 2017/4	+0.2	2017/11 2017/6	+0.2	2017/12 2017/6
US	+0.1	2018/4 2018/3	-0.3	2017/10 2017/4	-0.2	2017/11 2017/6	0	2018/3 2017/12
UK	0	2018/4 2018/3	0	2017/10 2017/4	-0.1	2017/11 2017/6	0	2018/2 2017/11
JP	0	2018/4 2018/3	-0.1	2017/10 2017/4	0	2017/11 2017/6	0	2018/1 2017/11
CN	0	2018/4 2018/3	+0.1	2017/10 2017/4	-0.2	2017/11 2017/6	+0.2	2018/3 2018/3
IN	-0.1	2018/4 2018/3	-0.2	2017/10 2017/4	0	2017/11 2017/6	0	2018/4 2018/3
RU	-0.1	2018/3 2018/2	-0.3	2017/10 2017/4	-0.2	2017/11 2017/6	-0.4	2018/4 2018/1
BR	-0.2	2018/3 2018/2	-0.3	2017/10 2017/4	-0.6	2017/11 2017/6	0	2018/3 2018/1

A3. GDP growth in the euro area countries

Legend: HIST — CF — IMF — OECD — ECB

Note: The chart shows institutions' latest available outlooks of for the given country (in %).

A4. Inflation in the euro area countries
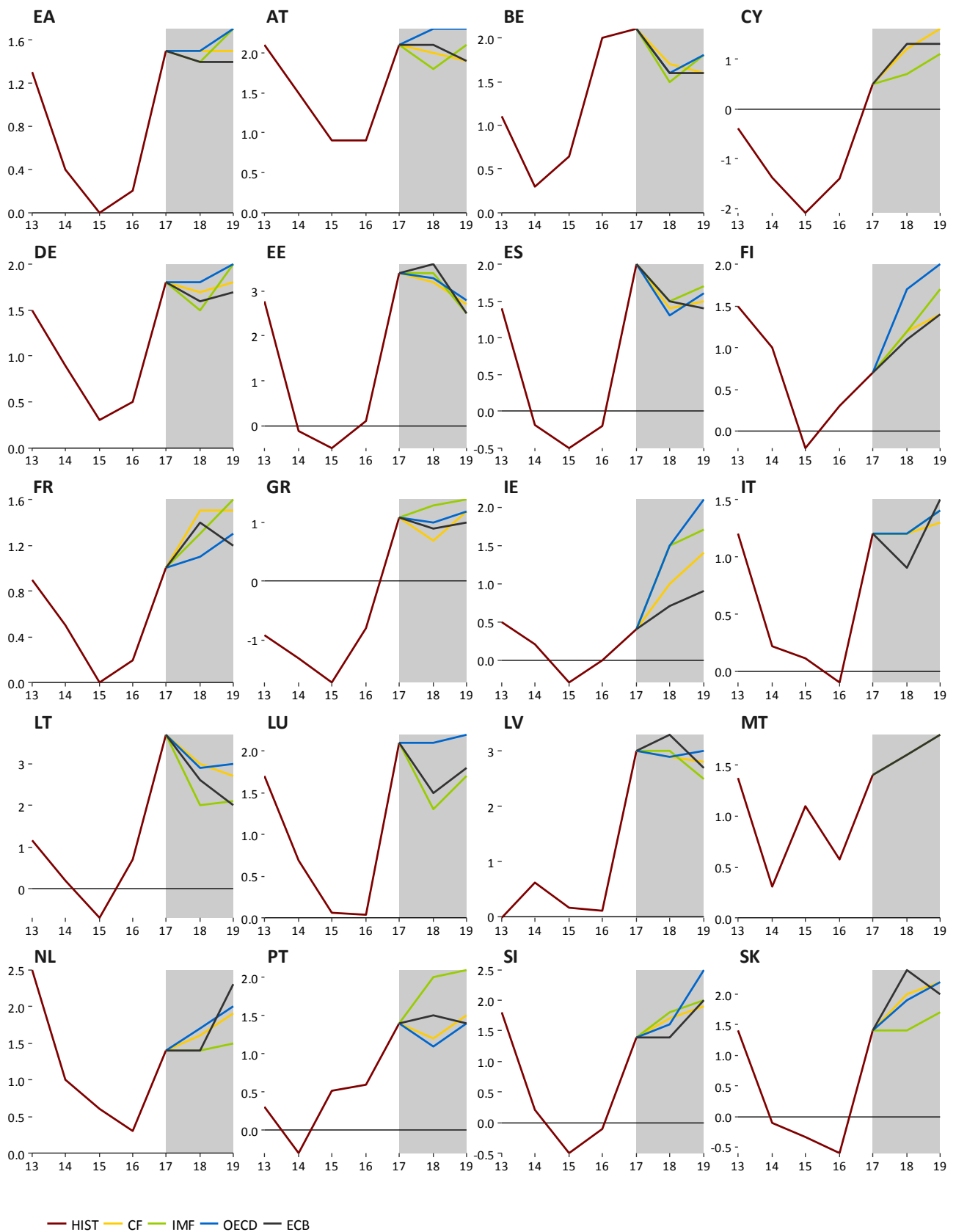
Note: The chart shows institutions' latest available outlooks of for the given country (in %).

A5. List of abbreviations

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