

GLOBAL ECONOMIC OUTLOOK - MARCH

Monetary Department
External Economic Relations Division

2017

II. Economic outlook in advanced countries	3
II.1 Euro area	3
II.2 Germany	4
II.3 United States	5
II.4 United Kingdom	6
II.5 Japan	6
III. Economic outlook in BRIC countries	7
III.1 China	7
III.2 India	7
III.3 Russia	8
III.4 Brazil	8
IV. Leading indicators and outlook of exchange rates	9
IV.1 Advanced economies	9
IV.2 BRIC countries	10
V. Commodity market developments	11
V.1 Oil and natural gas	11
V.2 Other commodities	12
VI. Focus	13
The monetary and fiscal policy response space in OECD countries	13
A. Annexes	20
A1. Change in GDP predictions for 2017	20
A2. Change in inflation predictions for 2017	20
A3. GDP growth in the euro area countries	21
A4. Inflation in the euro area countries	22
A5. List of abbreviations	23

Cut-off date for data

17 March 2017

CF survey date

13 March 2017

GEO publication date

24 March 2017

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.

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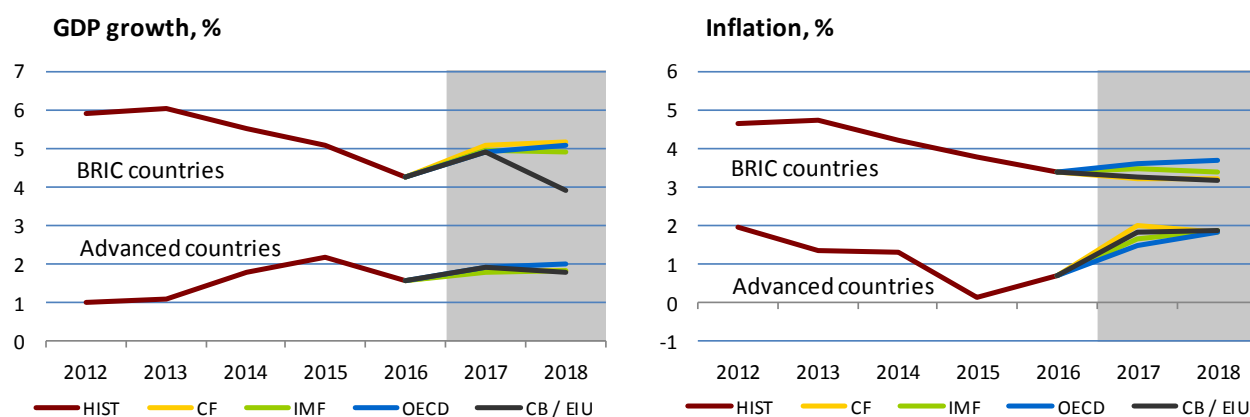
The March issue of Global Economic Outlook presents the regular monthly overview of recent and expected developments in selected territories, focusing on key economic variables: inflation, GDP growth, leading indicators, interest rates, exchange rates and commodity prices. In this issue, we then focus analytically on the monetary and fiscal policy response space in OECD countries. The article shows that nominal interest rates are still expected to be very low over the medium term. This is inconsistent with the process of closing output gaps and attaining inflation rates close to 2%, making a return to conventional interest-rate policy more difficult. Our article also notes that the return to positive real interest rates will be complicated by the overleveraging of many OECD countries, as a visible rise in interest rates could increase the risk of insolvency of several euro area countries and trigger the feared domino effect.

At the end of Q1, the outlooks for annual economic growth in the advanced countries we monitor were practically the same as in February. Only a slight increase in expected economic growth in the UK and a slight decrease in the outlooks for the US economy were recorded. However, the USA is expected to record growth of just under 2.5% at the end of next year despite a rise in interest rates. This is still almost 1 pp higher than the rate of growth expected for the euro area and Germany (its strongest economy) in this period, and also visibly higher than the estimates for the UK. A comparison with Japan reveals an even larger difference, as the Japanese economy is expected to show growth of only about 1% over the same horizon. The expected inflation figures for the individual countries for this year and the next remain close to the economic growth figures given above. The inflation forecasts for the euro area rose compared to the previous month. However, the outlooks are well below the 2% level generally regarded as the price stability criterion in advanced countries. By contrast, inflation in the USA and the UK is expected to hover about 0.5 pp above the 2% level. In Japan, inflation will probably struggle to reach 1%.

The annual GDP growth outlooks for the BRIC group saw more changes than those for the monitored advanced countries in March. The outlooks for the fast-growing economies of India and China were revised – slightly downwards in the case of India and slightly upwards in the case of China. This is good news not only for the Chinese economy, but also, given its size, for the global economy as a whole. As regards the countries hit by slumpflation (Russia and Brazil), the GDP growth outlook for Russia was revised upwards and that for Brazil was revised downwards compared to the previous month. The inflation outlooks for this year and the next mostly shifted in the same direction as those for GDP growth.

The outlooks for euro area interest rates remain very low, although with some sign of a slight rise (following confirmation of the end of the TLTRO programme in March). By contrast, US rates can be expected to increase two more times this year – by the standard amount of 0.25 pp each time. According to CF, the US dollar will keep appreciating moderately against all the monitored currencies at the one-year horizon as well as further into the future. The price of Brent crude oil is expected to average around USD 52 a barrel this year and the next, i.e. a lower level than signalled by the February outlooks. Prices of non-energy commodities are expected to rise very slightly at the one-year horizon, due to both industrial metals and food commodities.

GDP growth and inflation development and outlook in monitored countries

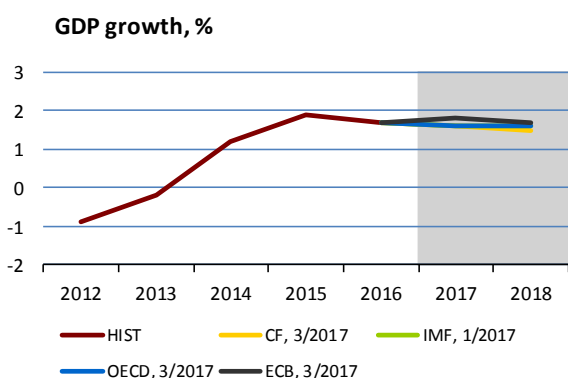


Note: The figures represent the weighted averages of historical series / outlooks in individual countries. The weights are based on nominal GDP measured in USD during 2011–2015 (source: EIU). Advanced countries: euro area, United States, United Kingdom, Japan. BRIC countries: China, India, Russia, Brazil.

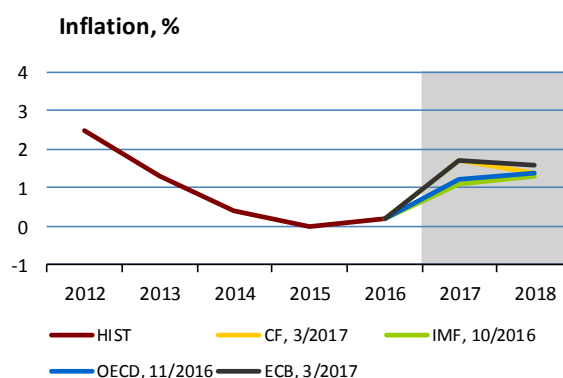
II.1 Euro area

The euro area economy grew by 0.4% in 2016 Q4, the same pace as in the previous quarter. The growth was driven mainly by household consumption and private investment. In year-on-year terms, the economy grew by a solid 1.7%. The figures published at the start of this year are positive, although they are lagging behind leading and sentiment indicators. The PMI in manufacturing reached an almost six-year high (55.4) in February. However, annual industrial production growth slowed to 0.6% in January. Unemployment remained at the December level of 9.6%, the lowest figure since May 2009. The improving labour market situation and overall economic recovery are increasing consumer confidence. However, this has yet to be reflected in growth in retail sales. The latter surprisingly fell slightly in January for the third month in a row, probably due to rising inflation. The outlooks expect euro area growth to slow down slightly compared to the previous year to 1.6% this year. In 2018, GDP is expected to grow by 1.5%.

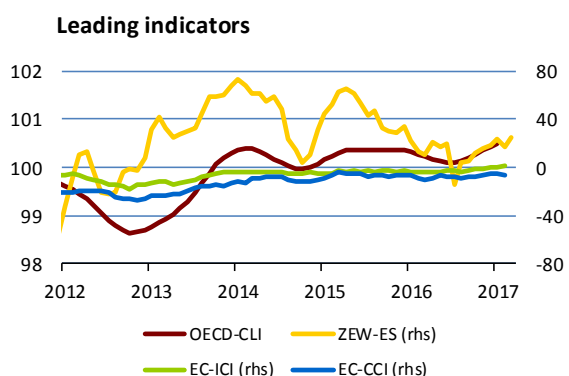
Headline HICP inflation surged at the start of the year, hitting the ECB's inflation target (2%) in February. Its growth was due mainly to an energy price base effect, while core inflation was flat at 0.9%. The updated inflation outlooks for this year reflect a significant contribution from energy prices and the weaker exchange rate of the euro, and are at around 1.7%. Inflation is expected to slow to 1.4%–1.6% next year as the energy price base effect unwinds. The ECB confirmed its policy stance at its March meeting. Net asset purchases will thus drop by one-quarter to EUR 60 billion a month from April and will continue at least until the end of this year. President Mario Draghi also confirmed that the programme of targeted longer-term refinancing operations (TLTROs) will not be extended, so the March auction will be the last. The interest rate outlook shifted slightly higher compared to the previous month.



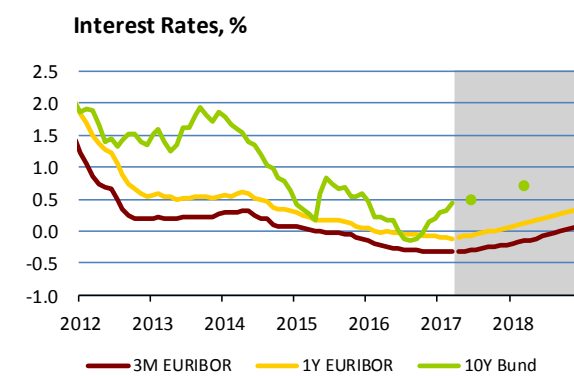
	CF	IMF	OECD	ECB
2017	1.6 →	1.6	1.6 →	1.8 ↗
2018	1.5 →	1.6	1.6 ↘	1.7 ↗



	CF	IMF	OECD	ECB
2017	1.7 ↗	1.1	1.2	1.7 ↗
2018	1.4 →	1.3	1.4	1.6 ↗



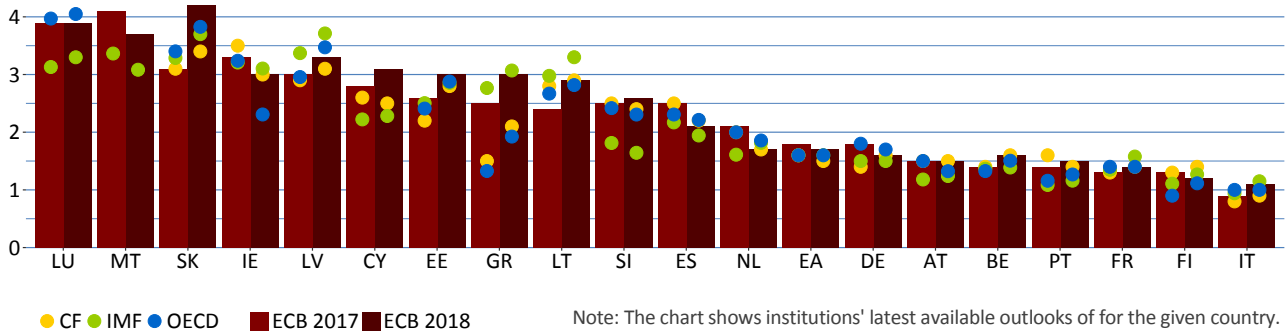
	OECD-CLI	ZEW-ES	EC-ICI	EC-CCI
1/17	100.5	23.2	0.8	-4.8
2/17		17.1	1.3	-6.2
3/17		25.6		



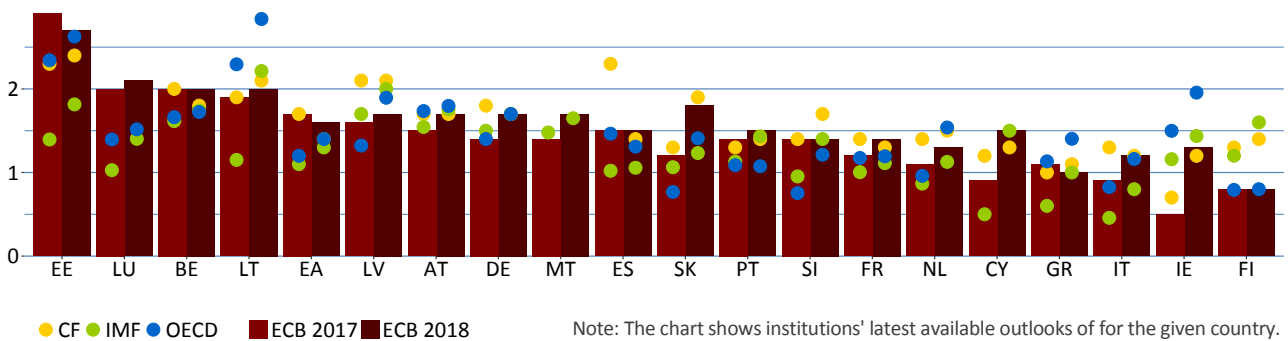
	02/17	03/17	06/17	03/18
3M EURIBOR	-0.33	-0.33	-0.30	-0.16
1Y EURIBOR	-0.11	-0.11	-0.06	0.13
10Y Bund	0.32	0.44	0.50	0.70

II. ECONOMIC OUTLOOK IN ADVANCED ECONOMIES

GDP growth outlooks in the euro area countries in 2017 and 2018, %

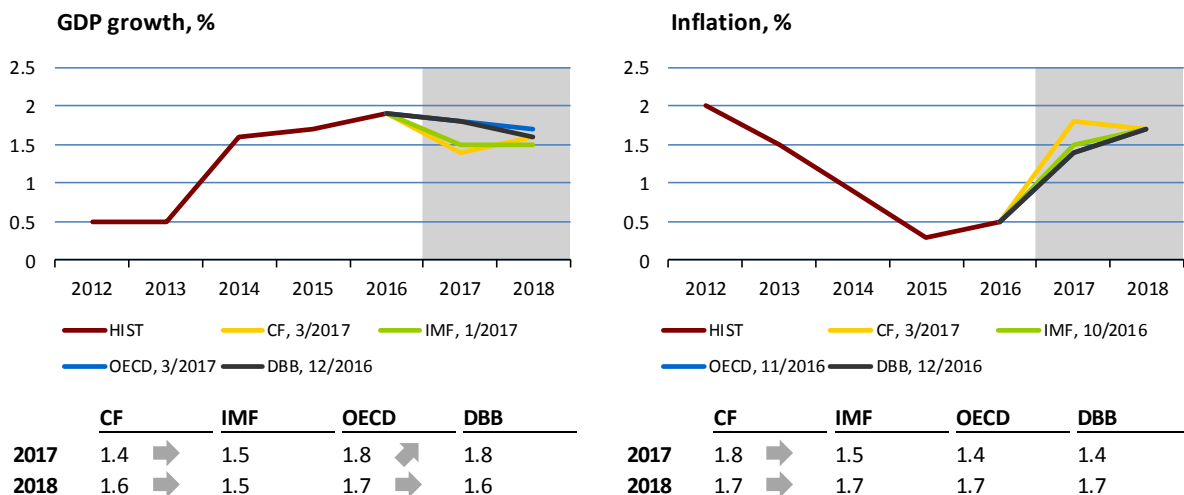


Inflation outlooks in the euro area countries in 2017 and 2018, %



II.2 Germany

The March CF expects growth to slow slightly (to 1.4%) this year. By contrast, the Bundesbank and the OECD are more optimistic and expect a similar growth rate as last year. The positive outlook is supported by high levels of most leading indicators. German annual economic growth edged up to 1.8% in 2016 Q4. As in previous quarters, the growth was positively affected by domestic demand (higher government expenditure related to the refugee crisis), while the contribution of foreign trade was negative. The favourable economic growth is being accompanied by low unemployment, which was running at 6.3% in February. German inflation accelerated further to 2.2% in February (the highest level in almost five years). Its growth was driven by energy and vegetable prices. The March CF expects average inflation for this year as a whole to rise to 1.8%, where it will stay next year.

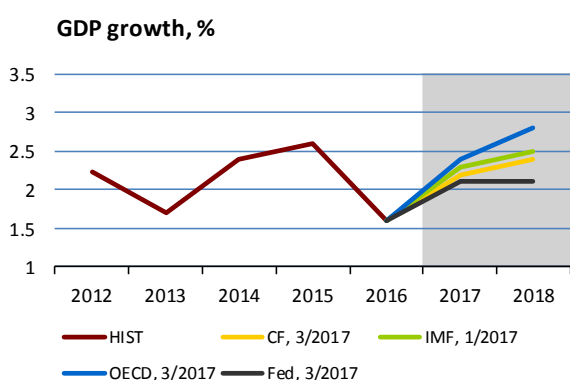


II.3 United States

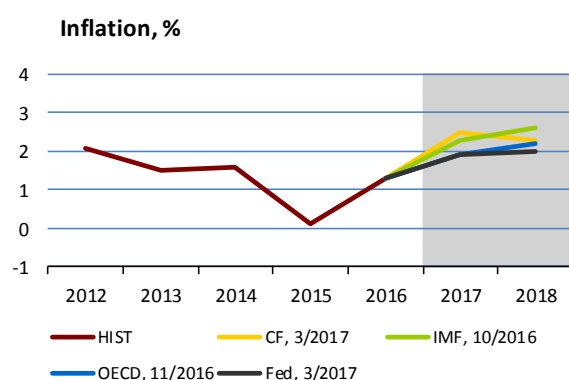
In line with expectations, the US central bank raised the target range for its main federal funds rate to 0.75%–1.00%. Financial markets expect two additional 25 bp hikes this year. Apart from a significant increase in inflation pressures, the monetary policy tightening is due to a further improvement on the labour market, which is being reflected in solid US economic growth. The second GDP growth estimate in 2016 Q4 was 1.9% (quarter on quarter, annualised). Economic growth was broadly unchanged from the first estimate, with lower private and government investment being offset by higher consumer spending.

Non-farm payrolls rose by 235,000 in February, 35,000 more than financial markets had expected. The unemployment rate was 4.7% and the average hourly wage rose by 2.8% year on year. According to the Conference Board survey, consumer confidence remained at 15-year highs in February, with consumers assessing the current labour market conditions as better. Following solid growth in January (5.7%), year-on year retail sales growth slowed in February due to delays in tax refunds. Industrial activity in the USA slowed slightly in January, and the year-on-year change in industrial production was zero. The leading [PMI](#) indicator increased again in February (57.7). According to the survey results, demand and sales remain strong but companies are keeping a watchful eye on rising prices.

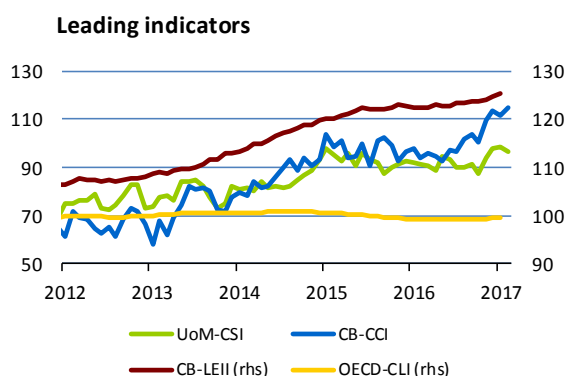
Annual headline inflation in the USA accelerated to 2.7% in February, its highest level since 2012. This was due mainly to base year effect (low energy prices). On the other hand, core inflation is not showing any significant acceleration. Fed Chair Janet Yellen then repeated that the 2% inflation target might be overshoot in the short run. The March CF lowered its GDP growth outlook for this year only, whereas the new Fed forecast brought a shift in the economic growth outlook for 2018. Overall, CF's current growth and inflation forecasts are higher than the Fed's.



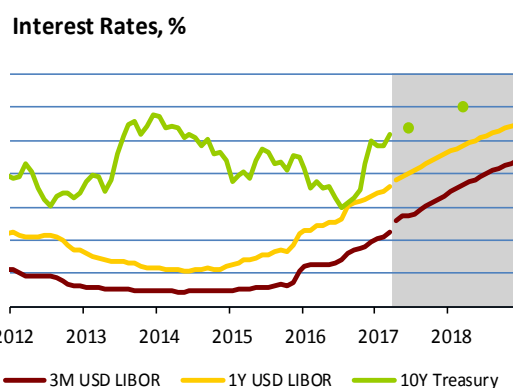
	CF	IMF	OECD	Fed
2017	2.2 →	2.3	2.4 →	2.1 →
2018	2.4 →	2.5	2.8 →	2.1 →



	CF	IMF	OECD	Fed
2017	2.5 →	2.3	1.9	1.9 →
2018	2.3 →	2.6	2.2	2.0 →



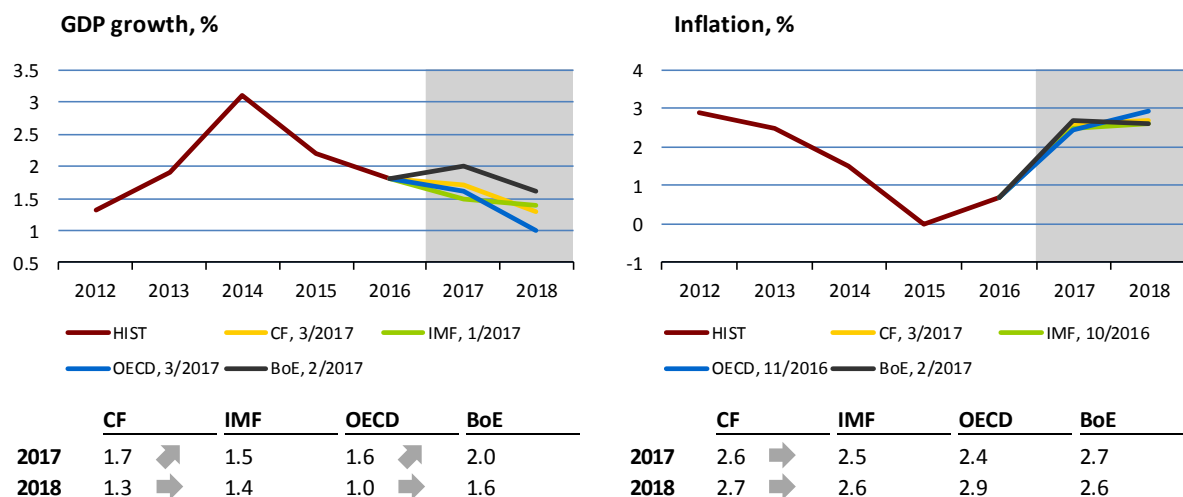
	UoM-CSI	CB-CCI	CB-LEII	OECD-CLI
1/17	98.5	111.6	125.5	99.6
2/17	96.3	114.8		
3/17	96.3	114.8		



	02/17	03/17	06/17	03/18
USD LIBOR 3M	1.04	1.11	1.36	1.82
USD LIBOR 1R	1.72	1.72	2.00	2.42
Treasury 10R	2.43	2.59	2.70	3.00

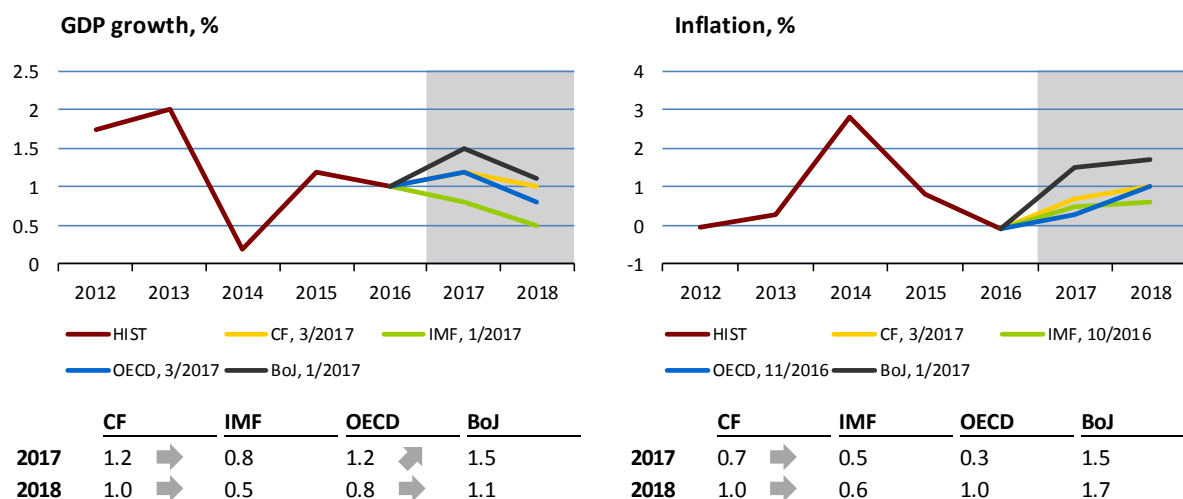
II.4 United Kingdom

According to revised data, the UK economy grew by just 1.8% last year (instead of the earlier announced 2%). In Q4, however, it fared better than the first estimate had indicated, with GDP growth edging up to 0.7%. Nonetheless, it seems to have slowed slightly again at the start of the new year. Retail sales rose by only 1.5% year on year in January (the lowest growth in three years) and annual industrial production growth also slowed. However, its 3.2% growth rate remains more than robust. The [PMI](#) in manufacturing and services also remains optimistic, although the February levels (54.6 and 53.3) are lower than the January ones. Household consumption is being supported by falling unemployment (4.7% in January) and by real wage growth. The Treasury thus raised its GDP growth outlook for this year to 2% (in November it had been forecasting only 1.4%). The OECD and CF also raised their forecasts, albeit more cautiously. The inflation outlooks for both years remain just above the target of the BoE, which left its policy unchanged.



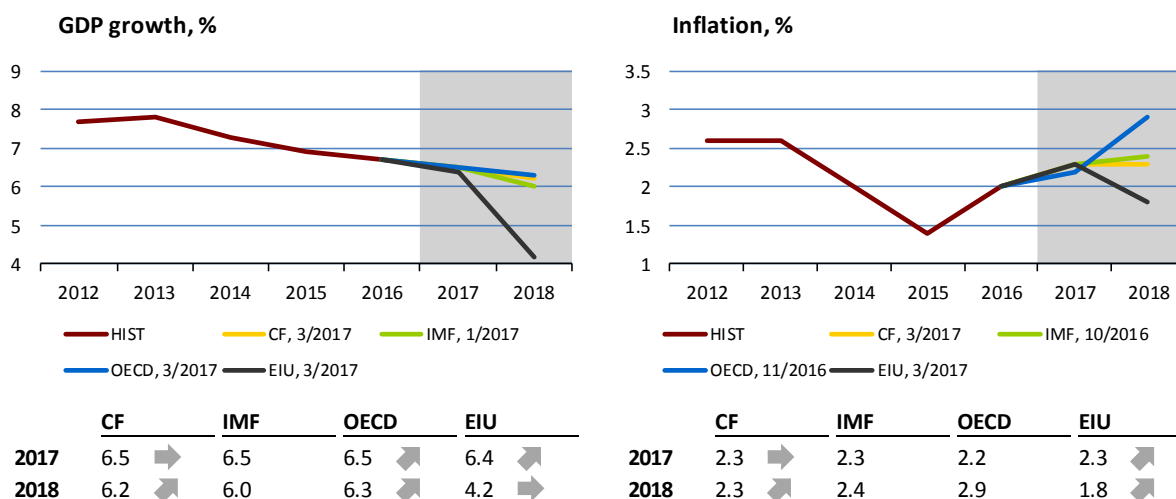
II.5 Japan

According to revised figures, the Japanese economy grew by an annualised 1.2% in 2016 Q4 due to higher-than-expected capital expenditure. Retail sales growth strengthened in January, but household spending kept falling. Industrial production went up by 3.7% year on year in January. The [PMI](#) in manufacturing rose in February to its highest level since March 2014, due above all to continuously improving assessments of output, new orders, exports and employment among purchasing managers. The OECD raised its outlook for Japanese economic growth this year by 0.2 pp. The other monitored institutions left their predictions unchanged. Headline inflation edged up to 0.4% in January. Prices of fresh food were again the most inflationary item, but their growth slowed markedly. The inflation outlooks were unchanged. The BoJ kept interest rates flat at -0.1% at its March meeting.



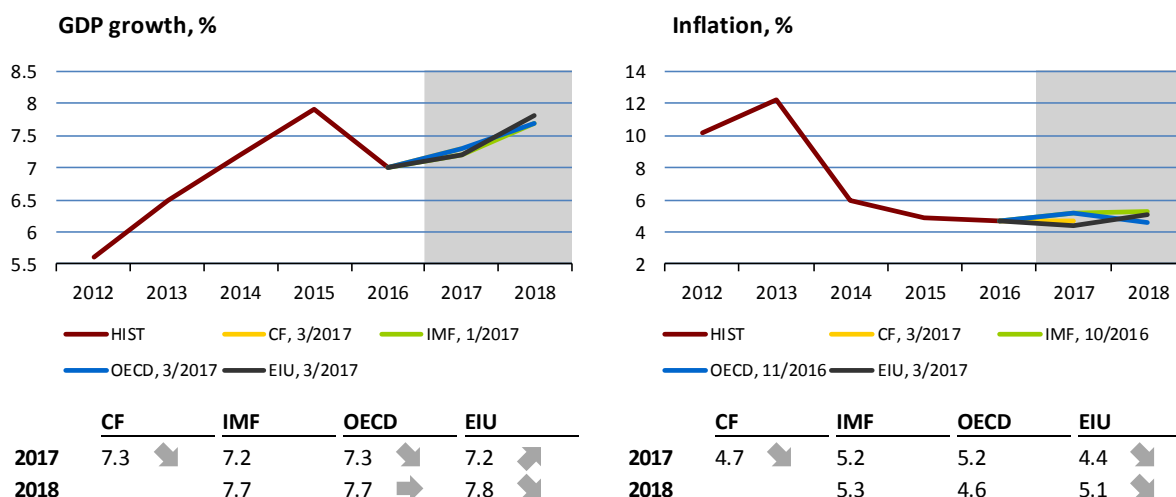
III.1 China

In early March, the Chinese government released its new targets for GDP growth (6.5% or more) and inflation (below 3%) this year. The government also decided to pay more attention to debt reduction and environmental issues, especially in coal mining areas. Changes were also made to communications about the future direction of exchange rate policy and capital flow management. Speculation therefore emerged on financial markets that the Chinese authorities will exert less pressure for reform of the exchange rate regime. Continued expansion in industry was confirmed by new figures on company orders, particularly from abroad. Industrial producer prices grew at the fastest pace in nine years. The March CF raised its GDP growth and inflation outlooks for 2018. The OECD revised its GDP growth outlook for both years, while the new EIU forecast expects higher GDP growth in 2017 and higher inflation in both years.



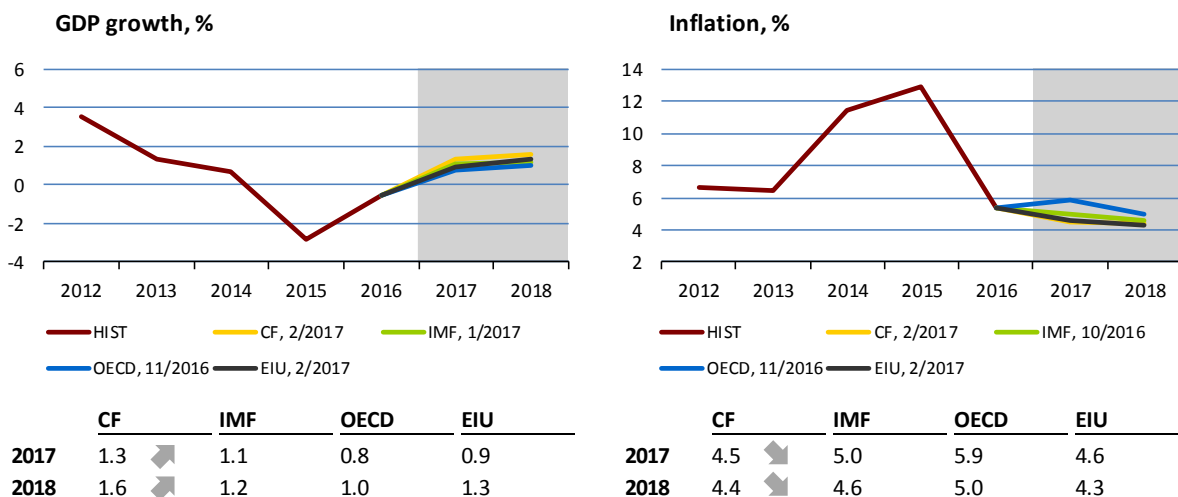
III.2 India

The Indian economy slowed by less than expected in the last quarter of the calendar year. Its year-on-year growth fell by 0.4 pp compared with the revised figure from the previous quarter, to 7%. The growth was driven by both domestic and external demand, especially household and government spending. Annual industrial production growth increased in January thanks to growth in manufacturing output. The Nikkei [PMI](#) in manufacturing rose marginally in February, with purchasing managers positively assessing output, new orders and exports. According to the OECD and CF forecasts, the Indian economy will expand by 7.0% in the current fiscal year 2016/2017 and a further 7.3% in the next. The EIU raised its GDP growth outlook for the next fiscal year by 0.2 pp. Inflation edged up to 3.7% in February, due mainly to growth in prices of sugar and fruit. According to CF, inflation will be 4.7% in both the current fiscal year and the next. The EIU lowered its inflation outlook for fiscal year 2017/2018 by 0.7 pp.



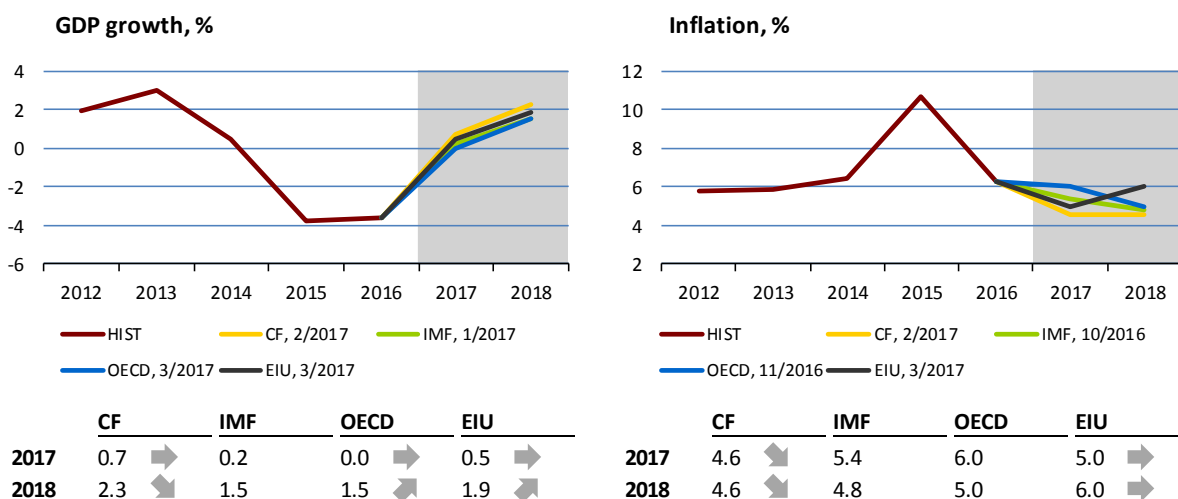
III.3 Russia

The latest short-term figures were significantly affected by the New Year holidays in Russia. January contained only 16 working days and 15 free days (in the case of a five-day working week). As a result, industrial production dropped by almost 25% in January compared to the previous month, although in year-on-year terms it grew by 2.3%. The Markit [PMI](#) in manufacturing, published at the beginning of the month, saw a halt in the fast growth trend maintained over the last six months and dropped by 2.2 points compared to January to 52.5 due to weaker output, new orders and employment. The industrial producer price index recorded its highest growth since November 2015, at 12.7%. Another inflationary factor was growth in real wages, which increased by 3.1% year on year (as against 2.8% in December). Annual consumer price inflation was 5.0% and 4.6% in the first two months of the year. According to the new CF, GDP will grow by 1.3% and inflation by 4.5% this year.



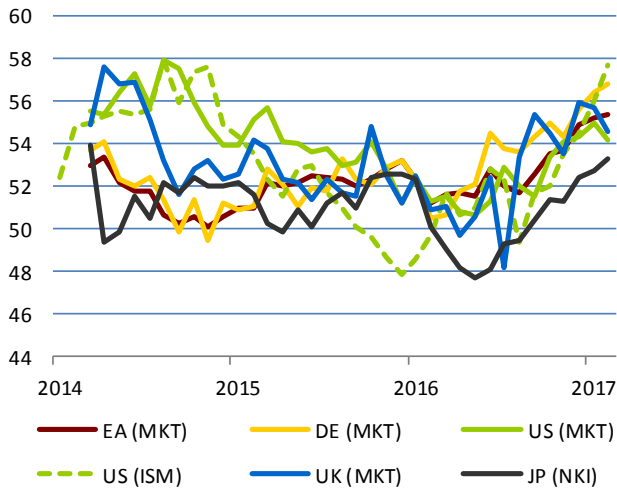
III.4 Brazil

The rate of contraction of the Brazilian economy slowed steadily throughout last year, reaching 2.5% year on year in Q4. As regards the main aggregates, the worst dynamics at the year-end were recorded by gross fixed capital formation (a drop of 5.3%) and exports (a fall of 4.6%). In 2016 as a whole, Brazilian GDP fell by 3.6%. The rate of decline was only slightly lower than in the previous year, when GDP shrank by 3.8%. The short-term dynamics were mostly favourable at the start of this year: industrial production rose by 1.4% year on year in January, and the [PMI](#) leading indicator and the business confidence indicator both grew in February. By contrast, unemployment kept rising, hitting 12.6% in January. The Brazilian central bank lowered the SELIC rate by a further 0.25 pp to 12.75% in late February. This was the fourth cut of this key rate since the end of last November. According to the new outlooks, GDP will grow by 0.5%–0.7% and inflation will not exceed 5.0% this year.

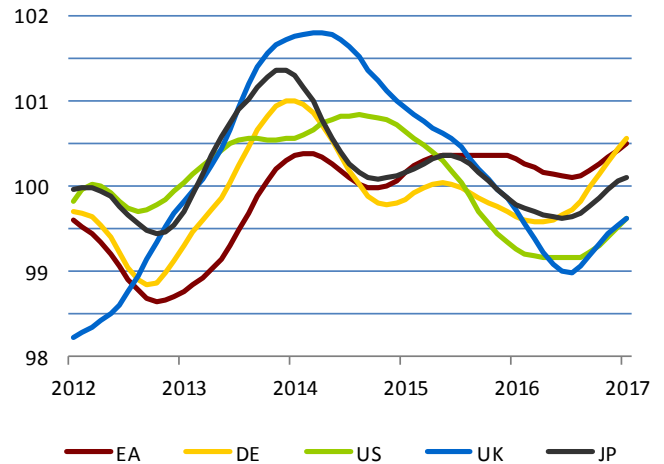


IV.1 Advanced economies

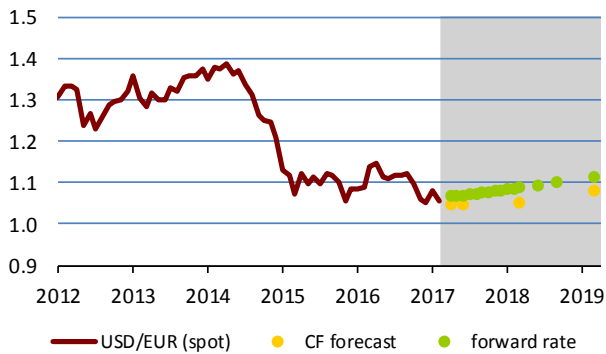
PMI in manufacturing



OECD-CLI

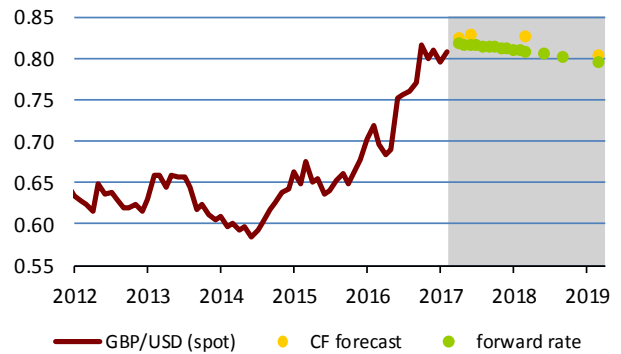


The US dollar (USD/EUR)



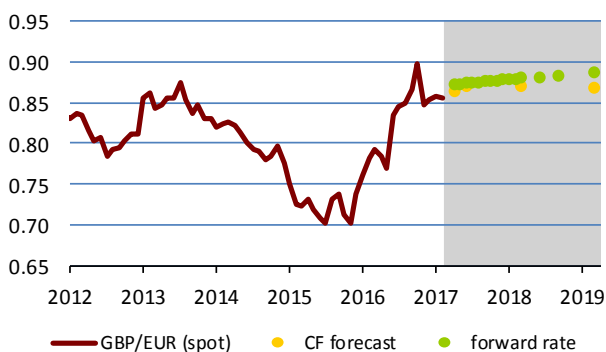
	13/3/17	04/17	06/17	03/18	03/19
spot rate	1.067				
CF forecast		1.048	1.048	1.053	1.081
forward rate		1.067	1.070	1.087	1.114

The British pound (GBP/USD)



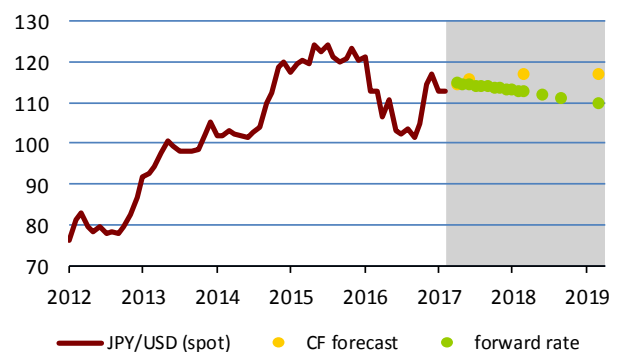
	13/3/17	04/17	06/17	03/18	03/19
spot rate	0.818				
CF forecast		0.825	0.829	0.827	0.803
forward rate		0.818	0.817	0.809	0.797

The British pound (GBP/EUR)



	13/3/17	04/17	06/17	03/18	03/19
spot rate	0.872				
CF forecast		0.865	0.869	0.871	0.868
forward rate		0.872	0.874	0.879	0.887

The Japanese yen (JPY/USD)

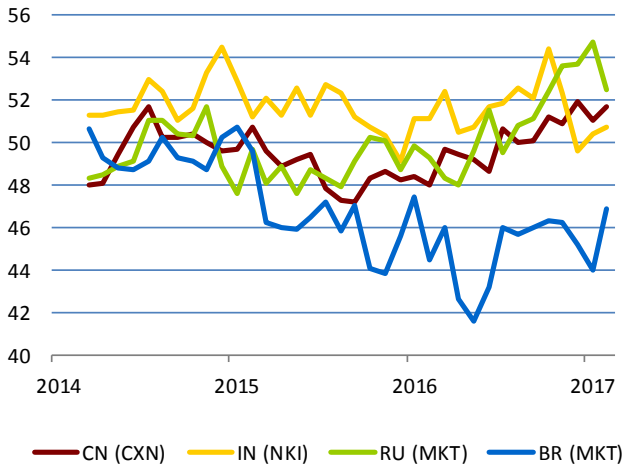


	13/3/17	04/17	06/17	03/18	03/19
spot rate	114.6				
CF forecast		114.5	115.5	116.8	116.8
forward rate		114.7	114.4	112.6	109.6

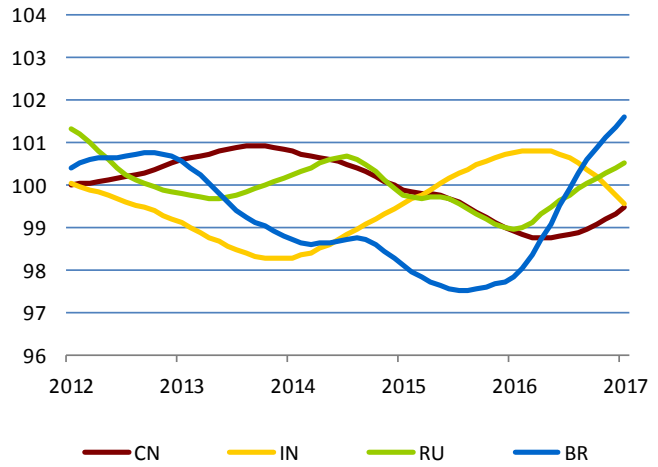
Note: Exchange rates as of last day of month. Forward rate does not represent outlook; it is based on covered interest parity, i.e. currency of country with higher interest rate is depreciating. Forward rate represents current (as of cut-off date) possibility of hedging future exchange rate.

IV.2 BRIC countries

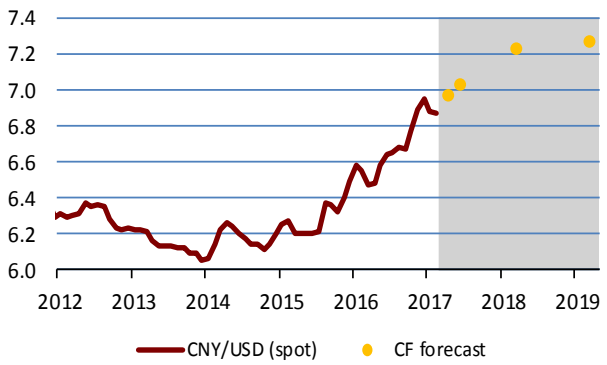
PMI in manufacturing



OECD-CLI

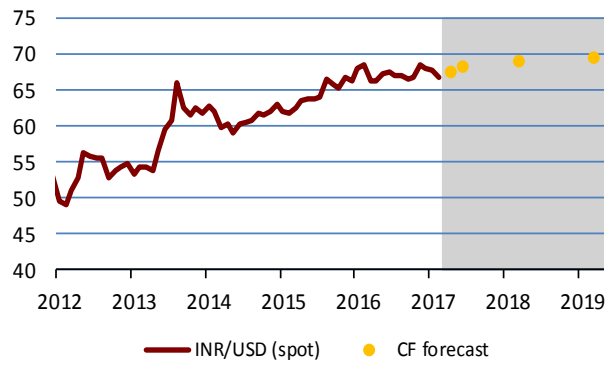


The Chinese renminbi (CNY/USD)



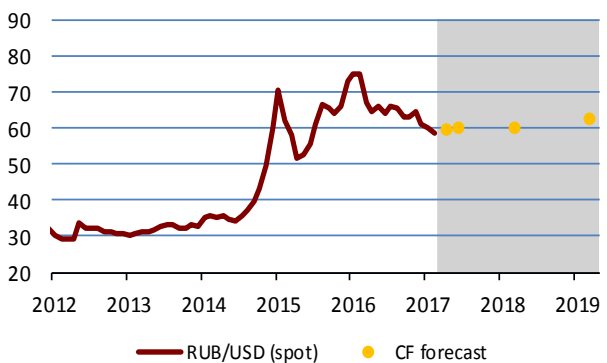
	13/3/17	04/17	06/17	03/18	03/19
spot rate	6.909				
CF forecast		6.965	7.034	7.233	7.268

The Indian rupee (INR/USD)



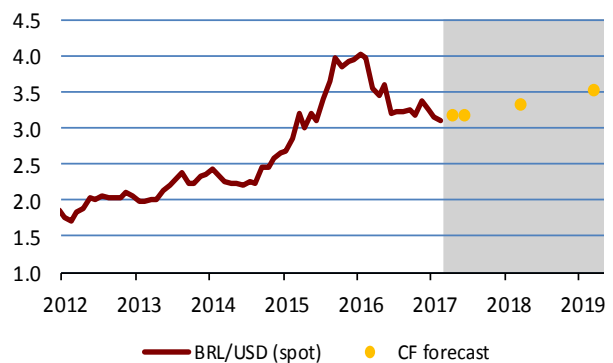
	13/3/17	04/17	06/17	03/18	03/19
spot rate	66.57				
CF forecast		67.59	68.11	68.96	69.37

The Russian rouble (RUB/USD)



	13/3/17	04/17	06/17	03/18	03/19
spot rate	58.94				
CF forecast		59.66	60.14	59.95	62.69

The Brazilian real (BRL/USD)



	13/3/17	04/17	06/17	03/18	03/19
spot rate	3.152				
CF forecast		3.177	3.183	3.333	3.529

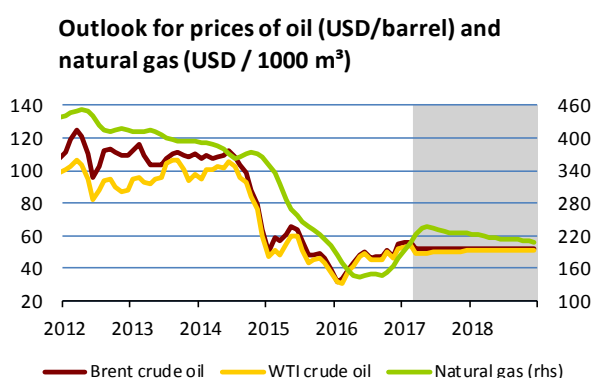
Note: Exchange rates as of last day of month.

V.1 Oil and natural gas

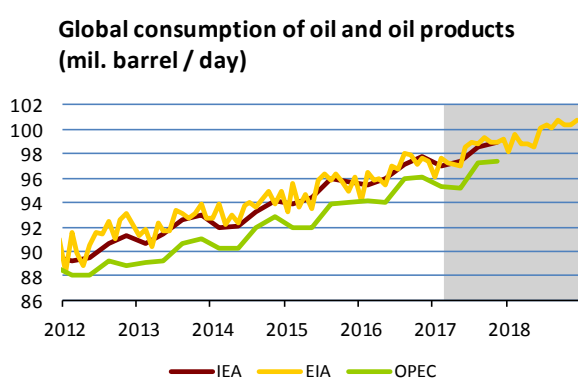
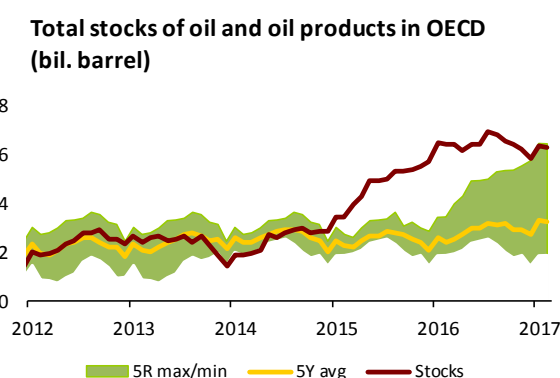
Optimism – stemming from the relatively strictly observed OPEC deal to trim production – reigned on the oil market until the end of February. In March, however, concerns grew that the agreed six-month output limits will not be enough to bring the market into equilibrium any time soon. Uncertainty over whether large producers will be willing to extend these limits into the second half of the year also grew. The price of Brent crude oil thus fluctuated mostly in a narrow range of USD 55–57/bbl in January and February. At the end of the second week of March, however, it fell by more than 8% (and the WTI price dropped below USD 50/bbl for the first time since November 2016) in three days following another surge in US oil stocks and a warning from Saudi Arabia that it will not offset the fast growth in US shale output.

As of the March CF survey date, the market futures curve reflected the sharp price drop recorded in early March and implied an average Brent crude oil price of USD 52.7/bbl this year and a slight fall to USD 52.1/bbl in 2018. Its negative slope from 2018 onwards suggests that the market expects excess demand and a drop in global oil stocks by then. The March CF expects a price of USD 56.4/bbl at the one-year horizon and is thus about USD 4 above the market curve. The EIA forecast is also above the market curve, expecting an average Brent crude oil price of USD 55/bbl this year, rising to USD 57/bbl in 2018. The IEA is forecasting a renewed drop in global stocks, which is likely to gradually increase the oil price.

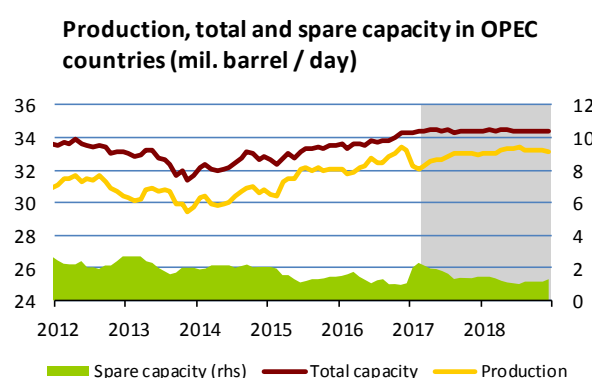
Natural gas prices fell sharply in the USA in February due to unusually warm weather. By contrast, prices of long-term contracts in Europe rose due to the previous oil price growth, although spot prices declined. Coal prices fell in February and March as the Chinese government relaxed administrative limits on output.



	Brent	WTI	Natural gas
2017	52.71 ↘	50.46 ↘	224.16 ↗
2018	52.11 ↘	50.60 ↘	214.73 ↘



	IEA	EIA	OPEC
2017	97.97 ↗	98.15 ↗	96.28 ↗
2018		99.74 ↗	



	Production	Total capacity	Spare capacity
2017	32.69 ↘	34.41 ↗	1.72 ↗
2018	33.20 ↗	34.41 ↗	1.21 ↗

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

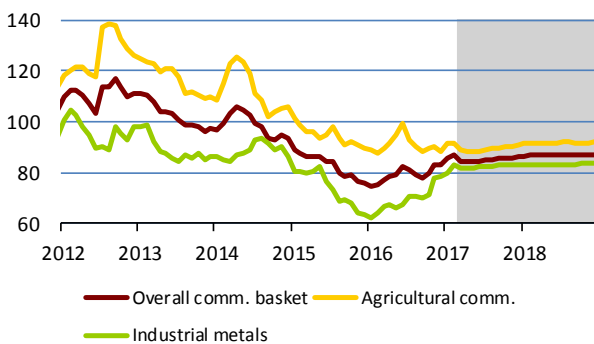
Note: Oil price at ICE, price of Russian natural gas at German border – IMF data, smoothed by the HP filter. Future oil prices (grey area) are derived from futures and future gas prices are derived from oil prices using model. Total oil stocks (commercial and strategic) in OECD countries – IEA estimate.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

V.2 Other commodities

The average monthly non-energy commodity price index extended its period of growth to five consecutive months, but in the first half of March it fell slightly, as did the basic metals price sub-index. The latter reached its highest level since December 2014 in February. The food commodity price sub-index was flat in February after a previous rise, and in mid-March it, too, fell, remaining close to its lowest level since 2010. The outlooks for all three indices are slightly rising.

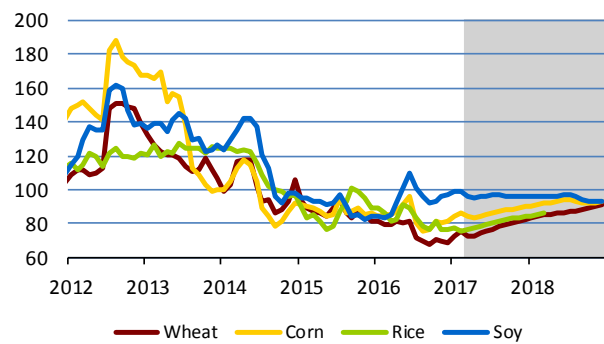
Prices of basic metals mostly increased due to a favourable outlook for global manufacturing (the global JP Morgan PMI rose to a 69-month high and the PMI in China went up to 51.7). Moreover, the copper price increased due to drops in output at key suppliers (a strike in Chile and government interventions in Indonesia). The aluminium price increased due in part to an expected cut in output in China in the winter months aimed at reducing harmful emissions. The price of iron ore also rose thanks to strong imports to China and growth in global steel output (of 7% year on year in January). As for food commodities, the price of cocoa kept falling (a trend seen since mid-2016) due to persisting excess supply, as did the price of sugar. Grain prices were flat on average. The USDA revised its outlook for final global wheat and corn stocks for the 2016/17 season downwards due to lower expected wheat production in India and Kazakhstan and a higher forecast for corn consumption in China and Mexico. However, a drop in the price of soy due to an outlook for a bumper harvest in the USA and Brazil acted against the growth of these prices. Meat prices were broadly flat. Further increases were recorded in February for the price of rubber, which was up about 90% from its 2016 low on the back of strong demand from China (but fell in March), and for the price of cotton for the first time in a long time.

Non-energy commodities price indices



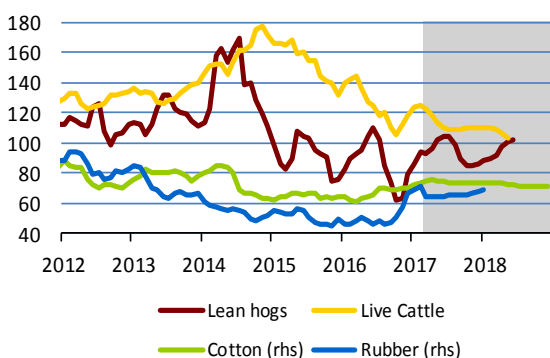
	Overall	Agricultural	Industrial
2017	85.4	89.8	82.4
2018	86.9	91.7	83.3

Food commodities



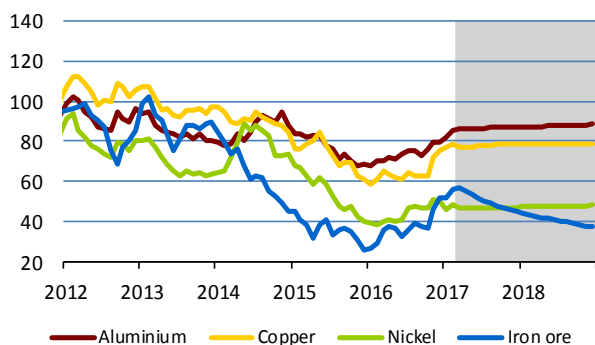
	Wheat	Corn	Rice	Soy
2017	77.0	86.5	80.0	96.6
2018	87.2	92.5	85.4	95.5

Meat, non-food agricultural commodities



	Lean hogs	Live Cattle	Cotton	Rubber
2017	93.9	114.3	80.7	69.5
2018	95.2	108.1	78.6	74.3

Basic metals and iron ore



	Aluminium	Copper	Nickel	Iron ore
2017	86.1	77.8	46.9	50.9
2018	87.7	78.7	47.6	40.7

Source: Bloomberg, CNB calculations.

Note: Structure of non-energy commodity price indices corresponds to composition of The Economist commodity indices. Prices of individual commodities are expressed as indices 2010 = 100.

The monetary and fiscal policy response space in OECD countries ¹

After spending years recovering from the financial and economic crisis, the OECD economies look set to perform better again in the coming years. This article sets out to show that their ability to resist any further crisis (debt, monetary or banking) using monetary policy and fiscal tools is, however, still very weak. The space for a stabilising monetary and fiscal policy response if such a pessimistic scenario were to materialise remains visibly limited now and in the near future in many advanced countries, especially certain EU Member States with poor fiscal discipline.² The current outlooks across OECD countries indicate that the 34 most advanced countries of the world are succeeding in steering their economies towards growth corresponding to their potential. The output gap is closing as inflation approaches the “ideal” 2% level. However, a potential problem starts to take shape when we simultaneously look at current and expected interest rates in OECD countries. Money market rates remain close to zero in many of those countries, including in their medium-term outlooks. This will not allow them to comfortably conduct monetary policy in the conventional way (using changes in interest rates) or maintain financial stability. Moreover, by enabling borrowing at lower-than-usual cost, near-zero rates act to some extent as a fiscal policy performance enhancer, somewhat prettifying the view of the current state of public finances. In many OECD countries, though, public finances are under stress. Economies are overleveraged and highly sensitive to changes in interest rates. For advanced economies, therefore, it will not be easy to return to positive interest rates (of at least 1%). Yet positive interest rates are vital for creating enough monetary space for countries to respond with a conventional monetary stimulus without negatively affecting their fiscal discipline. Any threat to that would increase the risk of insolvency in overleveraged countries. That, in turn, could trigger a domino effect, dragging countries on the limit of fiscal sustainability into a debt trap.

1 Assessment of economic equilibrium and sustainability

The degree of economic equilibrium is most often assessed by comparing current and near-future levels with estimated equilibrium levels based on standard macroeconomic concepts, ideally obtained and assessed simultaneously.³ Besides that, there are some long-term steady states at which the economy is in equilibrium and around which medium-term equilibria oscillate. An approximate knowledge of these equilibria enables us to assess from a chosen point of view how far the economy is from its long-term equilibrium, i.e. its general “ideal” state.⁴ In our view, this ideal can be expressed in very simplified terms as a three-variable combination “ $og \wedge \pi \wedge i$ ”, i.e. a combination of the output gap (og), equilibrium inflation (π) and the nominal interest rate level (i).⁵ The output gap, which enables us to determine the hypothetical distance of GDP from its equilibrium level, i.e. the degree of “undercooling” or “overheating” of the economy, should ideally be zero. This can indirectly be expected to be achieved at a rate of economic growth (g) of 2% on average. Furthermore, equilibrium inflation can be interpreted as an inflation rate of 2%, a figure on which there is a general consensus across economic theorists and central bank practitioners. Equilibrium real interest rates (r) should “in normal times” be positive across yield curve maturities, i.e. they should be roughly equal to growth in income or GDP per capita.⁶

A look at Charts 1 and 2 brings us back from academic considerations to reality, specifically to the real evolution of the output gap since the start of the new millennium. Its size across OECD countries was estimated by simple filtration using the Hodrick-Prescott filter and by applying the current forecasts for real GDP in OECD countries in the domestic currency.⁷ Chart 2 brings good news, since it seems that the output gap in OECD countries will be closed on average this year amid decreasing differences across countries (a

¹ Author: Luboš Komárek. The views expressed in this article are those of the author and do not necessarily reflect the official position of the Czech National Bank.

² This article is a follow-up to Komárek (2016) on the closing of the output gap in OECD countries in the current low-inflation environment, Benecká, Břízová and Komárek (2017) on the phenomenon of equilibrium real interest rates in terms of whether their fall is temporary or permanent, and Komárek and Žďárský (2016) on changes in global imbalances in the world economy.

³ Other partial concepts that can be used to assess economic equilibrium include the NAIRU (the non-accelerating inflation rate of unemployment) and its “sister” the NAWRU (the non-accelerating wage rate of unemployment), the equilibrium exchange rate and all other partial equilibrium concepts.

⁴ According to Walras’ general equilibrium model, the other concepts mentioned here are partial equilibria. Léon Walras was the first to draw up a comprehensive model, i.e. a set of simultaneous equations of equilibrium on individual markets (exchange, production, capital and money) assuming perfect competition. According to this theory, the economy is in equilibrium when all its partial markets are in equilibrium.

⁵ This comparison requires us to abstract from the real lags and adjustment mechanisms which occur in the real economy but which, in our opinion, can be ignored in the medium run.

⁶ Equilibrium concepts should be distinguished from sustainability concepts such as the simulation of a current account balance that does not jeopardise the external equilibrium of the economy, and deficit and debt criteria that, for example, do not hinder economic growth.

⁷ The estimates were made on the data set for 2000–2022, which enabled us at least to “shift” the known end-point bias that arises when potential output is calculated using the HP filter.

falling standard deviation). Chart 1 confirms this news, as it shows that the number of countries whose output gap will be partly or completely closed according to a given criteria will continue to rise.

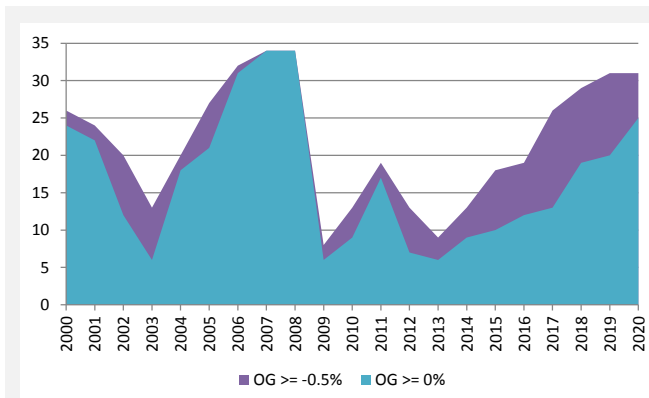


Chart 1 Number of OECD countries with an output gap fulfilling a given criterion

Source: OECD and The Economist (EIU), author's calculations
Note: number of OECD countries

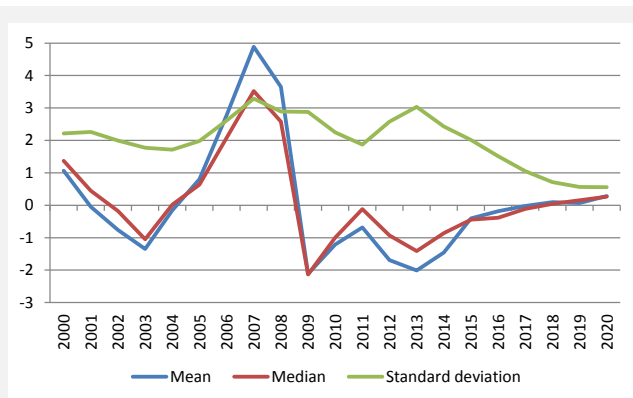


Chart 2 Output gap in OECD countries

Source: OECD and The Economist (EIU), author's calculations
Note: in % (mean, median)

The potential output estimates can be paired with the number of OECD countries with consumer inflation close to 2%, i.e. the level corresponding to the generally accepted definition of price stability in advanced countries, at present and in the outlooks up to 2020 (see Chart 3). Looking at inflation since 2000 (see Chart 4), we can see a drop in its mean level in the second decade of the new millennium compared to the first decade, when it was still mostly above 2%. However, the drop in inflation in the past decade was too deep, due both to the post-Lehman recession and to a positive supply shock in the form of falling oil prices, which put downward pressure on prices of many products and services. The good news is that inflation is now visibly converging towards the notional 2% ideal from below after a several-year period in which mean and median inflation was close to zero in advanced countries (and negative in a sizeable group of countries). The differences in inflation across OECD countries have meanwhile been narrowing again in recent years. This is good news as regards stabilisation of inflation and the economy in general.

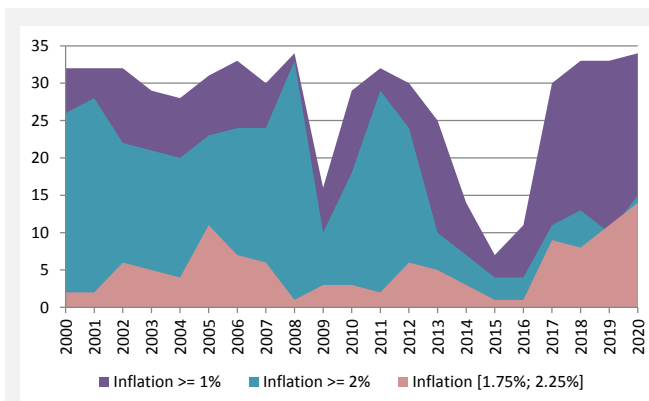


Chart 3 Number of OECD countries with inflation fulfilling a given criterion

Source: OECD and The Economist (EIU), author's calculations
Note: number of OECD countries

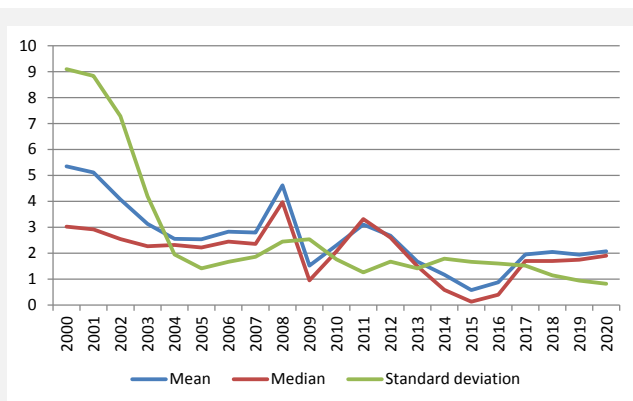


Chart 4 Inflation in OECD countries

Source: OECD and The Economist (EIU), author's calculations
Note: in % (mean, median)

Looking at inflation and the output gap, it might seem that OECD economies are entering a state where almost all of them will, at the end of 2020, be recording inflation close to 2% and growth equal to potential output, albeit amid near-zero or negative nominal interest rates. Expressed as a simplified combination of three variables, this raises the question of how to get safely from state "0 \wedge 2 \wedge 0" (output gap \wedge inflation rate \wedge nominal interest rate level) to or close to state "0 \wedge 2 \wedge 4", or at least "0 \wedge 2 \wedge 3", which would mean achieving inflation of 2% and positive real interest rates of 2% or at least 1% with a closed output gap.⁸ Opinions – supported by empirical or theoretical arguments – regarding the equilibrium level of real interest rates may of course differ, but nominal and real interest rates in the "normal world" should be positive.

⁸ This endogenous process should shift towards higher interest rate levels so that economic agents' inflation expectations do not become unanchored and economic growth does not become undermined.

As shown below, the monetary and fiscal “space” in many OECD countries has largely been exhausted by the monetary and fiscal policy responses to the financial crisis. This may complicate any stabilisation response in the foreseeable future. More than ever before, such a response will require increased coordination between monetary, fiscal and possibly macroprudential authorities, since the risk of a return to the use of unconventional policies remains high. Some hope lies in the currently accelerating inflation in most OECD countries, which might create at least some of the space needed for a return to higher nominal and real interest rates.

2 The room for manoeuvre for monetary policy

The level of money market rates, which is just above the level of central banks’ monetary policy rates, is still very low – currently around an all-time low (see Charts 5 and 6). Central banks in many OECD countries were forced to use unconventional tools after their traditional ones (especially interest rates) hit

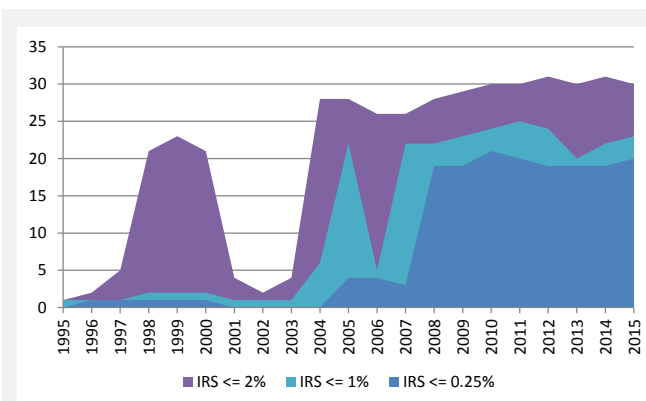


Chart 5 Number of OECD countries with short-term interest rates fulfilling a given criterion ≈ Short-term interest rate space

Source: OECD and The Economist (EIU), author’s calculations

Note: number of OECD countries with money market rates lower than 2%, 1% and 0.25%

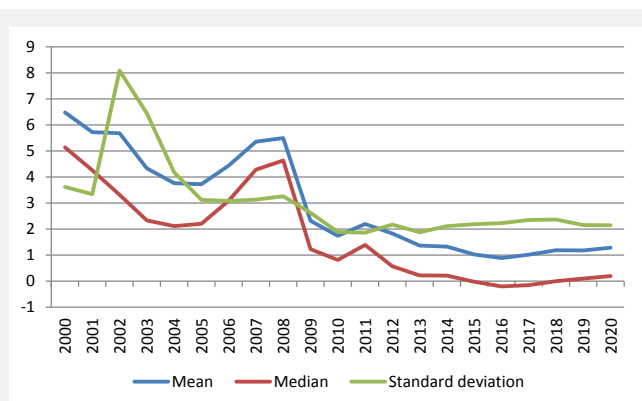


Chart 6 Short-term interest rates in OECD countries

Source: OECD and The Economist (EIU), author’s calculations

Note: in % (mean, median)

zero or even partly turned negative several years ago. Chart 5 shows that, according to current outlooks, money market rates will be below 0.25 pp in around two-thirds of OECD countries in the coming years. This situation will not allow them to comfortably conduct monetary policy. However, this outcome is distorted by the fact that the 19 euro area countries, whose alignment has tended to decrease over time (CNB, 2016), are governed by the single monetary policy of the European Central Bank. Nonetheless, a process of

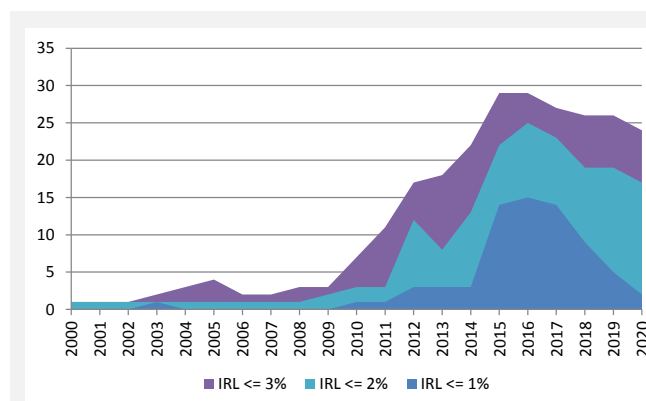


Chart 7 Number of OECD countries with long-term interest rates fulfilling a given criterion ≈ Long-term interest rate space

Source: OECD and The Economist (EIU), author’s calculations

Note: number of OECD countries with money market rates lower than 3%, 2% and 1%; Turkey excluded owing to data unavailability

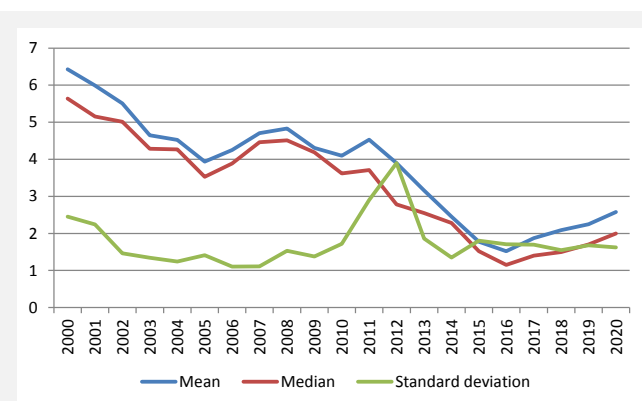


Chart 8 Long-term interest rates in OECD countries

Source: OECD and The Economist (EIU), author’s calculations

Note: in % (mean, median); Turkey excluded owing to data unavailability

monetary policy normalisation might be triggered by the two interest rate hikes already made by the US Federal Reserve.

Long-term nominal interest rates offer a similar picture (see Charts 7 and 8). They are slightly higher than money market rates on average in OECD countries, but not enough so for their current outlooks to

correspond to a “normal” (upward) yield curve,⁹ where the interest rate increases with increasing maturity. Both the current interest rate level and the level expected up to 2020 indicate that it will not be possible to rule out unconventional tools such as qualitative and quantitative easing, negative interest rates and foreign exchange interventions to weaken the currency in the event of any further need to ease monetary policy.

Moreover, the current global economy is characterised by downward pressures on prices. In our view, this is due, among other things, to a high degree of globalisation and a division of labour based on the theory of comparative advantage,¹⁰ strong pressure to produce at the lowest possible cost (relocation of production¹¹) and a possible hidden preference for low prices, which is often linked with lower quality and shorter lifetimes of the products demanded by consumers.

From both the monetary and fiscal points of view, therefore, it is not easy for advanced countries to return at least to the realistic combination “0 ^ 2 ^ 3” (real GDP growth of about 2% with a closed output gap ^ an inflation rate of 2% ^ a nominal interest rate of 3%). The situation is complicated by the overleveraging of many advanced countries, which will be highly sensitive to any growth in interest rates. This will imply a more difficult return to sustainable levels of government debt. In addition to the above dilemmas, a simultaneous endogenous process is going on whereby growth in nominal interest rates – all other things being equal – is fostering lower economic growth and lower inflation in the short to medium run.¹²

3 The room for manoeuvre for fiscal policy

However, the economic policy response space consists of more than just monetary policy measures combined with macroprudential measures aimed at maintaining the stability of the financial system. Monetary policy should share that space in an equal and cooperative manner with fiscal policy. The four charts below (Charts 9 to 12) show the evolution of the two most widely used fiscal indicators, i.e. the deficit-to-GDP and debt-to-GDP ratios. In the European context, these are known – under chosen limiting

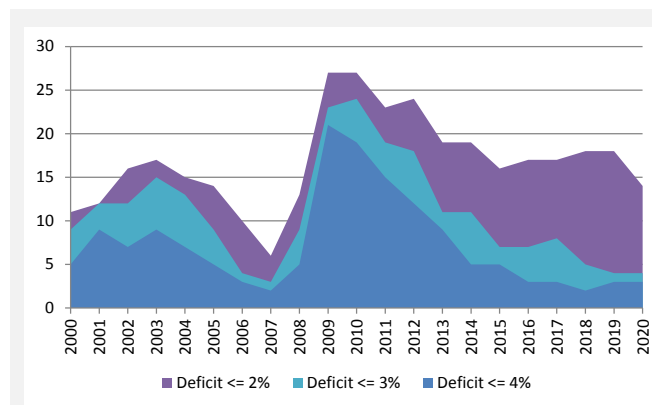


Chart 9 Number of OECD countries with a government deficit fulfilling a chosen criterion

Source: OECD and The Economist (EIU), author's calculations

Note: number of OECD countries with a government deficit-to-GDP ratio lower than 2%, 3% and 4%

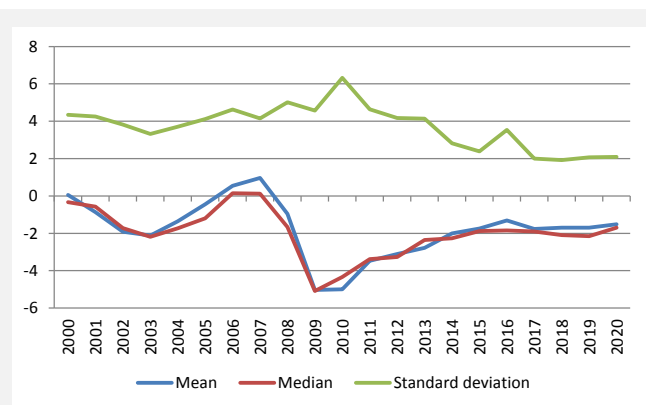


Chart 10 Government deficit in OECD countries

Source: OECD and The Economist (EIU), author's calculations

Note: in % (mean, median)

conditions (maximum permissible government deficit and debt levels of 3% and 60% of GDP respectively) – as the Maastricht fiscal criteria, which can generally be applied as fiscal policy sustainability criteria rather than fiscal policy equilibrium criteria. Fiscal policy is generally deemed sustainable if the present value of future primary surpluses equals the current level of debt.¹³

Chart 9 shows that the improving performance of OECD economies will lead to a drop in the number of countries with deficits higher than 3% of GDP. This may raise hopes that the debt burden will fall due to solid economic growth and synergies, especially in countries with debt levels well above 60% of GDP.

⁹ Measurement of the neutral yield curve of the koruna is part of Czech National Bank Research Project C7/16, Komárková et al., *Long-term Yield Decomposition: Analysis of the Czech Government Yield Curve* (output expected at the end of 2017).

¹⁰ See David Ricardo (1772–1823), who pointed to the benefits of free trade and used the idea of comparative advantage to demonstrate them.

¹¹ In the last two years, however, greater political and military instability has hindered the process of relocation of production to areas with lower labour costs.

¹² The consensus across schools of economic thought on the neutrality of monetary policy, i.e. its (in)ability to affect real variables, increases with increasing time period.

¹³ Krejdl (2006) presented several measures of public finance sustainability differing in how closely they are related to the sustainability definition (the infinite and finite horizon gaps), whether they take account of the future evolution of spending (the primary gap and the tax gap) and what target value of debt is set at the end of a finite horizon.

However, the level of debt that is tolerable and does not hinder growth differs from country to country. It depends on numerous factors that determine the maximum tolerable or sustainable burden. This critical debt level reflects, among other things, the country's current debt level, its creditor structure, its rating, the effective interest rate at which it can raise funds on financial markets and its government debt management strategy.

As indicated above, the fiscal space that can be used for a potential economic policy response will be visibly smaller in the coming years than it was, for example, at the start of the new millennium, when seven countries were non-compliant with the notional debt criterion, i.e. 11 less than at present (see Chart 11). Moreover (and more importantly should a crisis occur), nine OECD countries currently have debt levels higher than 90% of GDP, which, according to many economists, is the threshold level. For example, Checherita-Westphal and Rother (2010) and Baum et al. (2012) showed that government debt starts to adversely affect economic growth at levels of 90%–100% of GDP. Similar criteria were estimated in more

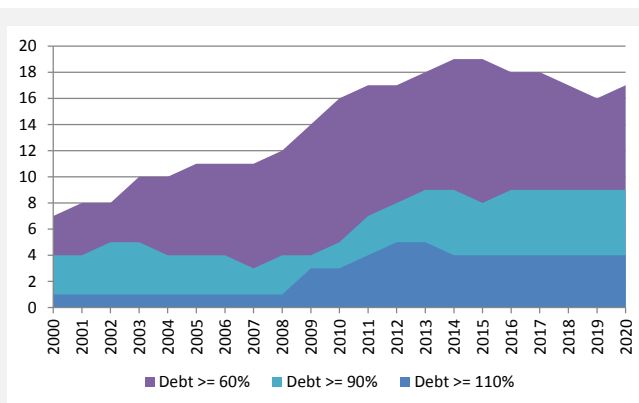


Chart 11 Number of OECD countries with government debt fulfilling a chosen criterion

Source: OECD and The Economist (EIU), author's calculations

Note: number of OECD countries with a government debt-to-GDP ratio lower than 60%, 90% and 110%

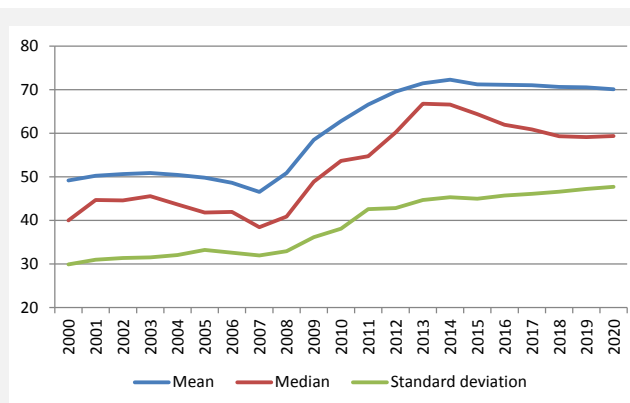


Chart 12 Government debt in OECD countries

Source: OECD and The Economist (EIU), author's calculations

Note: in % (mean, median)

detail by Cecchetti, Mohanty and Zampolli (2010), who additionally make the distinction that economic growth is hindered if government debt and household debt exceed 85% of GDP and the debt of non-financial corporations exceeds 90% of GDP.

It might seem that there is unused space for fiscal stimulus between a debt-to-GDP ratio of 60% (the maximum tolerable level according to the Maastricht fiscal criterion) and the roughly 90% ratio mentioned above. However, this is not entirely the case. The long-run fiscal multiplier turns negative even at a debt level of 60%–70% of GDP. This was demonstrated empirically by, for example, Iizetzki, Mendoza and Végh (2010). For the above reasons, it would thus be appropriate to increase the coordination of monetary, fiscal and, if need be, macroprudential policy during the period of economic policy normalisation¹⁴ to ensure that it is efficient – or even at all possible – to chart a course towards at least the realistic combination “0^2^3”.

4 In lieu of a conclusion: How little is needed for creeping destabilisation

Let us assume that our hypothetical economy will evolve according to the parameters given in Table 1. In this very simplified illustrative example we assume that the economy will maintain consumer inflation at the 2% target (successful monetary policy) for 30 years with a primary balance (PB) simultaneously corresponding to public finance sustainability according to the Maastricht government deficit criterion of 3% of GDP (relatively successful fiscal policy). We also assume that the economy will record either solid real GDP growth (g) of 2%, or even robust real GDP growth of 3%, over the entire 30-year horizon, but under varying assumptions about the real interest rate (r).¹⁵ A rate of between 0% and 2% is considered, and here it primarily determines debt service costs. These parameters, along with government revenues (T) and expenditure (E), taking into account the absolute size of the debt (B) (again chosen as the Maastricht reference level of 60% of GDP), will enable us to illustrate how the debt burden and fiscal vulnerability will change over the period of interest. The simple textbook relation given below¹⁶ will help us determine the debt path (B1 to B10) we can expect during the chosen period and answer the question of how little it takes for the economy to gradually destabilise in the long run.

¹⁴ See Frait et al. (2011).

¹⁵ For a discussion of the phenomenon of equilibrium real interest rates, see Benecká et al. (2017).

¹⁶ For a description of a more advanced approach to public finance sustainability, see Komárková et al. (2013).

$$\underbrace{\frac{B_t}{Y_t} - \frac{B_{t-1}}{Y_{t-1}}}_{\Delta \text{ of debt}} = \underbrace{(r_t - g_t)}_{\substack{\text{RG} \\ \text{differential} \\ \text{debt interest costs}}} \underbrace{\left(\frac{B_{t-1}}{Y_{t-1}} \right)}_{\text{debt interest costs}} + \underbrace{\frac{(E_t - T_t)}{Y_t}}_{\text{primary balance}}$$

It is clear from the equation that the debt-to-GDP level and the change in that level (the “debt dynamics”) depend on the initial debt level (B), the real interest rate (r), real output growth (g) and fiscal policy as reflected in the primary balance-to-GDP ratio (PB=(E_t-T_t)/Y_t). The primary balance (net of debt servicing costs) expresses whether the government budget was prepared with a surplus (PB<0) or a deficit (PB>0). The key factor for the debt dynamics is the RG differential (RG=r-g). Assuming a balanced budget (PB=0), if (r) is lower than (g) in the long run, the debt-to-GDP ratio decreases and converges to a sustainable level. This situation is referred to as stable debt dynamics. Conversely, if (r) is higher than (g) in the long run, the debt diverges from the sustainable level. In extreme cases, if the RG differential stays positive in the long run, or suddenly rises, the debt dynamics can explode. The key variable for any fiscal policy

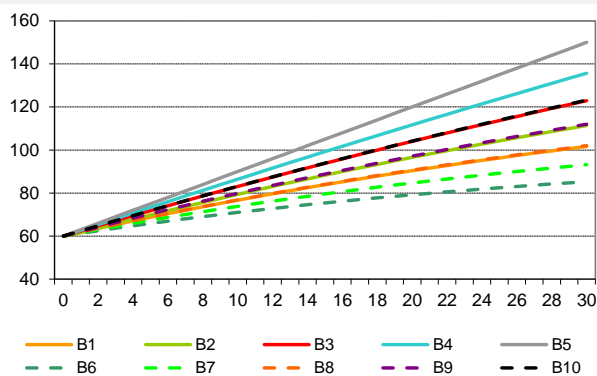


Chart 13 Path of the nominal government debt-to-GDP ratio of the hypothetical economy with initial debt at 60% of GDP

Source: author's calculations

Note: as a percentage of GDP

Debt path	GDP growth (g)	CPI inflation (π)	Real interest rate (r)	Primary balance (PB)
B1	2	2	0	3
B2	2	2	0.5	3
B3	2	2	1	3
B4	2	2	1.5	3
B5	2	2	2	3
B6	3	2	0	3
B7	3	2	0.5	3
B8	3	2	1	3
B9	3	2	1.5	3
B10	3	2	2	3

Table 1 Variants of assumptions regarding the evolution of the hypothetical economy

Source: author's calculations

Note: in %, PB=E-T, i.e. a positive figure expresses a deficit

adjustment is the primary balance, which reflects whether fiscal policy slows or accelerates the economy.

For the debt-to-GDP ratio to stabilise, the primary surplus must be equal to debt interest costs. If a primary deficit is recorded, the debt is sustainable if $r < g$.¹⁷ However, this condition cannot be interpreted as the optimal fiscal rule, as it is procyclical by construction and such procyclicality is inconsistent with traditional efforts to achieve a fiscal (and monetary) policy objective. If the debt is already at the limit of sustainability and the government wants to reduce it by pursuing fiscal consolidation, a negative RG differential ($r < g$) implies a need to draw up a balanced budget. When the economy worsens and the RG differential turns positive again, the government's stabilisation efforts will build on the new lower level of debt. Simple calculations reveal that eight out of the ten debt path variants presented above will give rise to a debt level higher than 100% of GDP within 30 years. The B5 debt path (GDP growth of 2% and a real interest rate of 2%) even shows a debt level of almost 150% of GDP at the end of the period of interest.

The endogeneity of the variables affecting debt dynamics arises from the fact that high debt has a feedback effect on both long-term interest rates (which are linked to short-term rates via the shape of the yield curve) and economic growth. The effect of high deficits on long-term rates is usually explained in the context of the neoclassical theory of saving, according to which a government deficit reduces the saving rate and increases aggregate demand. As a result of a higher supply of government bonds, this exerts upward pressure on interest rates. Where high public debt is accompanied by weak economic growth, interest rates are also driven up by a lack of market confidence in future debt repayment. This is reflected in a higher government bond credit premium. With regard to the effect of high debt on economic growth, economic theory predicts that in the long run, government consumption will crowd out private investment, leading to weaker economic performance.

The above simulation suggests that even relatively positive developments in the real economy may in the long run be overshadowed by the situation on financial markets (the level of the real effective rate). They may thus be assessed as clearly unsatisfactory overall, as the trends described above surface over a period longer than the usual monetary policy horizon (the horizon of most effective transmission) and fiscal policy horizon (the election cycle).

¹⁷ However, this is a necessary but not sufficient condition. For the PB deficit to be sustainable, it must hold that $-(r-g) \cdot (B/Y) \geq PB$.

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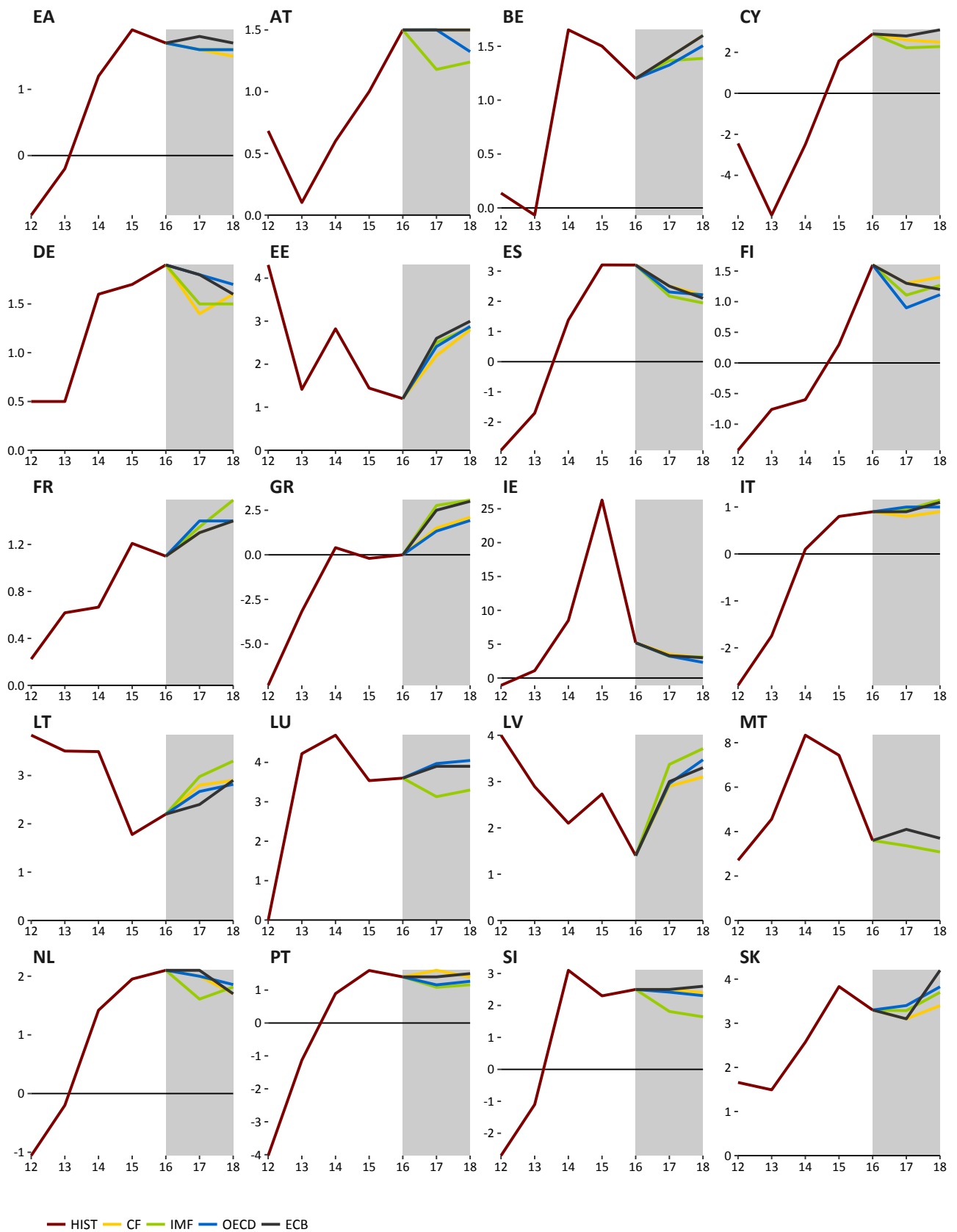
A1. Change in GDP predictions for 2017

	CF		IMF		OECD		CB / EIU	
EA	0	2017/3	+0.1	2017/1	0	2017/3	+0.1	2017/3
		2017/2				2016/10		
DE	0	2017/3	+0.1	2017/1	+0.1	2017/3	+0.2	2016/12
		2017/2				2016/10		
US	-0.1	2017/3	+0.1	2017/1	+0.1	2017/3	0	2017/3
		2017/2				2016/10		
UK	+0.2	2017/3	+0.4	2017/1	+0.4	2017/3	+0.6	2017/2
		2017/2				2016/10		
JP	0	2017/3	+0.2	2017/1	+0.2	2017/3	+0.2	2017/1
		2017/2				2016/10		
CN	0	2017/3	+0.3	2017/1	+0.1	2017/3	+0.2	2017/3
		2017/2				2016/10		
IN	-0.1	2017/3	-0.4	2017/1	-0.3	2017/3	+0.2	2017/3
		2017/2				2016/10		
RU	+0.2	2017/2	0	2017/1	+0.3	2016/11	0	2017/2
		2017/1				2016/10		
BR	0	2017/2	-0.3	2017/1	0	2017/3	0	2017/3
		2017/1				2016/10		

A2. Change in inflation predictions for 2017

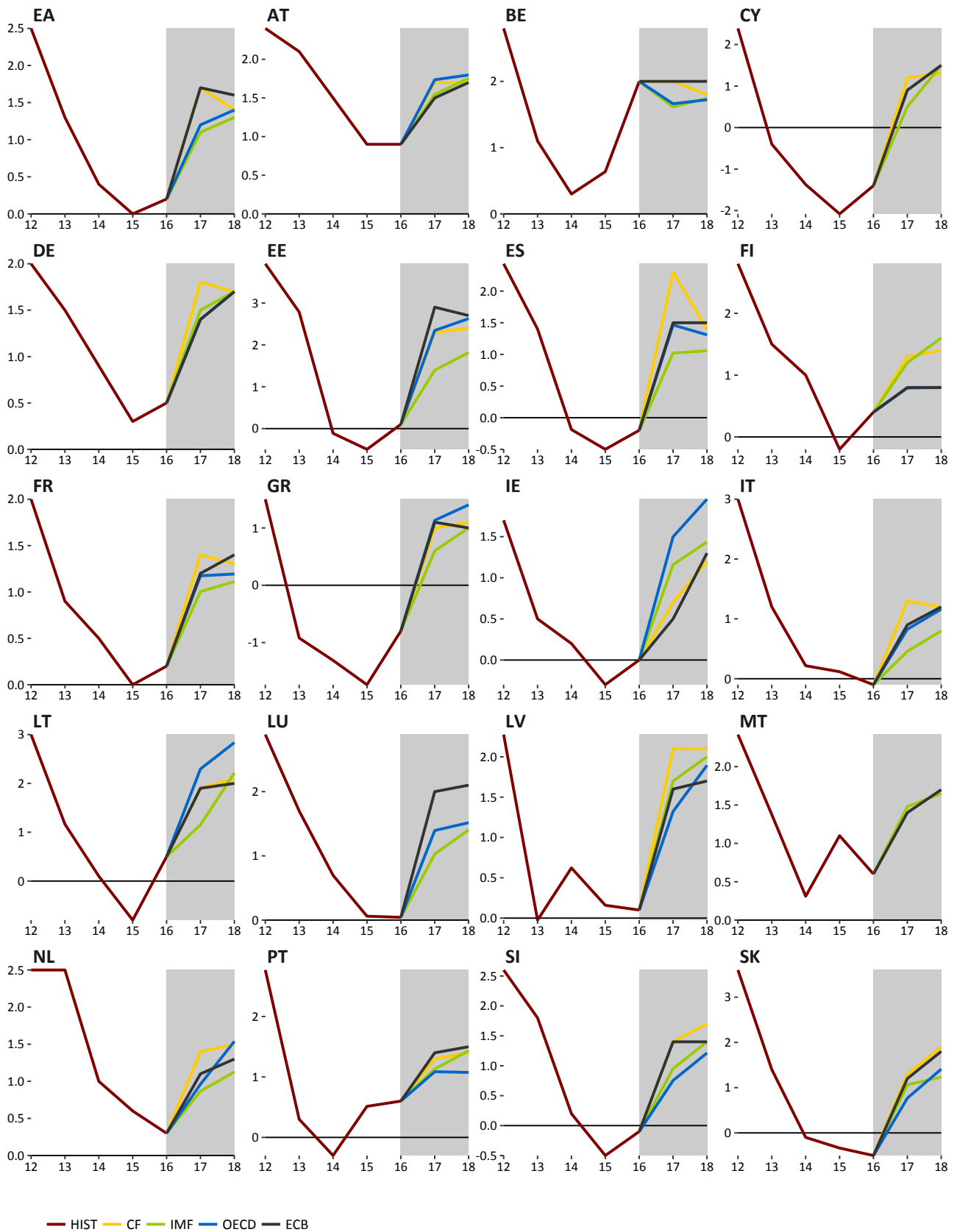
	CF		IMF		OECD		CB / EIU	
EA	+0.1	2017/3	0	2016/10	0	2016/11	+0.4	2017/3
		2017/2				2016/4		
DE	0	2017/3	+0.1	2016/10	-0.1	2016/11	-0.1	2016/12
		2017/2				2016/4		
US	0	2017/3	+0.8	2016/10	-0.1	2016/11	0	2017/3
		2017/2				2016/4		
UK	0	2017/3	+0.6	2016/10	+0.8	2016/11	0	2017/2
		2017/2				2016/4		
JP	0	2017/3	-0.7	2016/10	-1.8	2016/11	0	2017/1
		2017/2				2016/4		
CN	0	2017/3	+0.3	2016/10	-0.8	2016/11	+0.3	2017/3
		2017/2				2016/4		
IN	-0.2	2017/3	-0.1	2016/10	+0.6	2016/11	-0.7	2017/3
		2017/2				2016/4		
RU	-0.3	2017/2	-1.5	2016/10	+0.6	2016/11	-0.8	2017/2
		2017/1				2016/4		
BR	-0.3	2017/2	-0.7	2016/10	+0.3	2016/11	0	2017/3
		2017/1				2016/4		

A3. GDP growth in the euro area countries



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

