

GLOBAL ECONOMIC OUTLOOK - OCTOBER

Monetary Department
External Economic Relations Division

2018

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Cut-off date for data

12 October 2018

CF survey date

8 October 2018

GEO publication date

19 October 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.

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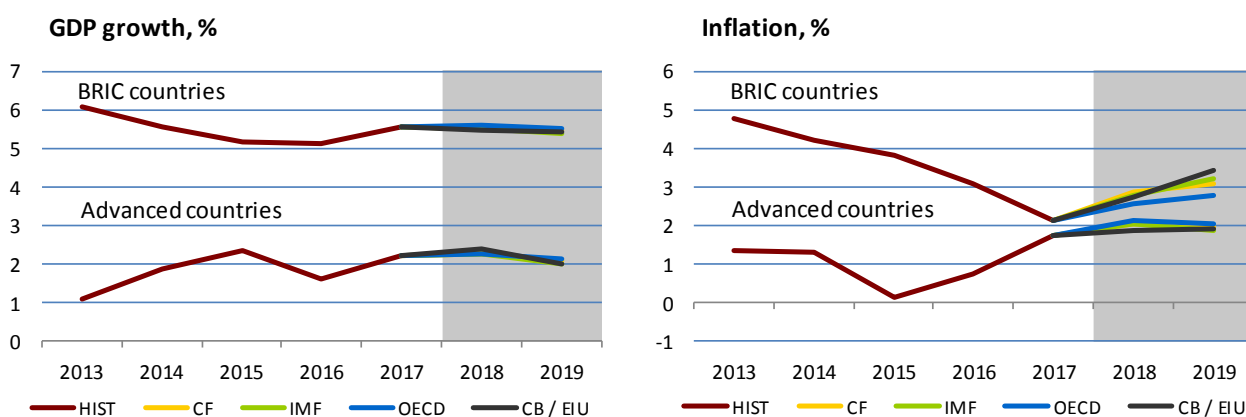
The October issue of Global Economic Outlook presents the regular monthly overview of recent and expected developments in selected territories, focusing on key economic variables: inflation, GDP growth, leading indicators, interest rates, exchange rates and commodity prices. In Focus, the authors examine international trade, concentrating mainly on the EU. The article analyses the openness of European economies relative to the global average. Thanks to foreign trade liberalisation and production specialisation, international trade has long been growing faster than economic activity on both the global and European scale. Starting trade wars and re-introducing tariff barriers would thus be very costly to the global economy and would lead to a sharp contraction in global economic activity due to disruptions of production chains.

The uncertainty regarding the impact of US trade policy and protectionist measures on global trade flows, and strong oil price growth, which is reducing households' disposable income and increasing firms' costs, are the main risks to future global economic growth. However, these factors have yet to have much effect on current and expected future economic activity in advanced countries. On the contrary, economic activity continues to be supported mainly by favourable labour market developments. The outlooks for economic growth in advanced countries were thus essentially unchanged in October. A slight deterioration was recorded only by the euro area for this year (and Germany for both years by the IMF and OECD) due to worsening leading indicators, growth in Italian bond yields (which, however, remains isolated), the still unclear shape of Brexit and the political situation in Turkey. Higher energy prices are driving up consumer and industrial prices in advanced countries. The consumer price inflation outlooks were revised upwards especially for the euro area (including Germany) and the UK.

In emerging BRIC countries, the impact of growing oil prices is being intensified by depreciating exchange rates of their currencies. This is having a negative effect on their economic growth outlooks (except for Russia). Moreover, trade disputes and the introduction of import tariffs by the USA are starting to effect the Chinese economy. CF and the IMF therefore lowered their outlooks for economic growth in China for 2019. The GDP outlooks for next year in India were also lowered by both the IMF and the OECD. However, expectations worsened the most in Brazil. The consumer price inflation outlooks were raised for Russia and Brazil and generally lowered for China and India.

The ECB's monetary policy will remain very accommodative and the key interest rate cannot be expected to go up until summer 2019. Higher interest rates in the USA and a persisting positive assessment of the US economy fostered appreciation of the dollar and growth in US government bond yields. However, as the ECB is expected to normalise monetary policy, the euro should appreciate slightly against the dollar in the longer term. The pound, the yen and the renminbi are also expected to appreciate against the dollar. The Brent crude oil price is expected to decrease gradually from its current elevated level due to weakening demand and increased production in Russia, the USA and some OPEC countries. The several-month-long decline in the industrial metals and food commodity price indices halted in mid-September and the market outlook is signalling strong growth for food commodities until the end of 2020.

GDP growth and inflation development and outlook in monitored countries

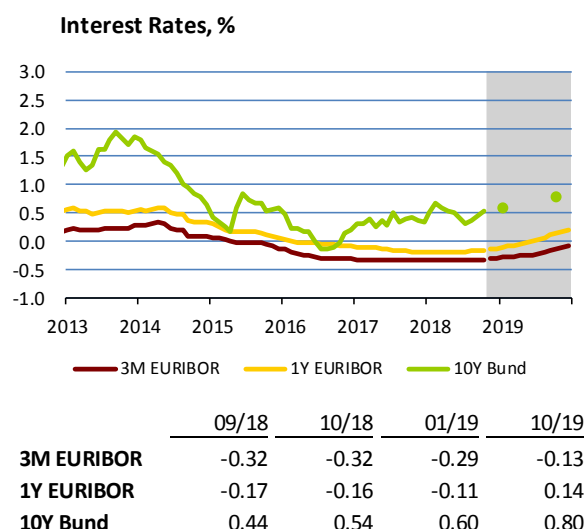
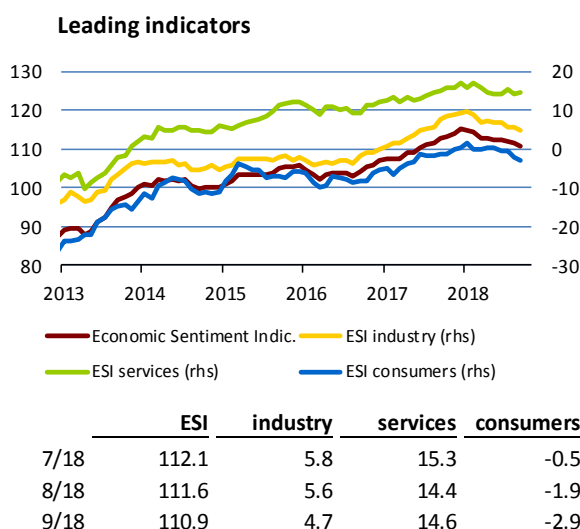
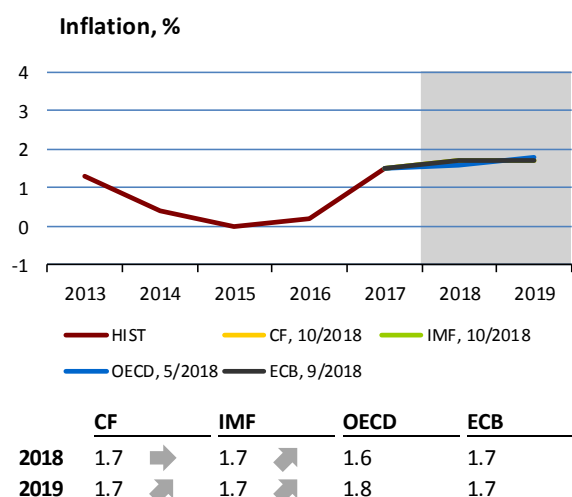
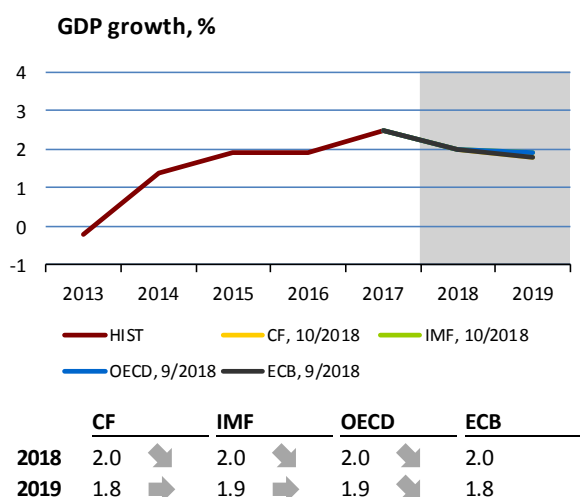


Note: The figures represent the weighted averages of historical series / outlooks in individual countries. The weights are based on nominal GDP measured in USD during 2013–2016 (source: EIU). Advanced countries: euro area, United States, United Kingdom, Japan. BRIC countries: China, India, Russia, Brazil.

II.1 Euro area

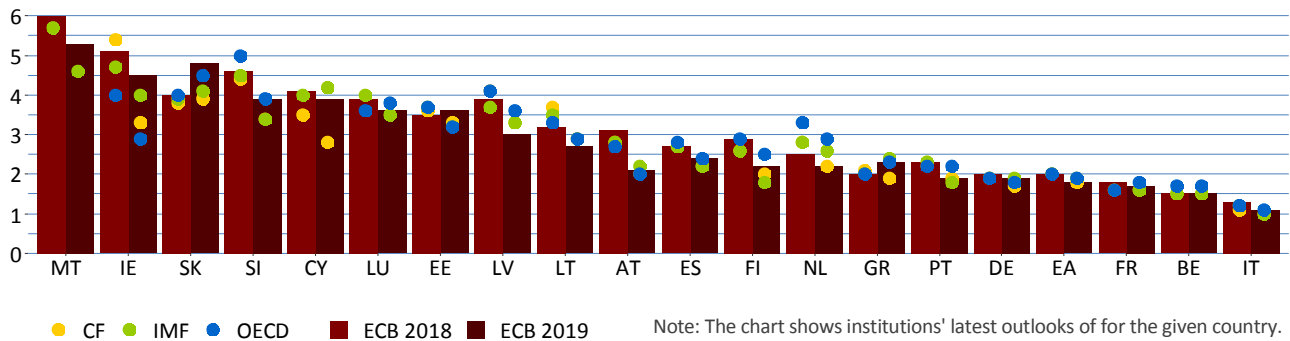
The euro area growth outlooks for this year were revised downwards to 2% by CF, the IMF and the OECD. This was due to uncertainty regarding US trade policy, reflected in a decrease in most leading indicators. For example, the PMI in manufacturing dropped to a two-year low in September. The outlook revisions were also due to an increase in oil prices, which is pushing against growth in household disposable income and increasing firms' production costs. Available coincident indicators are also signalling slower growth than last year. Retail sales decreased in both July and August; industrial production rose in August, though only by 0.9% in year-on-year terms. The labour market continues to show positive developments. The unemployment rate edged down to 8.1%, the lowest level since the financial crisis.

Headline HICP inflation went back up to 2.1% in September due to a higher contribution of energy prices, while core inflation dropped to 0.9%. The monitored outlooks expect average inflation of 1.6%–1.7% this year. The effect of higher energy prices is expected to fade out next year and fundamental inflationary pressures are expected to increase gradually (for example due to labour costs, which picked up annually to 2.2% in Q2). Inflation is thus expected to remain at similar levels as this year. Italian bond yields increased since mid-September on the back of uncertainty associated with the planned budget and concerns regarding the sustainability of Italian public debt. Ten-year bond yields exceeded 3.5% in October and the spread against the Bund exceeded 300 bp. However, yields on bonds of other euro area member states increased to only a limited extent. Markets thus see the uncertainty only as a local episode so far. The ECB's monetary policy will remain very accommodative. However, the monthly asset purchases were lowered to EUR 15 billion from October to the end of the year. Key interest rates will be left at their current level at least through the summer of 2019. The market outlook expects the 3M EURIBOR to return to zero in 2020.

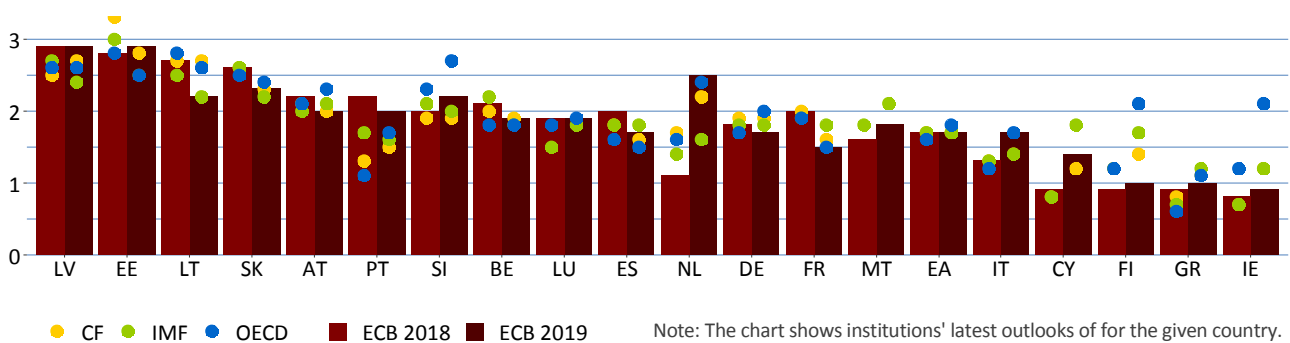


II. ECONOMIC OUTLOOK IN ADVANCED ECONOMIES

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

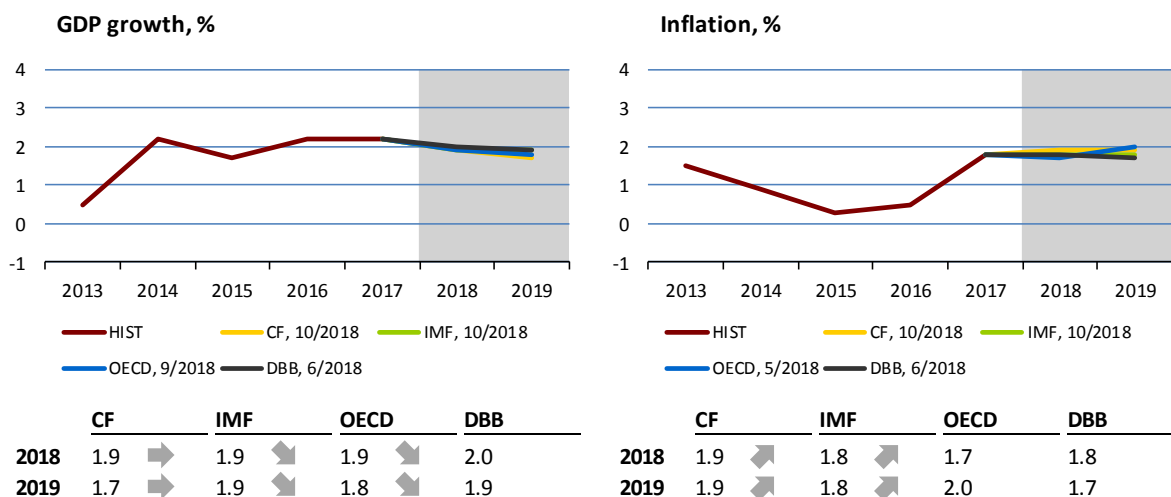


Inflation outlooks in the euro area countries in 2018 and 2019, %



II.2 Germany

The German economy maintained a solid pace of growth in Q2 mainly on the back of domestic demand (household consumption and investment). However, industrial production has recorded weaker growth in recent months. The PMI in manufacturing and the IFO index edged down in September, while the ZEW index improved slightly. The labour market situation remained favourable, with the unemployment rate dropping to 5%. Most of the institutions monitored expect GDP growth of just below 2% this year and the next, which implies a slowdown compared to last year. By contrast, inflation has picked up gradually this year, due mainly to rising energy prices. Annual consumer price inflation went up to 2.2% in September. Industrial producer price inflation also rose in August. This notwithstanding, consumer price inflation will stay below 2% next year according to most of the institutions monitored.

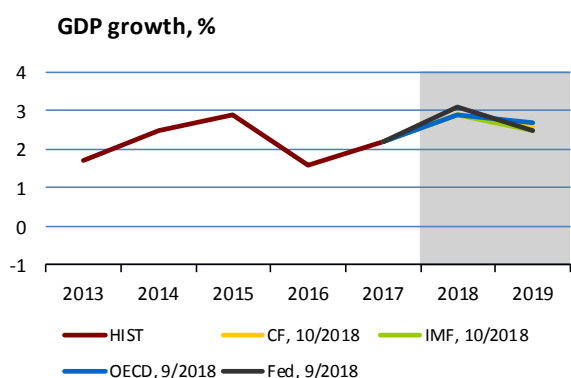


II.3 United States

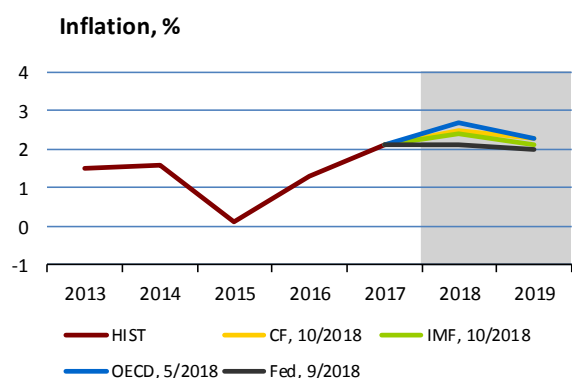
The US economy is expected to keep growing at a solid pace at the year-end. However, risks remain regarding a further escalation of trade disputes between the USA and China and sharp swings in financial markets. For example, President Trump’s statement that the Fed was raising interest rates too fast caused stock markets to fall, as the president’s criticism of the Fed prompted concerns about the central bank’s independence. While negotiations between the USA and China are continuing, agreement has been reached on changing the North American Free Trade Agreement (NAFTA) between Canada, the USA and Mexico.

The final estimate of US GDP growth in Q2 was 4.2% (in quarter on quarter annualised terms). The growth was fostered by all components except inventories. Private consumption was supported mainly by President Trump’s tax reform. Consumer confidence remains at a historical high and year-on-year retail sales growth has been above 6% since May. The unemployment rate fell to 3.7% in September, the lowest level since 1969. Non-farm payrolls rose by 134,000 and the average hourly wage grew by 2.8% year on year. Leading indicators for industrial activity are also positive, and industrial production rose in August at its fastest rate since December 2010 (4.9% year on year). The Atlanta Fed therefore expects GDP to grow at the same rate in Q3 as it did in Q2. In its new forecast, the Fed revised its growth outlook for this year and the next upwards, while the OECD and IMF lowered their estimates for 2019.

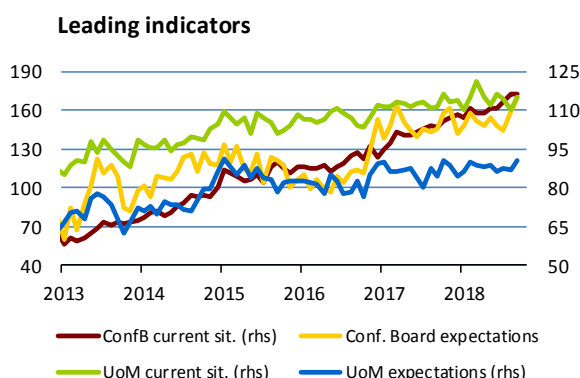
Headline inflation is slowing slightly due to a lower contribution of energy, while core inflation is close to the central bank’s target. Inflation expectations remain stable and the Fed’s new outlook also expects inflation to be close to 2%. The FOMC increased the target range for the policy rate at its meeting in September and a further step is expected in December. The higher rates along with the persisting positive assessment of the economy fostered appreciation of the dollar and higher government bond yields.



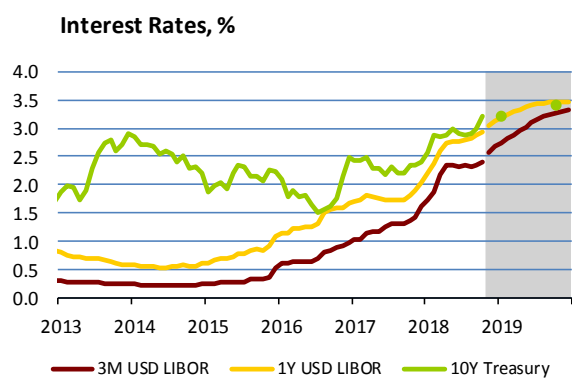
	CF	IMF	OECD	Fed
2018	2.9 →	2.9 →	2.9 →	3.1 →
2019	2.6 →	2.5 →	2.7 →	2.5 →



	CF	IMF	OECD	Fed
2018	2.5 →	2.4 →	2.7 →	2.1 →
2019	2.3 →	2.1 →	2.3 →	2.0 →



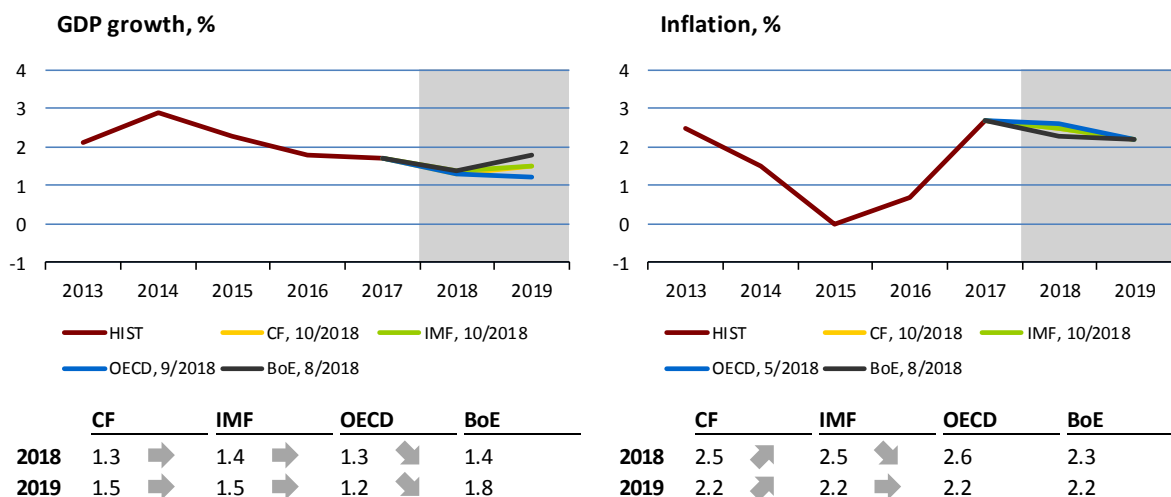
	ConfB curr.	ConfB exp.	UoM curr.	UoM exp.
7/18	166.1	102.4	114.4	87.3
8/18	172.8	109.3	110.3	87.1
9/18	173.1	115.3	115.2	90.5



	09/18	10/18	01/19	10/19
USD LIBOR 3M	2.35	2.41	2.74	3.28
USD LIBOR 1R	2.88	2.88	3.19	3.47
Treasury 10R	3.00	3.21	3.20	3.40

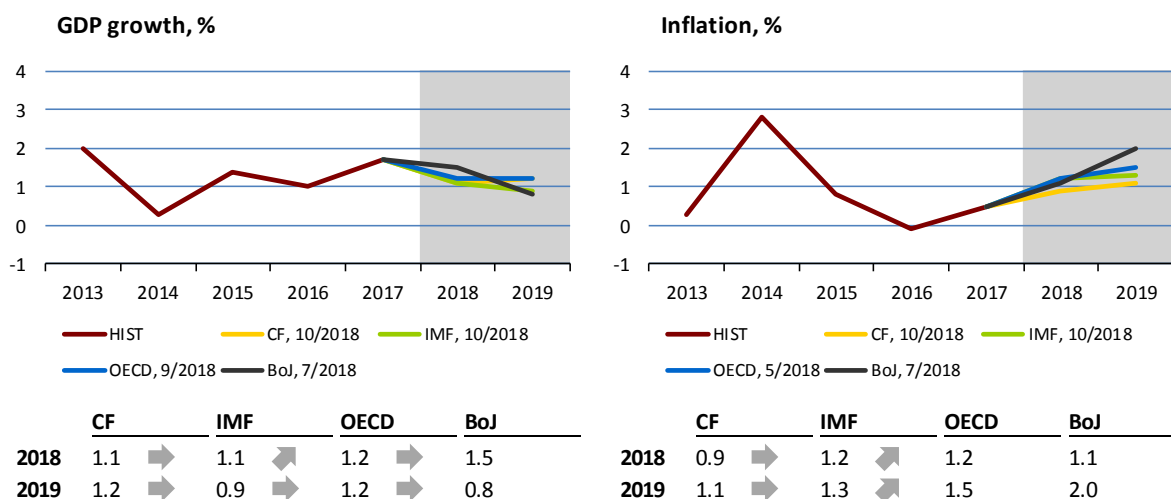
II.4 United Kingdom

Incoming data from the UK economy are mixed. Economic growth in Q2 was revised downwards (to 1.2% year on year) due to significantly worse development of investment (drop by 0.6%). The economy seems to have performed better in Q3. Although GDP was flat in August (the monthly figure), it rose by an encouraging 0.7% in June–August. The same figure is forecasted by the NIESR for Q3. The favourable data is coming in despite the uncertainty stemming from the still unfinished negotiations about the shape of Brexit. Confidence in the fundamentals of the UK economy is also signalled by financial markets; sterling has been appreciating since the end of August. According to updated outlooks, the economy will grow by 1.3% this year. CF and the IMF expect a slight improvement next year, while the OECD believes the opposite. Inflation rose to 2.7% in August due to rising oil prices. CF responded by increasing its inflation forecast; for this year to 2.5%. The new IMF forecast expects the same figure.



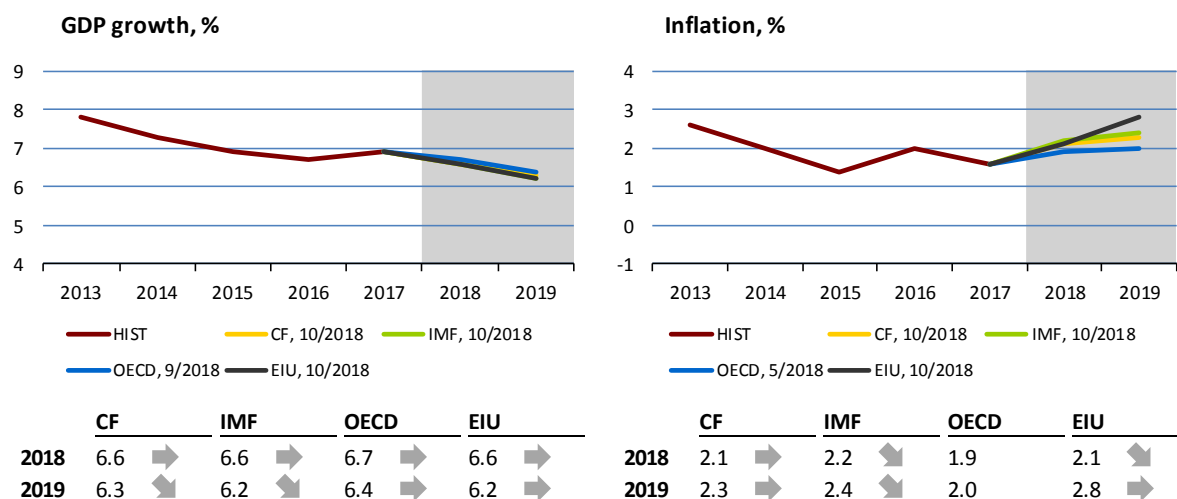
II.5 Japan

The news from the Japanese economy is good. In Q2, GDP rose by 1.3% year on year (0.7% quarter on quarter). Industrial production grew by 0.7% in August, exceeding expectations. Exports were also surprisingly good, rising by 6.6% year on year despite a fall in car exports to the USA. Inflation rose to 1.3% in August, mainly due to rising communication and transport prices. The CF outlooks for 2019 have been unchanged for several months, with economic growth at 1.2% and inflation at 1.1%. The outlook for the Japanese currency remains at around JPY 113 against the dollar until the end of 2018, with a slight appreciation of 3.7% expected at the one-year horizon (CF). The sales tax is expected to go up from 8% to 10% in October 2019. Prime Minister Shinto Abe is being criticised for this by the IMF, as it believes the step should be accompanied by a public spending hike to stop the economy slipping back into recession.



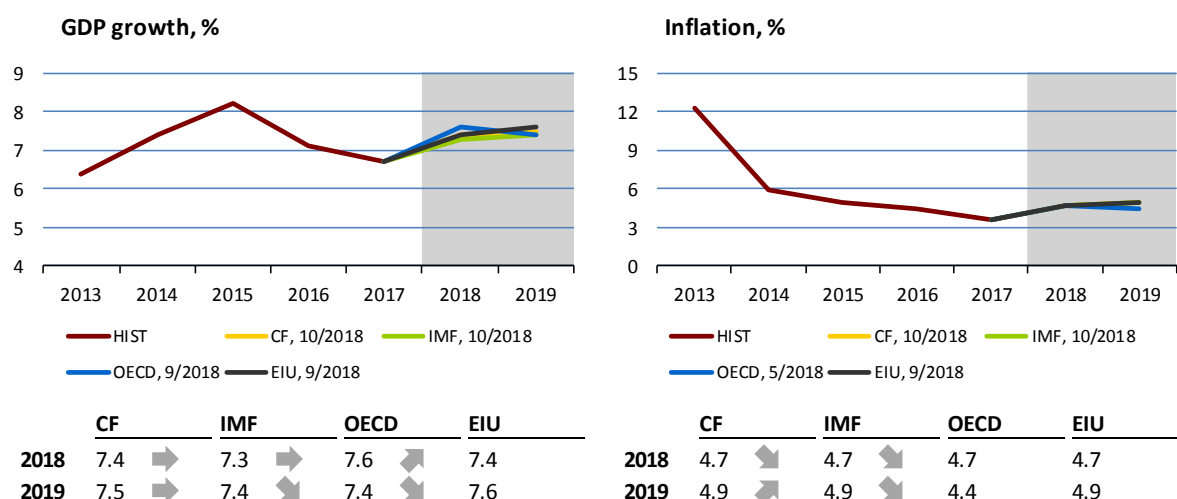
III.1 China

The trade disputes with the USA and the introduction of tariffs are starting to affect the Chinese economy. Exports to the USA recorded a year-on-year decline in September. Leading indicators for manufacturing are also indicating a slowdown in activity. New orders have been falling month on month since May as foreign trade uncertainty has mounted. The central bank's next steps, in particular a 1 pp cut in the reserve requirement (to 19.5% for large banks and 16% for small and medium-sized banks) should support financing of the banking sector. A full percentage point cut has occurred only once before, in the middle of the global financial crisis in November 2008. CF and the IMF took into account the current situation by reducing their growth outlooks for 2019. The IMF and EIU inflation outlooks were also lowered.



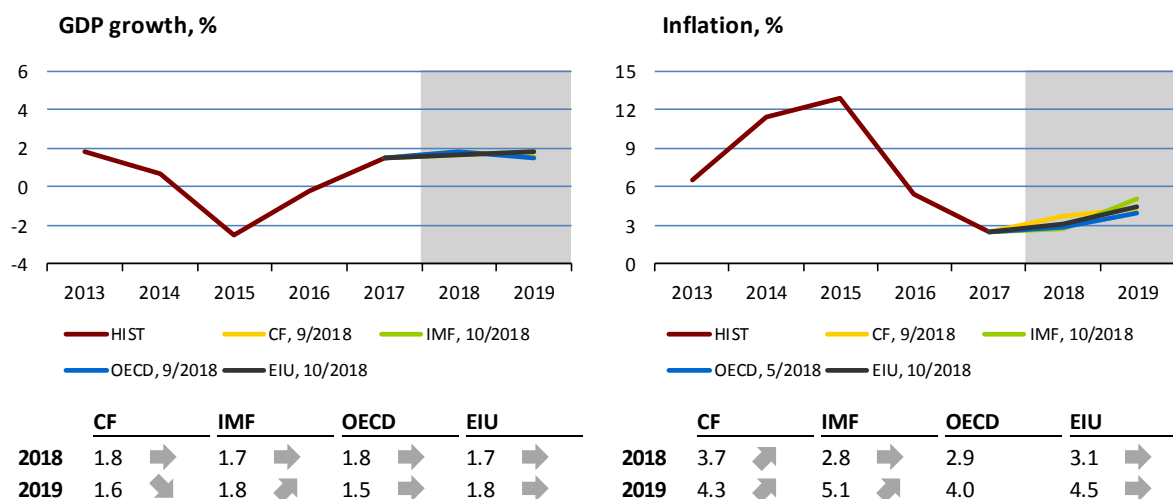
III.2 India

The Indian economy grew by 1.9% in 2018 Q2 (the annual growth was 8.2%). The GDP outlooks for this fiscal year and the next remain at around 7.5%. The new IMF forecast is a little lower than the October CF, while the OECD expects slightly higher growth this year. Inflation stood at 3.7% in August. According to CF and the IMF, it will rise from 4.7% this year to 4.9% in 2019 on average. The central bank's monetary-policy rate is at 6.5%. Unemployment is edging up (and currently stands at 6.9%). The Indian rupee has weakened by almost 14% since December 2017 to a current level of INR 74 to the dollar. Although India is currently struggling with an outflow of capital, the CF respondents expect the rupee to be 2.5% stronger one year ahead. India ordered oil from Iran for November despite the US sanctions. The German VW Group announced in the summer that it would decentralise its territorial structure and Skoda Auto would lead the India (and Russia) project. Cars for the Indian market are made in India due to protectionist tariffs.



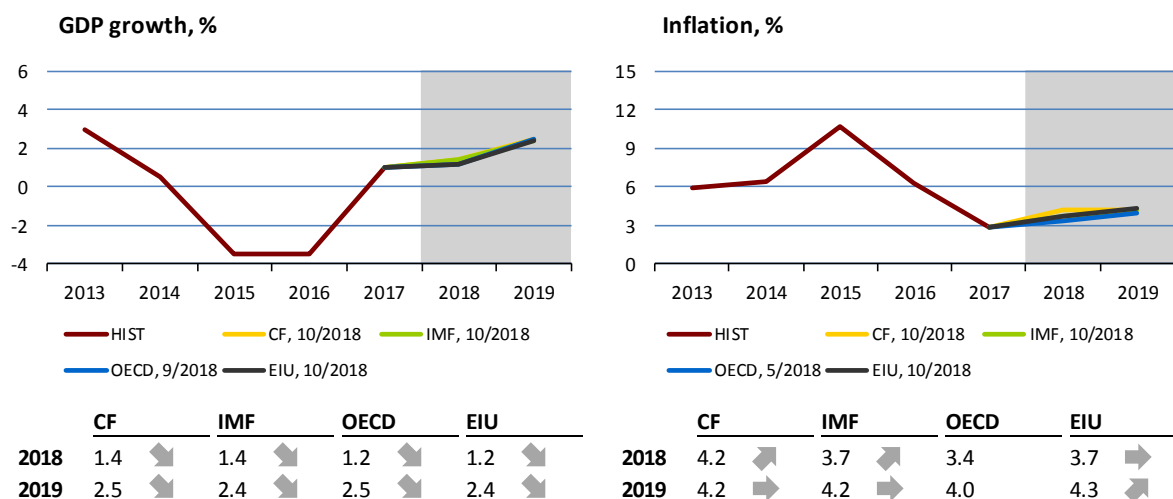
III.3 Russia

Year-on-year growth in Russian industrial production slowed to 2.7% in August (from 3.9% in July), but the latest leading indicators have improved slightly. Unemployment has been falling steadily since the start of this year, reaching a record low of 4.6% in August. Nevertheless, annual real wage growth gradually decreased from 11.6% in January (a high last reached at the start of 2012) to 7% in August due to rising inflation. Annual consumer price inflation stood at 3.4% in September. The Russian central bank increased its key interest rate by 0.25 pp to 7.5% in mid-September and simultaneously increased its inflation outlook for 2019 to 5.0%–5.5%. The new IMF forecast expects a similar figure. By contrast, the CF and EIU outlooks expect somewhat lower growth in consumer prices. The GDP outlook for 2019 is in the range of 1.5%–1.8%. The October CF lowered its estimate, while the IMF revised its outlook upwards.



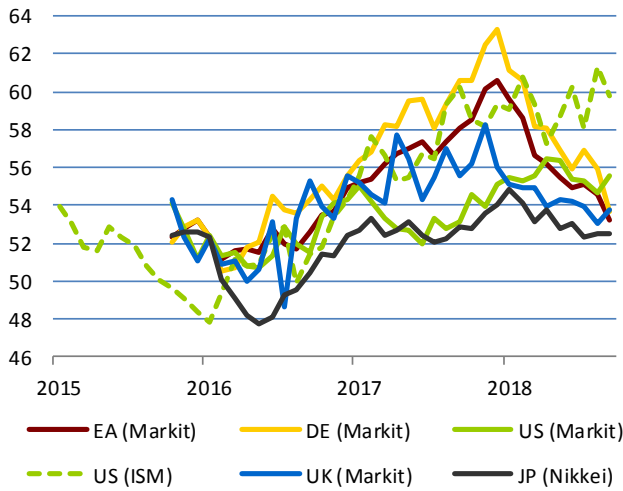
III.4 Brazil

Short-term indicators of the Brazilian economy are currently less than impressive. Year-on-year industrial production growth slowed to 2% in August. The leading indicators under review also worsened. The PMI in manufacturing fell to 50.9 in September, adversely affected by weak output growth and a sizeable drop in export orders. By contrast, new orders showed their highest growth in five months, preventing the overall index from falling further. The PMI in services continues to foresee a decline in activity in this sector and worsened slightly further compared to August (from 46.8 to 46.4). Following a slight slowdown in August, inflation returned to 4.5% in September. According to the new CF, IMF and EIU outlooks, however, the average inflation rate will not exceed 4.3% this year and the next. All the monitored institutions lowered their GDP growth outlooks. Growth will not exceed 1.4% this year and 2.5% next year.

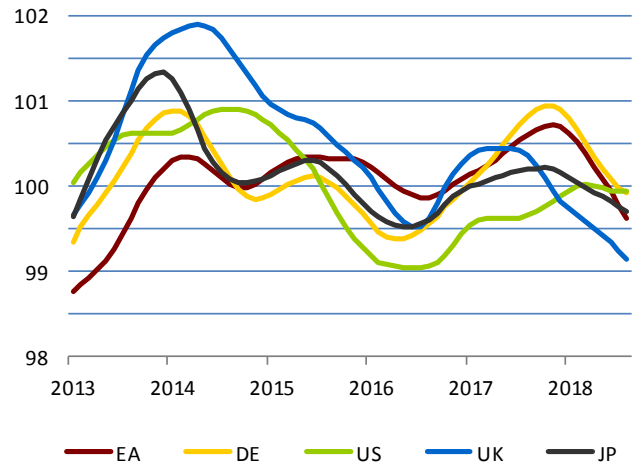


IV.1 Advanced economies

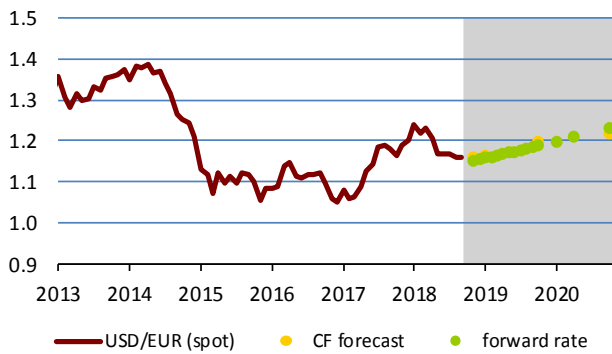
PMI in manufacturing



OECD Composite Leading Indicator

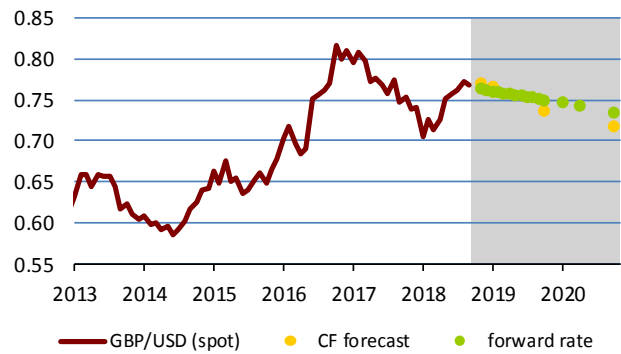


The US dollar (USD/EUR)



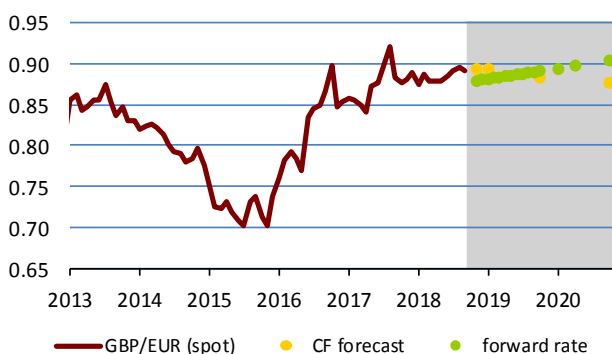
	8/10/18	11/18	01/19	10/19	10/20
spot rate	1.147				
CF forecast		1.160	1.165	1.197	1.220
forward rate		1.152	1.158	1.188	1.230

The British pound (GBP/USD)



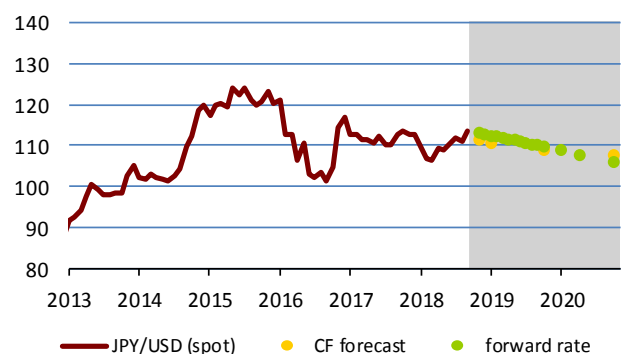
	8/10/18	11/18	01/19	10/19	10/20
spot rate	0.765				
CF forecast		0.769	0.766	0.737	0.718
forward rate		0.763	0.760	0.750	0.735

The British pound (GBP/EUR)



	8/10/18	11/18	01/19	10/19	10/20
spot rate	0.878				
CF forecast		0.892	0.893	0.882	0.876
forward rate		0.879	0.881	0.891	0.904

The Japanese yen (JPY/USD)

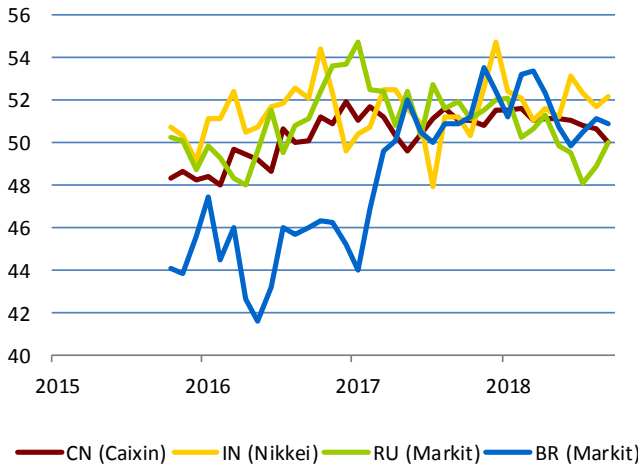


	8/10/18	11/18	01/19	10/19	10/20
spot rate	113.1				
CF forecast		111.3	110.7	109.0	107.6
forward rate		113.0	112.4	109.7	105.8

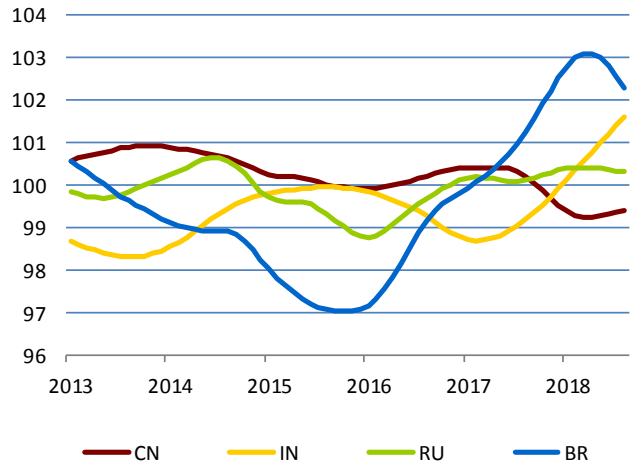
Note: Exchange rates as of last day of month. Forward rate does not represent outlook; it is based on covered interest parity, i.e. currency of country with higher interest rate is depreciating. Forward rate represents current (as of cut-off date) possibility of hedging future exchange rate.

IV.2 BRIC countries

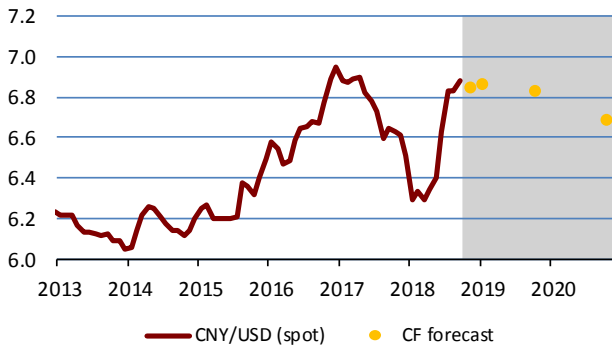
PMI in manufacturing



OECD Composite Leading Indicator

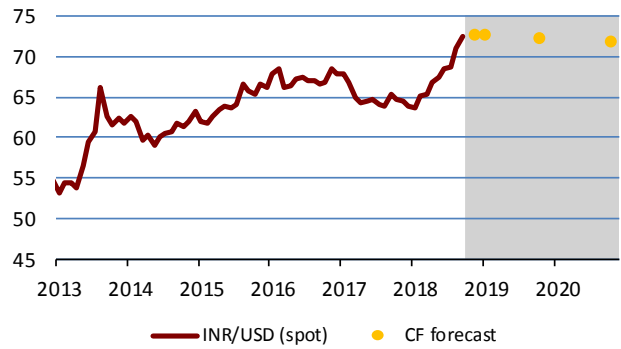


The Chinese renminbi (CNY/USD)



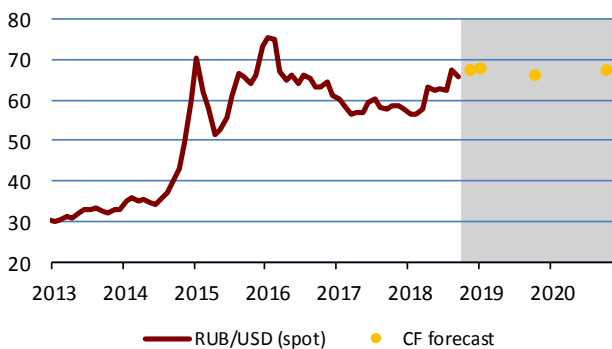
	8/10/18	11/18	01/19	10/19	10/20
spot rate	6.914				
CF forecast		6.847	6.865	6.827	6.689

The Indian rupee (INR/USD)



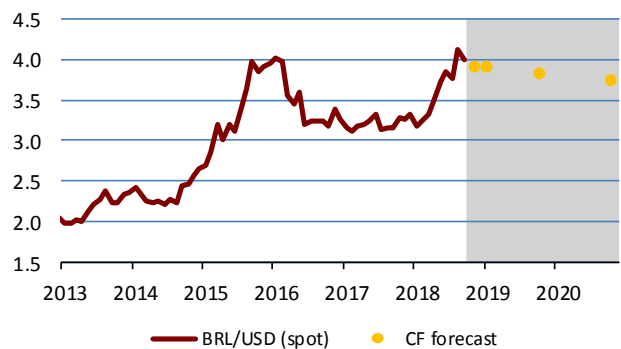
	8/10/18	11/18	01/19	10/19	10/20
spot rate	74.05				
CF forecast		72.60	72.56	72.27	71.87

The Russian rouble (RUB/USD)



	8/10/18	11/18	01/19	10/19	10/20
spot rate	66.70				
CF forecast		67.26	67.66	65.95	67.47

The Brazilian real (BRL/USD)



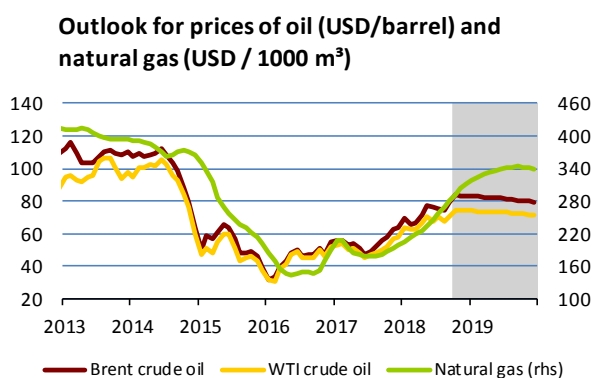
	8/10/18	11/18	01/19	10/19	10/20
spot rate	3.755				
CF forecast		3.907	3.901	3.834	3.748

Note: Exchange rates as of last day of month.

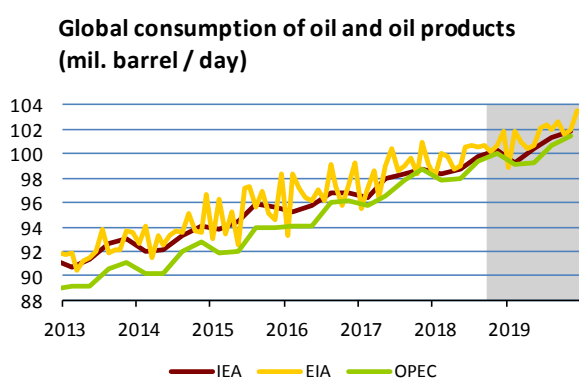
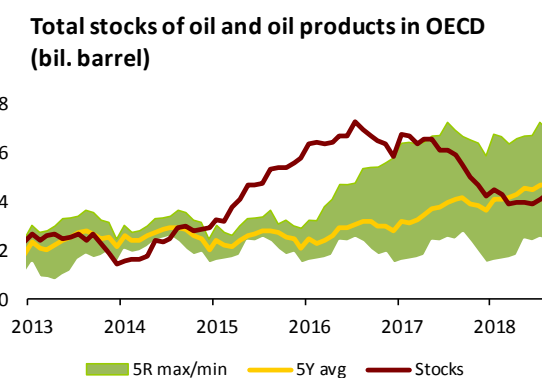
V.1 Oil and natural gas

The Brent oil price has been increasing since mid-August and in early October reached its highest level since October 2017 (USD 86.3/bbl). Concerns prevailed on the market as to whether OPEC and Russia would be able to make up for the fall in production and exports in Iran due to US sanctions and the continued decline in output in Venezuela, as some large countries stopped importing oil from Iran in advance and the drop in Iranian exports was thus stronger than expected. Some large oil traders expect oil prices to rise above USD 100/bbl at the start of 2019. The EIA upped its Brent crude oil price estimate for 2018 Q4 by USD 5 to USD 81/bbl. Despite falling production in Iran and Venezuela, however, the EIA believes that global supply in 2019 will be roughly in line with demand, which should push down the oil price. In the USA, logistical issues regarding the transport of oil from wells to refineries and export terminals should be partially resolved in the second half of 2019. Combined with the high oil price, this should foster further growth in oil production in the USA and help keep the oil price close to USD 75/bbl, especially if the forecast for lower growth in demand in emerging economies materialises.

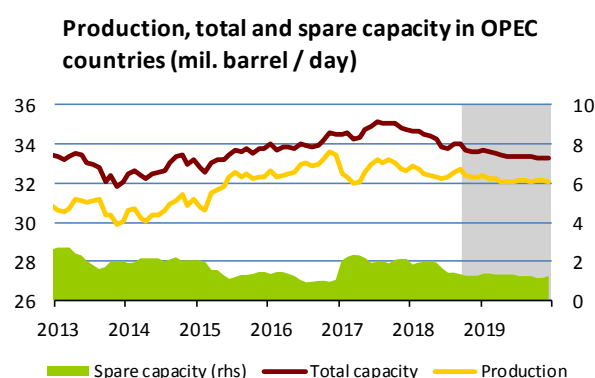
The market futures curve for Brent crude oil switched from contango to backwardation (due, among other things, to growth in the net long positions of speculative funds) on concerns regarding the current under-supply. The curve is signalling an average price of USD 83.6/bbl for the rest of 2018 and USD 81.4/bbl for 2019. The October CF is much lower, expecting a Brent price of USD 76.1/bbl one year ahead. OPEC's low reserve extraction capacity means that oil prices will probably show greater volatility in the near future, especially in the event of unexpected production shortfalls.



	Brent	WTI	Natural gas
2018	75.40 ↗	68.61 ↗	254.50 ↗
2019	81.37 ↗	72.85 ↗	335.77 ↗



	IEA	EIA	OPEC
2018	99.28 ↗	100.07 ↗	98.78 ↗
2019	100.75 ↗	101.57 ↗	100.15 ↗



	Production	Total capacity	Spare capacity
2018	32.46 ↗	34.07 ↗	1.60 ↗
2019	32.14 ↗	33.41 ↗	1.27 ↗

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.

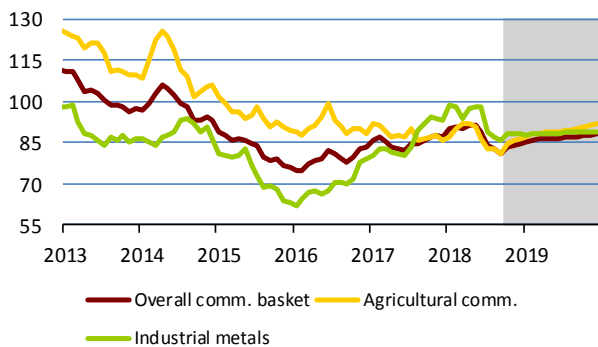
V.2 Other commodities

The average aggregate non-energy commodity price index recorded its fourth fall in a row in September, but ended higher in mid-October. The two sub-indices showed similar developments. The food commodity price sub-index remains close to an eleven-year low but is expected to grow fairly strongly until the end of 2020. The outlook for the industrial metals price index is only slightly rising.

Base metal prices remain under pressure due to a worsening manufacturing outlook. The J.P.Morgan Global Manufacturing PMI dropped further from 52.5 to 52.2 in September, reaching a two-year low. Its new exports component even entered the band signalling future contraction (49.7). In the second half of September, however, aluminium, copper, nickel and zinc prices increased on news that the newly imposed US import tariff rate on Chinese goods worth USD 200 billion would be only 10% for the time being, even though 25% had been expected. Import tariffs will be raised to this level from January 2019 if no agreement is reached in the meantime. Copper and zinc maintained higher prices in the first half of October due to a sharp fall in stocks on the London and Shanghai exchanges. This signals continued solid demand. The iron ore price remains at the elevated level it reached in early August. Coal prices remain at their highest level since 2012 due to high demand in East Asia.

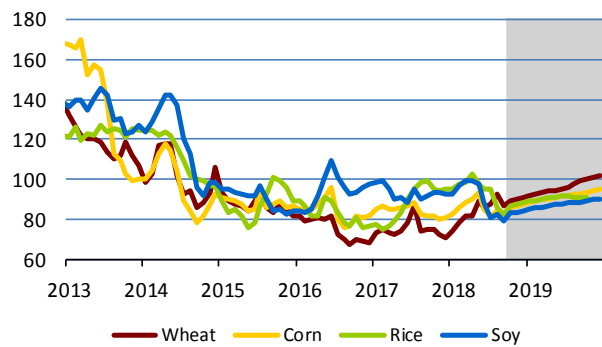
The growth in the food commodity price index was due to wheat and corn prices in mid-September and also to rice, sugar and coffee prices at the end of the month. Pork and beef prices kept rising.

Non-energy commodities price indices



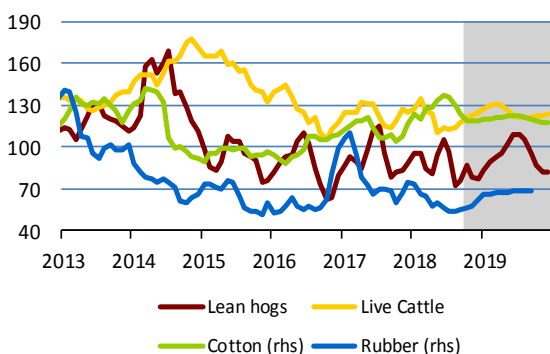
	Overall	Agricultural	Industrial
2018	86.9 ↗	86.8 ↗	92.5 ↗
2019	86.8 ↗	89.6 ↗	88.5 ↗

Food commodities



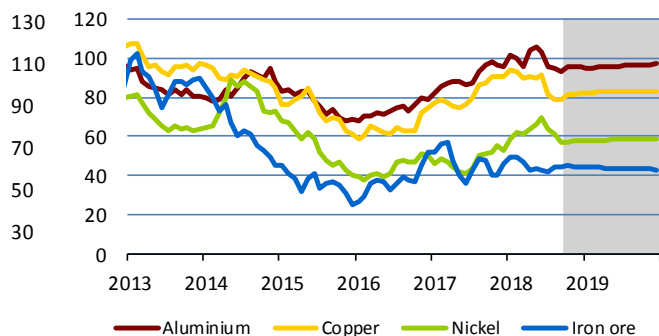
	Wheat	Corn	Rice	Soy
2018	85.7 ↗	86.3 ↗	92.8 ↘	89.0 ↗
2019	96.5 ↘	91.9 ↗	90.8 ↗	87.8 ↗

Meat, non-food agricultural commodities



	Lean hogs	Live Cattle	Cotton	Rubber
2018	87.0 ↗	120.8 ↗	87.7 ↘	43.3 ↗
2019	94.6 ↗	125.0 ↗	83.5 ↘	48.5 ↗

Basic metals and iron ore



	Aluminium	Copper	Nickel	Iron ore
2018	98.3 ↘	85.9 ↗	61.4 ↗	45.0 ↗
2019	95.9 ↘	83.0 ↗	58.4 ↗	43.6 ↗

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.

International trade developments with a focus on the EU¹

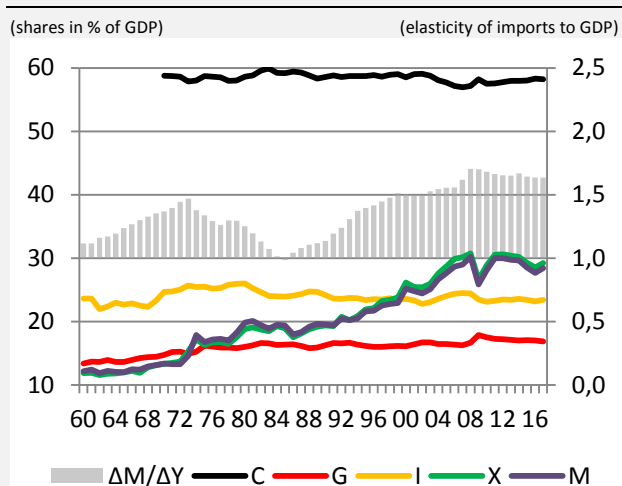
This article offers a brief analysis of the degree of openness of EU economies relative to the global average using time-varying elasticity and decomposition analysis. In line with the empirical literature, we find that international trade has long been growing faster than economic activity on both the global and European scale. This growth can be explained by foreign trade liberalisation and parallel production specialisation accompanied by a drop in trade costs and the emergence of global production chains. The openness of all EU economies is increasing over time, and the share of more open economies in total EU economic activity is also growing. These factors are increasing the EU's overall openness, with the first one being dominant. Re-introducing tariff costs and starting trade wars could be very costly to the global economy, as it would disrupt production chains and hence also reduce economic activity significantly.

International trade is the fastest-growing GDP component of both the global and the EU economy

Global trade has been growing faster than global GDP since the 1960s. The ratio of imports to global GDP was around 11% in the 1960s. By the early 1980s it had risen to almost 20% and it currently stands at just below 30% (see Chart 1). These figures illustrate that international trade has been growing faster than global economic activity on average. Temporary decreases in the degree of openness have typically been recorded in recessions. The ratios of the other GDP components have either been flat (consumption and investment) or rising very modestly (government investment).

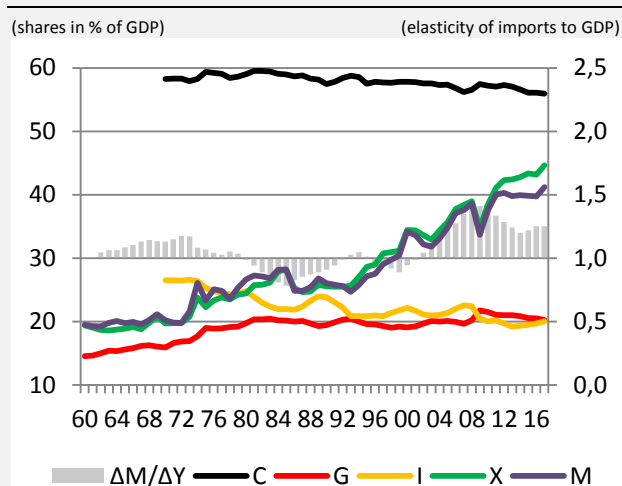
A similar trend has been recorded by EU economies. Chart 2 shows that the export and import ratios in the current EU Member States have risen from 20% in the early 1960s to more than 40% now. Over the past two decades, the EU's import-to-GDP ratio has fallen during only two episodes: in the period of 2002–2003, when the core EU countries were hit by a modest recession, and again in 2008 and 2009.²

Chart 1 – Dynamics of GDP components in global economy



Source: WDI, figure for global economy in 2017 – extrapolation using EIU data, authors' calculations

Chart 2 – Dynamics of GDP components in EU economy



Source: WDI, figure for global economy in 2017 – extrapolation using EIU data, authors' calculations

The rate of growth of the openness of the global and European economy has varied over time. The highest rates of growth in international trade relative to economic activity were recorded in the 1960s and the 1970s and again at the start of the millennium. By contrast, this ratio fell temporarily during the Great Recession (i.e. after 2008) and its growth halted (see Chart 1). An econometric estimate of time-varying elasticity (see Charts 1 and 2 for the result)³ confirms the increased sensitivity of global imports to

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.

² The export-to-GDP ratio has been growing faster than the import-to-GDP ratio in the EU over the past few years. This is related to subdued domestic demand following the European debt crisis, reflected in imports growing less than exports.

³ The econometric sensitivity model was specified in logarithmic form

$$\log m_t = a_0 + a_{1t} \log y_t$$

where m_t stands for imports and y_t for GDP. The coefficient a_{1t} varies over time and gives the elasticity of imports to economic activity. The model was estimated in two ways: using the Kalman filter and using exponential smoothing, with the smoothing parameter set so as to minimise the prediction error of the model. The two methods produce very similar results, so we only provide the results obtained using exponential smoothing.

global GDP, with an elasticity higher than one in the long run.⁴ The elasticity of European imports to European GDP is lower on average, but is again higher than one for most of the period.

One explanation of the growth in the openness of the global economy offered by the economic literature lies in the emergence of global production chains. Yi (2003) argues that a drop in tariff⁵ and non-tariff trade costs supported vertical specialisation, which for producers became an attractive opportunity to benefit from the division of labour. This led to fragmentation of production and the emergence of international production chains. Specialisation along these chains fosters higher growth in trade than in economic activity in the long run.

The existence of global production chains is making international trade highly sensitive to barriers to trade and to aggregate demand. A small drop in final demand affects the entire production chain and can result in a larger overall decrease in economic activity than in final demand. The production chain links between economies across the world explain why global trade fell dramatically during the recession (Levchenko et al., 2010). Production chains are also sensitive to growth in trade costs, because such costs make fragmentation of production less attractive. Growth in trade costs, due, for example, to the re-introduction of tariffs, even if in only one part of the chain, could cause the entire chain to collapse. This would have an adverse knock-on effects on the economic activity of trading partners not hit by growth in trade costs.

Decomposition of export and import growth in EU economies

In the European context, the process of political and economic integration was also a major driver of economic openness. The process of European integration led to a reduction in trade barriers and hence to rapid growth in trade starting in the early 1990s. Another stimulus was the start of the process of political and economic change in Eastern European countries, which led to them being involved more intensively in global trade in the 1990s.⁶ Their entry into the EU meant a further decrease in barriers to trade and resulted in greater economic integration and greater economic openness overall. The openness of the new EU Member States (since 2004) is higher than the EU average.

The growth in EU countries' exports and imports can be divided into several main factors:

- **The intensity effect:** the degree of openness of all the EU countries has long been increasing, hence the degree of openness of the EU as a whole must also be growing.
- **The relative price effect:** change in prices of exports and imports relative to the GDP deflator changes the degree of openness of the economy; this effect can either increase openness (if trade prices grow faster than domestic prices) or reduce it (if trade prices fall relative to domestic prices).
- **The composition effect:** the share of the GDP of more open countries in that of the EU as a whole is increasing; this means that if the export-to-GDP and import-to-GDP ratios in individual countries were constant, the EU's total export and import ratios would rise.

Index decomposition analysis allows us to identify these effects. Its methodology is described in the box below and its results are shown in Charts 3 and 4.

The intensity effect is the dominant factor in explaining the growth in the openness of the EU economy. The export-to-GDP and import-to-GDP ratios increased in all European economies on average in the given period. The only period when the ratios of real exports and imports to real GDP fell markedly was the Great Recession of 2008–2009. This was due to the high sensitivity of global trade to demand factors.⁷

The second major factor is the relative price effect, which had the opposite effect to the intensity effect for most of the period. This means that export and import prices in most European economies are rising more slowly than the GDP deflator. In other words, foreign goods are getting relatively cheaper. This effect is particularly strong in transition economies and is linked with the real trend appreciation of their currencies, which reflects growth in the quality of the goods they produce relative to the rest of the world (Brůha and Podpiera, 2010, 2011). However, the other (core) EU countries are also experiencing a relative drop in import and export prices vis-à-vis the rest of the world. During the contraction in global trade in 2008 and 2009, the price effect was combined with the intensity effect. This was linked with the global slump in commodity prices.

⁴ Most international trade theories (Anderson, 1979) imply unit elasticity between economic activity and trade, and are therefore at odds with this result.

⁵ Quaglietti (2018) documents growth in agreements leading to the lifting of barriers to trade.

⁶ However, a process of structural change and opening up to global trade has also taken place in other regions, particularly in East Asia. The textbook example is China.

⁷ This sensitivity is explained by the different import intensities of the different components of GDP (ECB, 2016): investment is typically import-intensive and simultaneously reacts strongly to the business cycle.

Box – Index decomposition analysis

Index decomposition analysis aims to decompose economic variables into several factors to show changes in the variables over time. Here, we consider the decomposition of the import-to-GDP ratio in the following form (the decomposition of the export-to-GDP ratio is constructed analogously):

$$\frac{M_t}{Y_t} = \sum_i \frac{M_{it}/P_{it}^M P_{it}^M Y_{it}}{Y_{it}/P_{it}^Y P_{it}^Y Y_t},$$

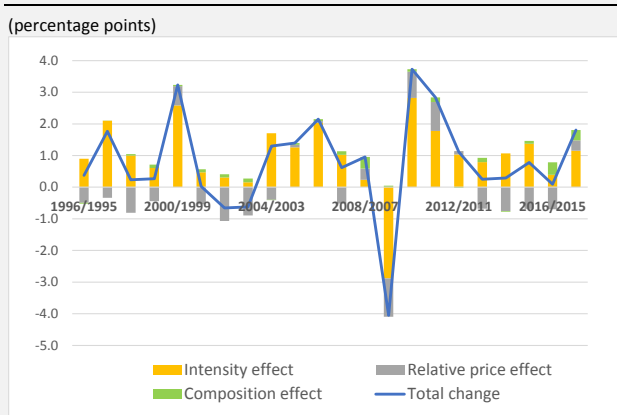
where M_t is total nominal imports at time t , Y_t is nominal GDP, variables with index i refer to individual countries, and P_{it}^M and P_{it}^Y are the import and GDP deflators respectively. $\frac{M_{it}/P_{it}^M}{Y_{it}/P_{it}^Y}$ is the ratio of real imports to real GDP in individual countries. The weighted change in this ratio reflects the intensity effect. $\frac{P_{it}^M}{P_{it}^Y}$ captures the impact of change in the ratio of import prices to GDP prices on openness, and its weighted change across countries represents the relative price effect. Finally, $\frac{Y_{it}}{Y_t}$ captures countries' shares in economic activity, with the change in these shares representing the composition effect.

The change in $\frac{M_t}{Y_t}$ over time can be accurately decomposed into the above effects using a logarithmic Divisia index. This index is the preferred method of index decomposition analysis (see e.g. Ang et al., 2013). For the purposes of this article, we applied its additive form, which decomposes the differences between the ratios of total imports to total GDP over time into the three said factors: $\frac{M_t}{Y_t} - \frac{M_{t-1}}{Y_{t-1}}$.

The composition effect is the weakest of the three, but its contribution to the growth in the openness of European economies was positive in the period under review. This means that the share of more open economies in EU output increased in that period. These economies include in particular the V4 countries, Romania and Ireland. Their aggregate share in EU GDP grew from less than 3% in 1996 to almost 6% in 2017, while their degree of openness rose by almost 40 percentage points.⁸

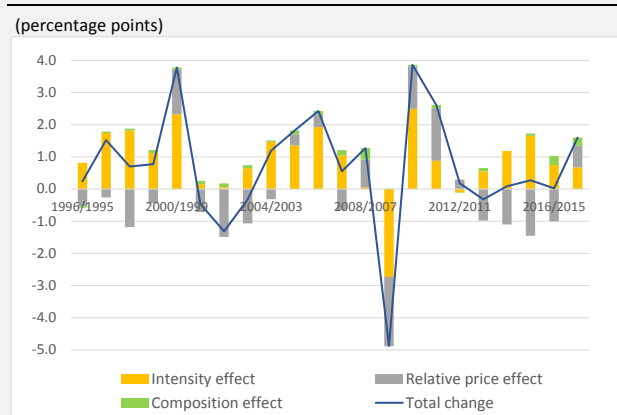
Intra-EU trade and trade with the rest of the world have both contributed to the growth in the openness of the EU economy. The ratio of total imports to GDP has gone up by 10 percentage points, from around 32% in 2003 to 42% now. The share of non-EU imports in EU GDP rose from 14% to 20% in the same period. The figures for exports are similar.

Chart 3 – Decomposition of export-to-GDP ratio in EU



Source: Eurostat, authors' calculations

Chart 4 – Decomposition of import-to-GDP ratio in EU



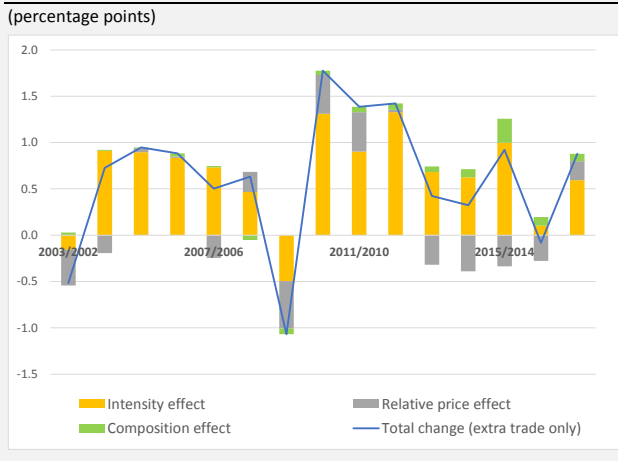
Source: Eurostat, authors' calculations

The relative importance of the factors affecting the EU's openness to the rest of the world is the same as in the case of total trade. Charts 5 and 6 show the relevant decomposition for the changes in the ratios of the EU's non-EU exports and imports to GDP in 2003–2017.⁹ The intensity effect remains the dominant one and, with the exception of 2004 and 2008–2009, raises the ratios of exports and imports to European GDP. However, the drop in trade with the rest of the world in the crisis years 2008 and 2009 is substantially lower than the decline in total trade. The relative price effect is negative overall, which means that prices of European exports and imports grew less rapidly than domestic prices, pointing to long-term real exchange rate appreciation with respect to the rest of the world. The composition effect is very small, explaining less than half a percentage point for the period as a whole.

⁸ With the exception of Poland, where the growth was 30 percentage points.

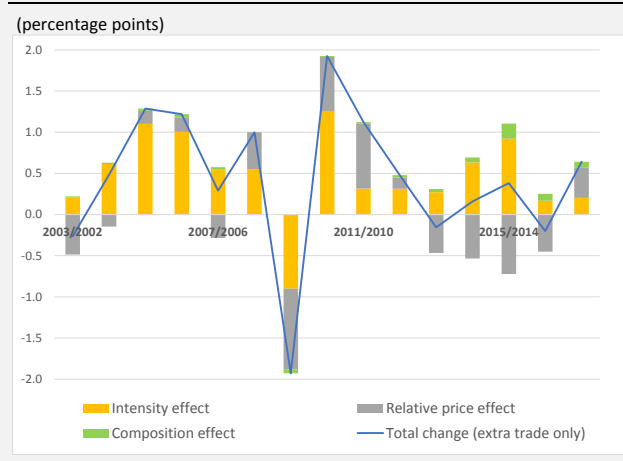
⁹ Data limitations make it impossible to conduct the analysis on a longer time sample into the past.

Chart 5 – Decomposition of ratio of non-EU exports to GDP in EU



Source: Eurostat, authors' calculations

Chart 6 – Decomposition of ratio of non-EU imports to GDP in EU



Source: Eurostat, authors' calculations

Conclusion

International trade is growing more quickly than GDP on both the global and European scale. It recorded its fastest growth in the 1960s and again from the start of the millennium until the Great Recession. The growth in the openness of European economies was supported by the process of political and economic integration. The integration of Central European countries into the EU economy further stimulated their export and import growth. The rapid growth in international trade can be explained by fragmentation of production and the emergence of global production chains, aided to a large extent by a drop in trade costs.

However, the high degree of specialisation that led to the rapid growth in world trade has serious implications as regards the costs of re-introducing trade barriers and starting trade wars. A rise in tariff costs would result in production along global chains becoming less attractive. If the chains were to break, economic activity would contract, even in countries not hit directly by growth in costs. As the current macroeconomic models capture transmission mechanisms in the global economy only imperfectly (Ghironi, 2018), estimates based on macroeconomic models may underestimate the true economic costs of trade wars.

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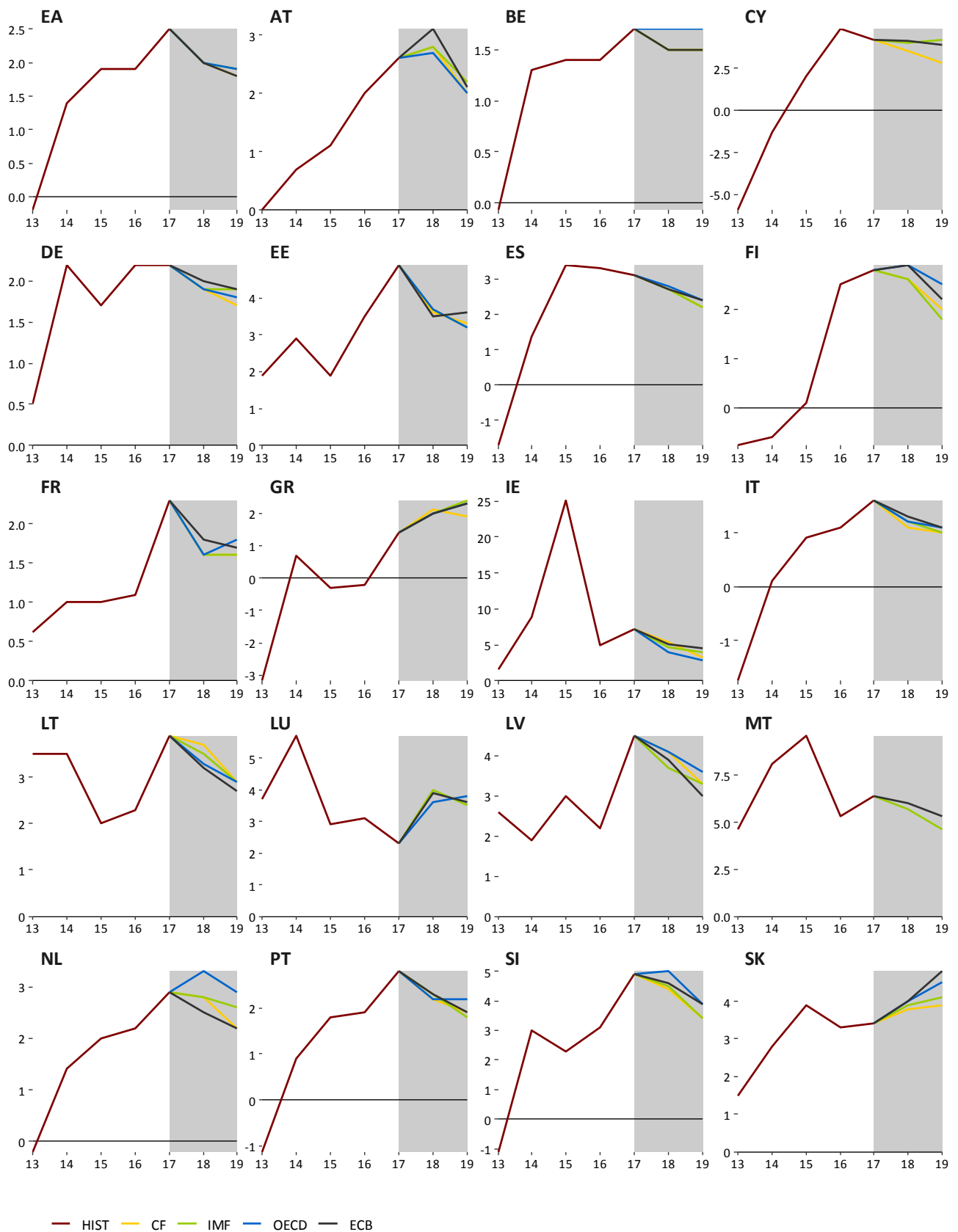
A1. Change in GDP predictions for 2018

	CF		IMF		OECD		CB / EIU	
EA	-0.1	2018/10	-0.2	2018/10	-0.2	2018/9	-0.1	2018/9
		2018/9				2018/7		
DE	0	2018/10	-0.3	2018/10	-0.2	2018/9	-0.5	2018/6
		2018/9				2018/7		
US	0	2018/10	0	2018/10	0	2018/9	+0.3	2018/9
		2018/9				2018/7		
UK	0	2018/10	0	2018/10	-0.1	2018/9	0	2018/8
		2018/9				2018/7		
JP	0	2018/10	+0.1	2018/10	0	2018/9	-0.1	2018/7
		2018/9				2018/7		
CN	0	2018/10	0	2018/10	0	2018/9	0	2018/10
		2018/9				2018/7		
IN	0	2018/10	0	2018/10	+0.2	2018/9	0	2018/9
		2018/9				2018/7		
RU	0	2018/9	0	2018/10	0	2018/9	0	2018/10
		2018/8				2018/7		
BR	-0.2	2018/10	-0.4	2018/10	-0.8	2018/9	-0.3	2018/10
		2018/9				2018/7		

A2. Change in inflation predictions for 2018

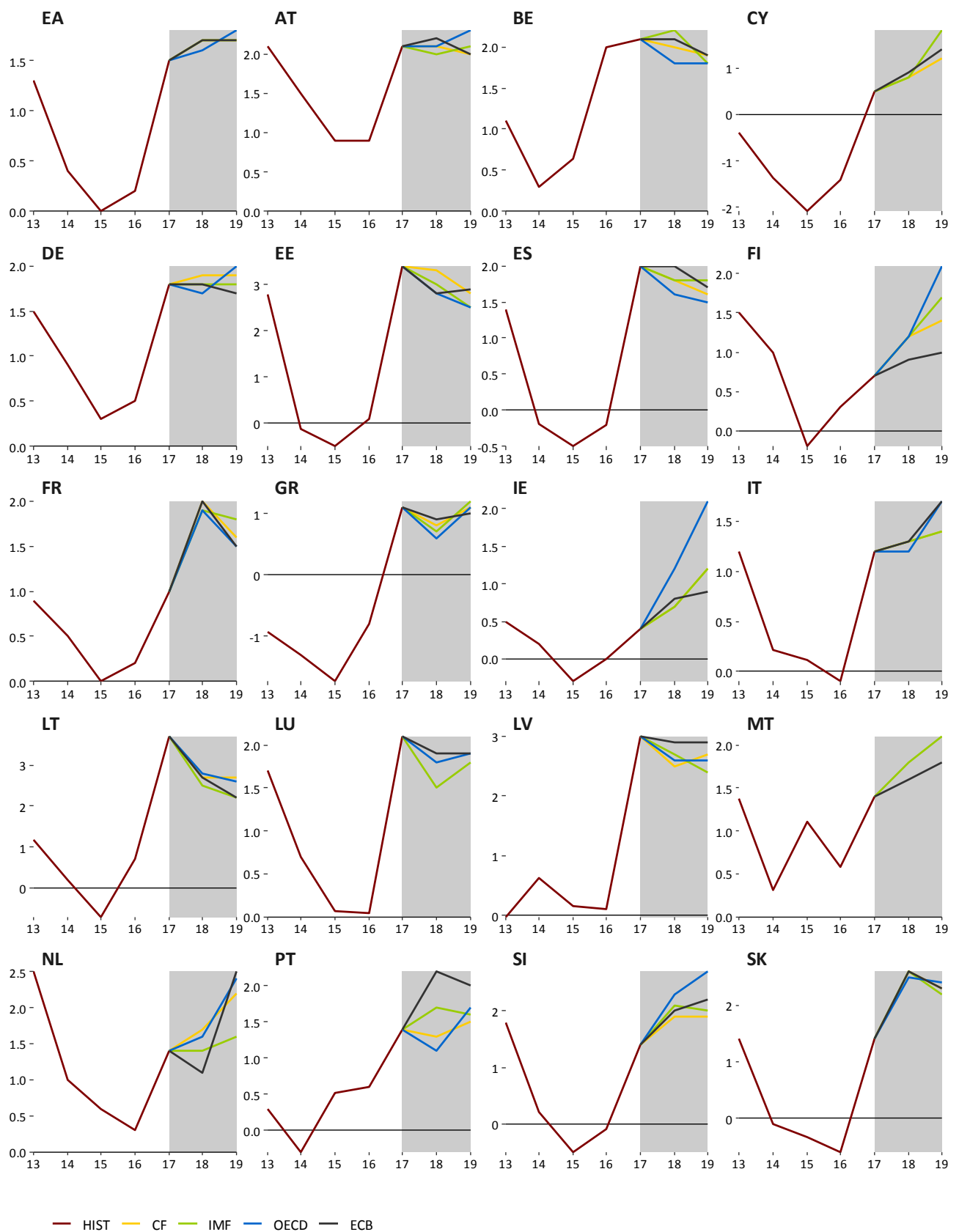
	CF		IMF		OECD		CB / EIU	
EA	0	2018/10	+0.2	2018/10	+0.1	2018/5	0	2018/9
		2018/9				2018/4		
DE	+0.1	2018/10	+0.2	2018/10	-0.1	2018/5	+0.2	2018/6
		2018/9				2018/4		
US	0	2018/10	-0.1	2018/10	+0.7	2018/5	0	2018/9
		2018/9				2018/4		
UK	+0.1	2018/10	-0.2	2018/10	0	2018/5	+0.1	2018/8
		2018/9				2018/4		
JP	0	2018/10	+0.1	2018/10	+0.2	2018/5	-0.2	2018/7
		2018/9				2018/4		
CN	0	2018/10	-0.3	2018/10	+0.1	2018/5	-0.1	2018/10
		2018/9				2018/4		
IN	-0.1	2018/10	-0.3	2018/10	+0.1	2018/5	0	2018/9
		2018/9				2018/4		
RU	+0.1	2018/9	0	2018/10	-0.9	2018/5	0	2018/10
		2018/8				2018/4		
BR	+0.1	2018/10	+0.2	2018/10	-0.5	2018/5	0	2018/10
		2018/9				2018/4		

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

