GLOBAL ECONOMIC OUTLOOK - JANUARY

Monetary Department
External Economic Relations Division

2016

CNB CZECH
NATIONAL BANK

Cut-off date for data
15 January 2016

CF survey date
11 January 2016

GEO publication date
22 January 2016

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.
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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Editor-in-chief Summary	Editor III.1 China III.3 Russia	Editor IV. Outlook of exchange rates	II.1 Eurozone Focus	II.2 United States II.4 Japan

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II.3 Germany	III.2 India III.4 Brazil	V. Commodity market developments

I. SUMMARY

This year's first 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 also focus on the life cycle of foreign direct investment (FDI) on both the theoretical and empirical level. Our article presents an empirically derived general profile of the FDI profitability life cycle and then applies it to create scenarios for the probable future evolution of total FDI earnings on the example of the Czech Republic.
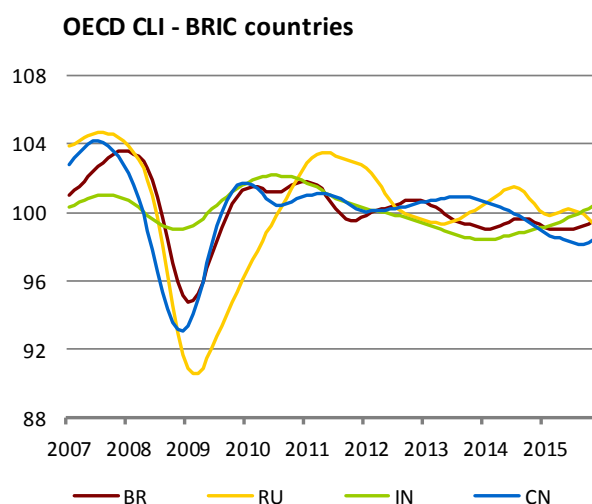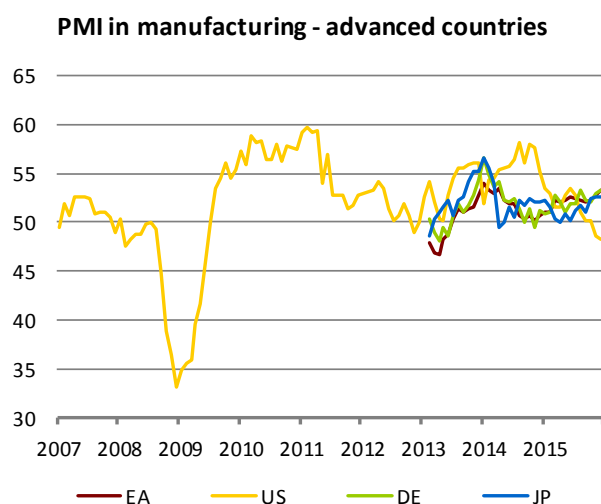
The global economic outlooks for 2016 and 2017 are more optimistic compared to last year. The global economy is expected to grow by 2.7% this year (thanks mainly to the Asian-Pacific region), rising to 3.0% in 2017. As regards the advanced economies, the US economy should achieve robust economic growth of around 2.5% despite recent and expected future monetary policy tightening. The growth of the euro area economy should stabilise at 1.7% in the next two years, with a similar figure also recorded by its strongest economy – Germany. Among the G7 countries, Canada and the UK should also maintain solid growth. Growth in Japan is expected to improve to 1.2% this year but fall back to 0.6% next year. Inflation is still expected to be below the general reference level of 2% in the vast majority of advanced countries this year. Only a handful of countries are expected to reach that level in 2017 (the USA, Canada, Sweden and, maybe surprisingly, Japan). Still declining dollar prices of oil and further modest appreciation of the dollar against most other currencies will play an important role.

The outlooks for emerging economies, represented by the BRIC group, remain mixed for the next two years. On the one hand, China and particularly India are showing strong economic growth. However, while growth in India is gaining pace slightly, growth in China will gradually slow to 6%. Inflation forecasts for China are appearing for the first time of less than 2% up to the end of the next year. The two other BRIC economies, Russia and Brazil, are and will continue to be considerably worse off. Unlike India and China, Brazil and Russia will be in recession this year and their growth outlooks for 2017 are only just above 1%. The good news for these countries is that they should succeed in reducing their double-digit inflation rates to 5%–6% this year and the next.

The outlooks for euro area interest rates remain very low, with no sign of them rising before the end of 2016. US rates can be expected to increase further this year. In December 2015, they started to go up for the first time in almost ten years. According to CF, the US dollar will appreciate slightly at the one-year horizon against all the monitored currencies except the Russian rouble.

The start of the year saw further price decreases on commodity markets, mainly in response to depreciation of the Chinese currency and turbulence on the Chinese financial market, which had a negative impact on global stock markets. Oil prices slumped. Prices of most basic metals also went down due to an uncertain outlook for demand in China. Nevertheless, according to the market futures curve, the outlook for oil prices remains slightly rising, with prices of Brent oil expected to reach USD 40 a barrel at the end of 2016.

Leading indicators for countries monitored in the GEO

PMI in manufacturing - advanced countries

EA — US — DE — JP

**OECD CLI - BRIC countries**

BR — RU — IN — CN

Zdroj: Bloomberg, Datastream

II.1 Eurozone

Economic growth of less than 2% is expected for the euro area both this year and the next. Slightly faster growth is thus projected compared to 2015. GDP in the euro area grew by 0.3% quarter on quarter and 1.6% year on year in 2015 Q3. The growth was driven by household consumption, but government consumption and investment also increased. Industrial production recorded a month-on-month decline in November. Nevertheless, the PMI in manufacturing, which rose again in December, is indicating an improvement in the situation. Real retail sales also dropped month on month in November. By contrast, the labour market situation developed favourably, with the unemployment rate declining slightly further to 10.5%. The ZEW leading indicator rose in December.

According to Eurostat's flash estimate, consumer price inflation was flat at 0.2% in December. As in previous months, inflation is being driven downwards by a decline in energy commodity prices. Inflation is expected to rise to 1% in 2016 and pick up slightly further in 2017. The ECB eased monetary policy further at its December meeting, in line with its earlier statement. Inflation excluding energy and food prices stood at 0.9% in December, i.e. the same level as in the previous month. The 3M Euribor fell further to -0.14% in January, but its outlook at the one-year horizon is even lower. The outlook for the ten-year German government bond yield was unchanged from the previous month at the one-year horizon.

GDP growth, %
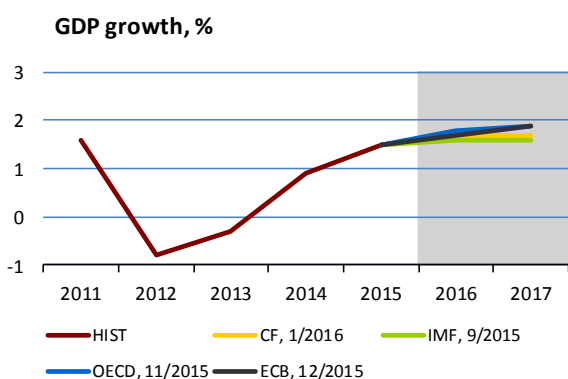
	CF		IMF	OECD	ECB	
2016	1.7	→	1.6	1.8	1.7	→
2017	1.7	★	1.6	1.9	1.9	↗

Inflation, %
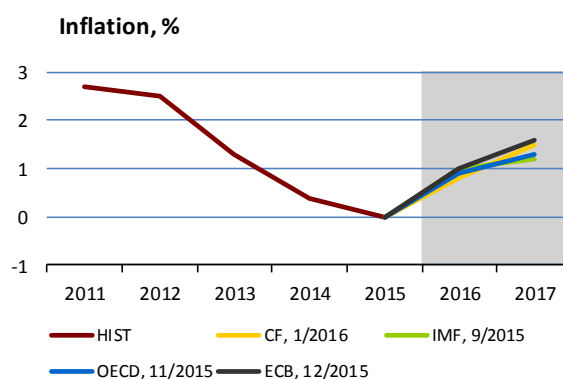
	CF		IMF	OECD	ECB	
2016	0.8	↘	1.0	0.9	1.0	↘
2017	1.5	★	1.2	1.3	1.6	↘

Leading indicators
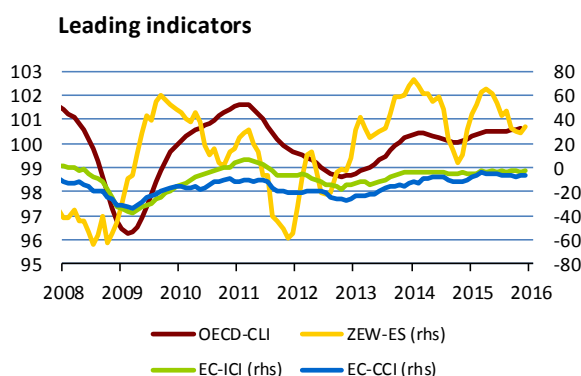
	OECD-CLI	EC-ICI	EC-CCI	ZEW-ES
10/15	100.6	-2.0	-7.5	30.1
11/15	100.6	-3.2	-5.9	28.3
12/15		-2.0	-5.7	33.9
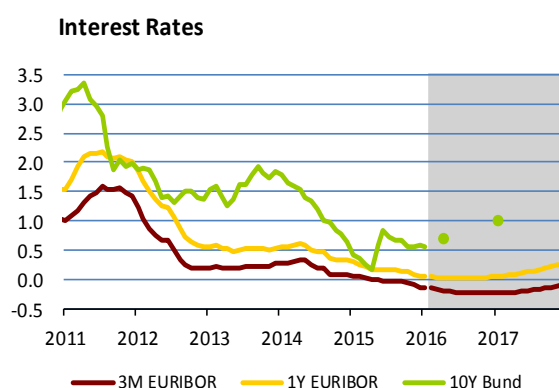
Interest Rates

	12/15	01/16	04/16	01/17
3M EURIBOR	-0.13	-0.14	-0.19	-0.23
1Y EURIBOR	0.06	0.05	0.03	0.06
10Y Bund	0.60	0.56	0.70	1.00

II.2 United States

As expected, the Fed increased its key interest rates in December for the first time in almost ten years. The target range for the key rate was raised by 25 bp to 0.25%–0.5%. The reason given for this in the Fed's official statement was the good condition of the US economy, especially the labour market conditions. The Fed also believes that inflation will rise to its 2% objective over the medium term. New labour market data confirm the improving situation. The number of new jobs in the non-agricultural sector rose by 292,000 in December (compared to an estimate of 200,000), while the figures for the previous two months were revised upwards by 50,000. Unemployment was flat at 5.0% over the last three months of 2015, while the participation rate increased negligibly in December. Although retail sales growth slowed further in November, consumer confidence increased modestly in December.

Annual consumer price inflation rose to 0.4% in November and core inflation reached 2%. Inflation pressures therefore remain contained. As a result, the Fed indicated in its statement that although the first increase in rates marks the beginning of a cycle of gradual monetary policy tightening, its continuation will depend on current inflation pressures. According to market outlooks, further monetary policy actions cannot be expected soon. In the January survey, more than 88% of CF panellists believed that rates would not be increased at the January meeting. Some Fed representatives identified current developments in China as a major risk, while others mentioned the fall in oil prices and its impact on inflation expectations. The path of expected interest rates and the outlook for the USD/EUR exchange rate remained broadly unchanged from December. The January CF reduced its GDP growth outlook by 0.1 pp and its inflation outlook by 0.2 pp in 2016. The US economy is expected to pick up slightly in 2017, with inflation exceeding 2%. The Fed's new forecast contains a slightly lower outlook for inflation and a slightly higher outlook for GDP growth this year. The forecast for 2017 is unchanged.

GDP growth, %
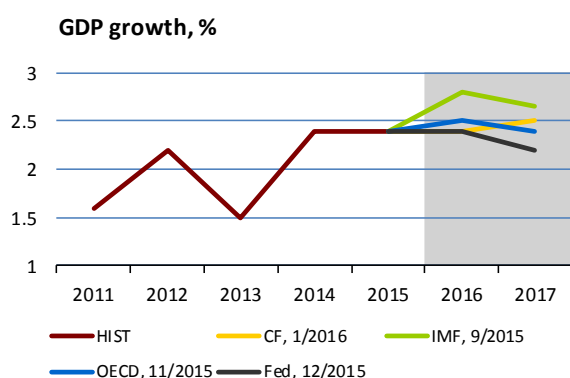
	CF	IMF	OECD	Fed
2016	2.4	2.8	2.5	2.4
2017	2.5	2.7	2.4	2.2

Inflation, %
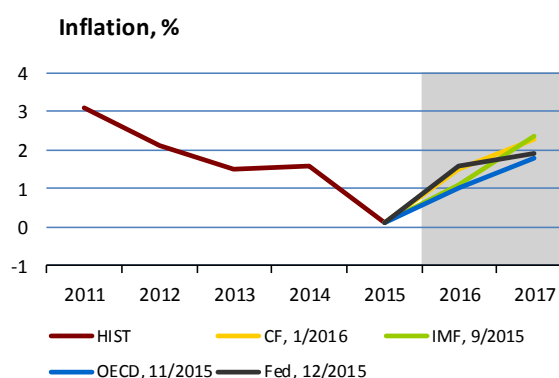
	CF	IMF	OECD	Fed
2016	1.5	1.1	1.0	1.6
2017	2.3	2.4	1.8	1.9

Leading indicators
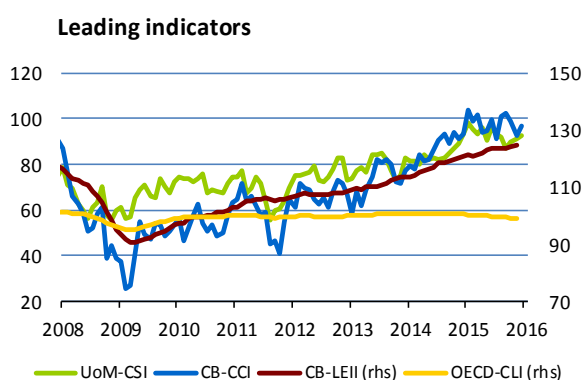
	CB-LEII	OECD-CLI	UoM-CSI	CB-CCI
10/15	124.1	99.3	90.0	99.1
11/15	124.6	99.2	91.3	92.6
12/15			92.6	96.5

Interest Rates
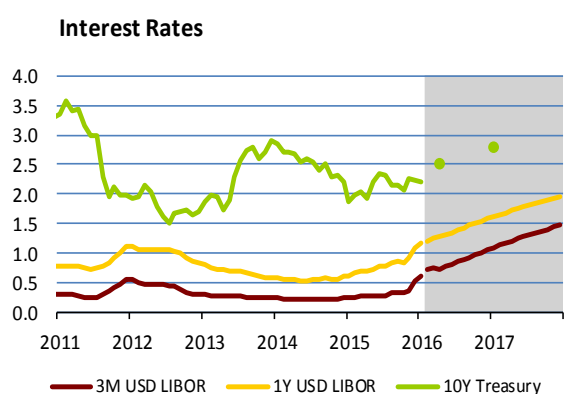
	12/15	01/16	04/16	01/17
USD LIBOR 3M	0.54	0.62	0.74	1.10
USD LIBOR 1R	1.09	1.09	1.28	1.62
Treasury 10R	2.24	2.20	2.50	2.80

II.3 Germany

The quarterly GDP growth rate in Germany decreased by 0.1 pp to 0.3% in 2015 Q3. By contrast, the annual growth rate rose by the same amount to 1.7%. According to both the Federal Statistical Office's flash estimate and the January CF, economic growth in Germany stood at 1.7% in 2015 as a whole. The growth was driven mainly by an increase in government and household consumption, which outweighed the decline in external demand caused by the slowdown in emerging economies. Employment surged to its highest level since reunification, unemployment showed a record decline and the state budget recorded a surplus of EUR 12 billion. CF expects economic growth to pick up slightly to 1.8% this year. The analysts' optimism is also supported by an increase in almost all leading indicators in December. Inflation fell to 0.3% in December and to a record low of 0.2% in 2015 as a whole. This weak inflation was due mainly to an extreme drop in energy prices.

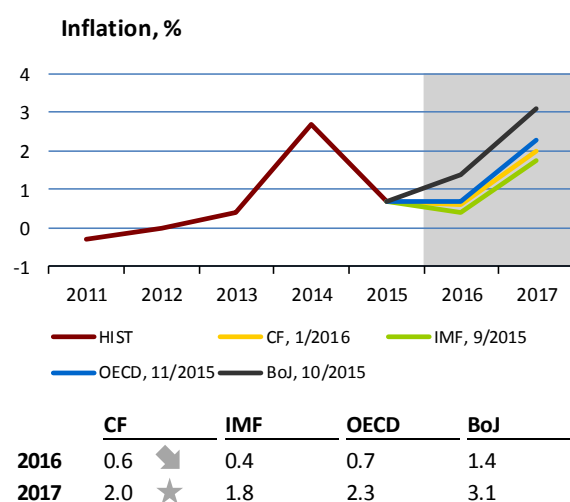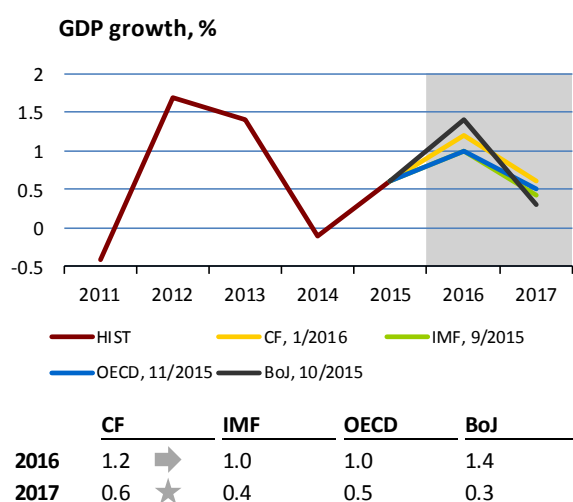**GDP growth, %**

Inflation, %

	CF		IMF	OECD	DBB	
2016	1.8	➡	1.6	1.8	1.8	➡
2017	1.6	★	1.5	2.0	1.7	↗

	CF		IMF	OECD	DBB	
2016	1.1	↘	1.2	1.0	1.1	↘
2017	1.8	★	1.5	1.6	2.0	↘
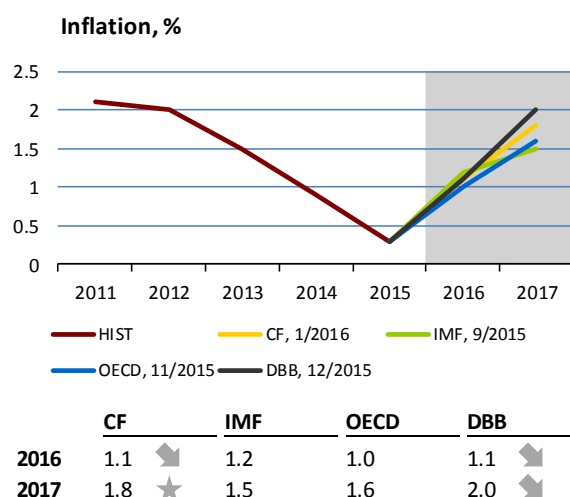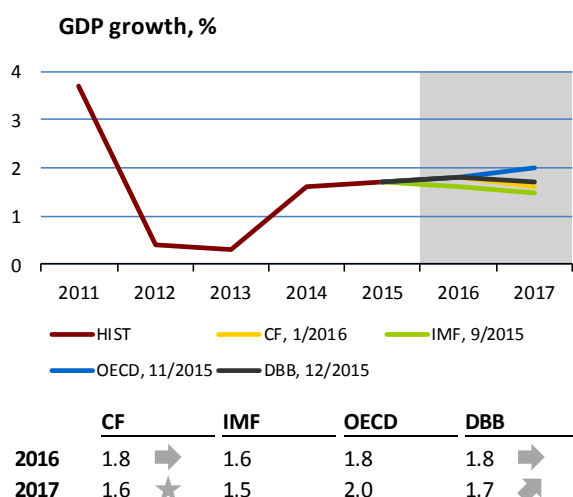
II.4 Japan

New data from the Japanese economy suggest that a pronounced recovery cannot be expected until later in 2016. Although the annual change in industrial production has been hovering around zero for several months, the PMI is still optimistic, thanks mainly to a surprise jump in orders. On the other hand, annual export growth fell to its lowest level in three years in November (-3.3%), mainly because of a decline in exports to China. Consumer demand saw no major improvement either. Household expenditure and retail sales decreased year on year at the end of 2015, while unemployment remains at a record low of around 3%. In his New Year's speech, Prime Minister Abe said that Japan was no longer in a deflationary phase, but the current inflation figures remain very low. Total annual inflation was the same in November as in October (0.3%) and core inflation excluding food prices was zero. According to the January CF, inflation pressures will remain subdued in 2016. Inflation is expected to rise to the central bank's objective in 2017.

GDP growth, %

Inflation, %

	CF		IMF	OECD	BoJ
2016	1.2	➡	1.0	1.0	1.4
2017	0.6	★	0.4	0.5	0.3

	CF		IMF	OECD	BoJ
2016	0.6	↘	0.4	0.7	1.4
2017	2.0	★	1.8	2.3	3.1

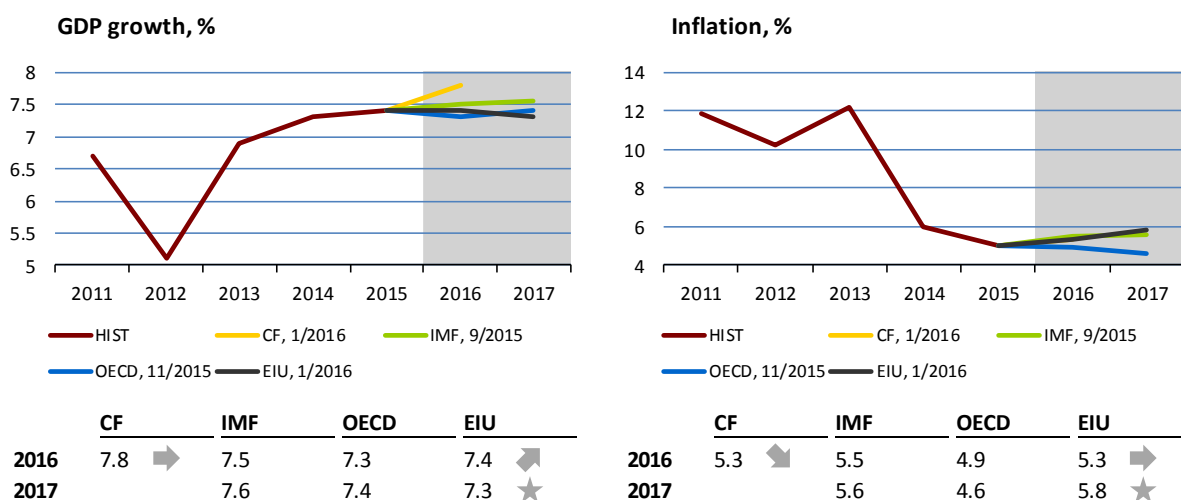## III. ECONOMIC OUTLOOK IN BRIC COUNTRIES

III.1 China

The annual growth rate of industrial production in China edged up to 6.2% in November. The December PMI in manufacturing fell further below the 50-point level, while the PMI for new orders rose above it. A sharp slowdown in the fall in foreign trade was observed in China at the end of the year. The December data came as a positive surprise, with a 1.4% decline in exports and a 7.6% drop in imports. However, concerns about an outflow of capital from China are strengthening. Although the current trends in short-term indicators suggest no major changes, turbulence on the Chinese financial market and its spillover on global markets, coupled with the depreciation of the renminbi to an almost five-year low, again increased concerns of an economic slowdown in China – the most important driver of global growth. According to CF and the EIU, the GDP outlooks for this year are unchanged: both institutions expect growth of 6.5%. In 2017, GDP growth is expected to slow further to 6.0%–6.3%.

GDP growth, %

	CF		IMF	OECD	EIU	
2016	6.5	→	6.3	6.5	6.5	→
2017	6.3	★	6.0	6.2	6.0	★

Inflation, %

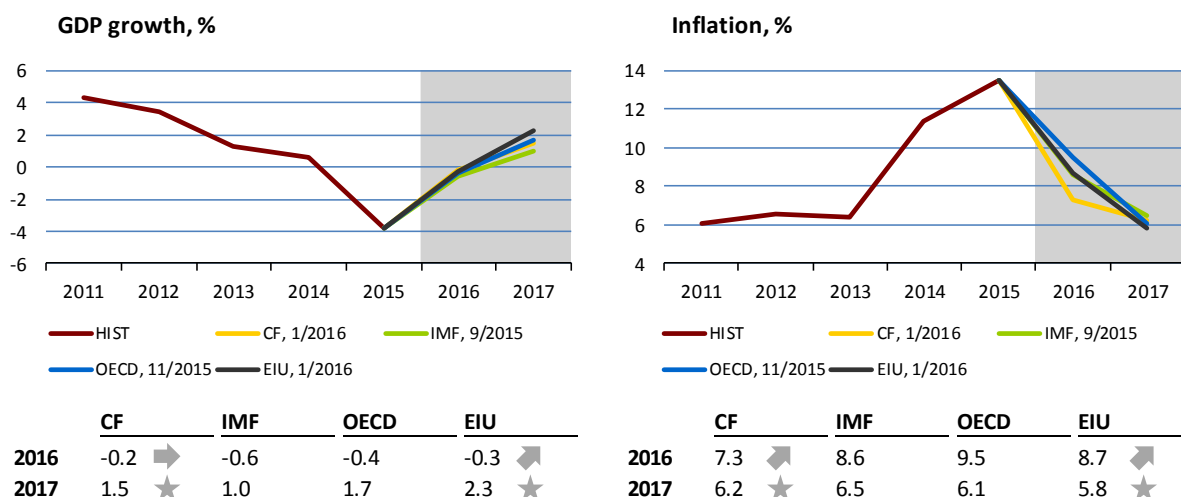|	CF		IMF	OECD	EIU	
2016	1.6	↓	1.8	2.5	2.1	→
2017	1.7	★	2.0	2.5	2.4	★
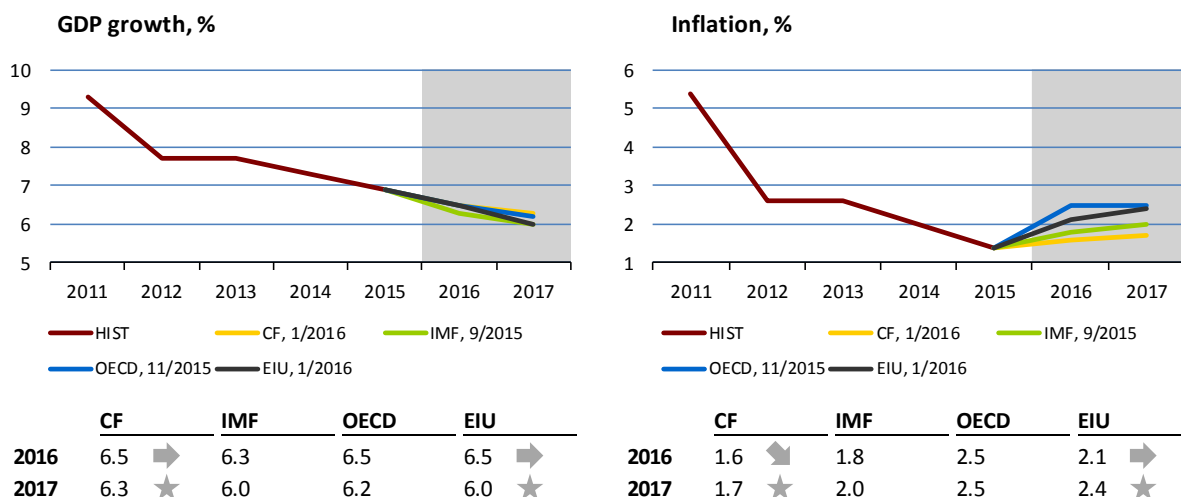
III.2 India

Production in India declined towards the year-end. Contrary to expectations, industrial output fell by 3.2% in November due to lower electricity generation and a drop in cement and steel output. The PMI in manufacturing has been declining for six months in a row. At 49.1 points, it reached the contractionary band in December due to weakening domestic demand and floods in the south of the country. CF left its GDP growth outlook for FY 2016/2017 unchanged, while the EIU raised its outlook by 0.3 pp. The monitored institutions expect growth of around 7.4% in FY 2017/2018. Inflation rose again in October, by 0.2 pp to 5.6%. This was due mostly to food prices, but also to depreciation of the rupee against the dollar. CF slightly reduced its inflation forecast for 2016 (by 0.1 pp). The EIU expects inflation of 5.8% for 2017.

GDP growth, %

	CF		IMF	OECD	EIU	
2016	7.8	→	7.5	7.3	7.4	↗
2017			7.6	7.4	7.3	★

Inflation, %

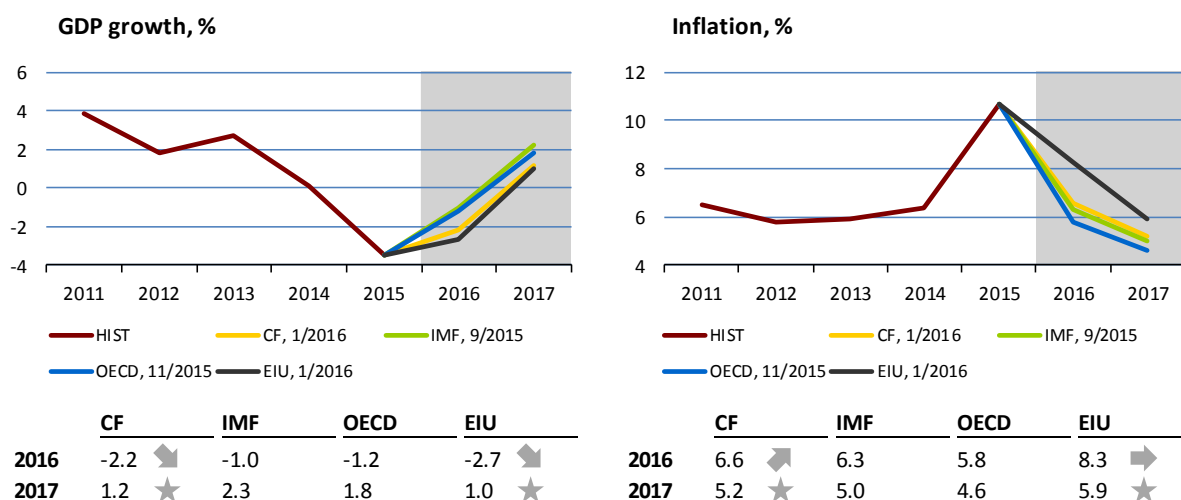|	CF		IMF	OECD	EIU	
2016	5.3	↓	5.5	4.9	5.3	→
2017			5.6	4.6	5.8	★

III.3 Russia

The November data suggest a continued decline in industrial production (of 3.5%), a drop in retail sales (of 13.1%), a decrease in real wages (of 9.0%) and a simultaneous rise in unemployment. Exports and imports also declined, albeit at a slower pace than in October. The new figures on short-term developments thus show no major change from the previous month. The worst news for the Russian economy is the further decline in oil prices, on account of which the rouble weakened even further (nearing RUB 77 to the dollar in mid-January). However, the fall in economic activity should slow from 3.8% as expected in 2015 to 0.2%–0.3% this year (CF and EIU). The economy should even show weak growth next year. Inflation fell below 13% in December. A further slowdown to 7.3%–8.7% can be expected next year, although the January outlook for inflation in 2016 is 0.1–0.5 pp higher than the December outlook.
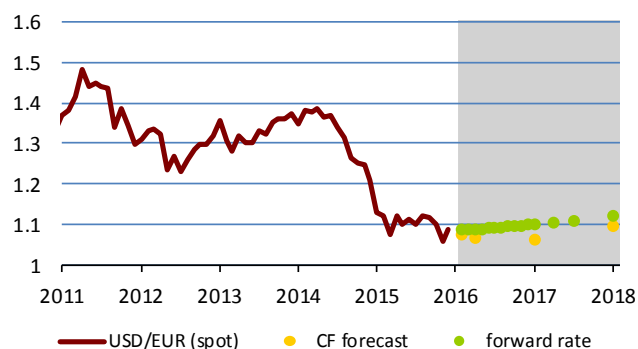
GDP growth, %

	CF		IMF	OECD	EIU	
2016	-0.2	➡	-0.6	-0.4	-0.3	⬈
2017	1.5	★	1.0	1.7	2.3	★

Inflation, %

	CF		IMF	OECD	EIU	
2016	7.3	⬈	8.6	9.5	8.7	⬈
2017	6.2	★	6.5	6.1	5.8	★

III.4 Brazil

Fitch downgraded Brazil's rating by one notch to BB+ with a negative outlook, due to an unexpectedly deeper economic recession, a continued adverse fiscal situation and increasing political instability. Industrial production fell again in November, suggesting a further deepening of the recession at the year-end. However, the unemployment rate recorded its first decline of 2015 in November (to 7.5%). The PMI in manufacturing rose to 45.6 points but remains in the contractionary band. Both CF and the EIU lowered their GDP growth outlooks for 2016 (to -2.2% and -2.7% respectively). However, the economy is expected to return to growth in 2017. Inflation was running at 10.7% in December, 0.2 pp higher than in November. It thus ended the year above the 10% level, well above the central bank's target. The increase in inflation was due primarily to food and transport prices. The EIU left its inflation outlook for this year unchanged, while CF increased its forecast by 0.2 pp. Both institutions predict that inflation will return to the target band in 2017 (the inflation target is 4.5% with a tolerance band of ±2 pp).

GDP growth, %

	CF		IMF	OECD	EIU	
2016	-2.2	⬊	-1.0	-1.2	-2.7	⬊
2017	1.2	★	2.3	1.8	1.0	★

Inflation, %

	CF		IMF	OECD	EIU	
2016	6.6	⬈	6.3	5.8	8.3	➡
2017	5.2	★	5.0	4.6	5.9	★

IV. Outlook of exchange rates

The US dollar (USD/EUR)

	11/1/16	02/16	04/16	01/17	01/18
spot rate	1.085				
CF forecast		1.074	1.066	1.064	1.098
forward rate		1.087	1.089	1.100	1.120

The Japanese yen (JPY/USD)
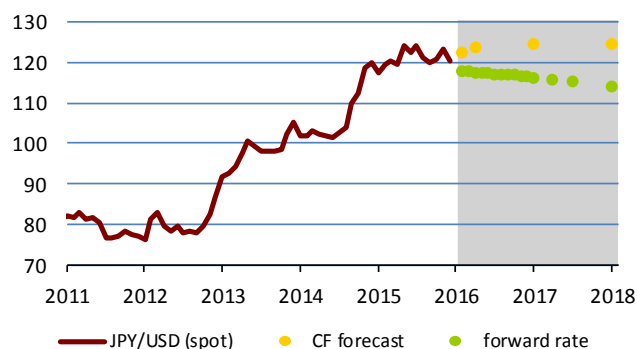
	11/1/16	02/16	04/16	01/17	01/18
spot rate	117.8				
CF forecast		122.2	123.5	124.5	124.6
forward rate		117.7	117.5	116.3	114.1

The Brazilian real (BRL/USD)
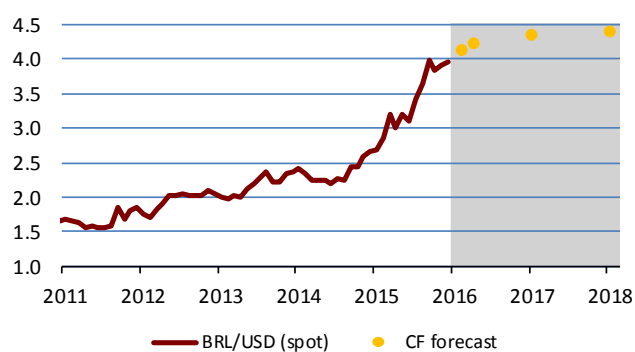
	11/1/16	02/16	04/16	01/17	01/18
spot rate	4.052				
CF forecast		4.117	4.229	4.343	4.397

The Russian rouble (RUB/USD)
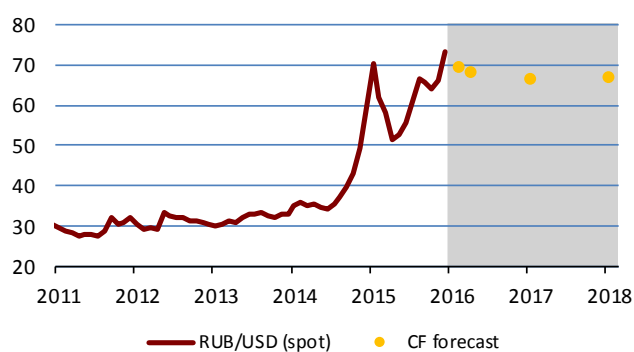
	11/1/16	02/16	04/16	01/17	01/18
spot rate	76.01				
CF forecast		69.25	68.10	66.54	66.98

The Indian rupie (INR/USD)
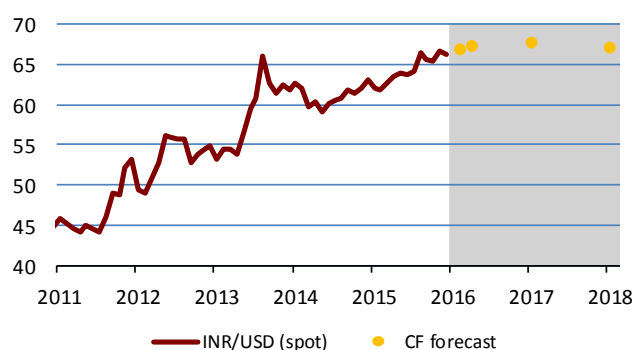
	11/1/16	02/16	04/16	01/17	01/18
spot rate	66.78				
CF forecast		66.84	67.16	67.71	66.95

The Chinese renminbi (CNY/USD)
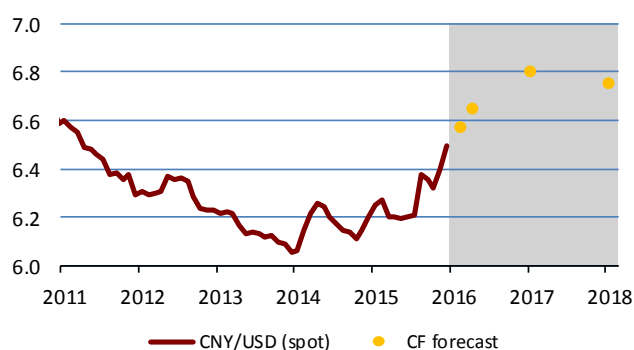
|	11/1/16	02/16	04/16	01/17	01/18
spot rate	6.582				
CF forecast		6.571	6.646	6.802	6.751

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.

V.1 Oil and natural gas

Oil prices started falling sharply again at the start of the new year (due mainly to the stock market crash in China and the depreciation of the renminbi). In mid-January, prices fell below USD 30 a barrel (bbl) for the first time since February 2004.

The market forecast based on the 11 January futures curve shifted significantly downwards again over the entire horizon (by around USD 9/bbl) and continues to foresee only a gradual rise. The price of Brent crude oil is expected to rise to only around USD 40/bbl and USD 45/bbl at the end of 2016 and 2017 respectively. The Brent-WTI spread saw a major change. While WTI oil was being traded at a discount of almost USD 5/bbl on average in 2015, the prices of the two benchmarks converged over the entire forecast horizon after the ban on oil exports from the USA was lifted (18 December). The January EIA forecast also moved downwards but still expects higher growth in the Brent price compared to the market curve (by around USD 4/bbl this year and USD 7/bbl a year later). The Brent price is thus expected to average USD 40/bbl this year and USD 50/bbl the next. The EIA (unlike the market) also expects the discount on WTI oil to be maintained at USD 2/bbl in 2016 and USD 3/bbl in 2017 on average. The January CF forecast is even higher, expecting the price of Brent crude oil to increase to almost USD 50/bbl at the one-year horizon. Given the expected rapid growth in oil supplies from Iran, unlimited extraction in other OPEC countries, the current resilience of shale extraction in the USA and record-high global stocks of oil, the risks are generally on the downside, especially if the Chinese economy slows more sharply. Prices would increase faster only if extraction in the USA decreased more sharply or a greater conflict erupted in the Middle East.

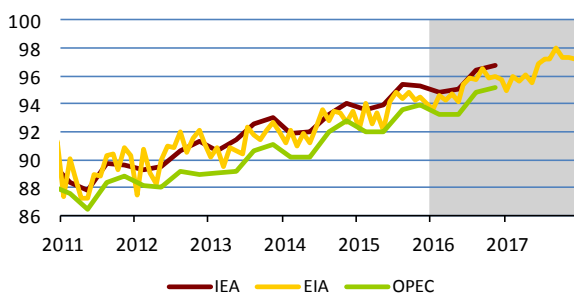**Outlook for prices of oil (USD/barrel) and natural gas (USD / 1000 m³)**
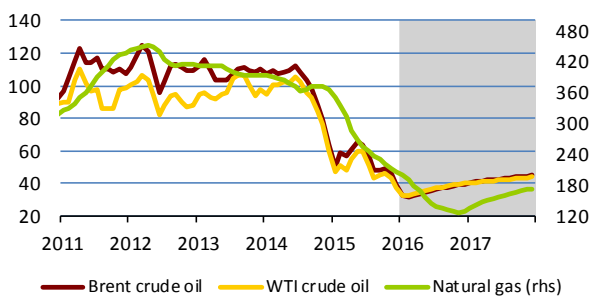
	Brent	WTI	Natural gas
2015	53.64	48.80	263.48
2016	35.90	36.52	152.39

Total stocks of oil and oil products in OECD (bil. barrel)
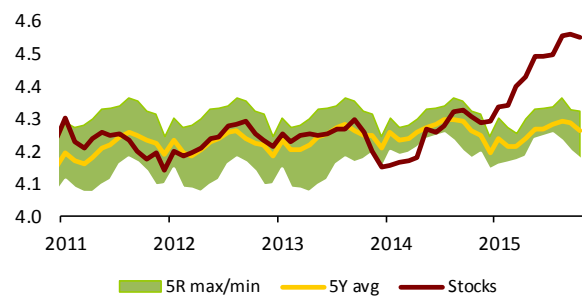
Global consumption of oil and oil products (mil. barrel / day)

	IEA	EIA	OPEC
2015	94.54	93.78	92.88
2016	95.78	95.19	

Production, total and spare capacity in OPEC countries (mil. barrel / day)
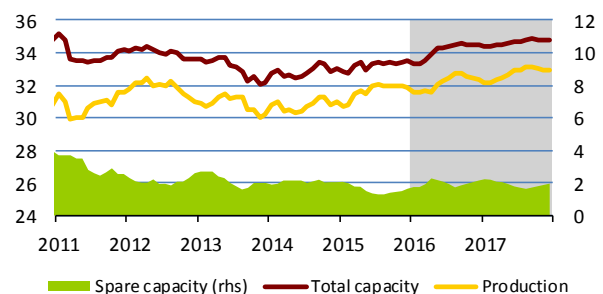
	Production	Total capacity	Spare capacity
2015	31.64	33.23	1.59
2016	32.16	34.12	1.97

Note: Oil price in USD/barrel, price of Russian natural gas at German border in USD/1,000 m3 (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 including average, maximum and minimum in past five years in billions of barrels. Global consumption of oil and oil products in millions of barrels a day. Production and extraction capacity of OPEC in million barrels a day (EIA estimate).
Source: Bloomberg, IEA, EIA, OPEC, CNB calculation

V.2 Other commodities

The average monthly non-energy commodity price index continued to decline in December and the first half of January, as did the food commodity and industrial metal sub-indices. The market outlooks for all three indices are only slightly rising.

Prices of virtually all basic metals except aluminium went down in the first half of January. The price of iron ore was flat. The slowdown in industrial production and economic growth in China (as well as the recent turbulence on the Chinese financial market and the depreciation of the renminbi) is putting downward pressure not only on oil prices, but also on basic metal prices. It is expensive for producers to shut down excess capacity. Although investment in new capacity is being cut back, a recovery in commodity prices hinges on a recovery in demand. Prices of basic metals may thus remain under pressure for a long time to come. Following strong growth between mid-November and mid-December, the price of rubber fell sharply in response to the decline in energy prices at the start of the year.

The aggregate food price index is following a similar path to the wheat price index, which continued to trend down amid increased volatility. The price of soy has been broadly flat since September and the price of maize has also been showing no clear trend since August despite recording a slight decline last month. Prices of rice and beef edged up, while the price of cocoa recorded a larger decline.

Non-energy commodities price indicies
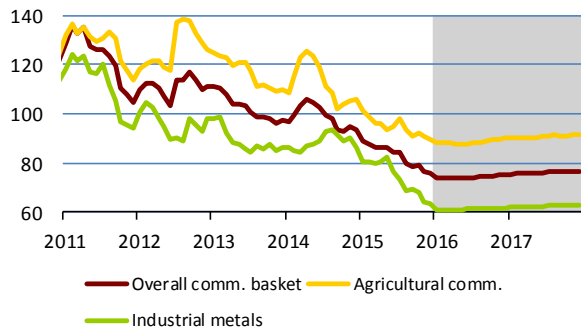
	Overall		Agricultural		Industrial	
2015	82.8	↗	94.7	↘	74.0	↗
2016	74.4	↘	88.7	↘	61.4	↘

Food commodities
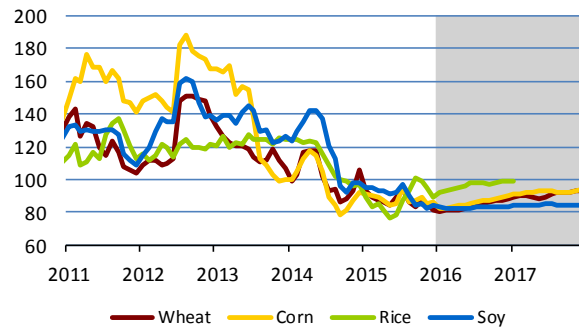
	Wheat		Corn		Rice		Soy	
2015	87.4	↗	88.1	↗	88.3	↗	90.2	↘
2016	84.1	↘	86.0	↘	96.6	↗	83.0	↘

Meat, non-food agricultural commodities
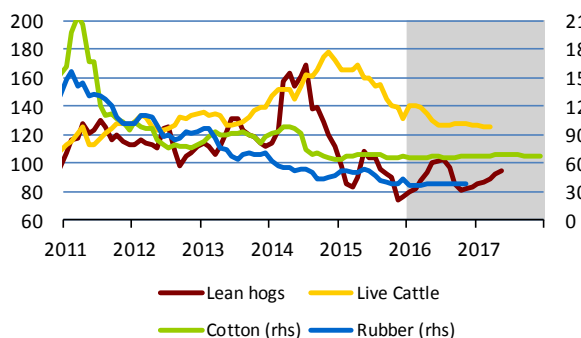
	Lean hogs		Live Cattle		Cotton		Rubber	
2015	91.8	↗	154.3	↗	67.5	↗	46.7	↗
2016	89.9	↗	131.4	↗	66.6	↘		

Basic metals and iron ore
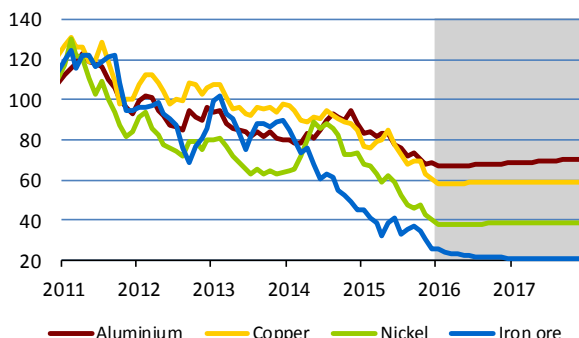
	Aluminium		Copper		Nickel		Iron ore	
2015	76.6	↗	73.0	↗	54.4	↘	36.0	↗
2016	67.5	↘	58.5	↘	38.1	↘	22.5	↘

Note: Structure of non-energy commodity price indices corresponds to composition of The Economist commodity indices. All prices are given as indices, 2010 = 100 (charts) and percentage changes (tables).
Source: Bloomberg, CNB calculations.

The FDI life cycle on the example of the Czech Republic[1]

Foreign direct investment (FDI) has been playing an increasingly important role in the global economy since the 1980s and is accelerating the globalisation process. Most FDI flows have been between advanced countries. In Central and Eastern European transition countries, FDI has meant economic restructuring and growth. Like any other investment in the general sense, FDI is characterised by a life cycle, for which we assume a non-linear time profile. The aim of this article is to present an empirically derived general profile of the FDI profitability life cycle and then apply it to create scenarios for the probable future evolution of total FDI earnings on the example of the Czech Republic. As FDI earnings significantly affect the current account, it is important to know their likely evolution to assess the external economic balance.

FDI flows

Foreign investors' activities significantly affect the accounts of the balance of payments. In the initial stage, when FDI[2] flows into the economy, the financial account is usually in surplus, causing local currency appreciation. In the next stage, with a time lag, the trade balance of the host country is affected depending on the type of FDI (i.e. market-seeking, efficiency-seeking or resource-seeking). An improvement in the trade balance is usually observed as a result. On the other hand, FDI – like any other type of investment – must generate a profit. The host country therefore experiences a deterioration in its income balance. The interaction between the trade balance and the income balance thus determines the overall effect on the host country's current account.

FDI played an important role in the restructuring of Central and Eastern European (CEE) economies, which were major recipients of FDI both in the pre-crisis period and, to a lesser extent, in the post-2008 period (see Chart 1). Moreover, these countries are also becoming capital exporters over time. For many countries, including the Czech Republic, an increase in FDI abroad is observed only after 2008. The average FDI stock as a percentage of GDP attained slightly higher levels in CEE countries than in other – mostly advanced Western European – countries (see Chart 2). With its FDI stock of almost 125% of GDP, Ireland is a textbook economy in terms of the importance of FDI. Japan, on the other hand, is a relatively closed economy from this perspective.
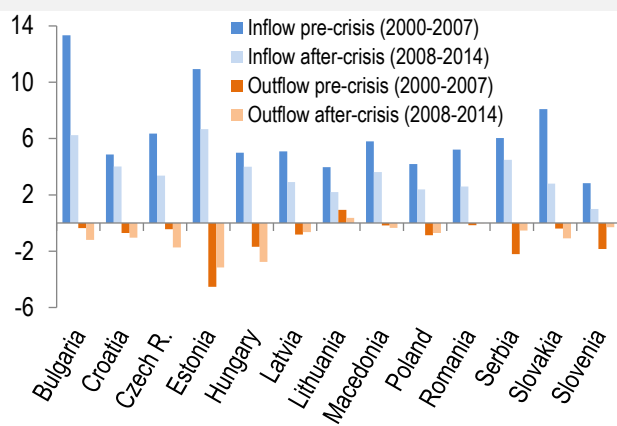
Chart 1   FDI inflow/outflow to/out of CEE countries (as % of GDP)

Source: Economist (EIU)
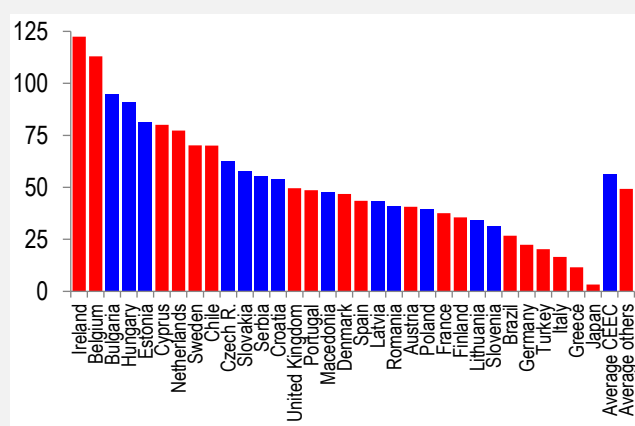
Chart 2   Average FDI stock in 2008–2012 (as % of GDP)

Source: Eurostat and national statistical offices

The current account balance is one of the main indicators of the external economic balance. For most countries with a significant FDI stock, the current account balance is determined by the interaction between the FDI income balance and the goods and services balance, as FDI helps to increase the competitiveness of the host economy. However, the structural analysis of the current account balance does not end there. If we are interested in real cash flows, which affect the market exchange rate, the total current account balance must additionally be adjusted for reinvested earnings.[3] Reinvested earnings from previous FDI

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[1] Author: Filip Novotný (filip.novotny@cnb.cz). 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] FDI is defined as an ownership interest of 10% or more.

[3] Reinvested earnings are profits of foreign-owned corporations retained in the host economy.

profits represent an inflow of capital into the economy and are thus reported on the financial account. However, as a counterpart, reinvested earnings are also recorded on the income account as an equal outflow of non-residents' investment profits in the host economy. As reinvested earnings do not leave the country, the current account adjusted for reinvested earnings records better values.

The possible problem with interpreting the current account in countries with high FDI ratios was pointed out by, for example, Brada and Tomšík (2003). These authors also published a theoretical life cycle of FDI earnings (see Chart 3), which has three stages. In stage 1, FDI records a loss as production starts and the foreign investor establishes itself in the new environment. In stage 2, the profit on the initial FDI stock grows quickly and the foreign investor reinvests most of it in the successfully developing business. However, growth in profits slows in stage 2 of the life cycle and the foreign investor starts to transfer most of the profits to the home country. In stage 3, earnings continue to grow at a moderate pace, but most of them are repatriated.
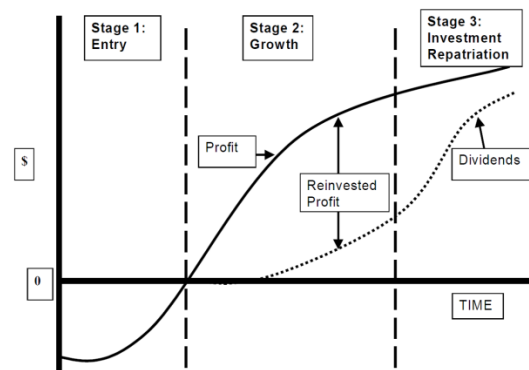

Chart 3 Theoretical life cycle of FDI earnings
Source: Brada and Tomšík (2003, p. 22)

Empirical derivation of the profitability life cycle of FDI

Novotný (2015) derives the length and profile of the profitability life cycle of FDI on a panel of 32 mostly European countries. He applies a simplified version of the method originally used in Novotný and Podpiera (2008). This method enables us to isolate all profits which pertain to the stock of FDI of the same vintage. This represents a major advance in the analysis of the FDI life cycle compared to previous literature. FDI flows continuously into the economy and the individual investments must be identified when analysing their life cycle. The aggregate balance of payments statistics record the total annual profit from the total annual stock of FDI, which, however, is of different vintages. By isolating all profits which pertain to new FDI inflows in the given year, we can empirically derive the profitability life cycle of FDI.

The profitability derived in this way solely for a given initial stock of FDI is then used in a regression equation that contains time in years on the right-hand side in linear, quadratic and cubic form. The regression equation additionally uses annual changes in real GDP, industrial producer prices and the real effective exchange rate as well as the short-term interest rate in the host economy as control variables. The equation is estimated on panel data for 32 countries. In line with our assumption, the estimated time coefficients suggest that the profitability of FDI has a non-linear profile (see Chart 4). We consider the FDI life cycle to be completed when the cumulative profit starts to decline, implying negative annual profitability.

In Chart 4, this occurs in the 16th year after the initial investment. Moreover, it is apparent that the derived annual profitability increases until the 7th year of investment, when it reaches 10%, and then gradually declines to zero in the remaining years. In addition, if we look at the fixed investment business cycle (amortisation plans), it typically lasts 7 to 11 years.
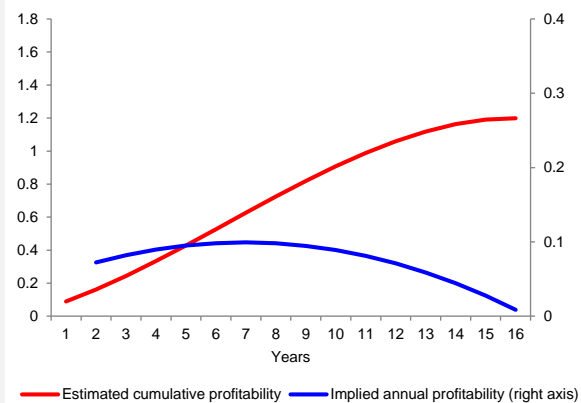

Chart 4 Empirically derived profitability life cycle of FDI
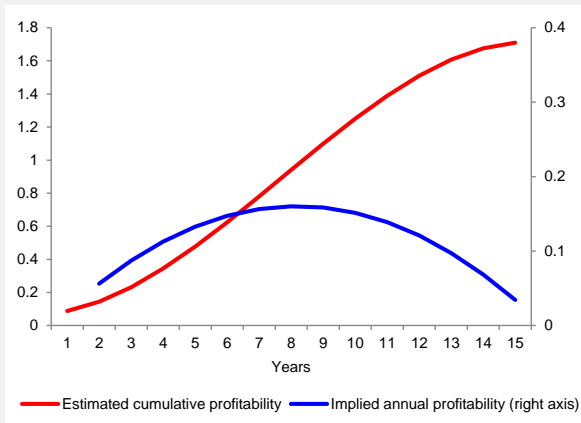*Source: Novotný (2015)*

Chart 5 Empirically derived profitability cycle of FDI on a sample of CEE countries
Source: Novotný (2015)

The estimated time profile of the FDI cumulative profitability represents the general shape of profitability across all the countries under examination. However, as we intend to apply this profile to the Czech Republic, we need to have a more specific estimate. We therefore perform the regression again, this time on a subsample of 13 CEE countries.[4] In this way, we obtain a slightly different profitability time profile (see Chart 5). The estimated life cycle is one year shorter than that in the original sample of countries. It lasts 15 years and is more dynamic. The derived annual profitability peaks at 16% in the 8th year of the cycle. So, it takes a little longer to reap all benefits of the initial investment in CEE transition countries, but the annual profitability then goes down relatively quickly. CEE transition countries are characterised by higher profits. This may be explained by their economic convergence towards Western European countries.

Alternative scenarios for future FDI earnings in the Czech Republic

The Czech Republic did not record an increased FDI inflow until the later stage of the transformation process, specifically at the end of the 1990s (see Chart 6). "New" investment in the form of equities and inter-company loans played the dominant role until 2002. As the existing FDI stock in the Czech Republic grew older, the earnings on this FDI increased and were partly reinvested in the Czech Republic (reinvested earnings). In 2003, reinvested earnings thus started to make up a significant proportion of total FDI inflows into the Czech Republic. In the last year under examination (2014) reinvested earnings accounted for more than 90% of the total FDI inflow into the Czech Republic.

The current account in the Czech Republic recorded a deficit in the transformation 1990s. This was due to a goods and services deficit (see Chart 7). The deficit exceeded the generally acknowledged sustainability level of 5% of GDP. The external economic imbalance led to monetary turbulence accompanied by an economic slowdown, which in turn caused the current account deficit to shrink. As new FDI began to flow in, a new phenomenon appeared in the Czech current account, namely an increasing outflow of FDI earnings, which, however, was accompanied by an improvement in the goods and services balance. These characteristics of the current account persist to this day. The said improvement in the goods and services balance is largely due to the positive impact of FDI inflows on the competitiveness of the Czech economy.
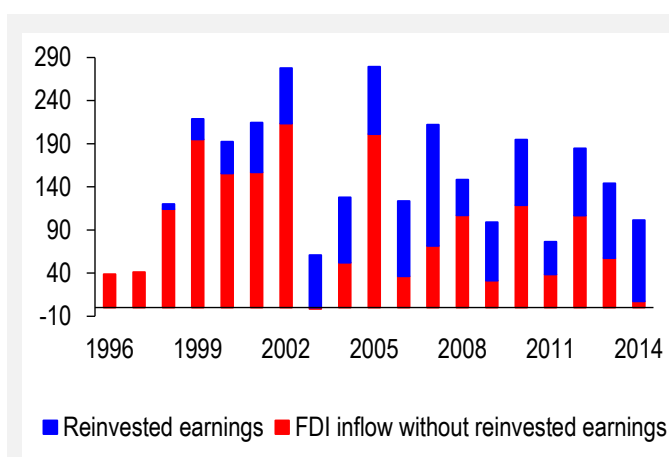
Chart 6 FDI inflows into the Czech Republic (CZK billions)
Source: CNB
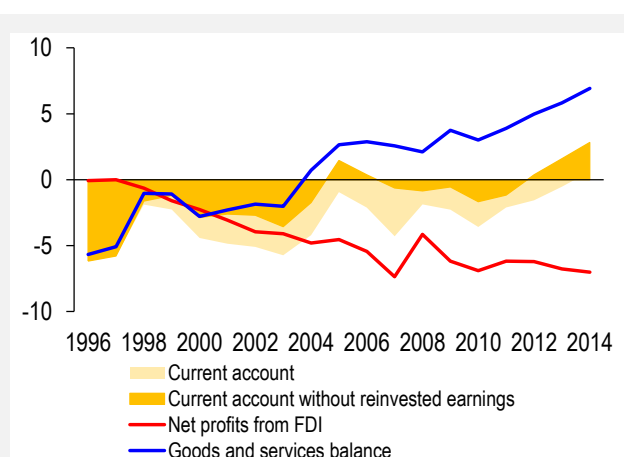
Chart 7 Current account items in the Czech Republic (as % of GDP)
Source: CNB and CZSO (author's calculation)

Knowing the FDI profitability life cycle enables us to construct various scenarios for the evolution of total FDI earnings depending on the assumed future FDI inflows (and therefore the changing FDI stock). We construct three alternative scenarios for the Czech Republic. In Scenario 1, we assume that the yearly inflow of new FDI will be equal to the average annual yearly inflow in 2010–2014, i.e. EUR 2.6 billion. Moreover, we assume that 50% of total FDI earnings from the previous year will be reinvested in the Czech Republic.

Scenario 2 assumes FDI inflows take the form of reinvested earnings only, meaning that we expect no new greenfield investments. This is analogous to 2014, when 90% of total FDI inflows into the Czech Republic were reinvested earnings. Our scenario assumes that 50% of total FDI earnings from the previous year will be reinvested. This is the most likely scenario in our view.

Finally, Scenario 3 represents an extreme situation where no new greenfield FDI or reinvested earnings flow into the Czech Republic. In this case, foreign investors decide to repatriate all FDI profits and, moreover,

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[4] Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Poland, Romania, Serbia, Slovakia and Slovenia.

the Czech Republic becomes unattractive for new foreign investments. The two boundary scenarios (1 and 3) serve as the expected borderlines for the possible future evolution of FDI earnings.

Chart 8 Actual and estimated FDI earnings in the Czech Republic and three future scenarios (CZK billions)

Chart 9 Actual and estimated FDI inflows into the Czech Republic according to three future scenarios (CZK billions)
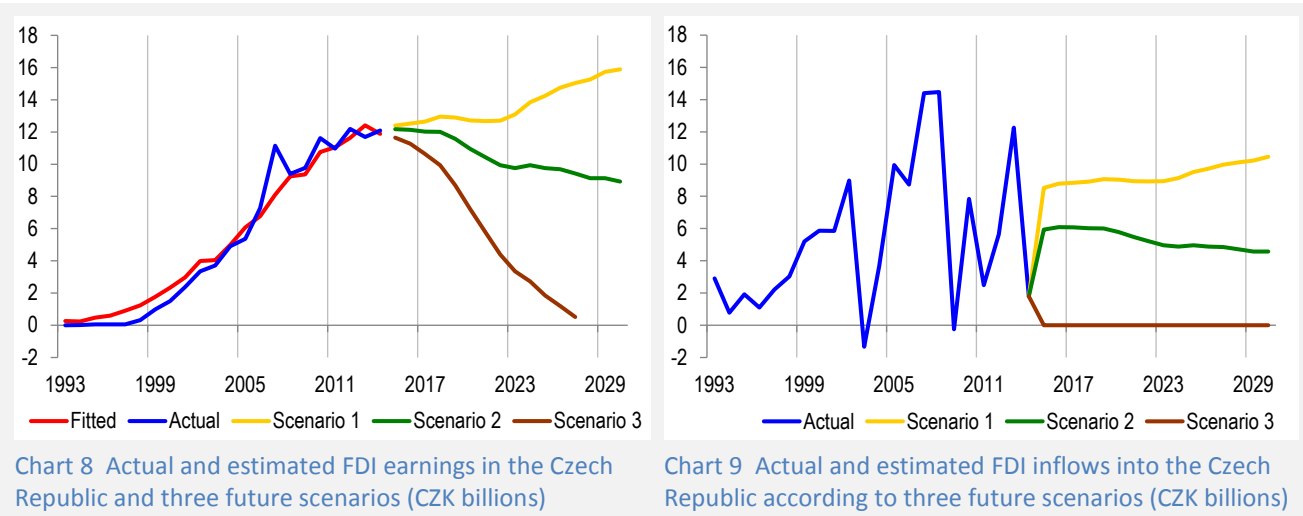
The central scenario (Scenario 2), which assumes FDI inflows take the form of reinvested earnings only, suggests that total yearly FDI earnings peaked back in 2012 (EUR 12.2 billion) and are expected to decline steadily in the coming years (see Chart 8). Nevertheless, yearly FDI earnings will still be at EUR 9 billion in 2030. Scenario 2 is based on the assumption that the initial period of strong inflows of FDI into the CEE countries will be followed by a more tranquil period where the potential for further privatisation FDI inflows and new greenfield FDI has practically been exhausted and reinvested earnings therefore constitute the main source of FDI inflows into the Czech Republic. The income balance of the Czech Republic will therefore be influenced more by the changing term structure of the current stock of FDI in the economy and less by new FDI inflows into equity.

By contrast, Scenario 1 assumes both FDI inflows in the form of reinvested earnings and continued inflows of new FDI into equity. This scenario implies that after several years of stabilisation at the current level, FDI earnings will start to increase further after 2022. Under this scenario, the income balance will deteriorate further. On the other hand, we can expect an improvement in the trade balance because FDI earnings in the Czech Republic are generated mainly by the export industry. The estimated future FDI earnings also delimitate the upper boundary on hypothetical reinvested earnings, as we do not expect foreign investors to reinvest all their profits.

By contrast, Scenario 3 assumes a complete halt in FDI inflows into the Czech Republic. Although we do not consider this a likely scenario, it helps us get an idea of the magnitude of the FDI earnings that would only be generated by the current FDI stock. This scenario implies gradually decreasing FDI earnings until 2028, when the life cycle of the youngest component of the currently observed total FDI stock will end.

Conclusion

The profitability of the FDI stock has a non-linear time profile. The annual profitability of FDI rises quickly at the start of the life cycle, then its growth slows and ultimately declines. We consider the FDI life cycle to be completed when the annual profitability reaches zero, which means that the cumulative profitability has peaked. According to an estimate on a panel of 32 mostly European countries, the length of the FDI profitability life cycle is 16 years, with annual profitability peaking in the seventh year after the initial investment. The FDI profitability life cycle estimated on a panel of CEE countries is slightly different. The total length of the life cycle is one year shorter and the annual profitability peaks in the eighth year of the cycle. We ascribe the higher return on capital in CEE countries to economic convergence between them and Western European countries. When we apply the estimated FDI profitability time profile to the Czech Republic, the FDI earnings estimated by the model fit the actual profit recorded in the balance of payments statistics very well. Moreover, our estimated FDI profitability time profile enables us to model expected total FDI earnings depending on the assumed future FDI inflows into the Czech Republic. Given the significant weight of FDI earnings in the Czech Republic's overall current account, this is useful for assessing the external economic balance.

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Novotný F. (2015): "Profitability life cycle of foreign direct investment and its application to the Czech Republic", CNB Working Paper 11/2015, forthcoming.

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A1. Change in GDP predictions for 2016

	CF		IMF		OECD		CB / EIU	
EA	0	2016/1 2015/12	-0.1	2015/9 2015/7	-0.1	2015/11 2015/9	0	2015/12 2015/9
US	-0.1	2016/1 2015/12	-0.2	2015/9 2015/7	-0.1	2015/11 2015/9	+0.1	2015/12 2015/9
DE	0	2016/1 2015/12	-0.1	2015/9 2015/7	-0.2	2015/11 2015/9	0	2015/12 2015/6
JP	0	2016/1 2015/12	-0.2	2015/9 2015/7	-0.2	2015/11 2015/9	-0.1	2015/10 2015/7
BR	-0.6	2016/1 2015/12	-1.7	2015/9 2015/7	-0.5	2015/11 2015/9	-0.2	2016/1 2015/12
RU	0	2016/1 2015/12	-0.8	2015/9 2015/7	-1.2	2015/11 2015/6	+0.2	2016/1 2015/12
IN	0	2016/1 2015/12	0	2015/9 2015/7	0	2015/11 2015/9	+0.3	2016/1 2015/12
CN	0	2016/1 2015/12	0	2015/9 2015/7	0	2015/11 2015/9	0	2016/1 2015/12

A2. Change in inflation predictions for 2016

	CF		IMF		OECD		CB/EIU	
EA	-0.2	2016/1 2015/12	-0.0	2015/9 2015/4	-0.1	2015/11 2015/6	-0.1	2015/12 2015/9
US	-0.2	2016/1 2015/12	-0.4	2015/9 2015/4	-0.8	2015/11 2015/6	-0.1	2015/12 2015/9
DE	-0.2	2016/1 2015/12	-0.1	2015/9 2015/4	-0.7	2015/11 2015/6	-0.7	2015/12 2015/6
JP	-0.1	2016/1 2015/12	-0.5	2015/9 2015/4	-0.9	2015/11 2015/6	-0.5	2015/10 2015/7
BR	+0.2	2016/1 2015/12	+0.4	2015/9 2015/4	+0.6	2015/11 2015/6	0	2016/1 2015/12
RU	+0.1	2016/1 2015/12	-1.2	2015/9 2015/4	+2.5	2015/11 2015/6	+0.5	2016/1 2015/12
IN	-0.1	2016/1 2015/12	-0.2	2015/9 2015/4	-0.4	2015/11 2015/6	0	2016/1 2015/12
CN	-0.1	2016/1 2015/12	+0.3	2015/9 2015/4	+0.5	2015/11 2015/6	0	2016/1 2015/12

A3. List of abbreviations

ABS	asset-backed securities	**GDP**	gross domestic product
bbl	barrel	**HICP**	harmonised index of consumer prices
BoJ	Bank of Japan	**CHF**	Swiss franc
BR	Brazil	**ICE**	Intercontinental Exchange
BRIC	countries of Brazil, Russia, India and China	**IFO**	Institute for Economic Research
		IFO-BE	IFO Business Expectations
BRL	Brazilian real	**IMF**	International Monetary Fund
CB-CCI	Conference Board Consumer Confidence Index	**IN**	India
		INR	Indian rupee
CB-LEII	Conference Board Leading Economic Indicator Index	**IRS**	Interest Rate swap
		JP	Japan
CBOT	Chicago Board of Trade	**JPY**	Japanese yen
CBR	Central Bank of Russia	**LI**	leading indicators
CF	Consensus Forecasts	**LIBOR**	London Interbank Offered Rate
CN	China	**MER**	Ministry of Economic Development (of Russia)
CNB	Czech National Bank		
CNY	Chinese renminbi	**MMBtu**	million of British Thermal Units
DBB	Deutsche Bundesbank	**OECD**	Organisation for Economic Co-operation and Development
DE	Germany		
EA	euro area	**OECD-CLI**	OECD Composite Leading Indicator
EBRD	European Bank for Reconstruction and Development	**PMI**	Purchasing Managers' Index
		PPI	producer price index
EC	European Commission	**RU**	Russia
ECB	European Central Bank	**RUB**	Russian rouble
EC-CCI	European Commission Consumer Confidence Indicator	**TLTRO**	targeted longer-term refinancing operations
EC-ICI	European Commission Industrial Confidence Indicator	**UoM**	University of Michigan
EIA	Energy Information Administration	**UoM-CSI**	University of Michigan Consumer Sentiment Index
EIU	Economist Intelligence Unit	**US**	United States
EU	European Union	**USD**	US dollar
EUR	euro	**USDA**	United States Department of Agriculture
EURIBOR	Euro Interbank Offered Rate		
Fed	Federal Reserve System (the US central bank)	**WEO**	World Economic Outlook
FOMC	Federal Open Market Committee	**WTI**	West Texas Intermediate (crude oil used as a benchmark in oil pricing)
FRA	forward rate agreement		
FY	fiscal year		
GBP	pound sterling		

A4. List of thematic articles published in the GEO

2016

	Issue
The FDI life cycle on the example of the Czech Republic (Filip Novotný)	2016-1

2015

	Issue
The role of China in the slowdown in international trade (Oxana Babecká Kucharčuková)	2015-12
Central banks' gold reserves (Iveta Polášková)	2015-11
Shadow policy rates – alternative quantification of unconventional monetary policy (Soňa Benecká, Luboš Komárek and Filip Novotný)	2015-10
The economic reforms of Indian Prime Minister Narendra Modi (Pavla Břízová)	2015-9
The Chinese renminbi in the SDR basket: A realistic prospect? (Soňa Benecká)	2015-8
Annual assessment of the forecasts included in GEO (Filip Novoný)	2015-7
Seasonal price movements in the commodity markets (Martin Motl)	2015-6
Assessment of the effects of quantitative easing in the USA (Filip Novoný)	2015-5
How consensus has evolved in Consensus Forecasts (Tomáš Adam and Jan Hošek)	2015-4
The US dollar's position in the global financial system	2015-3
The crisis and post-crisis experience with Swiss franc loans outside Switzerland (Alexis Derviz)	2015-2
The effect of oil prices on inflation from a GVAR model perspective (Soňa Benecká and Jan Hošek)	2015-1

2014

	Issue
Applicability of Okun's law to OECD countries and other economies (Oxana Babecká Kucharčuková and Luboš Komárek)	2014-12
Monetary policy normalisation in the USA (Soňa Benecká)	2014-11
Changes in FDI inflows and FDI returns in the Czech Republic and Central European countries (Vladimír Žďárský)	2014-10
Competitiveness and export growth in selected Central European countries (Oxana Babecká Kucharčuková)	2014-9
Developments and the structure of part-time employment by European comparison (Eva Hromádková)	2014-8
The future of natural gas (Jan Hošek)	2014-7
Annual assessment of the forecasts included in GEO (Filip Novoný)	2014-6
How far the V4 countries are from Austria: A detailed look using CPLs (Václav Žďárek)	2014-5
Heterogeneity of financial conditions in euro area countries (Tomáš Adam)	2014-4
The impacts of the financial crisis on price levels in Visegrad Group countries (Václav Žďárek)	2014-3
Is the threat of deflation real? (Soňa Benecká and Luboš Komárek)	2014-2
Forward guidance – another central bank instrument? (Milan Klíma and Luboš Komárek)	2014-1

2013

	Issue
Financialisation of commodities and the structure of participants on commodity futures markets (Martin Motl)	2013-12
The internationalisation of the renminbi (Soňa Benecká)	2013-11
Unemployment during the crisis (Oxana Babecká and Luboš Komárek)	2013-10
Drought and its impact on food prices and headline inflation (Viktor Zeisel)	2013-9
The effect of globalisation on deviations between GDP and GNP in selected countries over the last two decades (Vladimír Žďárský)	2013-8
Competitiveness and determinants of travel and tourism (Oxana Babecká)	2013-7
Annual assessment of the forecasts included in GEO (Filip Novotný)	2013-6
Apartment price trends in selected CESEE countries and cities (Michal Hlaváček and Luboš Komárek)	2013-5
Selected leading indicators for the euro area, Germany and the United States (Filip Novotný)	2013-4
Financial stress in advanced economies (Tomáš Adam and Soňa Benecká)	2013-3
Natural gas market developments (Jan Hošek)	2013-2
Economic potential of the BRIC countries (Luboš Komárek and Viktor Zeisel)	2013-1

2012

	Issue
Global trends in the services balance 2005–2011 (Ladislav Prokop)	2012-12
A look back at the 2012 IIF annual membership meeting (Luboš Komárek)	2012-11
The relationship between the oil price and key macroeconomic variables (Jan Hošek, Luboš Komárek and Martin Motl)	2012-10
US holdings of foreign securities versus foreign holdings of securities in the US: What is the trend? (Narcisa Kadlčáková)	2012-9
Changes in the Czech Republic's balance of payments caused by the global financial crisis (Vladimír Žďárský)	2012-8
Annual assessment of the forecasts included in the GEO (Filip Novotný)	2012-7
A look back at the IIF spring membership meeting (Filip Novotný)	2012-6
An overview of the world's most frequently used commodity indices (Jan Hošek)	2012-5
Property price misalignment around the world (Michal Hlaváček and Luboš Komárek)	2012-4
A macrofinancial view of asset price misalignment (Luboš Komárek)	2012-3
The euro area bond market during the debt crisis (Tomáš Adam and Soňa Benecká)	2012-2
Liquidity risk in the euro area money market and ECB operations (Soňa Benecká)	2012-1

2011

	Issue
An empirical analysis of monetary policy transmission in the Russian Federation (Oxana Babecká)	2011-12
The widening spread between prices of North Sea Brent crude oil and US WTI crude oil (Jan Hošek and Filip Novotný)	2011-11

	Issue
A look back at the IIF annual membership meeting (Luboš Komárek)	2011-10
Where to look for a safe haven currency (Soňa Benecká)	2011-9
Monetary policy of the central bank of the Russian Federation (Oxana Babecká)	2011-9
Increased uncertainty in euro area financial markets (Tomáš Adam and Soňa Benecká)	2011-8
Eurodollar markets (Narcisa Kadlčáková)	2011-8
Assessment of the forecasts monitored in the GEO (Filip Novotný)	2011-7
How have global imbalances changed during the crisis? (Vladimír Žďárský)	2011-6
Winners and losers of the economic crisis in the eyes of European investors (Alexis Derviz)	2011-5
Monetary policy of the People's Bank of China (Soňa Benecká)	2011-4
A look back at the IIF spring membership meeting (Jan Hošek)	2011-3
The link between the Brent crude oil price and the US dollar exchange rate (Filip Novotný)	2011-2
International integration of the Chinese stock market (Jan Babecký, Luboš Komárek and Zlatuše Komárková)	2011-1