

# GLOBAL ECONOMIC OUTLOOK – JUNE

Monetary and Statistics Department  
External Economic Relations Division

2013

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The June issue of Global Economic Outlook presents its regular overview of recent and expected developments in selected advanced and emerging economies, focusing on key economic variables such as GDP, inflation, leading indicators, interest rates, exchange rates and commodity prices. In this issue, we also assess the accuracy of the forecasts included in the GEO for 2012. This assessment indicates, among other things, a more optimistic outlook for the economic performance of the euro area compared to the actual outcomes (see also the chart).

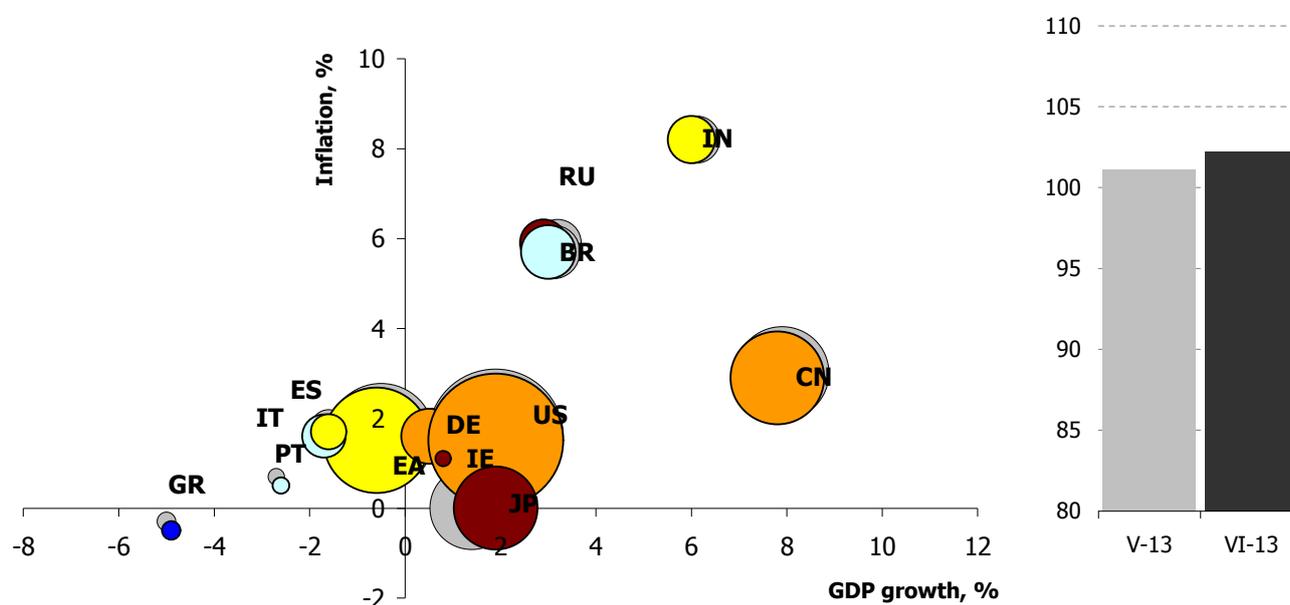
The outlooks for the advanced economies except Japan worsened slightly in June compared to the previous month and continue to differ significantly. On the one hand there is the fast growing US economy with its relatively robust economic performance close to 2%, which, together with the emerging countries (e.g. the BRIC group), is one of the drivers of global economic growth. On the other hand, the euro area and EU economies remain in recession in 2013, although the outlooks for 2014 still expect a recovery. Economic growth in the euro area continues to be driven by Germany, although its outlook was reduced slightly. The inflation outlooks for the advanced economies up to 2014, again with the exception of Japan, were lowered and are below 2%.

Most emerging economies, including the BRIC countries, which we monitor in more detail, should maintain robust growth rates until the end of 2014. This is reflected in higher expected inflation rates. China is still the best-performing BRIC country. It will continue to record the highest growth rates and the lowest inflation until 2014.

The interest rate outlooks indicate that rates in both the USA and the euro area will show very modest growth across maturities during 2014. This is due mainly to an expected earlier moderation of the Fed's monetary expansion, which is then reflected in the outlook for euro area rates. The US dollar should appreciate slightly not only against the euro and other reserve currencies, but also against the Brazilian and Russian currencies over the one-year horizon. By contrast, it is expected to depreciate against the Indian and Chinese currencies. Dollar prices of oil and natural gas still indicate a slight decline until the end of 2014. The outlook for food commodity prices is also slightly falling until the end of 2014. Industrial metal prices are expected to rise slowly over the same timescale.

#### Outlook for the global economy in 2013

#### Outlook for Brent crude oil prices in December 2013



**GDP 2012 vs. outlook, %**    -7 - -6    < -5    < -4    < -3    < -2    < -1    -1 - 0

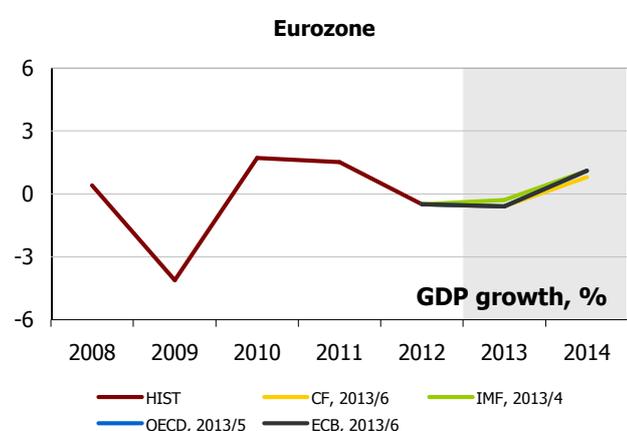
Note: The size of each point represents the size of the country/region according to nominal GDP in US dollars in 2011. The colour indicates the difference between actual GDP growth and the first published CF outlook for 2012 in %. The grey colour is the CF forecast (GDP, inflation) or Bloomberg survey (oil price) from the previous month. [Cut-off date for data: 13 June 2013]

Source: Bloomberg, Consensus Economics, OECD, CNB calculations.

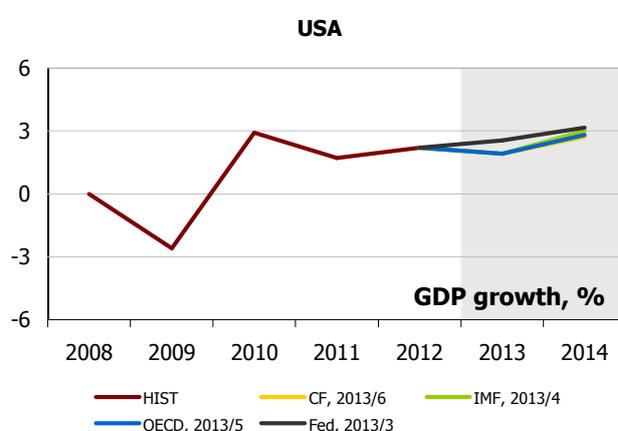
### II.1 GDP outlook in advanced countries

The differences in trend and recovery continue to increase across economies. CF, the ECB, DBB and the OECD continued to lower their outlooks for economic growth for this year – to -0.6% for the euro area and 0.3%–0.5% for Germany. Nonetheless, the economic situation is expected to improve this year. In the euro area, the recovery will be fostered by gradually rising external demand. Domestic demand is also expected to grow slightly thanks to lower commodity prices (and thus higher real income) and easy monetary policy. A further positive impulse is expected next year from progress with fiscal consolidation. High unemployment and indebtedness and falling property prices will have the opposite effect on the region’s GDP. Overall, domestic demand in the rest of the euro area will remain much weaker than in Germany, where economic growth should strengthen in 2013 Q2. The USA will again record the strongest growth of all the advanced economies under review. GDP growth in Japan will be comparable with that in the USA in 2013 (1.9% according to CF) or slightly lower (1.6% according to the OECD). Next year, GDP growth will slow only in Japan (to 1.4%–1.5%), whereas the other economies under review should see stronger, albeit still subdued, growth. The USA will again achieve the highest growth (2.7%–2.8%); the rates of growth of the euro area and Germany will be 0.8% and 1.9% respectively.

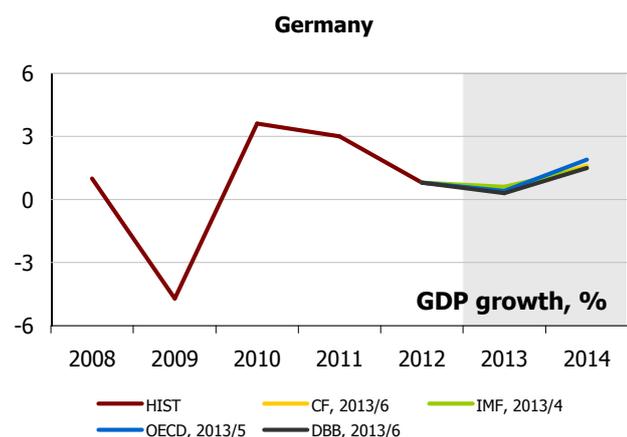
#### II.1 GDP - advanced economies



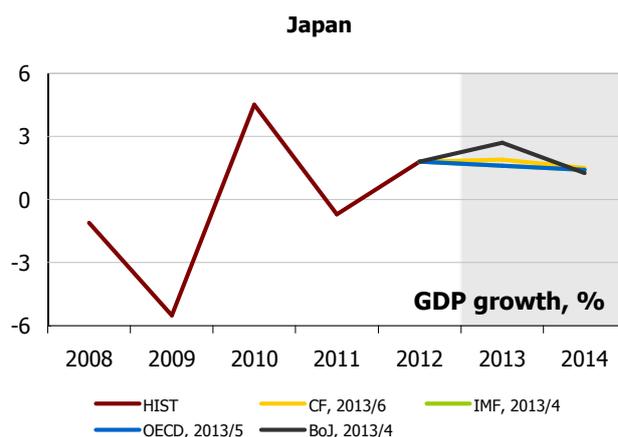
	CF	IMF	OECD	ECB
<b>2013</b>	-0.6 ↘	-0.3 ↘	-0.6 ↘	-0.6 ↘
<b>2014</b>	0.8 ↘	1.1 ↘	1.1 ↘	1.1 ↘



	CF	IMF	OECD	Fed
<b>2013</b>	1.9 ↗	1.9 ↗	1.9 ↘	2.6 ↗
<b>2014</b>	2.7 ↗	3.0 ↗	2.8 ↗	3.2 ↗



	CF	IMF	OECD	DBB
<b>2013</b>	0.5 ↘	0.6 ↘	0.4 ↘	0.3 ↘
<b>2014</b>	1.6 ↗	1.5 ↗	1.9 ↗	1.5 ↘



	CF	IMF	OECD	BoJ
<b>2013</b>	1.9 ↗	1.6 ↗	1.6 ↘	2.7 ↗
<b>2014</b>	1.5 ↗	1.4 ↗	1.4 ↘	1.3 ↘

Note: Legend shows latest forecast data in format “Source, year/month” of forecast publication. HIST: historical values. ECB and Fed: midpoint of range. Arrow indicates direction of revision of newly published forecast. If no arrow is shown, no new forecast was available in previous month or by cut-off date in current month. Asterisk indicates first published forecast for given year.

[Cut-off date for data: 13 June 2013]

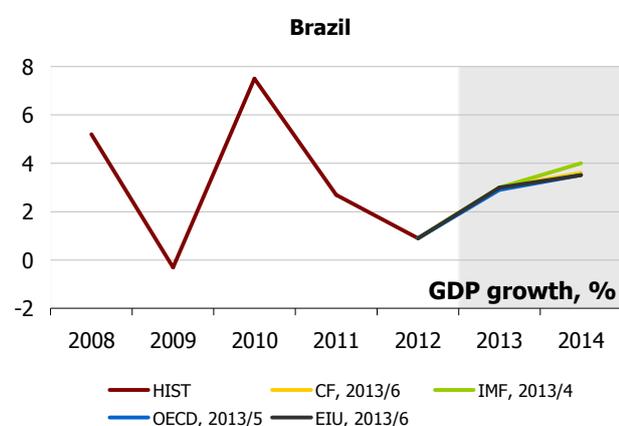
Source: CF, IMF, OECD, ECB, Fed, DBB, BoJ, CNB calculations.

## II.2 GDP outlook in BRIC countries

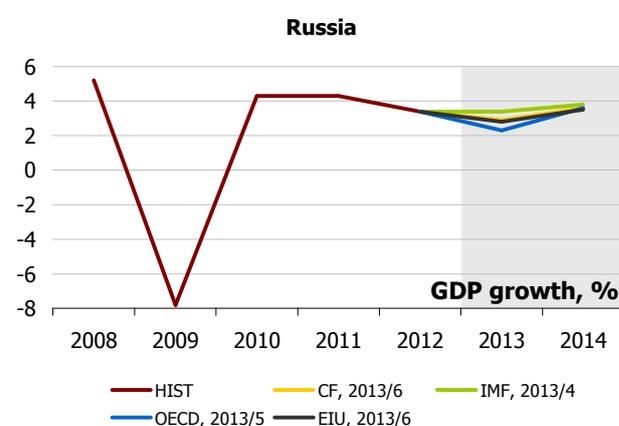
The GDP growth estimates for the largest emerging economies shifted downwards again. China, whose growth slowed from 7.8% at the end of last year to 7.7% in 2013 Q1, is no exception. Its growth for this year as a whole should also be around this level. Although this represents a significant weakening, it remains above the 7.5% target set by the Chinese government for this year. The government now wants to focus more on the sources of growth than on its level. Dependence on foreign markets should decrease in favour of growth driven by domestic demand. Fixed investment (an important government consumption indicator) suggests that the government really is trying to offset the fall in demand from the stagnating Europe with government expenditure. This fall is well illustrated by a sharp downturn in both imports and exports.

The fall in external demand also affected the other countries under review. GDP growth in Russia dropped to 1.6% year on year in Q1, the worst outcome since 2009. India recorded its weakest growth in ten years (4.8%) at the end of fiscal year 2012/2013. Unlike Russia, whose growth this year is expected to be flat or slow slightly (2.3%–3.2%), India should see a recovery (to 5.3%–6.2%). Economic growth in Brazil is also expected to pick up this year, reaching 2.9%–3.0% according to new estimates.

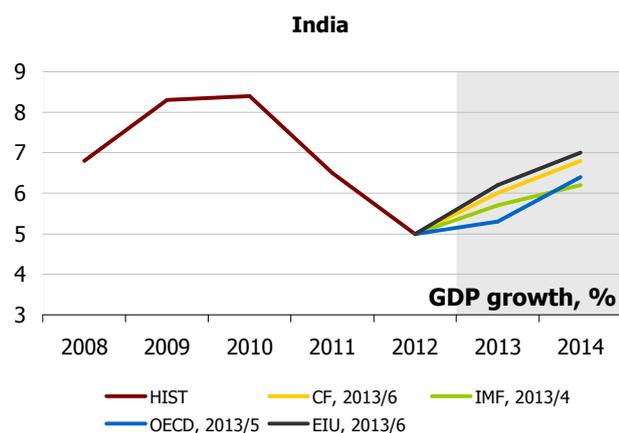
### II.2 GDP - BRIC countries



	CF	IMF	OECD	EIU
2013	3.0	3.0	2.9	3.0
2014	3.6	4.0	3.5	3.5



	CF	IMF	OECD	EIU
2013	2.9	3.4	2.3	2.8
2014	3.6	3.8	3.6	3.5



	CF	IMF	OECD	EIU
2013	6.0	5.7	5.3	6.2
2014	6.8	6.2	6.4	7.0



	CF	IMF	OECD	EIU
2013	7.8	8.0	7.8	7.8
2014	7.8	8.2	8.4	7.7

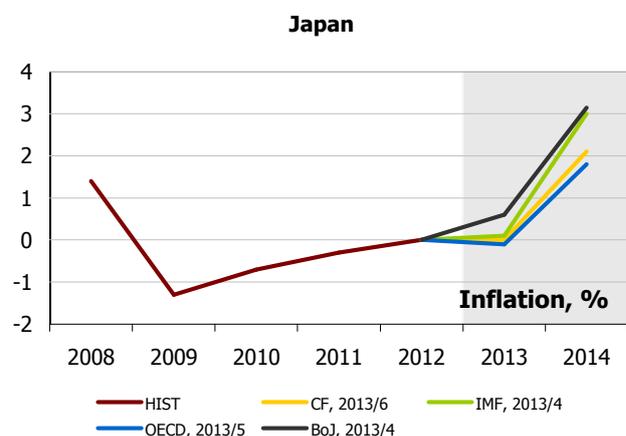
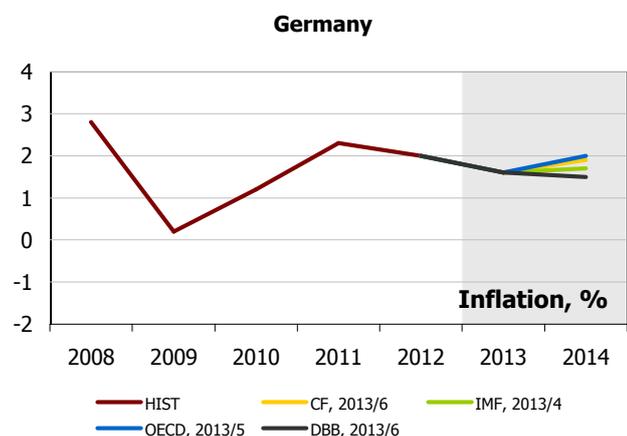
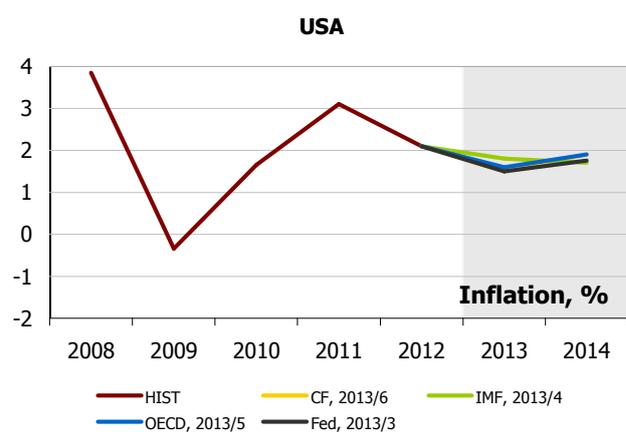
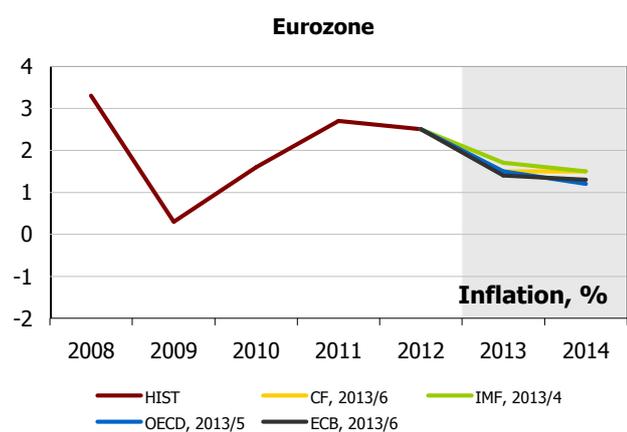
Note: Legend shows latest forecast data in format "Source, year/month" of forecast publication. HIST: historical values. Arrow indicates direction of revision of newly published forecast. If no arrow is shown, no new forecast was available in previous month or by cut-off date in current month. Asterisk indicates first published forecast for given year.

[Cut-off date for data: 13 June 2013]

Source: CF, IMF, OECD, EIU, CNB calculations.

### II.3 Inflation outlook in advanced countries

This year's inflation rate will remain below 2% in the advanced economies under review. Consumer price inflation in Japan should be zero (CF) or slightly negative (OECD). On the global scale, inflation is being suppressed by falling commodity prices. In addition, the low overall inflation in the euro area reflects weak economic activity. The medium-term outlook for the euro area consists of falling energy prices, slightly rising food prices and inflationary pressures caused by the economic recovery. CF expects inflation in the euro area to stay at this year's level, but the ECB and the OECD expect it to slow. Together with a gradual economic recovery, inflationary pressures will strengthen somewhat in Germany, the USA and Japan. According to the new CF and OECD outlooks, consumer price inflation in these countries will be 1.8%–2.1%, with Japan recording the fastest pick-up in inflation. The DBB outlook is the exception from the upward trend, as it expects inflation to moderate by 0.1% in 2014, with the effect of lower oil and commodity prices outweighing inflationary wage pressures.



Note: Legend shows latest forecast data in format "Source, year/month" of forecast publication. HIST: historical values. ECB and Fed: midpoint of range. Arrow indicates direction of revision of newly published forecast. If no arrow is shown, no new forecast was available in previous month or by cut-off date in current month. Asterisk indicates first published forecast for given year.

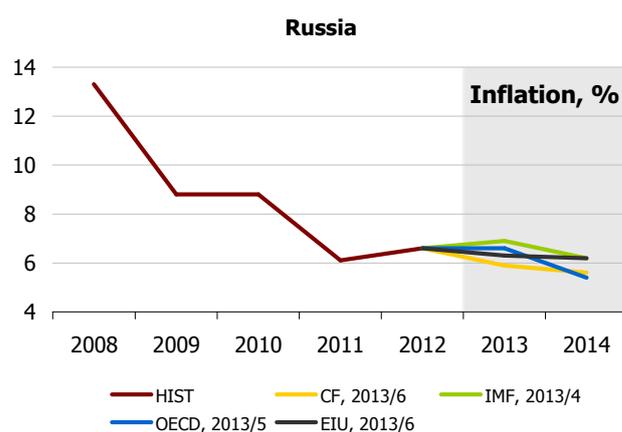
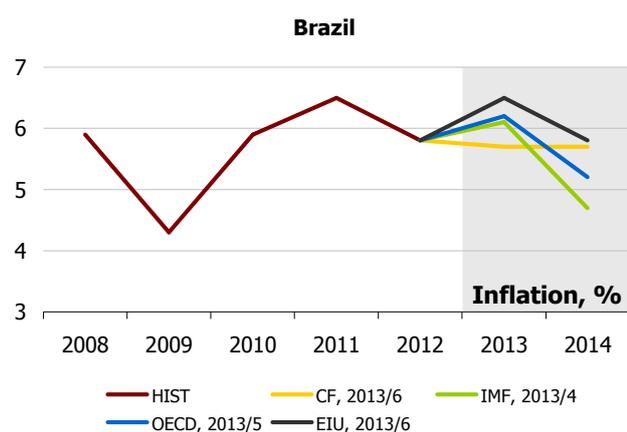
[Cut-off date for data: 13 June 2013]

Source: CF, IMF, OECD, ECB, Fed, DBB, BoJ, CNB calculations.

### II.4 Inflation outlook in BRIC countries

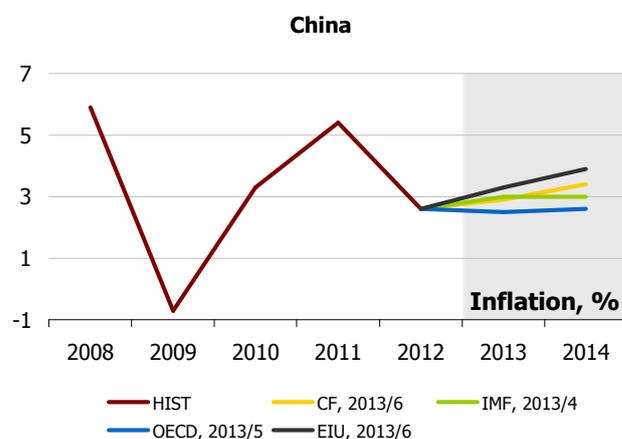
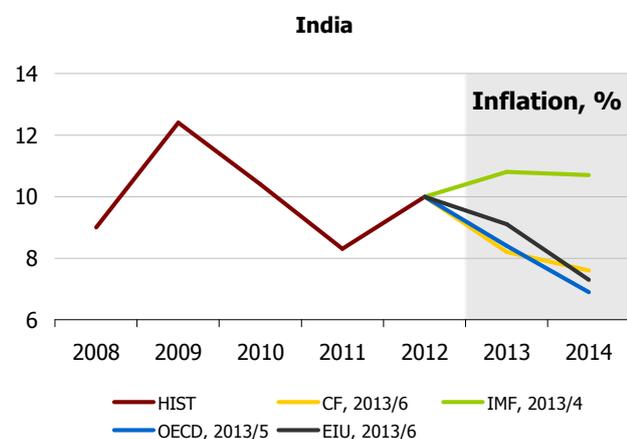
Together with the worse economic growth outlook, the inflation forecast for Asian emerging economies was also reduced. China is no exception, despite the fact that its inflation rose unexpectedly in April due to higher food prices. On the other hand, producer prices fell significantly again. In India, which has the highest inflation among the BRIC countries (including at the forecast horizon), wholesale prices fell to a 3.5-year low and inflation dropped below 10%. Nonetheless, the IMF outlook expects inflation of above 10% this year and the next. The other forecasts under review are rather more favourable. Inflation in Brazil and Russia should stay just above the central banks' inflation targets or close to the upper boundaries of the tolerance bands. This will hinder any greater monetary policy easing in support of economic growth.

#### II.4 Inflation - BRIC countries



	CF	IMF	OECD	EIU
2013	5.7 →	6.1	6.2 →	6.5 →
2014	5.7 →	4.7	5.2 →	5.8 →

	CF	IMF	OECD	EIU
2013	5.9 →	6.9	6.6 →	6.3 →
2014	5.6 →	6.2	5.4 →	6.2 →



	CF	IMF	OECD	EIU
2013	8.2 →	10.8	8.4 →	9.1 →
2014	7.6 →	10.7	6.9 →	7.3 →

	CF	IMF	OECD	EIU
2013	2.9 →	3.0	2.5 →	3.3 →
2014	3.4 →	3.0	2.6 →	3.9 →

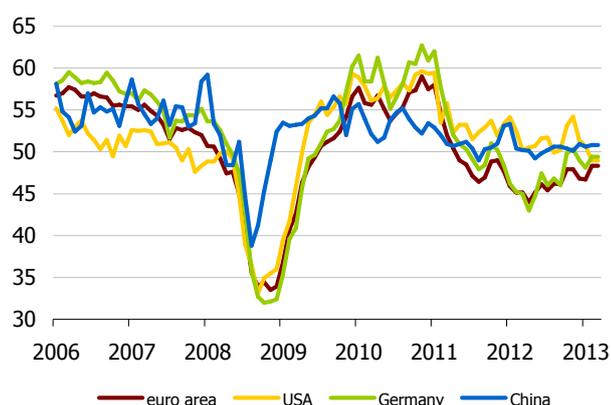
Note: Legend shows latest forecast data in format "Source, year/month" of forecast publication. HIST: historical values. Arrow indicates direction of revision of newly published forecast. If no arrow is shown, no new forecast was available in previous month or by cut-off date in current month. Asterisk indicates first published forecast for given year.

[Cut-off date for data: 13 June 2013]

Source: CF, IMF, OECD, EIU, CNB calculations.

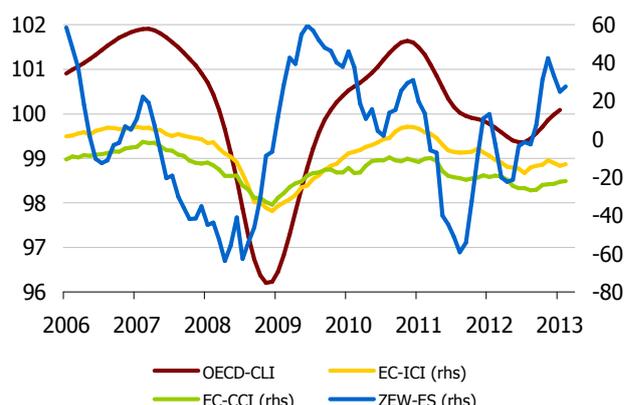
The overall economic outlooks for the USA and the euro area worsened in May (with some exceptions in consumer expectations). The US Purchasing Managers' Index (PMI) in industry decreased further, but remains above the 50% threshold separating growth from contraction. The other leading indicators under review, except the University of Michigan consumer confidence index, also decreased. The outlook for industry in the euro area deteriorated in May, but the estimates of future consumption went up. The expectations of managers of industrial and non-industrial enterprises in Germany decreased and the outlook for industry deteriorated. By contrast, consumer confidence improved in Germany. The PMI in China decreased slightly, suggesting a slowdown in economic growth in the quarters to come.

PMI IN MANUFACTURING



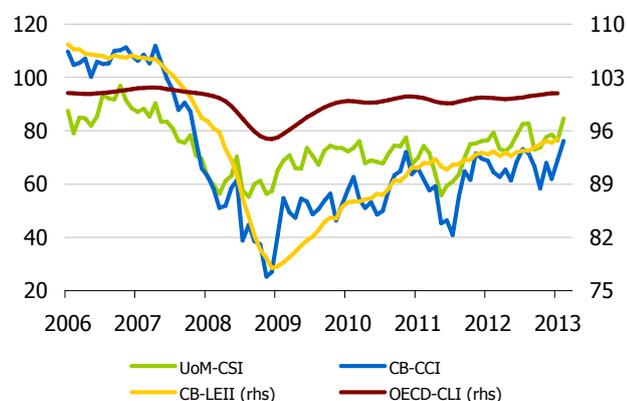
	EA	US	DE	CN
3/13	46.8	51.3	49.0	50.9
4/13	46.7	50.7	48.1	50.6
5/13	48.3	49.0	49.4	50.8

EURO AREA



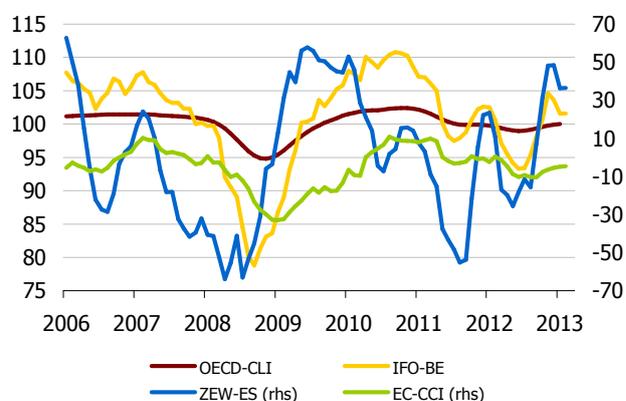
	OECD-CLI	EC-ICI	EC-CCI	ZEW-ES
3/13	100.0	-12.3	-23.5	33.4
4/13	100.1	-13.8	-22.3	24.90
5/13		-13.0	-21.9	27.60

USA



	CB-LEII	OECD-CLI	UoM-CSI	CB-CCI
3/13	94.4	100.9	78.6	61.9
4/13	95.0	100.9	76.4	69.0
5/13			84.5	76.2

GERMANY



	OECD-CLI	IFO-BE	ZEW-ES	EC-CCI
3/13	99.9	103.6	48.5	-5.4
4/13	100.0	101.6	36.3	-4.9
5/13		101.6	36.4	-4.5

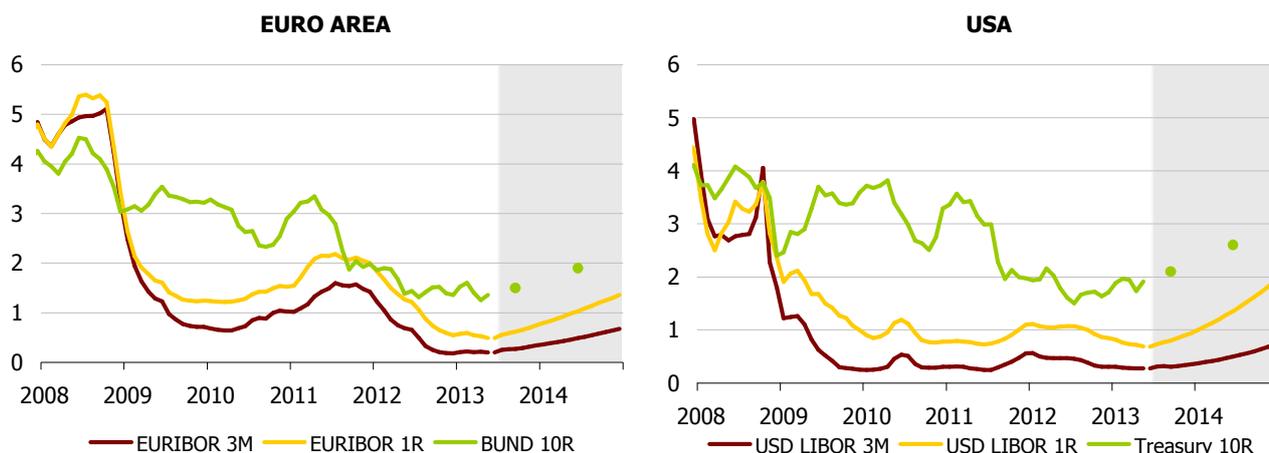
Note: **PMI** = Purchasing Manager Index (50); **OECD-CLI** = OECD Composite Leading Indicator (100); **EC-ICI** = European Commission Industrial Confidence Indicator (0); **EC-CCI** = European Commission Consumer Confidence Indicator (0); **ZEW-ES** = ZEW Economic Sentiment (0); **CB-LEII** = Conference Board Leading Economic Indicator Index (2004 = 100); **UoM-CSI** = University of Michigan Consumer Sentiment Index (Dec 1966 = 100); **CB-CCI** = Conference Board Consumer Confidence Index (1985 = 100); **IFO-BE** = IFO Business Expectations (2005 = 100). Values in parentheses indicate the index threshold between expected economic expansion and decline or the period as of which the index was normalised. [Cut-off date for data: 12 June 2013]

Source: OECD, EC, IFO, Conference Board, University of Michigan, CNB calculations.

### IV.1 Interest rate outlook in the euro area and the USA

Whereas the 3M EURIBOR has been flat at close to 2% for three consecutive quarters, the 1Y rate decreased in May. In addition to a reduction in the main refinancing rate, the ECB discussed other unconventional instruments, including negative deposit rates. Excess liquidity fell as well, but is still above the level at which it might affect market rates. The 1Y rate rose slightly in early June in response to foreign market developments, and the new market forecast also shifted upwards. The June CF lowered its outlook for German ten-year government bond yields by 0.1 pp at the one-year horizon only.

The increase in US real interest rates in late May/early June was accompanied by sharp currency falls and sales on the bond markets of emerging economies. Inflation expectations did not change, however. This suggests that the current rise in rates only reflects the debate about the termination of the quantitative easing programme. In line with the current situation, the market forecasts and also CF06 raised the 10-year government bond yield by 0.1 pp over the entire horizon.



	05/13	06/13	06/14	12/14	06/15	12/14		05/13	06/13	06/14	12/14	06/15	12/14
<b>3M EURIBOR</b>	0.20	0.20	0.49	0.68	0.88	0.68	<b>3M USD LIBOR</b>	0.27	0.27	0.49	0.72	1.00	0.72
<b>1Y EURIBOR</b>	0.48	0.49	1.03	1.36	1.66	1.36	<b>1Y USD LIBOR</b>	0.69	0.69	1.36	1.91	2.56	1.91
	05/13	06/13	09/13	06/14				05/13	06/13	09/13	06/14		
<b>10Y Bund</b>	1.36		1.5	1.9			<b>10Y Treasury</b>	1.91		2.1	2.6		

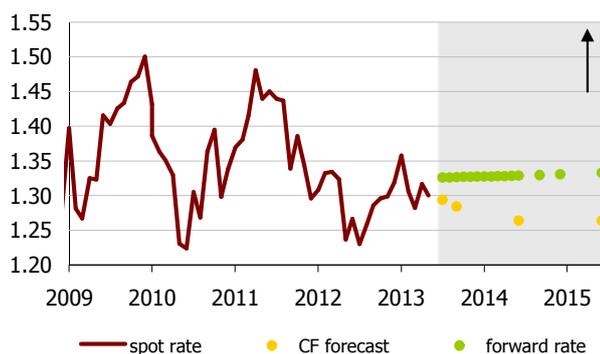
Note: Forecasts for EURIBOR and LIBOR rates are based on implied rates from interbank market yield curve (FRA rates are used from 4M to 15M and adjusted IRS rates for longer horizons). Forecasts for German and US government bond yields (10Y Bund and 10Y Treasury) are taken from CF. [Cut-off date for data: 10 June 2013] Source: Thomson Reuters (Datastream), Bloomberg, Consensus Forecasts, CNB calculations.

### IV.2 Outlook for selected exchange rates

The euro weakened against the US dollar after a further monetary policy easing by the ECB at the start of May, but the trend changed at the end of the month. The uncertainty surrounding the future direction of both euro area and US monetary policy is increasing the sensitivity of the exchange rate to the data coming from the two economies. The new CF forecast was revised towards a weaker euro. The euro should depreciate by 4.2% against the dollar to USD 1.26. The outlook for the British pound was little changed from the previous month, although new data suggest a modest recovery. Following a long period of weakening against the dollar, the yen saw a correction at the end of May and the Japanese stock market also fell sharply. According to the June CF, the yen should depreciate further at the two-year horizon. A statement by the Swiss CB governor contributed to a weakening of the franc against the dollar. The central bank is considering further steps to weaken the currency – negative deposit rates and a shift of the ceiling against the euro to a weaker level. CF06 also revised the new outlook in this direction.

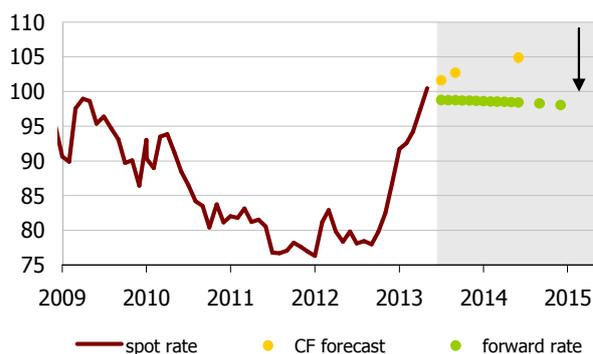
The currencies of BRIC countries (except China) weakened significantly in May as sentiment towards the dollar changed, and their exchange rate outlooks shifted to weaker levels. The Brazilian central bank is trying to respond to inflation by raising rates, but depreciation of its currency against the dollar to a four-year low led to interventions. Rate cuts were expected for India and Russia, but a sharp fall in their currencies' rates against the dollar quelled the speculation. In addition, India is facing a record current account deficit. The Chinese renminbi began to appreciate against the dollar again at the end of May. The pace of appreciation may slow in late 2013, as the latest data suggest a decrease in the current account surplus and a slowdown in foreign direct capital inflows. China took further steps towards internationalising its currency at the end of May when it opened negotiations with New Zealand about direct convertibility.

**US\$ per Euro**



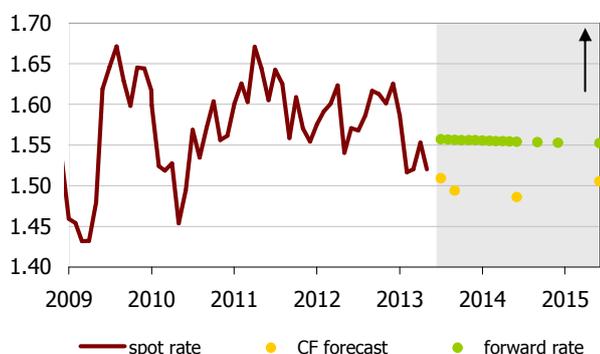
	10/06/13	07/13	09/13	06/14	06/15
<b>spot rate</b>	1.326				
<b>CF forecast</b>		1.294	1.284	1.264	1.264
<b>forward rate</b>		1.326	1.326	1.329	1.333

**Yen per US\$**



	10/06/13	07/13	09/13	06/14	06/15
<b>spot rate</b>	98.76				
<b>CF forecast</b>		101.60	102.70	104.90	105.80
<b>forward rate</b>		98.75	98.71	98.42	97.52

**US\$ per UK£**



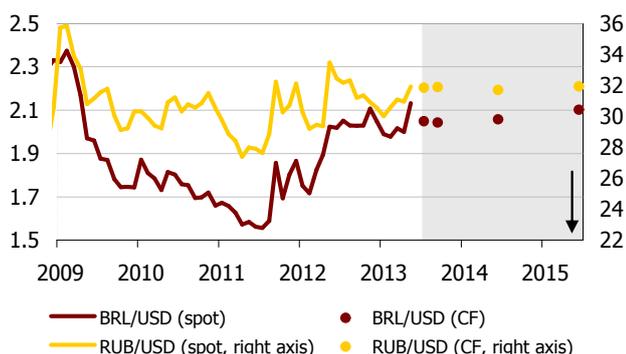
	10/06/13	07/13	09/13	06/14	06/15
<b>spot rate</b>	1.557				
<b>CF forecast</b>		1.509	1.494	1.486	1.505
<b>forward rate</b>		1.557	1.556	1.554	1.552

**Swfr per US\$**



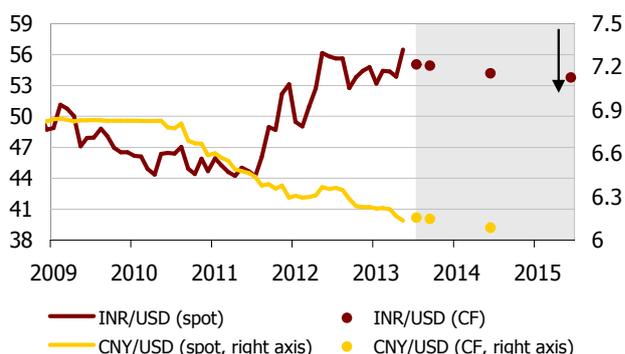
	10/06/13	07/13	09/13	06/14	06/15
<b>spot rate</b>	0.934				
<b>CF forecast</b>		0.962	0.974	1.001	1.012
<b>forward rate</b>		0.933	0.933	0.929	0.921

**BRAZILIAN REAL, RUSSIAN ROUBLE**



	30/06/14	07/13	09/13	06/14	06/15
<b>BRL/USD (spot)</b>	2.16				
<b>BRL/USD (CF)</b>		2.05	2.04	2.06	2.10
<b>RUB/USD (spot)</b>	32.35				
<b>RUB/USD (CF)</b>		31.86	31.89	31.70	31.94

**INDIAN RUPEE, CHINESE RENMINBI**



	30/06/14	07/13	09/13	06/14	06/15
<b>INR/USD (spot)</b>	57.91				
<b>INR/USD (CF)</b>		55.05	54.91	54.18	53.76
<b>CNY/USD (spot)</b>	6.13				
<b>CNY/USD (CF)</b>		6.16	6.15	6.09	5.99

Note: Arrow indicates currency appreciation against US dollar. 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. [Cut-off date for data: 10 June 2013]

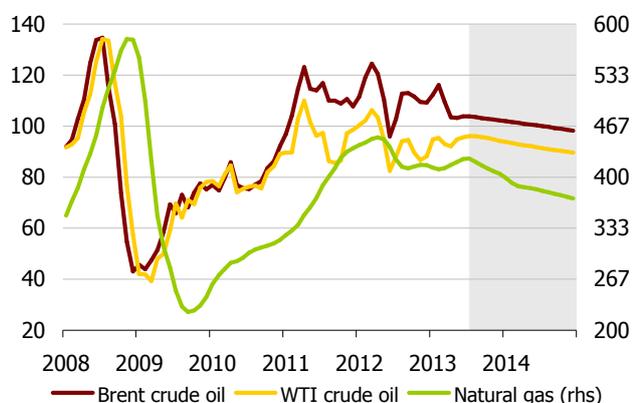
Source: Thomson Reuters (Datastream), Bloomberg, Consensus Forecasts, CNB calculations.

## V.1 Oil and natural gas

The price of Brent crude oil moved within a narrow range of USD 100–104 a barrel in May. The decline observed since mid-February thus almost halted. However, the price still reflected uncertainty about economic developments in the euro area and the possibility of a greater slowdown in China. By contrast, the price of WTI oil increased in May due to a decline in stocks in the US Midwest and positive signals from the US economy. The Brent-WTI spread thus decreased further.

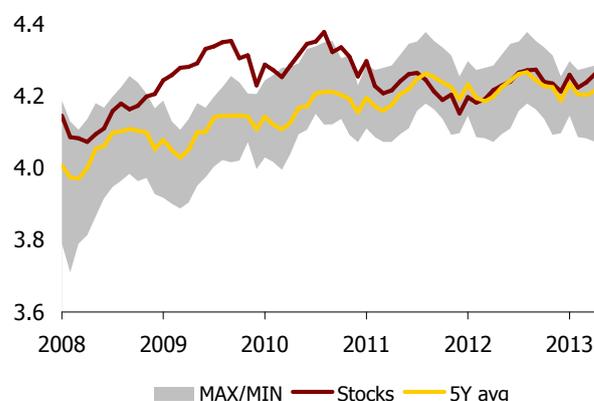
The June OPEC report expects global demand to rise by 0.8 million barrels a day, the same as in the previous month, despite a downward revision of actual demand in 2013 Q1. The forecast for oil supply from non-OPEC countries remained unchanged as well. The growth of 1 million barrels a day should be driven by extraction in North America. Commercial oil stocks in OECD countries grew for the second consecutive month in April, but remained at the five-year average level. The outlook based on Brent oil futures shifted slightly upwards compared to the previous GEO and the price of oil should thus be around USD 102 a barrel at end-2013 and around USD 98 a barrel at end-2014. By contrast, the June CF expects a modest rise in oil prices to USD 104 a barrel at the one-quarter horizon and to USD 105.4 a barrel at the one-year horizon.

### OUTLOOK FOR PRICES OF OIL AND NATURAL GAS

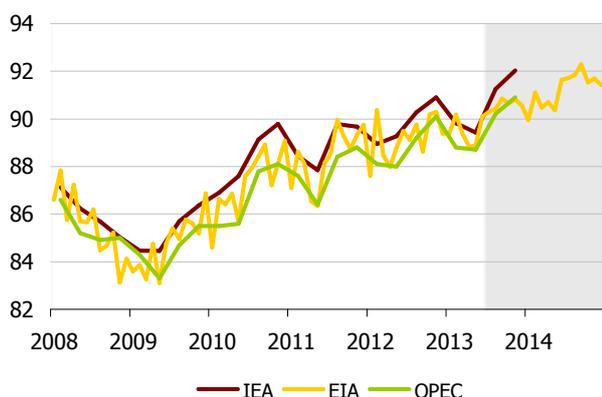


	Brent	WTI	Natural gas
2013	-5.51%	0.64%	-3.76%
2014	-5.16%	-3.40%	-7.57%

### TOTAL STOCKS OF OIL AND OIL PRODUCTS IN OECD

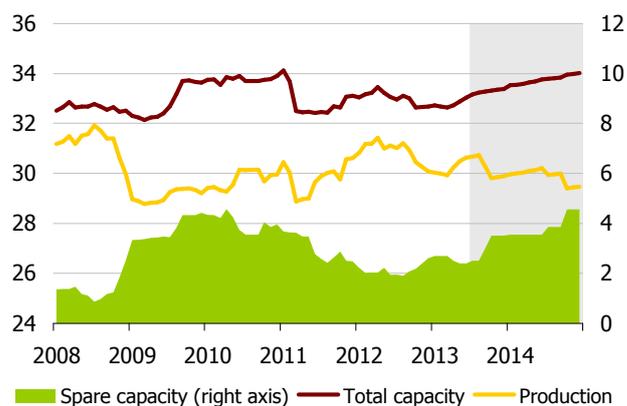


### GLOBAL CONSUMPTION OF OIL AND OIL PRODUCTS



	IEA	EIA	OPEC
2013	0.88%	0.96%	0.90%
2014		1.33%	

### PRODUCTION, TOTAL AND SPARE CAPACITY IN OPEC COUNTRIES



	Production	Total capacity	Spare capacity
2013	-2.21%	0.04%	32.69%
2014	-1.06%	2.21%	37.21%

Note: Oil price in USD/barrel, price of Russian natural gas at German border in USD/1,000 m<sup>3</sup> (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. Tables show annual percentage changes. 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). [Cut-off date for data: 12 June 2013]

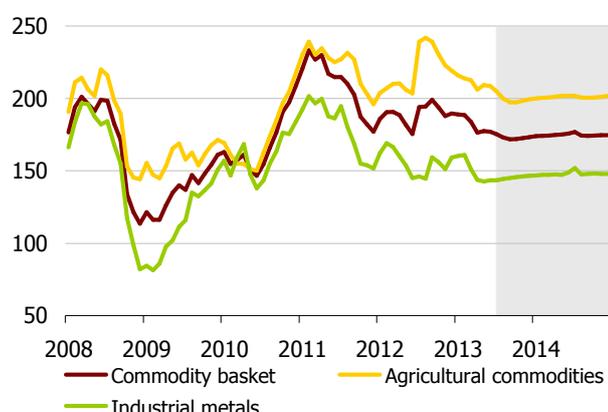
Source: Bloomberg, IEA, EIA, OPEC, CNB calculations

## V.2 Other commodities

The overall non-energy commodity price index went up modestly in May after four months of decline. This rise was due to a higher food index, while the industrial metals index continued falling, albeit at a low rate. The situation changed slightly in early June, when the food index edged down and the industrial metals index edged up.

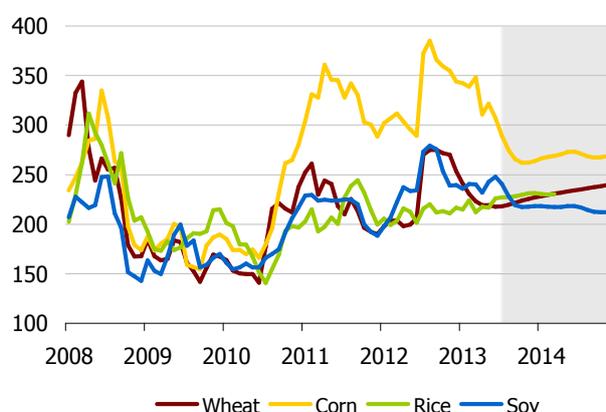
The rise in the food index was due mainly to corn and soy prices, which went up by 4% and 5% respectively in May. The outlook for food commodities is falling at the short-term horizon due to expectations about the new harvest. At the longer-term horizon, the market outlook expects a modest increase. The signs of a recovery in metal prices in late May/early June reflect several factors, especially the possibility that the global demand slowdown is coming to an end. The depreciation of the dollar at the end of May and renewed physical purchases of commodities at lower prices are other factors. The outlook for metal prices is slightly rising, driven mainly by higher prices of aluminium. As for technical commodities, the price of rubber continued falling and is at an almost four-year low. The price of cotton and its outlook are still flat.

**PRICES OF NON-ENERGY COMMODITIES**



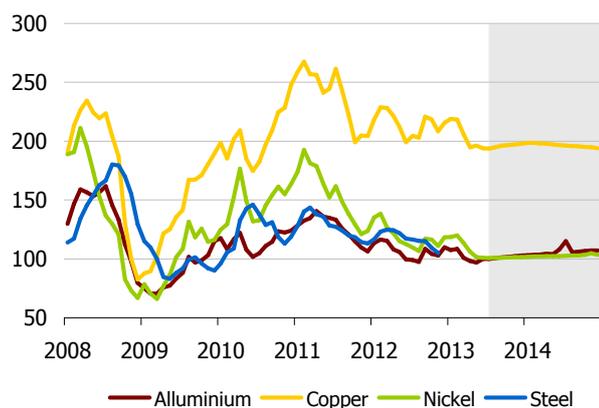
	Overall comm. basket	Agricultural comm.	Industrial metals
<b>2013</b>	-6.2 ▼	-6.5 ▼	-5.3 ▼
<b>2014</b>	-1.5 ▼	-2.1 ▼	0.1 ▼

**FOOD COMMODITIES**



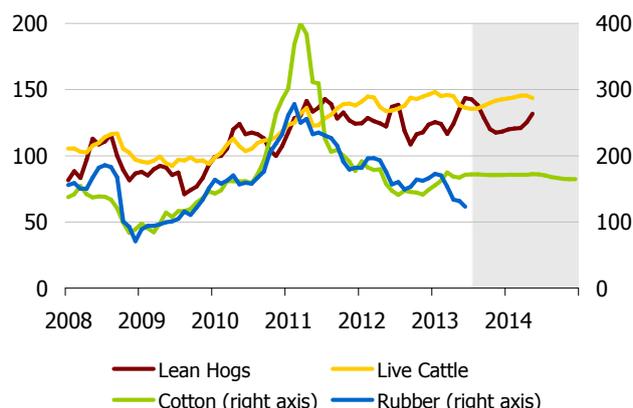
	Wheat	Corn	Rice	Soy
<b>2013</b>	-4.9 ▼	-10.1 ▼	6.3 ▲	-3.9 ▼
<b>2014</b>	4.8 ▲	-9.9 ▼	2.9 ▼	-6.9 ▼

**METALS**



	Aluminium	Copper	Nickel
<b>2013</b>	-4.7 ▼	-6.7 ▼	-11.2 ▼
<b>2014</b>	4.4 ▲	-1.9 ▼	-2.8 ▼

**MEAT, NON-FOOD AGRICULTURAL COMMODITIES**



	Lean hogs	Live Cattle	Cotton	Rubber
<b>2013</b>	3.2 ▲	0.4 ▼	6.4 ▲	-13.9 ▼
<b>2014</b>	-3.2 ▼	2.4 ▲	0.1 ▼	

Note: Structure of non-energy commodity price indices corresponds to composition of The Economist commodity indices. All prices are given as indices, 2005 = 100 (charts) and percentage changes (tables). [Cut-off date for data: 12 June 2013]

Source: Bloomberg, CNB calculations.

## ANNUAL ASSESSMENT OF THE FORECASTS INCLUDED IN GEO<sup>1</sup>

*Our assessment of the accuracy of the forecasts for 2012 reveals that the institutions under review had expected economic activity to be better than what actually transpired, especially in the euro area. By contrast, the relatively solid expectations for the US economy roughly materialised. This was reflected in a stronger-than-expected dollar-euro exchange rate. In addition, the worsening economic situation in the euro area during the period under review was reflected in unexpectedly low interest rates, linked with further monetary policy easing by the ECB. Yields on long-term government bonds of safe countries, i.e. the USA and Germany, were also lower than expected due to the rising uncertainty. The worse-than-expected GDP growth contrasted with higher-than-expected consumer price inflation (except in China).*

### Introduction

The aim of this article is to assess the accuracy of the forecasts of the economic variables regularly monitored in Global Economic Outlook (GEO) and to provide readers with feedback on how the individual monitored institutions, including Consensus Forecasts, and outlooks derived from market contracts reflected the ex post known outcomes.<sup>2</sup>

This assessment is conducted annually for the previous calendar year in the case of the forecasts for GDP growth and CPI inflation (fixed-event forecasts), i.e. we are now assessing the forecasts for 2012. In the case of the three-month outlooks for foreign interest rates, exchange rates against the dollar (USD) and oil prices, the assessment is conducted for the last 21 months for which the figures are known, i.e. from May 2011 to January 2013, and in the case of the one-year outlooks for the above variables, for the last 12 months, i.e. from May 2011 to April 2012 (rolling-event forecasts). The relevant date for the known outcomes is April 2013.

Owing to the short length of the time series assessed, the analysis uses simple descriptive methods. The forecast error  $e_t$  is calculated as the difference between the ex post known actual value  $a_t$  and the corresponding forecast  $f_t$ :

$$e_t = a_t - f_t. \quad (1)$$

A positive forecast error therefore means that the forecasted value undershot the subsequent outcome, while a negative error means that it overshot it.

The mean forecast error (MFE), the mean absolute forecast error (MAFE) and the root mean square error (RMSE) are used as aggregate indicators of the accuracy of the forecast.

The text is structured as follows. Section 1 assesses the forecasts for GDP growth and CPI inflation for the individual foreign economies monitored. Section 2 goes on to assess the accuracy of the forecasts of foreign interest rates. Section 3 assesses the accuracy of the forecasts for the exchange rate of the dollar against major currencies. Section 4 closes the analysis by assessing the oil price forecast.

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<sup>1</sup> Author: Filip Novotný (filip.novotny@cnb.cz). The opinions expressed in this article are those of the author and do not necessarily reflect the official position of the Czech National Bank.

<sup>2</sup> We assess the variables according to the 2012 GEO structure. The number of variables monitored was increased in January 2013. These new variables will be included in the next assessment.

## 1 Assessment of the accuracy of the GDP growth and CPI inflation forecasts for 2012

The previous issues of GEO regularly monitored GDP growth and CPI inflation in four countries/territories: the euro area, the USA, Germany and China.<sup>3</sup> The forecasts for all the above territories are taken from Consensus Forecasts (CF), the International Monetary Fund (IMF), the Organisation for Economic Cooperation and Development (OECD) and the European Commission (EC). The forecasts of these organisations are complemented with the European Central Bank's (ECB) forecast for the euro area, the Fed's forecast for the USA, the Deutsche Bundesbank's (DBB) forecast for Germany and the Bank of Finland Institute for Economies in Transition's (BOFIT) forecast for China.

These institutions differ in the frequency and date of publication of their forecasts; the forecast updates range from monthly and quarterly through to half-yearly. For presentational reasons, only the half-yearly forecasts (i.e. the spring forecasts and the autumn forecasts) were assessed. The accuracy of the spring and autumn GDP growth forecasts for 2012 for each country is shown in Figures 1–4.

2012 in the euro area was characterised by a contraction in GDP, although Germany recorded only a slowdown in GDP growth. GDP growth also moderated in China, whereas the USA achieved a slight increase in economic growth. Such developments came as a negative surprise to most forecasters, as they had expected stronger GDP growth on average. The biggest difference was recorded for the euro area.

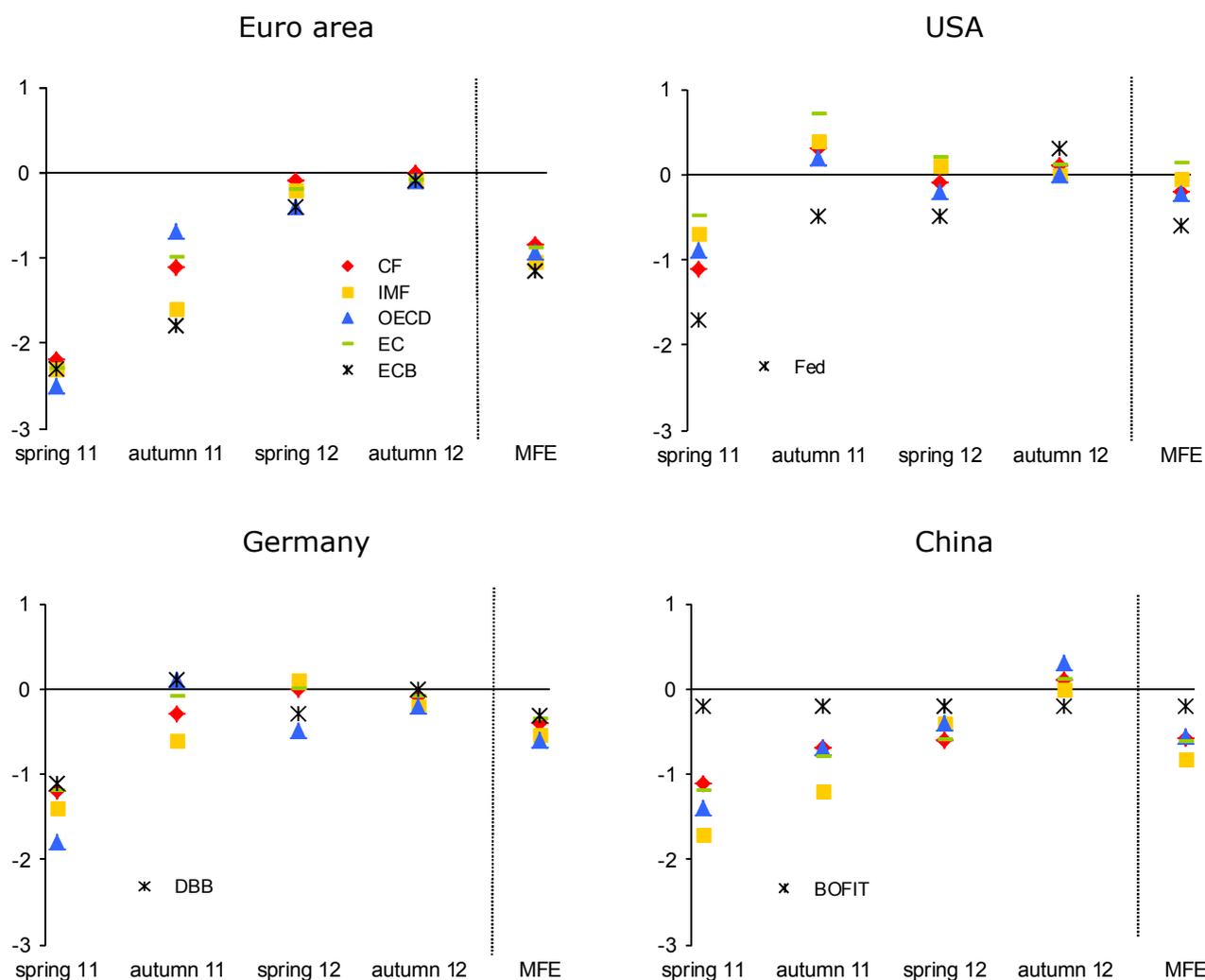
Simplifying somewhat, the assessment of the forecasts for 2012 can be compared with the outcomes for 2009, which also surprised most forecasters with lower growth, although to a greater extent. It can be deduced from this that the current forecasts for 2013 will – owing to the worse situation in 2012 – probably stay in a conservative range (except for the forecasts for the USA, which were less mistaken), as was the case for the forecasts for 2010.

The forecasts for the euro area showed the greatest variability, or uncertainty, mainly because of developments in the countries of its southern periphery, as the variability of the forecasts for Germany was lower than that for the euro area as a whole and the same as that for the USA and China. Uncertainty about the resolution of the debt crisis in the southern periphery of the euro area is thus increasing the uncertainty in the euro area as a whole (see section 2: *Interest rates* and section 3: *USD/EUR exchange rate*).

Turning to the accuracy of the individual forecasts, the Commission and CF recorded the lowest negative errors on average for all countries and forecast horizons. CF, the OECD and the Commission showed the best knowledge of the euro area economy. US GDP growth was best predicted by the IMF, whereas the Fed forecasts exhibited the biggest error. German GDP growth was best predicted by the Deutsche Bundesbank and Chinese GDP growth by BOFIT.

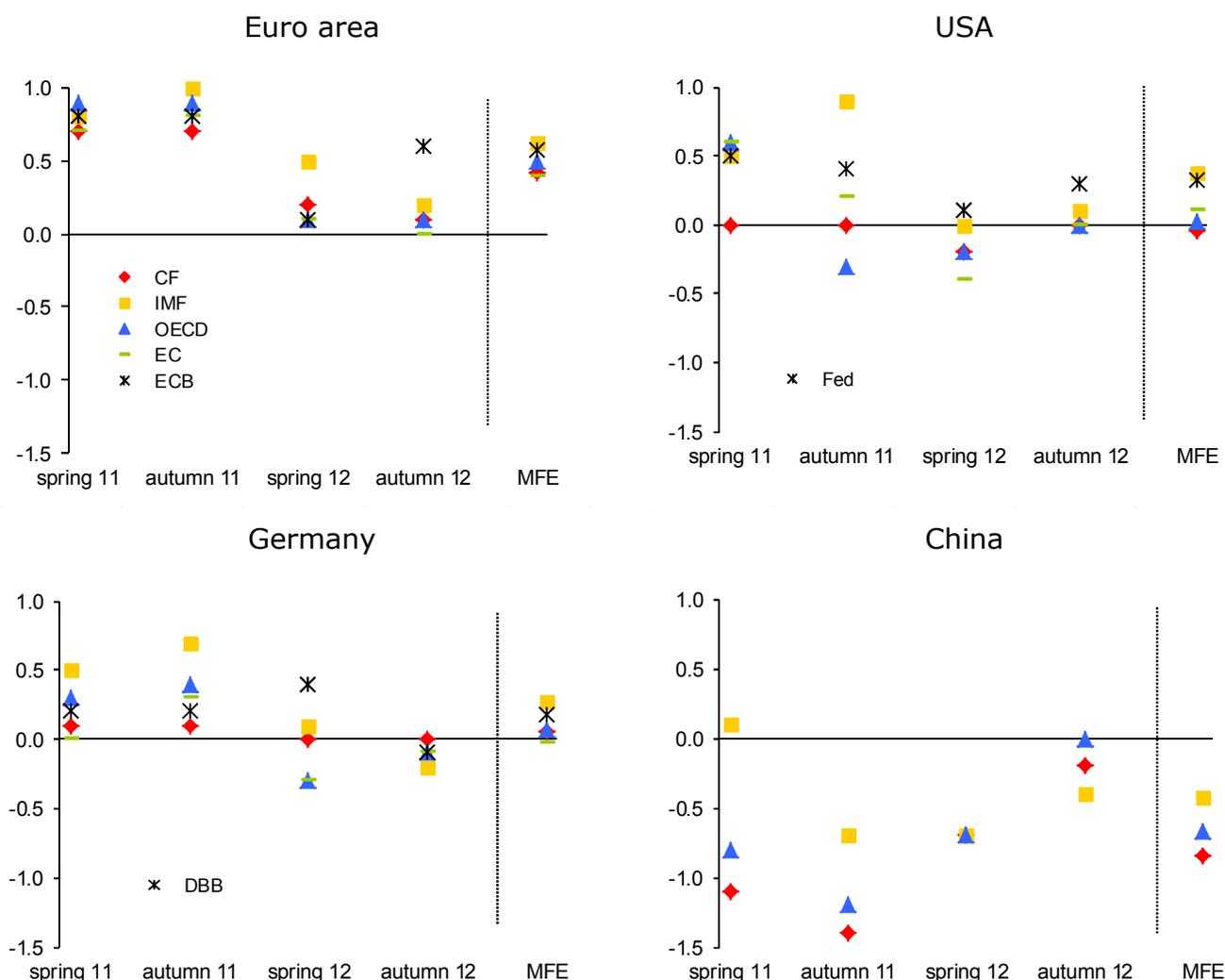
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<sup>3</sup> As from January 2013, the forecasts also cover Brazil, India, Japan and Russia.

**Figures 1–4** Forecast errors for GDP growth for 2012 (pp)

Note: CF – Consensus Forecasts, IMF – International Monetary Fund, OECD – Organisation for Economic Cooperation and Development, EC – European Commission, ECB – European Central Bank, Fed – Federal Reserve System of the USA, DBB – Deutsche Bundesbank, BOFIT – Bank of Finland Institute for Economies in Transition. The source of the historical figures for 2012 is CF. MFE is the mean forecast error for the given year.

By contrast, the outlooks for consumer price inflation for 2012 were underestimated (with the exception of the forecasts for China). Prices thus rose faster in 2012 than expected by most forecasters. This is illustrated by Figures 9–12, which show the relationship between the errors in the GDP growth and CPI inflation forecasts. This relationship is negative for the euro area, the USA and Germany, suggesting stagflation, with lower-than-expected economic growth accompanied by higher-than-expected consumer price inflation. The lower forecasted inflation was probably due to very well anchored inflation expectations in 2012 in the advanced economies under review, as the average forecasts for the euro area, the USA and Germany were 2%, 1.9% and 1.9% respectively.

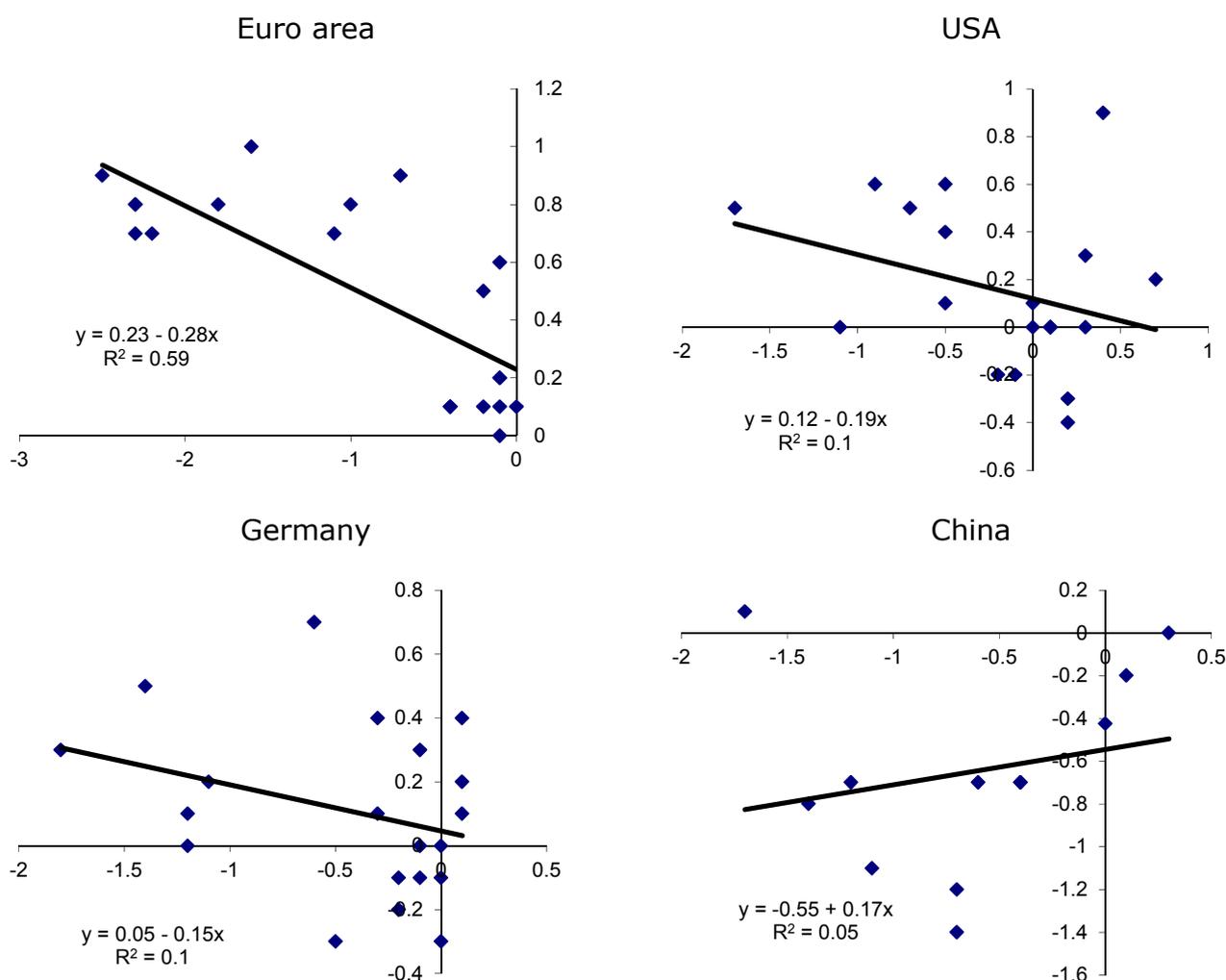
**Figures 5–8** Forecast errors for consumer price inflation for 2012 (pp)

Note: CF – Consensus Forecasts, IMF – International Monetary Fund, OECD – Organisation for Economic Cooperation and Development, EC – European Commission, ECB – European Central Bank, Fed – Federal Reserve System of the USA, DBB – Deutsche Bundesbank, BOFIT – Bank of Finland Institute for Economies in Transition. The source of the historical figures for 2012 is CF. MFE is the mean forecast error for the given year.

Looking at the accuracy of the individual CPI inflation forecasts, the best forecasts for all countries and horizons on average were made by the OECD. The largest variability, or uncertainty, was recorded by the inflation forecasts for China, owing to the higher level of inflation there than in the other countries under comparison. The inflation forecasts for Germany showed the lowest variability. As regards individual countries, the most accurate forecasts for the euro area and the USA were compiled by CF and the Commission. The most accurate forecasts for Germany came from the Commission and those for China came from the IMF.<sup>4</sup>

<sup>4</sup> Only CF, IMF and OECD forecasts were available for China.

**Figures 9–12** Relationship between the forecast errors for GDP growth and CPI inflation (pp)



## 2 Assessment of the accuracy of the forecasts for foreign interest rates

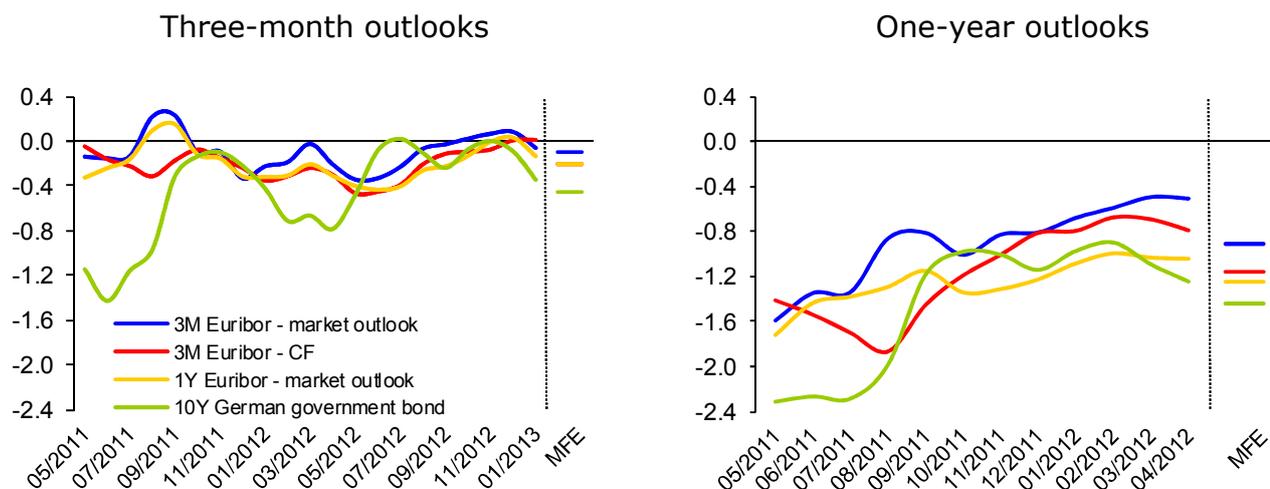
GEO also monitors the outlooks for short-term interest rates, which are derived from futures, and the outlooks for long-term (10-year) government bond yields, which are taken from CF. The interest rate outlooks are monitored for the euro area and the USA only.

The three-month interest rate outlooks were assessed for the period from May 2011 to January 2013 and the one-year interest rate outlooks for the period from May 2011 to April 2012 (see Figures 13–14).

Like the expected better-than-actual GDP growth in the euro area, interest rates were also expected to be higher than the actual outcomes in the period under review. This was particularly marked for the one-year outlooks and was a result of the worsening economic situation and rising uncertainty in the euro area, as also evidenced by lower-than-expected rates on German government bonds, which serve as a safe haven at times of rising uncertainty.

As regards prediction accuracy, the EURIBOR outlooks derived from the yield curve were better than the CF outlooks.

**Figures 13–14** Forecast errors for interest rates for the euro area (pp)

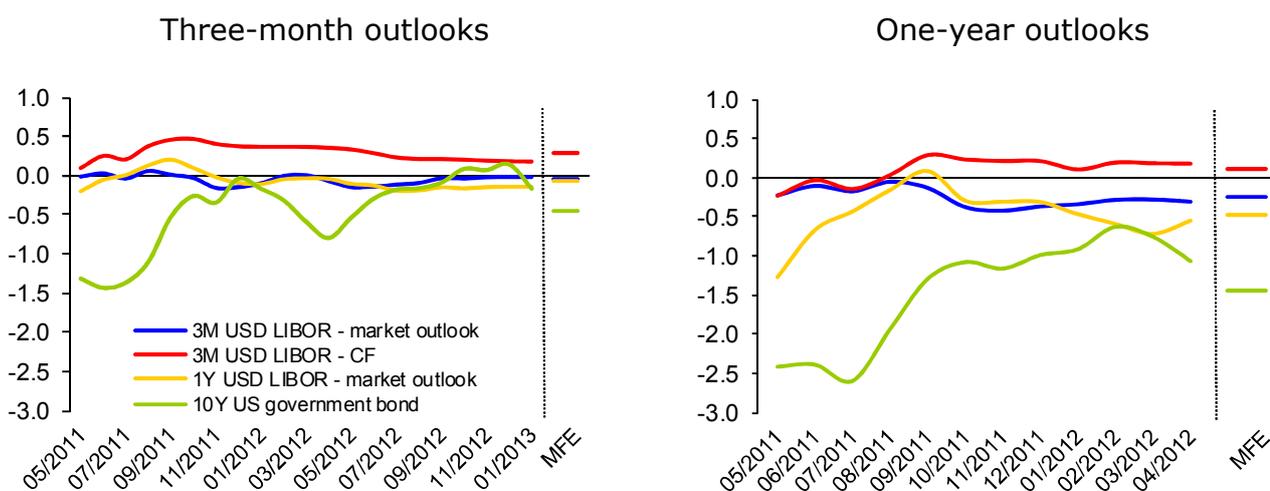


Note: The source of the actual data is Datastream. MFE is the mean forecast error for the given period.

The outlooks for US interest rates were less deviated, although this was due to their lower actual level over the entire period assessed, with actual 3M rates fluctuating between 0.27% and 0.57%. The situation was rather different in the case of the outlooks for 10-year government bond yields, which, as in the case of the German government bond, were overestimated. This reflected the gradual increase in uncertainty on global financial markets during the period under review, which was accompanied by capital flows to “safe” assets.

The comparison of the forecasts for 3M USD Libor rates reveals that the forecasts derived from the market yield curve were better for the three-month outlooks, while CF was more accurate in the case of the one-year outlooks.

**Figures 15–16** Forecast errors for interest rates for the USA (pp)



Note: The source of the actual data is Datastream. MFE is the mean forecast error for the given period.

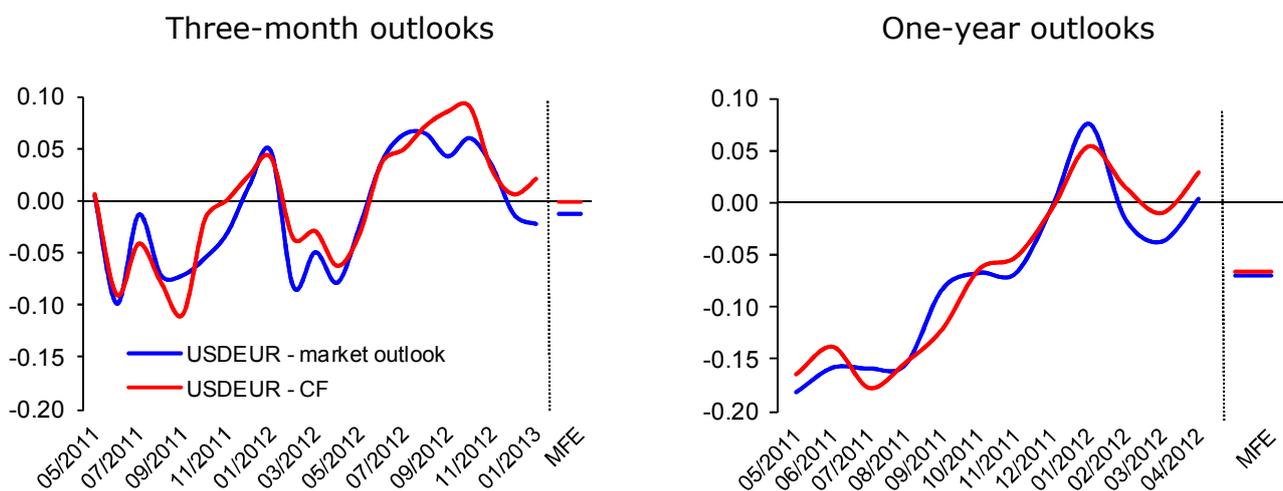
### 3 Assessment of the accuracy of the forecasts for the dollar exchange rate

GEO provides regular outlooks for the exchange rate of the dollar against four currencies: the euro (EUR), the yen (JPY), the British pound (GBP) and the Swiss franc (CHF) – based on CF forecasts as well as outlooks derived from futures.

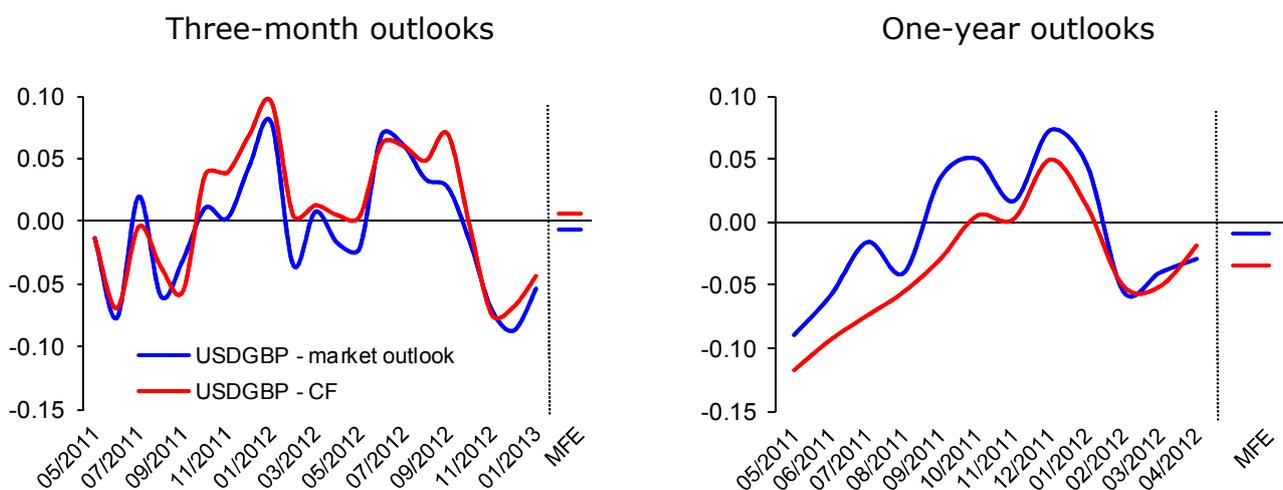
As for the USD/EUR currency pair, the dollar had initially been expected to be weaker at first than the actual outcomes. This was consistent with the worse-than-expected developments in the euro area, whereas the US developments were not so surprising (see section 1). As regards the forecast errors, CF and the market outlooks showed only minimal differences, i.e. de facto identical forecast accuracy.

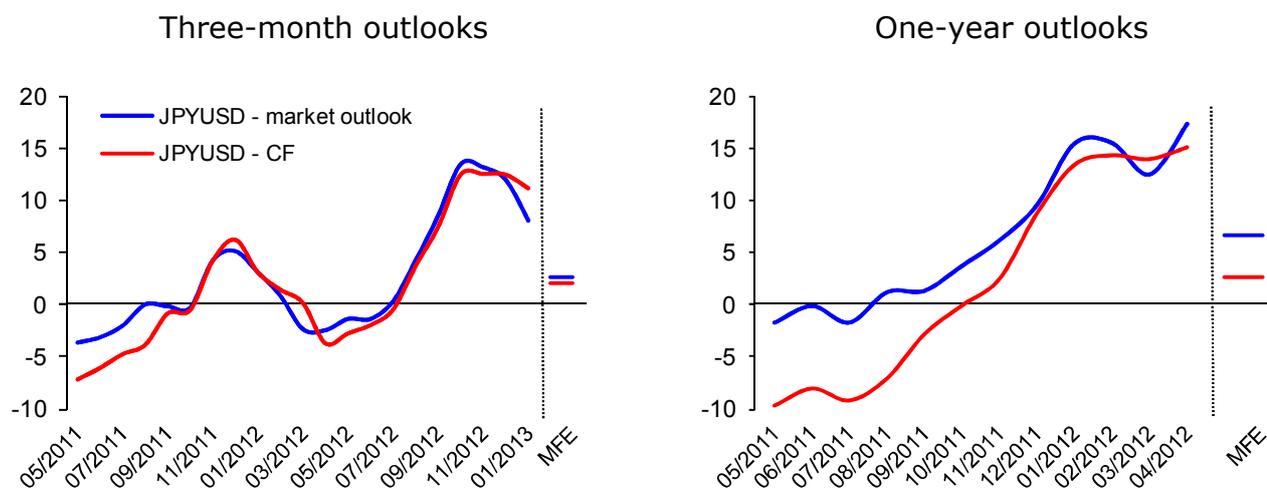
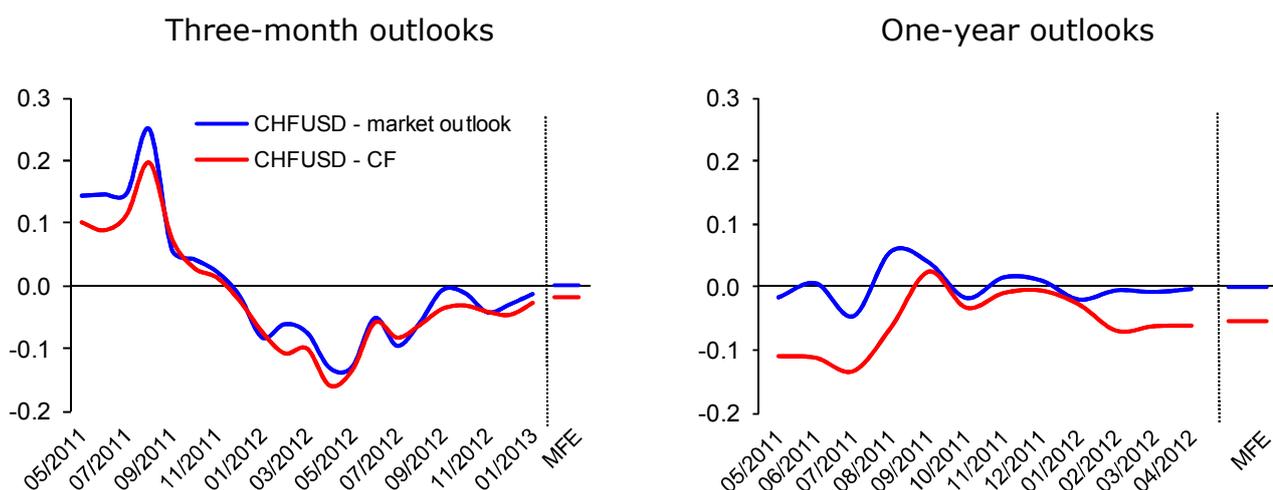
The forecast errors for the USD/GBP exchange rate were similar. A weaker dollar compared to the actual outcomes had also been expected roughly until the end of 2011. The market outlooks were more accurate than the CF forecasts.

**Figures 17–18** Forecast errors for the USD/EUR exchange rate



**Figures 19–20** Forecast errors for the USD/GBP exchange rate



**Figures 21–22** Forecast errors for the JPY/USD exchange rate**Figures 23–24** Forecast errors for the CHF/USD exchange rate

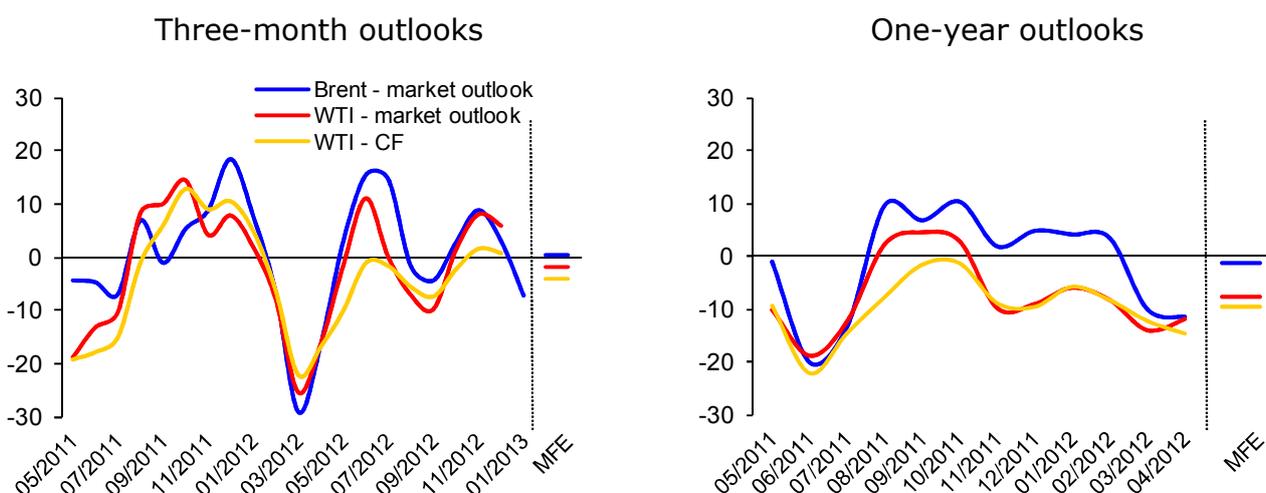
The forecast errors for the JPY/USD exchange rate were due to the easing of monetary policy in Japan as from the end of 2012. This step took the currency markets by surprise not only at the one-year horizon, but also at the three-month horizon. At the end of the period under review, the forecasts were thus substantially deviated towards a stronger yen compared to the actual outcome.

The outlooks for the CHF/USD exchange rate were affected by the setting of a minimum exchange rate of CHF 1.2 to the euro in September 2011. This led to a positive error in the CHF/USD exchange rate forecasts for this period, i.e. expectations of a stronger franc compared to the actual rate. In the rest of the period under review, however, the one-year market outlooks were relatively accurate.

#### 4 Assessment of the accuracy of the oil price forecasts

The forecast errors for oil prices three months ahead were volatile in the period under assessment. On average, however, the market outlooks for the price of Brent crude oil were relatively successful.<sup>5</sup> The outlooks for one year ahead expected a higher price of oil on average compared to the actual outcomes. This was especially true of WTI oil. The comparison of the accuracy of the WTI oil price forecasts reveals that the forecasts derived from market futures contracts were slightly more accurate.

**Figures 25–26** Forecast errors for the oil price (USD a barrel)



#### Conclusion

Our assessment of the accuracy of the forecasts monitored in GEO reveals that 2012 surprised most forecasters with worse-than-expected GDP growth. Only in the USA were the expectations of relatively solid economic growth more or less fulfilled. Turning to the accuracy of the individual GDP growth forecasts, the Commission and CF recorded the lowest negative errors on average for all countries and forecast horizons. CF, the OECD and the Commission were the best performers as regards prediction accuracy for the euro area economy. US GDP growth was best predicted by the IMF, whereas the Fed forecasts exhibited the biggest error. German GDP growth was best forecasted by the Bundesbank and Chinese GDP growth by BOFIT.

By contrast, the outlooks for consumer price inflation for 2012 were underestimated compared to the outcomes (with the exception of the forecasts for China). Prices thus rose faster in 2012 than expected by most forecasters. Looking at the accuracy of the individual CPI inflation forecasts, the best forecasts for all countries and horizons on average were made by the OECD. As regards individual countries, the most accurate forecasts for the euro area and the USA were compiled by CF and the Commission. The most accurate forecasts for Germany came from the Commission and those for China came from the IMF.

<sup>5</sup> In January 2013, CF started publishing forecasts for Brent crude oil price instead of the WTI price. From the next assessment onwards it will thus be possible to compare the accuracy of the market outlooks for the Brent oil price with the CF outlooks.

Like the expected better-than-actual GDP growth in the euro area, interest rates were also expected to be higher than the actual outcomes in the period under review. This was particularly marked for the one-year outlooks and was a result of the worsening economic situation and rising uncertainty in the euro area, as also evidenced by lower-than-expected rates on German government bonds, which serve as a safe haven at times of rising uncertainty.

As for the USD/EUR currency pair, the dollar was in reality stronger than expected. This was consistent with the worse-than-expected developments in the euro area, whereas the US developments were not so surprising. The forecast errors for the USD/GBP exchange rate were similar. The forecast errors for the JPY/USD exchange rate were affected by the monetary policy easing in Japan as from the end of 2012. This step took the currency markets by surprise not only at the one-year horizon, but also at the three-month horizon. At the end of the period under review, the forecasts were thus substantially deviated towards a stronger yen compared to the actual outcome. The outlooks for the CHF/USD exchange rate were affected by the setting of a minimum exchange rate of CHF 1.2 to the euro in September 2011. This led to a positive error in the CHF/USD exchange rate forecasts for this period, i.e. expectations of a stronger franc compared to the actual rate. In the rest of the period under review, however, the one-year market outlooks were relatively accurate.

The forecast errors for oil prices three months ahead were volatile in the period under assessment. On average, however, the market outlooks for the price of Brent crude oil were relatively successful. The outlooks one year ahead expected a higher price of oil on average compared to the actual outcomes.

**A1. Change in GDP predictions for 2013**

	CF		IMF		OECD		CB / EIU	
<b>EA</b>	-0.1	2013/6 2013/5	-0.1	2013/4 2013/1	-0.5	2013/5 2012/11	-0.1	2013/6 2013/3
<b>US</b>	0.0	2013/6 2013/5	-0.1	2013/4 2013/1	-0.1	2013/5 2012/11	-0.1	2013/3 2012/12
<b>DE</b>	-0.1	2013/6 2013/5	0.0	2013/4 2013/1	-0.2	2013/5 2012/11	-0.1	2013/6 2012/12
<b>JP</b>	0.5	2013/6 2013/5	0.4	2013/4 2013/1	0.9	2013/5 2012/11	1.0	2013/4 2012/10
<b>BR</b>	-0.1	2013/6 2013/5	-0.5	2013/4 2013/1	-1.1	2013/5 2012/11	0.0	2013/6 2013/5
<b>RU</b>	-0.3	2013/6 2013/5	-0.3	2013/4 2013/1	-1.5	2013/5 2012/11	0.0	2013/6 2013/5
<b>IN</b>	-0.1	2013/6 2013/5	-0.2	2013/4 2013/1	-1.2	2013/5 2012/11	-0.3	2013/6 2013/5
<b>CN</b>	-0.1	2013/6 2013/5	-0.2	2013/4 2013/1	-0.7	2013/5 2012/11	-0.6	2013/6 2013/5

**A2. Change in inflation predictions for 2013**

	CF		IMF		OECD		CB/EIU	
<b>EA</b>	-0.1	2013/6 2013/5	0.1	2013/4 2012/10	-0.1	2013/5 2012/11	-0.2	2013/6 2013/3
<b>US</b>	-0.1	2013/6 2013/5	0.0	2013/4 2012/10	-0.2	2013/5 2012/11	-0.2	2013/3 2012/12
<b>DE</b>	0.0	2013/6 2013/5	-0.3	2013/4 2012/10	-0.3	2013/5 2012/11	0.1	2013/6 2012/12
<b>JP</b>	0.0	2013/6 2013/5	0.3	2013/4 2012/10	0.4	2013/5 2012/11	0.2	2013/4 2012/10
<b>BR</b>	0.0	2013/6 2013/5	1.2	2013/4 2012/10	0.9	2013/5 2012/11	0.2	2013/6 2013/5
<b>RU</b>	0.0	2013/6 2013/5	0.3	2013/4 2012/10	0.2	2013/5 2012/11	0.0	2013/6 2013/5
<b>IN</b>	0.0	2013/6 2013/5	1.2	2013/4 2012/10	0.7	2013/5 2012/11	-0.3	2013/6 2013/5
<b>CN</b>	-0.1	2013/6 2013/5	0.0	2013/4 2012/10	1.0	2013/5 2012/11	-1.0	2013/6 2013/5

**A3. Abbreviations**

BoJ	Bank of Japan
BR	Brazil
BRIC	Brazil, Russia, India and China
CB-CCI	Conference Board Consumer Confidence Index
CB-LEII	Conference Board Leading Economic Indicator Index
CBOT	Chicago Board of Trade
CF	Consensus Forecasts
CN	China
CNB	Czech National Bank
DBB	Deutsche Bundesbank
DE	Germany
EA	euro area

EC	European Commission
ECB	European Central Bank
EC-CCI	European Commission Consumer Confidence Indicator
EC-ICI	European Commission Industrial Confidence Indicator
EIU	The Economist Intelligence Unit database
EEA	European Economic Area
ES	Spain
EU	European Union
EMI	European Monetary Institute
EURIBOR	Euro Interbank Offered Rate
Fed	Federal Reserve System (the US central bank)
FRA	forward rate agreement
GBP	pound sterling
GDP	gross domestic product
GR	Greece
CHF	Swiss franc
ICE	Intercontinental Exchange
IE	Ireland
IFO	Institute for Economic Research
IFO-BE	IFO Business Expectations
IMF	International Monetary Fund
IN	India
IRS	interest rate swap
IT	Italy
JP	Japan
JPY	Japanese yen
LIBOR	London Interbank Offered Rate
N/A	not available
OECD	Organisation for Economic Co-operation and Development
OECD-CLI	OECD Composite Leading Indicator
PMI	Purchasing Managers' Index
PT	Portugal
RU	Russia
UoM	University of Michigan
UoM-CSI	University of Michigan Consumer Sentiment Index
US	United States
USD	US dollar
ZEW-ES	ZEW Economic Sentiment

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