GLOBAL ECONOMIC OUTLOOK – APRIL

2012

Monetary and Statistics Department
External Economic Relations Division

CNB CZECH NATIONAL BANK

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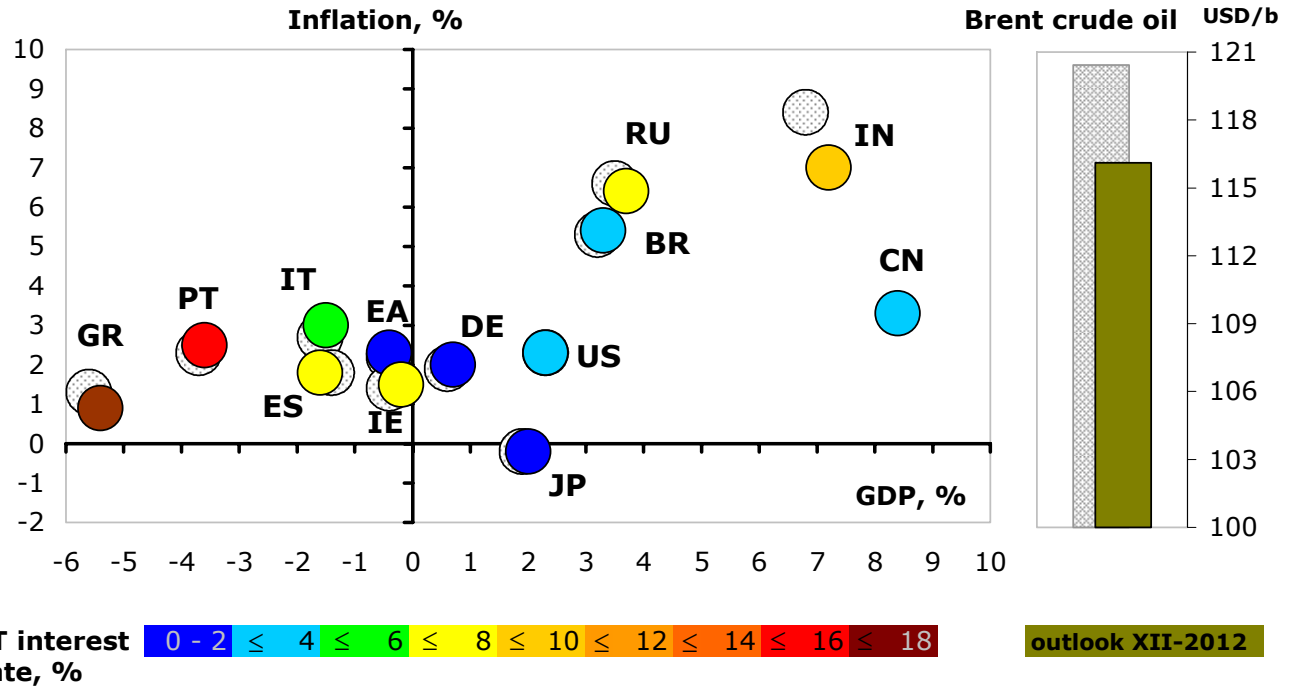
The April issue of *Global Economic Outlook* presents its regular overview of recent and expected developments in selected territories in terms of standard indicators such as GDP, inflation, leading indicators, interest rates, exchange rates and commodity prices. In this issue, we also focus our attention on misalignment in the advanced countries' property markets, primarily from the point of view of how they have been affected by the financial and debt crisis.

The revised economic outlooks confirm that 2012 will be a year of weaker economic performance than 2011. The exception is the US economy, whose condition is gradually improving. In the euro area, by contrast, this year will be one of economic contraction. Euro area countries will continue to be driven by the "engine" of the German economy. France, Austria, Denmark and Finland will still see modest positive growth this year. The euro area as a whole will face weak domestic and global demand, tight fiscal policy and efforts to tackle the problems of overleveraged countries on the southern periphery. The macroeconomic situation of these countries is unenviable. Unlike the best performing country (Germany), they face high long-term interest rates owing to the contraction expected this year. Besides Greece, which is unable to borrow on the financial markets, Portugal is highly vulnerable in this respect (see the figure below).

Emerging economies, especially the BRIC countries (Brazil, Russia, India and China), are still showing robust economic growth at an acceptable inflation rate (with the exception of the inflation outlook for India). The good news for the global economy is that the BRIC countries are not as overleveraged as many advanced countries; their long-term interest rates are generally in single figures.

The global economy will remain exposed to high oil prices in 2012. The still high prices of Brent crude oil are being affected by nervousness associated with geopolitical risks in the Middle East (a halt in oil supplies from Iran in reaction to EU and US sanctions). The US dollar exchange rate will be important as regards the materialisation of inflation risks, but is expected to remain at the current level. Food and industrial commodity prices are also expected to stay around their current levels. ECB rates are expected to be flat at the one-year horizon. US rates are expected to remain unchanged even beyond 2014.

Economic outlook for selected countries in 2012



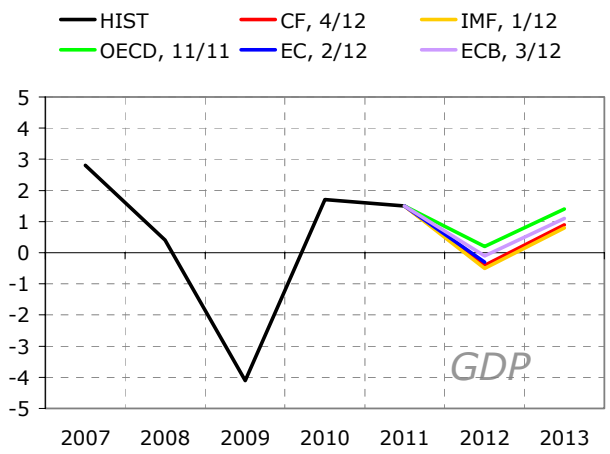
Note: EA – euro area, DE – Germany, US – United States, JP – Japan, CN – China, IN – India, BR – Brazil, RU – Russia, GR – Greece, IE – Ireland, IT – Italy, PT – Portugal, ES – Spain. The points are coloured according to long-term interest rates. The grey colour is the CF forecast (GDP, inflation) or Bloomberg survey (oil price) from the previous month. [Cut-off date for data: 14 April 2012]

Source: CNB calculation using Bloomberg, Consensus Economics and Eurostat databases.

II.1 GDP

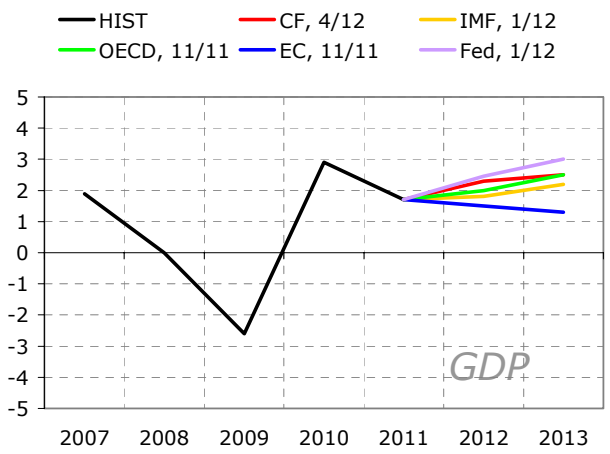
The global recovery remains fragile. Signs of faster growth in the USA and stabilisation (still in negative territory) in the euro area are being accompanied by considerable uncertainty about future developments. The April CF estimates that euro area GDP will fall to -0.4% **in 2012**. By contrast, the German economy will show 0.7% growth, driven mostly by domestic demand. Despite the Fed's concerns about the sustainability of the downward trend in US unemployment, the current outlook for the USA remains optimistic and the April CF expects GDP growth of 2.3% this year. GDP growth in China will be 8.4%. The biggest change in the economic growth rate **in 2013** compared to 2012 will be recorded in the euro area, which is expected to grow by 0.9% following this year's decline. Germany's growth rate will be 1.6%, up by 0.9 pp. Economic growth in the USA and China will be just 0.1–0.2 pp higher than in 2012 (at 2.5% and 8.5% respectively).

EURO AREA



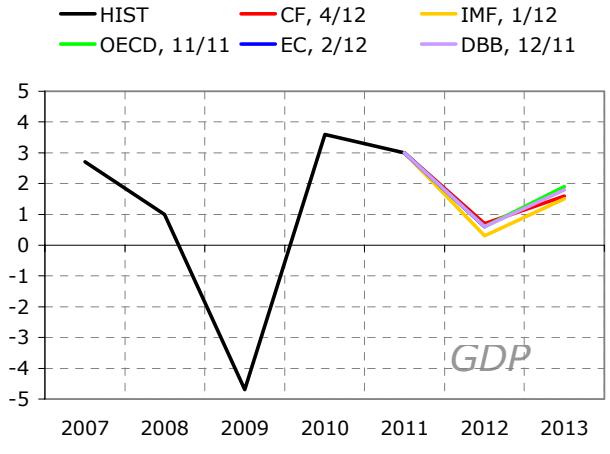
	HIST	CF	IMF	OECD	EC	ECB
2011	1.5					
2012		-0.4	-0.5	0.2	-0.3	-0.1
2013		0.9	0.8	1.4		1.1

USA



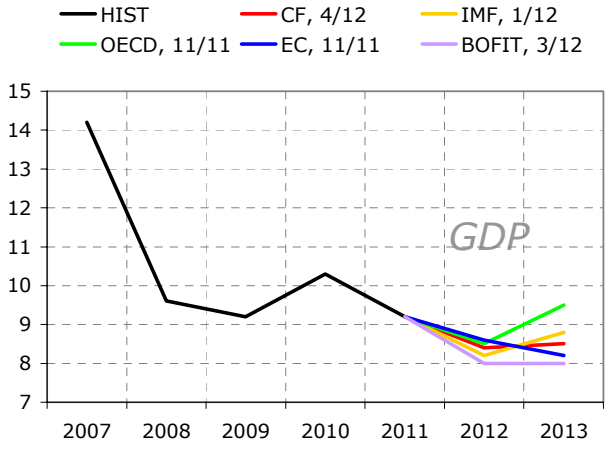
	HIST	CF	IMF	OECD	EC	Fed
2011	1.7					
2012		2.3	1.8	2.0	1.5	2.5
2013		2.5	2.2	2.5	1.3	3.0

GERMANY



	HIST	CF	IMF	OECD	EC	DBB
2011	3.0					
2012		0.7	0.3	0.6	0.6	0.6
2013		1.6	1.5	1.9		1.8

CHINA



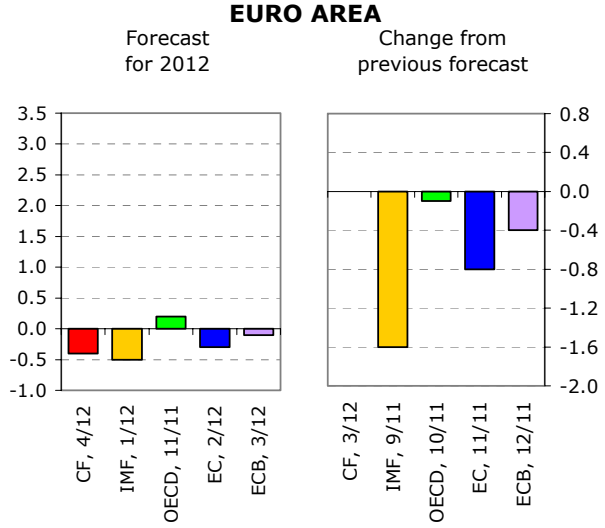
	HIST	CF	IMF	OECD	EC	BOFIT
2011	9.2					
2012		8.4	8.2	8.5	8.6	8.0
2013		8.5	8.8	9.5	8.2	8.0

Note: Legend shows latest forecast data in format "Source, month/year of forecast publication". HIST: historical value. ECB and Fed: midpoint of range. [Cut-off date for data: 14 April 2012]
Source: CNB calculation using Eurostat, CF, IMF, OECD, EC, ECB, Fed, DBB and BOFIT databases.

II.2 Current GDP forecast and change from the previous forecast

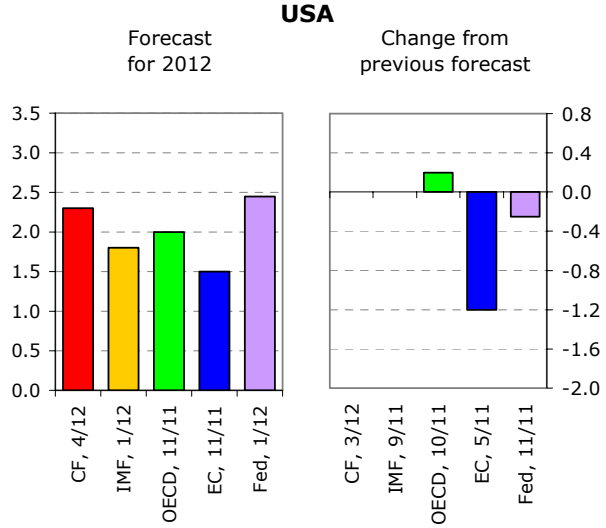
Compared to the March forecast, the April CF increased expected GDP growth in Germany this year by 0.1 pp. The outlooks for the other economies under review **for 2012** are unchanged.

EURO AREA



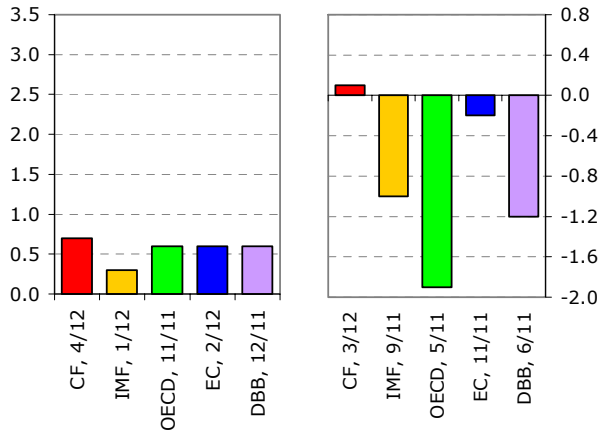
	2011	CF	IMF	OECD	EC	ECB
Forecast	1.5	-0.4	-0.5	0.2	-0.3	-0.1
Change		0.0	-1.6	-0.1	-0.8	-0.4

USA



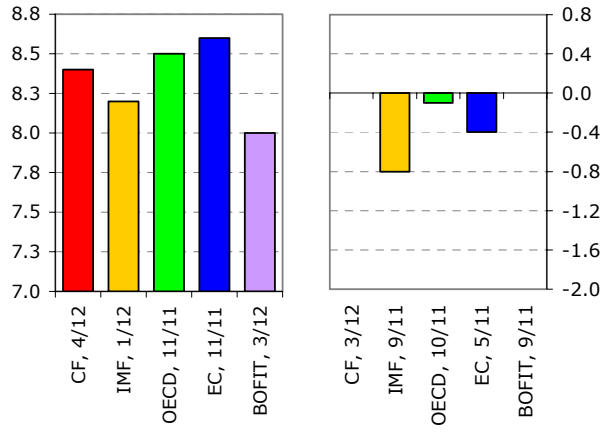
	2011	CF	IMF	OECD	EC	Fed
Forecast	1.7	2.3	1.8	2.0	1.5	2.5
Change		0.0	0.0	0.2	-1.2	-0.3

GERMANY



	2011	CF	IMF	OECD	EC	DBB
Forecast	3.0	0.7	0.3	0.6	0.6	0.6
Change		0.1	-1.0	-1.9	-0.2	-1.2

CHINA



	2011	CF	IMF	OECD	EC	BOFIT
Forecast	9.2	8.4	8.2	8.5	8.6	8.0
Change		0.0	-0.8	-0.1	-0.4	0.0

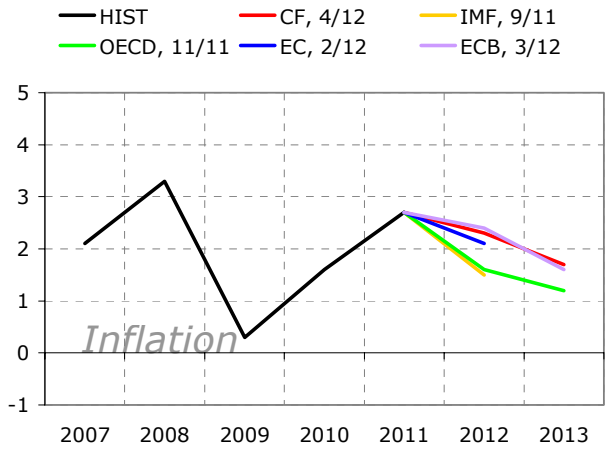
Note: Horizontal axis of left-hand (right-hand) chart shows latest (previous) forecast data in format "Source, month/year of forecast publication". HIST: historical value. ECB and Fed: midpoint of range.
[Cut-off date for data: 14 April 2012]

Source: CNB calculation using Eurostat, CF, IMF, OECD, EC, ECB, Fed, DBB and BOFIT databases.

II.3 Inflation

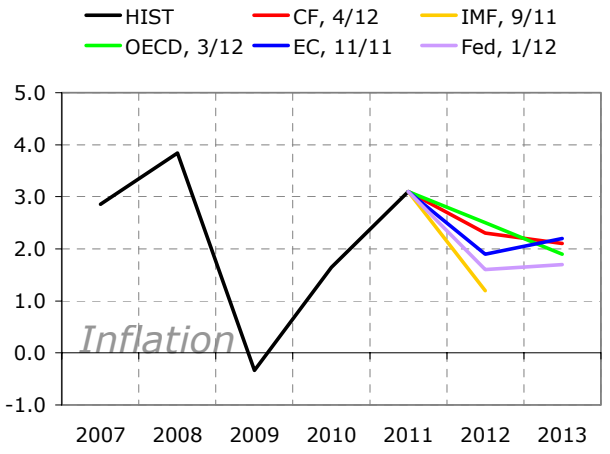
Although inflation is expected to be more modest this year than last year, it is being pushed up by high energy prices. **In 2012**, the lowest inflation of all the economies under review can be expected in Germany (April CF), at up to 2%. Prices both in the euro area as a whole and in the USA will rise by 2.3%. Inflation in China will reach 3.3%. **Next year**, however, will see a slowdown to 1.7% in the euro area, 1.8% in Germany and 2.1% in the USA. By contrast, inflation in China will pick up to 3.6%.

EURO AREA



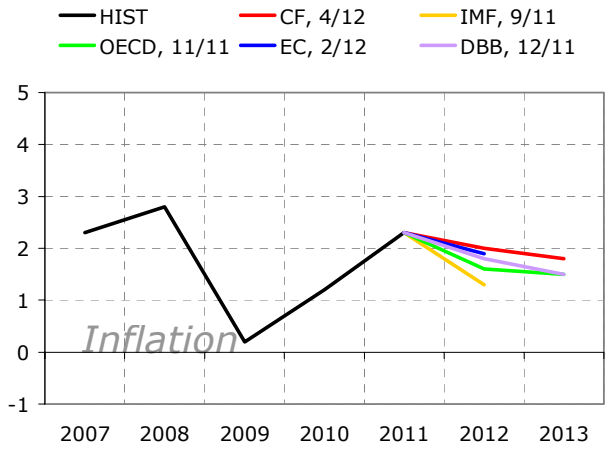
	HIST	CF	IMF	OECD	EC	ECB
2011	2.7					
2012		2.3	1.5	1.6	2.1	2.4
2013		1.7		1.2		1.6

USA



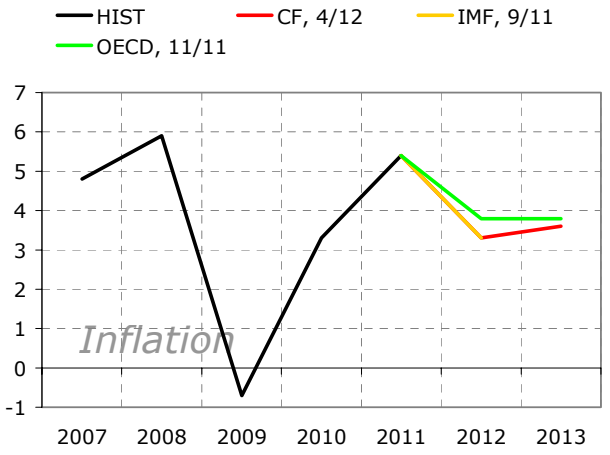
	HIST	CF	IMF	OECD	EC	Fed
2011	3.1					
2012		2.3	1.2	2.5	1.9	1.6
2013		2.1		1.9	2.2	1.7

GERMANY



	HIST	CF	IMF	OECD	EC	DBB
2011	2.3					
2012		2.0	1.3	1.6	1.9	1.8
2013		1.8		1.5		1.5

CHINA



	HIST	CF	IMF	OECD
2011	5.4			
2012		3.3	3.3	3.8
2013		3.6		3.8

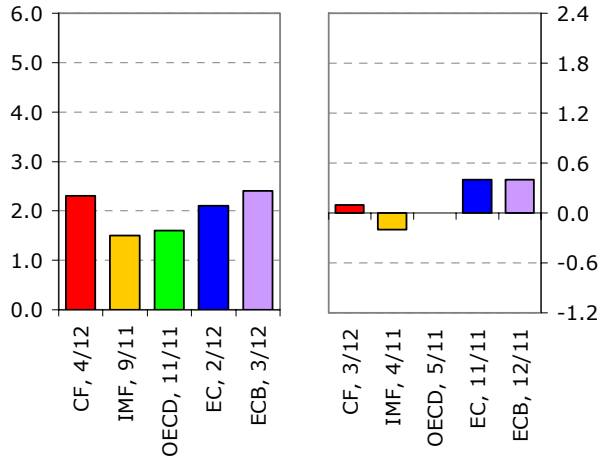
Note: Legend shows latest forecast data in format "Source, month/year of forecast publication". HIST: historical value. ECB and Fed: midpoint of range. [Cut-off date for data: 14 April 2012]

Source: CNB calculation using Eurostat, CF, IMF, OECD, EC, ECB, Fed, DBB and BOFIT databases.

II.4 Inflation forecast and change from the previous forecast

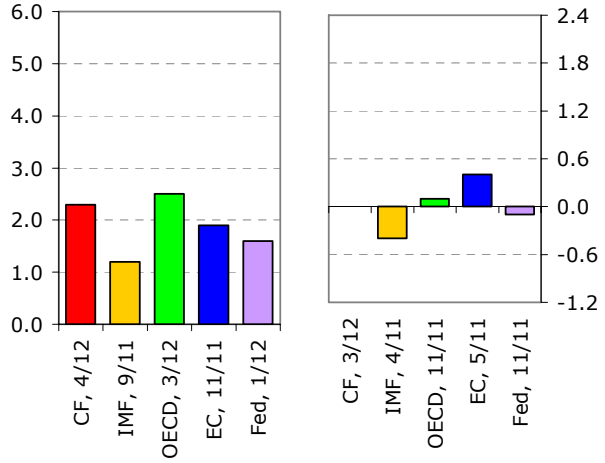
According to the April CF, prices in the euro area and in Germany will grow 0.1 pp faster **in 2012** than expected in March. The CF outlooks for the USA and China are the same as in the previous month.

EURO AREA



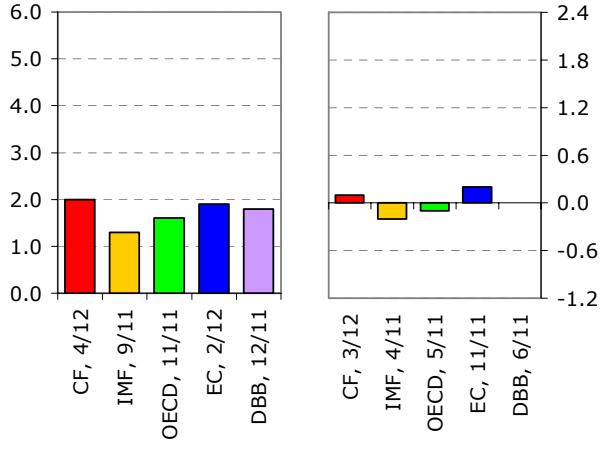
	2011	CF	IMF	OECD	EC	ECB
Forecast	2.7	2.3	1.5	1.6	2.1	2.4
Change		0.1	-0.2	0.0	0.4	0.4

USA



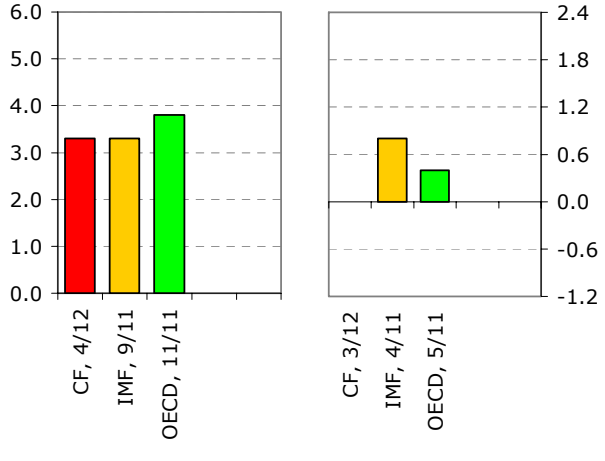
	2011	CF	IMF	OECD	EC	Fed
Forecast	3.1	2.3	1.2	2.5	1.9	1.6
Change		0.0	-0.4	0.1	0.4	-0.1

GERMANY



	2011	CF	IMF	OECD	EC	DBB
Forecast	2.3	2	1.3	1.6	1.9	1.8
Change		0.1	-0.2	-0.1	0.2	0.0

CHINA



	2011	CF	IMF	OECD
Forecast	5.4	3.3	3.3	3.8
Change		0.0	0.8	0.4

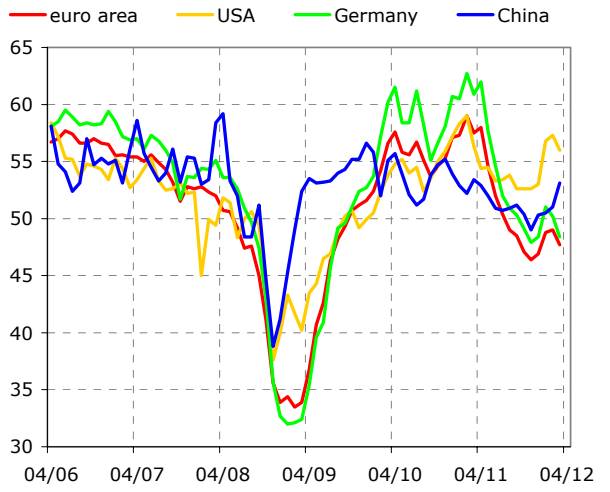
Note: Horizontal axis of left-hand (right-hand) chart shows latest (previous) forecast data in format "Source, month/year of forecast publication". HIST: historical value. ECB and Fed: midpoint of range.

[Cut-off date for data: 14 April 2012]

Source: CNB calculation using Eurostat, CF, IMF, OECD, EC, ECB, Fed, DBB and BOFIT databases.

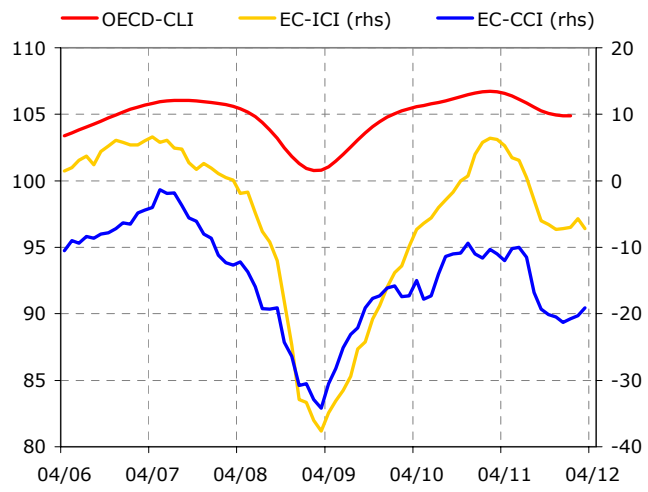
The changes in the leading indicators in April were all very modest. Expectations of industrial production growth in 2012 Q2 weakened (except for China). In the USA, the Purchasing Managers' Index (PMI) in industry fell slightly, but remained above 50%. By contrast, the composite leading indicators rose somewhat. The PMI in the euro area declined further and has not exceeded the 50-point level in 8 months. The confidence indicator in industry also decreased. Consumer confidence improved slightly, but remains very low. The German PMI returned below the 50-point level for the first time in two months. By contrast, the business and consumer confidence indicators increased marginally.

PMI IN MANUFACTURING



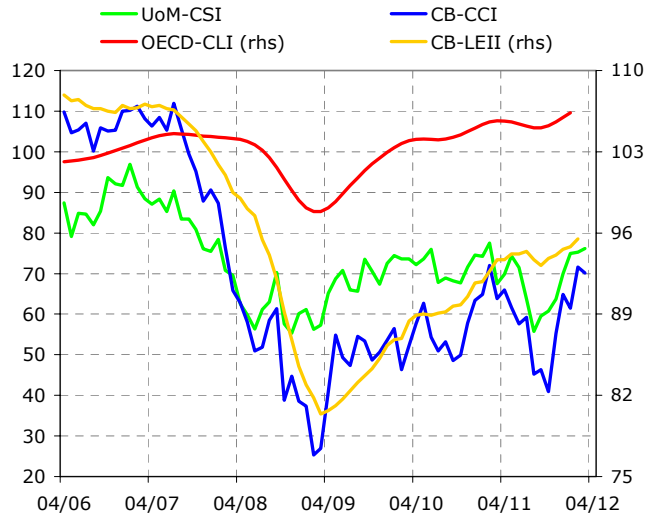
	EA	US	DE	CN
1/12	48.8	56.8	51.0	50.5
2/12	49.0	57.3	50.2	51.0
3/12	47.7	56.0	48.4	53.1

EURO AREA



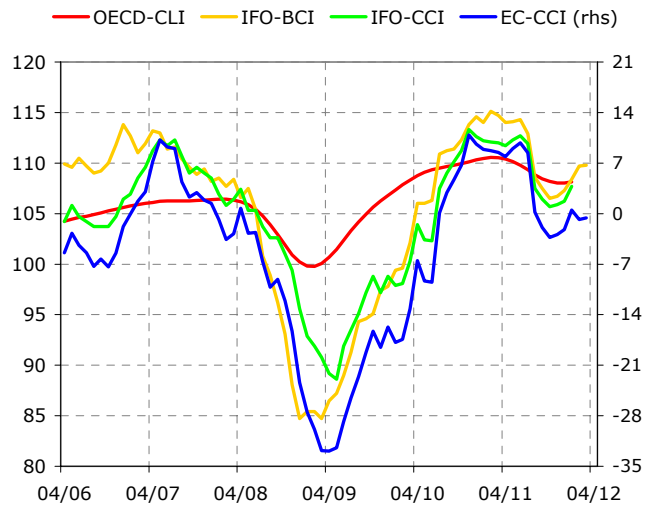
	OECD-CLI	EC-ICI	EC-CCI
1/12	104.9	-7.0	-20.7
2/12		-5.7	-20.3
3/12		-7.2	-19.1

USA



	OECD-CLI	CB-LEII	UoM-CSI	CB-CCI
1/12	106.4	94.8	75.0	61.5
2/12		95.5	75.3	71.6
3/12			76.2	70.2

GERMANY



	OECD-CLI	IFO-BCI	IFO-CCI	EC-CCI
1/12	108.1	108.4	107.7	0.5
2/12		109.7		-0.8
3/12		109.8		-0.6

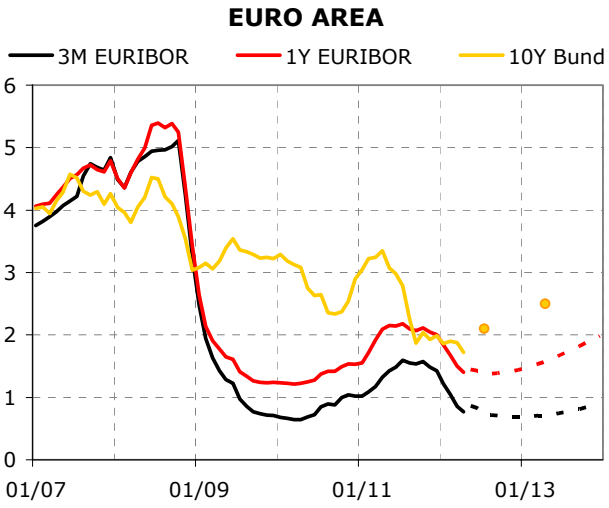
Note: OECD-CLI stands for OECD Composite Leading Indicator, EC-ICI (right-hand scale) for European Commission Industrial Confidence Indicator, EC-CCI (right-hand scale) for EC Consumer Confidence Indicator, CB-LEII for Conference Board Leading Economic Indicator Index, CB-CCI for CB Consumer Confidence Index, UoM-CSI for University of Michigan Consumer Sentiment Index, IFO-BCI for Institute for Economic Research – Business Climate Index, and IFO-CCI for IFO Consumer Confidence Index. [Cut-off date for data: 12 April 2012]

Source: CNB calculation using OECD, EC, IFO and UoM databases.

IV.1 Outlook for short-term and long-term interest rates: Euro area

Unsecured 3M and 1Y EURIBOR rates continued to edge down in March. In early April, the 3M rate declined below 0.77 %, approaching the historical low recorded in April 2010. The current forecast based on implied rates remained almost the same as in the previous month. The effect of three-year refinancing operations (LTROs) persists, while the outlook for key rates is unchanged. At its April meeting, the ECB kept rates unchanged. According to the ECB, inflation is likely to be above the 2% target until the end of 2012, with upside risks prevailing. By contrast, the economic recovery will remain sluggish. However, sufficient liquidity is now apparent, and the fall in the risk premium halted for the first time since the end of 2011 (for 3M maturity).

The average German 10Y government bond yield fell again in late March and reached a historical low in early April (1.66 %). This was due chiefly to rising risk aversion associated with the debt crisis in the euro area. According to CF, however, it should exceed 2% at the three-month horizon.



	03/12	04/12	06/12	12/12	06/13	12/13
3M EURIBOR	0.86	0.77	0.83	0.69	0.75	0.89
1Y EURIBOR	1.50	1.40	1.43	1.44	1.66	1.98
	03/12	**04/12**	**07/12**	**04/13**		
10Y Bund	1.88	1.72	2.10	2.50		

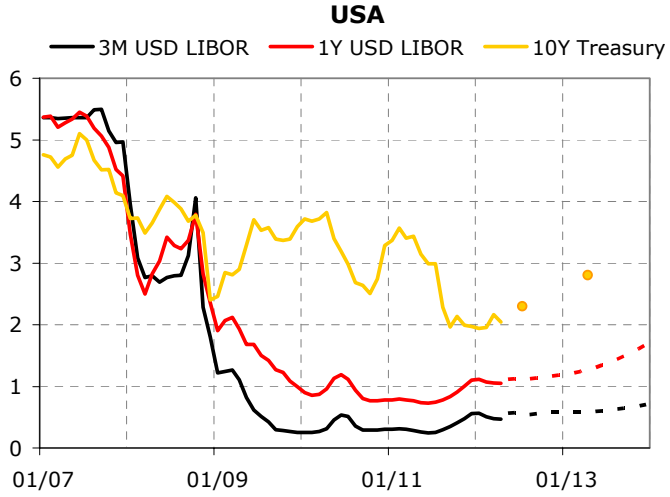
Note: Forecast for EURIBOR rates is based on implied rates from interbank market yield curve (FRA rates are used from 4M to 15M and adjusted IRS rates for longer horizons). Forecast for German government bond yield (10Y Bund) is taken from CF. Dashed lines and points represent outlook. [Cut-off date for data: 10 April 2012]

Sources: Thomson Reuters (Datastream), Bloomberg, CNB calculations.

IV.2 Outlook for short-term and long-term interest rates: USA

Both 3M and 1Y USD LIBOR rates were flat in March and early April. The implied future LIBOR rate path is slightly rising. It moved upwards at the longer end compared to the previous month, more so in the case of 1Y rates. By the end of 2013, 3M rates are expected to increase by only 0.2 pp and 1Y rates by 0.6 pp. Speeches by Fed members reduced speculation about another round of quantitative easing, including the possibility of its sterilised version.

Market tension related to the situation in Spain also affected long-term rates in the USA. The US 10Y government bond yield decreased below 2% owing to a rise in risk aversion in early April. The new CF forecast is 0.1 pp higher than last month, however.



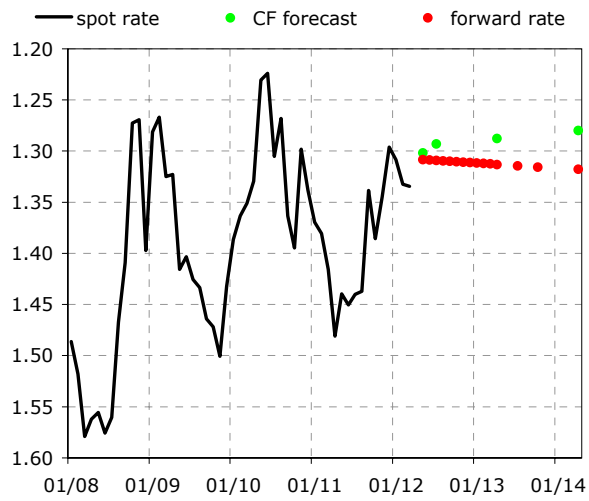
	03/12	04/12	06/12	12/12	06/13	12/13
3M USD LIBOR	0.47	0.47	0.57	0.58	0.60	0.71
1Y USD LIBOR	1.05	1.05	1.12	1.18	1.34	1.67
	03/12	**04/12**	**07/12**	**04/13**		
10Y Treasury	2.16	2.04	2.30	2.80		

Note: Implied LIBOR rates are derived from London interbank market yield curve. Forecast for 10Y Treasury yield is taken from CF. Dashed lines and points represent outlook. [Cut-off date for data: 10 April 2012]

Sources: Thomson Reuters, Bloomberg, CNB calculations.

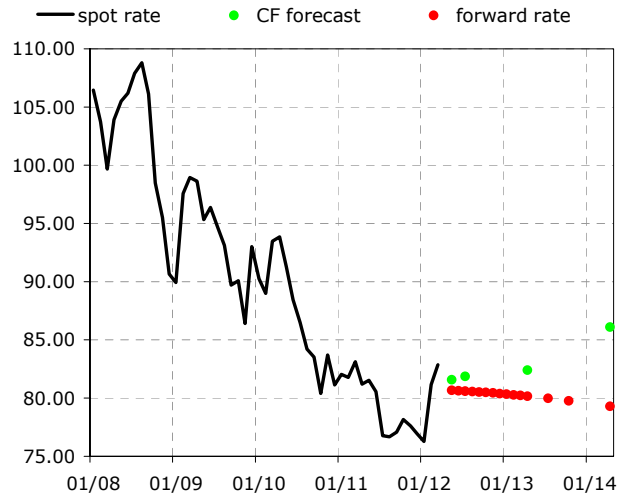
The dollar-euro exchange rate has been fluctuating between USD 1.30 and 1.35 since the end of January 2012 with no significant trend. News about a recovery of the US economy was accompanied in March by a decline in risk aversion linked with agreements on the restructuring of Greece's debt and the ECB's new long-term operations. As in March, the April CF forecast expects the exchange rate to be flat at around USD 1.3 to the euro at the two-year horizon. The British pound has shown no major fluctuations in the last two months and the new forecast is stable at around USD 1.57 to the pound at the two-year horizon. Signs of a modest recovery of the British economy are being offset by still high unemployment and inflation. The Japanese yen depreciated further against the US dollar in March following a substantial easing of monetary policy by the central bank. The new CF04 also lowered the outlook towards a weaker yen. The forecast for the Swiss franc was again unchanged; the exchange rate is expected to weaken to parity against the dollar at the two-year horizon.

US$ per Euro



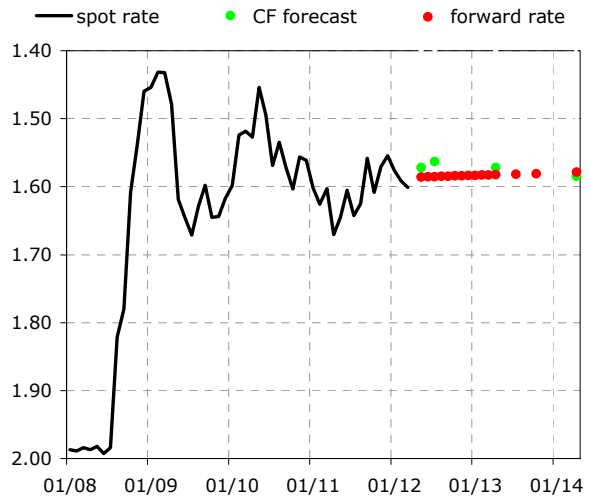
	10/4/12	05/12	07/12	04/13	04/14
spot rate	1.308				
CF forecast		1.302	1.293	1.288	1.280
forward rate		1.308	1.309	1.313	1.318

Yen per US$



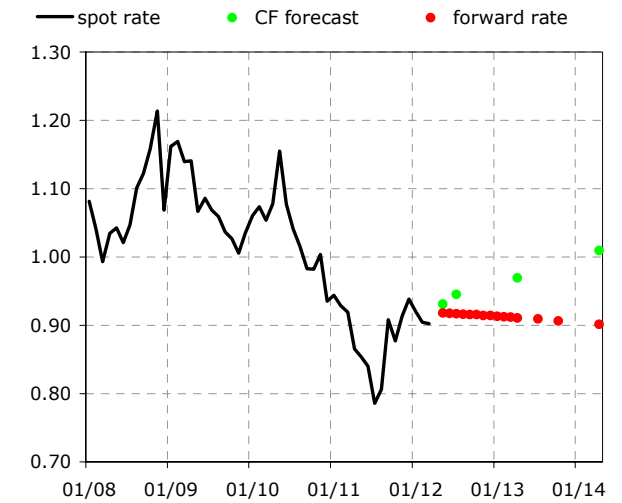
	10/4/12	05/12	07/12	04/13	04/14
spot rate	80.67				
CF forecast		81.57	81.86	82.39	86.08
forward rate		80.65	80.59	80.15	79.27

US$ per UK£



	10/4/12	05/12	07/12	04/13	04/14
spot rate	1.586				
CF forecast		1.572	1.563	1.572	1.585
forward rate		1.586	1.585	1.583	1.579

Swfr per US$



	10/4/12	05/12	07/12	04/13	04/14
spot rate	0.919				
CF forecast		0.931	0.945	0.969	1.009
forward rate		0.918	0.917	0.911	0.901

Note: Increase in currency pair represents appreciation of US dollar; data as of the last day of the 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) possibilities for securing future exchange rate. [Cut-off date for data: 10 April 2012]

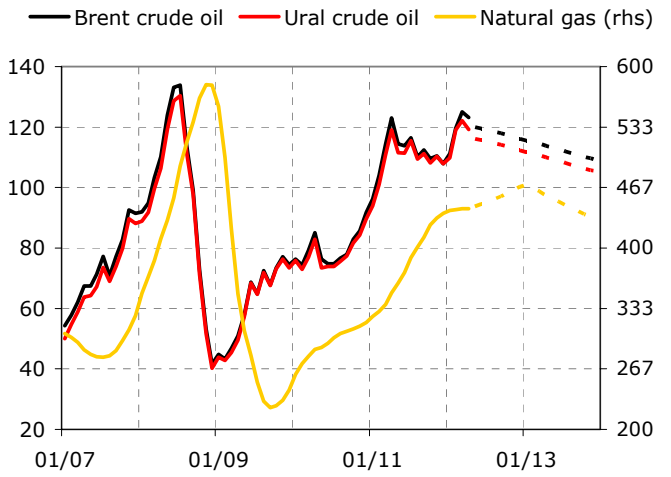
Source: CNB calculation using Bloomberg and Consensus Forecasts databases.

VI.1 Oil and natural gas

Oil prices fluctuated between USD 122 and 126 a barrel in March, reflecting concerns about sufficient oil supplies (due to the EU and US embargo on Iranian oil) and relative optimism regarding the global economy. The price of Brent crude oil fell slightly in April and on 11 April broke the level of USD 120 a barrel for the first time since February. According to the International Energy Agency (IEA), this was due to a rise in extraction in Saudi Arabia. Other factors behind the price decline include the worsening global economic outlook, concerns about the situation in the euro area peripheral countries (Spain in particular) and lower-than-expected global demand for oil. The decline in prices in the recent days is also due to expectations ahead of the weekend negotiations with Iran on its nuclear programme.

Owing to worse expectations, the futures-based outlook shifted downwards, mainly at the short end. Oil prices are expected to decrease by about USD 12 to USD 107 a barrel at the two-year horizon.

OUTLOOK FOR PRICES OF OIL AND NATURAL GAS



	04/12	06/12	12/12	06/13	12/13
Brent crude oil	123.1	119.5	116.1	112.6	109.1
Ural crude oil	119.2	115.7	112.3	108.7	105.2
Natural gas	443.2	448.6	467.3	450.9	430.3

Note: Brent oil price in USD/barrel (ICE quotation). Price of Russian natural gas at German border in USD/1,000 cubic m (IMF database). Future oil prices are derived from oil prices. Dashed line represents outlook.

[Cut-off date for data: 11 April 2012]

Source: Bloomberg, IMF, CNB calculations.

VI.2 Other commodities

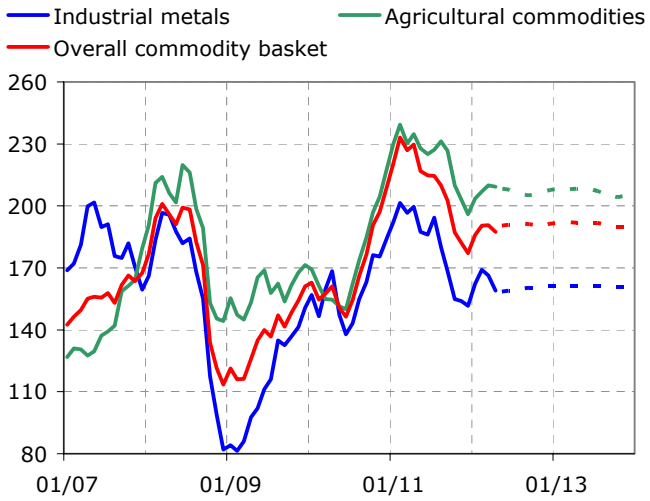
The non-energy commodity price index decreased slightly over the last month, driven by a more marked fall in the industrial metals index due mainly to a worsening growth outlook for China. The outlook for both the total index and its components (industrial metals and food commodities) remains stable.

The expected evolution of most components of the food index is broadly stable as well. Wheat and rice, whose outlooks are rising, are the exception (although their prices should not reach the 2011 peak until 2014). By contrast, soybeans and maize prices are expected to decline.

Prices of industrial crops (cotton and rubber) were flat and are not expected to change much. Prices of all the industrial metals under review decreased last month, led by nickel prices.

Coal prices rose slightly for the first time since September 2011 and their outlook is rising.

OUTLOOK FOR OTHER COMMODITY PRICES



	04/12	06/12	12/12	06/13	12/13
Industrial metals	159.0	159.0	161.0	161.1	160.8
Agricultural commodities	209.2	208.0	207.7	208.2	205.6
Overall commodity basket	187.4	191.0	191.3	191.8	190.0

Note: Chart shows price indices, year 2005 = 100. Dashed line represents outlook based on futures.

[Cut-off date for data: 11 April 2012]

Source: Bloomberg, outlooks based on futures.

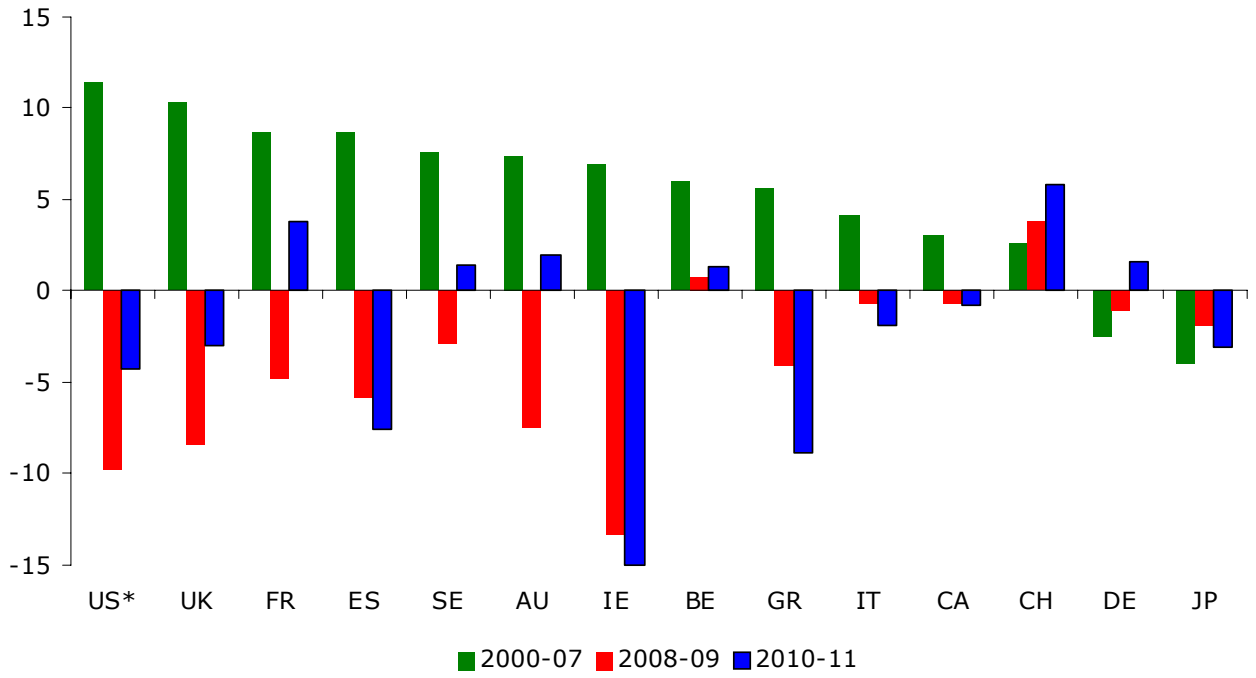
PROPERTY PRICE MISALIGNMENT AROUND THE WORLD[1]

This article aims to present property price trends in advanced countries since the start of the new millennium, in particular in terms of how the advanced world has been hit by the financial and, subsequently, debt crisis. The article presents fundamental property market factors and indicators and then summarises the methods for empirically testing property price misalignment (bubbles) around the world. The conclusion summarises the consequences of property price misalignment for financial markets and the real economy, including in advanced countries.

1 Property prices and the financial (debt) crisis

Property prices in advanced countries have shown mixed trends since the start of the new millennium. The onset of the financial and, later, debt crisis was a key milestone. Most advanced countries recorded real property price growth in the pre-crisis period, with the growth being strongest in the USA, the UK, France and Spain. However, property prices in some advanced countries – e.g. Germany and Japan – showed real declines during the Great Moderation. After the collapse of Lehman Brothers, the previous real increases in property prices saw major corrections, especially in those countries which had recorded the largest growth before the crisis (see Figure 1).

Figure 1: Real property prices in selected advanced countries



Note: * Data for the United States: averages for 2000–2005. This time period reflects the earlier bursting of the bubble in the USA. Real growth was obtained by adjusting for consumer inflation. US – United States, UK – United Kingdom, FR – France, ES – Spain, SE – Sweden, AU – Australia, IE – Ireland, BE – Belgium, GR – Greece, IT – Italy, CA – Canada, CH – Switzerland, DE – Germany, JP – Japan.

Source: BIS, IMF-IFS, Thomson Datastream.

[1] Written by Luboš Komárek (Lubos.Komarek@cnb.cz) and Michal Hlaváček (Michal.Hlavacek@cnb.cz). The views expressed in this contribution are those of the authors and do not necessarily reflect the official views of the CNB.

The recent two-year period indicates that the real decline in property prices has slowed in the USA, the UK and France, but has accelerated in Spain, Greece and Ireland. This reflects the fact that property prices have dropped most of all in countries where the bursting of the property price bubble has been accompanied by a fiscal crisis. Figure 1 also shows the specific situation of the Swiss property market, where real property price growth is gradually gaining pace.[2] Property prices in Belgium, which have not undergone the "expected" correction with regard to their fiscal burden, might give rise to concerns about increasing price misalignment.

2 Fundamental factors and indicators of the property market

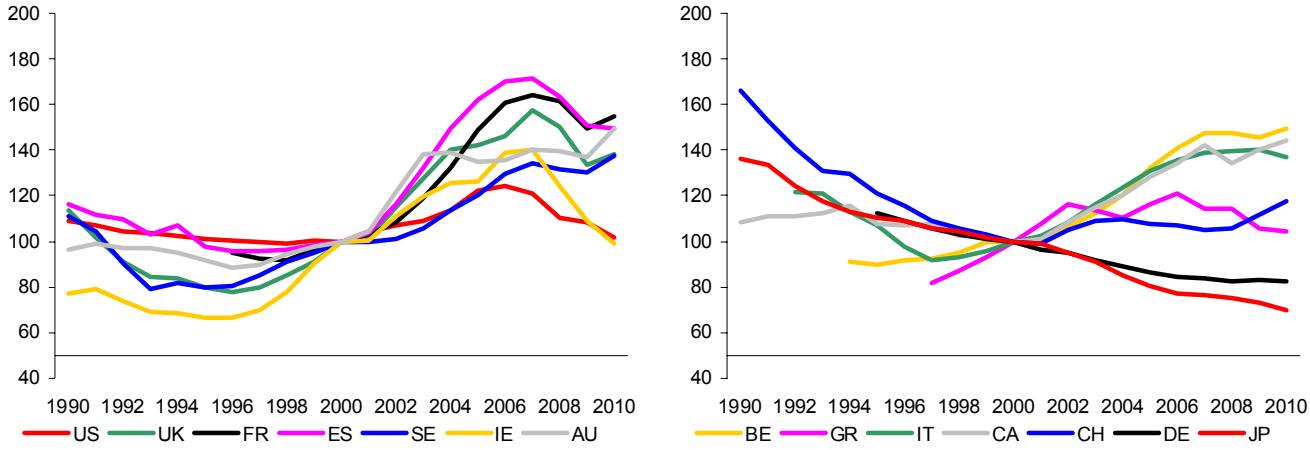
The fundamental factors determining property prices include money growth, growth in housing loans (mortgage loans in particular), growth in construction output, interest rates (a decline in interest rates leads to a rise in property prices), demographic factors (population growth leads to property price growth), the size of the property market (higher supply leads to lower property prices) and limited property supply in a particular location. Supply in the property market is driven primarily by the profitability of the construction business and is regarded as sticky in the short run. Demand is determined mainly by households' disposable income, the mortgage interest rate and demographic factors.

Key ratios describing property market developments across countries, regions or cities are constructed to make the property market easier to understand. They include the price-to-income (P/I) and price-to-rent (P/R) ratios. The P/I ratio provides basic information on the affordability of property in relation to income. A high P/I ratio indicates that property purchasing costs are high relative to income; moreover, the repayment of any debt financing of property purchases is more difficult at any given interest rate and loan-to-value ratio. Figure 2 shows the evolution of the P/I ratio in the countries under review.

Figure 2: P/I ratios

a) Countries with higher pre-crisis property price growth

b) Countries with lower pre-crisis property price growth



Note: 2000=100; US – United States, UK – United Kingdom, FR – France, ES – Spain, SE – Sweden, IE – Ireland, AU – Australia, BE – Belgium, GR – Greece, IT – Italy, CA – Canada, CH – Switzerland, DE – Germany, JP – Japan.

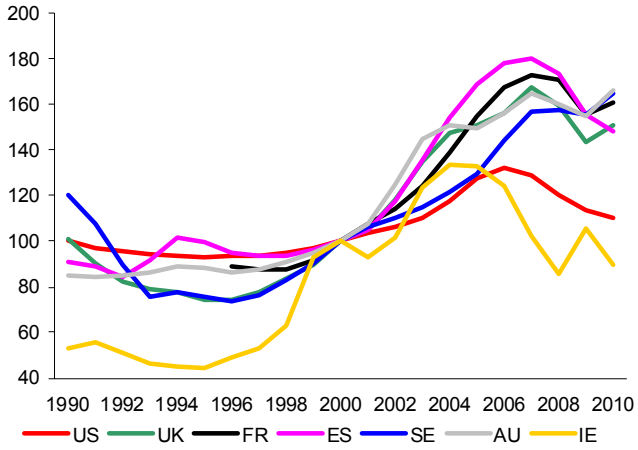
Source: OECD.

[2] In Europe, the property market in Austria shows similar developments.

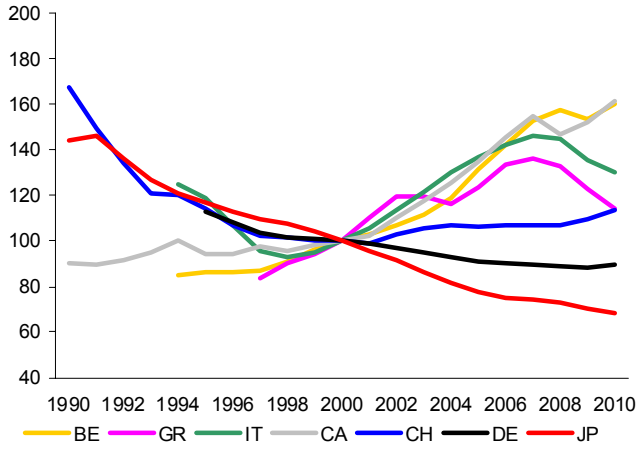
The price-to-rent ratio provides basic information about property prices relative to rents and the conditions of substitution between owner-occupied housing and rented housing (see Figure 3). An increase in the P/R ratio may suggest overvaluation of property prices driven by expectations of future property-related profits, but may equally indicate that owner-occupied housing is less advantageous than rented housing. If there is optimisation (arbitrage) going on, interest in owner-occupied housing should decline as the P/R ratio rises. The P/R ratio does not seem entirely suitable for the exact determination of property price misalignment, as it takes into account neither opportunity costs (property investment income cannot be compared, for example, with government bond yields) nor the interest rate, which is related to the affordability of credit. The inverse of the P/R ratio, i.e. the rent return, is of some help, as it can be directly compared with the long-term interest rate, enabling the opportunity costs to be approximated. A high rent return (i.e. a low P/R ratio) relative to home loan rates can offer scope for potentially risky speculative property purchases.

Figure 3: P/R ratios

a) Countries with high pre-crisis property price growth



b) Countries with low pre-crisis property price growth



Note: 2000=100; US – United States, UK – United Kingdom, FR – France, ES – Spain, SE – Sweden, AU – Australia, IE – Ireland, BE – Belgium, GR – Greece, IT – Italy, CA – Canada, CH – Switzerland, DE – Germany, JP – Japan.

Source: OECD.

The paths of the P/I and P/R ratios show that it was clear before the financial crisis which countries had problems with growing property price misalignment (bubbles). In the initial stages of the financial crisis (2008–2009) property prices declined most of all in those countries where the largest increases had previously been recorded. Now the situation is mixed and it is not entirely clear which countries face the risk of a bubble. Bubbles may occur in countries that had high property price growth before the crisis and where the price corrections may not have been sufficient (Australia, France, Spain and Sweden) and also in countries where no bubble problems have been observed yet, or the price growth has not been so fast, and where property price sustainability indicators have been deteriorating only gradually (Belgium, Canada and Italy).

3 Assessment of property price misalignment

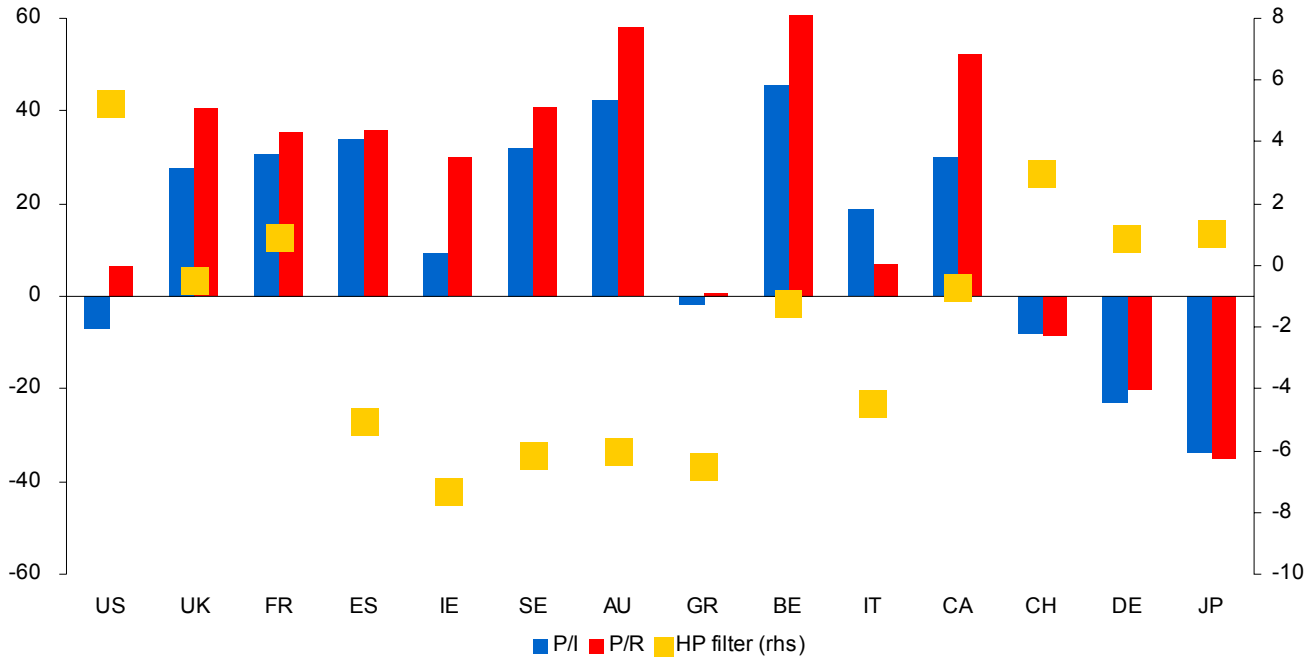
The main methods for identifying property price misalignment (bubbles) include: (i) trend curves and statistical filters, (ii) the aforementioned P/I and P/R ratios, (iii) econometric techniques, and (iv) structurally rich models (see below). Trend curves and statistical filters are the simplest approaches, but are purely statistical. They can be

used to get an initial idea of the degree of misalignment (see Hlaváček and Komárek, 2009, or Komárek and Kubicová, 2011). That said, it is not necessarily the case ex ante that these results will be less successful than those obtained using much more sophisticated methods. The Hodrick-Prescott filter (HP filter) with the recommended smoothing coefficient for the given time series frequency, the Band-Pass filter (BP filter) and other univariate filters can be used to calculate the trend. Like trend curves and statistical filters, the P/I and P/R ratios are used to get a quick idea about a particular property market. They are especially popular with financial market practitioners.

The econometric techniques include unit root tests and cointegration. Classic unit root tests such as the ADF (Augmented Dickey-Fuller), PP (Phillips-Perron) and KPSS (Kwiatkowski, Phillips, Schmidt and Shin) stationarity tests, and subsequent cointegration analysis, assume that the modelled relationships are linear. Because of this assumption, standard linear econometric methods may not suffice to establish the non-linear nature of movements in an asset price (or its components), especially in the case of periodically collapsing bubbles (see, for example, Evans, 1991). However, proven non-stationarity of a time series does not necessarily mean the presence of an asset price bubble. The above techniques aim to confirm or refute the existence of a bubble. However, they do not directly specify the process of its formation and are therefore classified as indirect tests. The information content of these tests is affected by misspecification of the model and problems relating to insufficient time series length.

Structurally rich models are an advanced technique for identifying property price misalignment (bubbles). Various types of models can be used (DSGE models, VECMs, systems of simultaneous equations, etc.). For the property market one would apply an approach revealing property price determinants using both supply and demand factors.

Figure 4: Property price misalignment around the world (in %)



Note: HP filter for the end of 2011; P/I and P/R ratios at the end of 2010 compared to their long-term averages in the given country; US – United States, UK – United Kingdom, FR – France, ES – Spain, IE – Ireland, SE – Sweden, AU – Australia, BE – Belgium, IT – Italy, CA – Canada, CH – Switzerland, AT – Austria, DE – Germany, JP – Japan.

Source: BIS, IMF-IFS, Thomson Datastream.

Figure 4 summarises the current P/I and P/R ratios together with the misalignment results obtained using the HP filter. In addition, unit root tests were performed for property prices. However, they indicated non-stationarity of property prices in all countries except Germany. Figure 4 shows that the estimated misalignment may differ between the individual approaches when simple methods such as statistical filters or ratios are used (see, for example, the indications of price overvaluation for Spain, Ireland, Sweden and Australia when ratios are used and of price undervaluation in the same countries when the HP filter is used). Such discrepancies may be due to the imperfection of statistical filters (the well-known problem of end-point bias, which is stronger at times of rapid property price change), although it can be said that the probability of misalignment is higher for countries where the signals are in the same direction (the USA and France). In the current situation, however, assessments based on simple methods are surrounded by uncertainty. More complex structural models would have to be used to obtain a more robust idea of the degree of property price misalignment with respect to fundamentals (for an assessment for the Czech Republic, see Hlaváček and Komárek, 2011, or CNB, 2011).

4 Consequences of property price misalignment

Empirical research confirms the economic intuition that property market bubbles have more serious impacts than stock market bubbles when they burst (see, for example, Helbling and Terrones, 2003a,b, and Bordo and Jeanne, 2002).[3] The effects stemming from the sudden bursting of property market bubbles generate higher output losses and last longer on average (about 4 years) than in the case of stock market bubbles (around 1.5 years). Bursting property market bubbles also pose a greater threat to the financial stability of a country/region when the banking sector is more exposed through loans secured by property. On average, they also cause greater social tensions, which are associated with subsequent problems in the housing area. Credit booms and asset price busts have grave financial and economic consequences (see, for example, Bordo and Jeanne, 2002, and Borio and Lowe, 2002). Property price misalignments, and in particular the extreme form of such misalignments (bubbles), have serious adverse implications for macroeconomic stability, the financial sector (the soundness of financial institutions) and households and corporations.

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[3] Especially in a bank-based system as opposed to a market-based system.

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BOFIT	Bank of Finland Institute for Economies in Transition
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
ES	Spain
EU	European Union
EUR	euro
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-BCI	IFO – Business Climate Index
IFO-CCI	IFO – Consumer Confidence Index
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
PT	Portugal
RU	Russia
UoM	University of Michigan
UoM-CSI	University of Michigan Consumer Sentiment Index
US	United States
USD	US dollar

2012

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