GLOBAL ECONOMIC OUTLOOK – MARCH

Monetary and Statistics Department
External Economic Relations Division

2012

CNB CZECH
NATIONAL BANK

CONTENTS

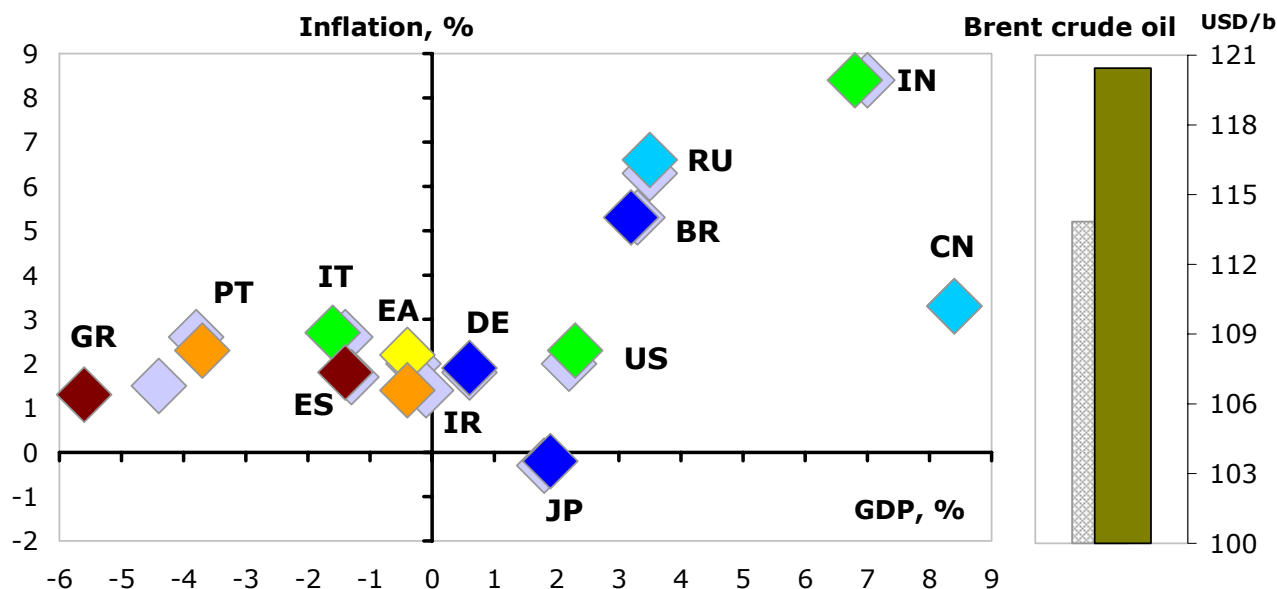|		
Authors:	Oxana Babecká	II.
	Milan Klíma	III.
	Jan Hošek	VI.
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Editor:	Oxana Babecká	
Editor-in-Chief:	Luboš Komárek	

The March 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 clarifying the macrofinancial view of asset price misalignment – one of the driving forces behind the financial crisis – in the context of monetary, fiscal and prudential policy.

The current economic outlooks confirm that 2012 will be a year of weaker performance than 2011. The only exception is the US economy, whose condition is gradually improving. Euro area countries will continue to be driven by the "engine" of the German economy. The euro area as a whole will face weak domestic and global demand, tight fiscal policy and the problems of overleveraged countries in the southern periphery. As the figure below illustrates, the situation of the problem southern states of the euro area is unenviable, as no major improvement in the bleak labour market situation can be expected given the economic decline expected for this year. The situation in Greece and Spain, where the overall unemployment rate exceeds 20%, or even 40% in some age groups, is particularly alarming.

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 so bound by high unemployment, which is in single figures (except in India).

In 2012, the global economy will be exposed to still high oil prices. The price of Brent crude oil in euro terms has exceeded the historical highs observed in July 2008. However, a slight correction is expected. Given the expected flat dollar rate, this should not lead to an escalation of inflation risks. Prices of food and industrial commodities should 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 2013.

The global economic outlook for 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 colour of the points is assigned according to the unemployment rate expected in 2012. The grey colour is the CF forecast (GDP, inflation) or Bloomberg survey (oil price) from the previous month. [Cut-off date for data: 16 March 2012]

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

II.1 GDP

The negative outlook for the euro area economy **this year** is due to weak global and domestic demand and tighter credit supply and fiscal policy in some countries. Although market confidence in Greece's ability to repay its debts is weak even after the launch of its debt restructuring, risk aversion is falling. However, a gradual improvement in the euro area's economic situation cannot be expected before 2012 H2. The fall in the region's GDP in 2012 ranges between 0.1% (ECB, the midpoint of the forecast) and 0.4% (CF 03) in the new outlooks. Growth in Germany should reach 0.6% this year. Favourable macroeconomic data from the USA (labour market data, 2011 Q4 GDP revisions and optimistic leading indicators) have shifted the new CF outlook to 2.3%. The growth outlook for China is 8.4% in the current CF and 8% according to BOFIT, i.e. China is expected to maintain growth above the 7.5% target (the Chinese government lowered its growth target at the start of March from the 8% set in 2005; this move met with a negative response from financial markets, which associated it with an intention to reduce the economy's dependence on exports in favour of domestic consumption growth). Growth of 0.9–2.6% can be expected in the monitored advanced economies **next year**. China will record growth of 8.0–8.6%.
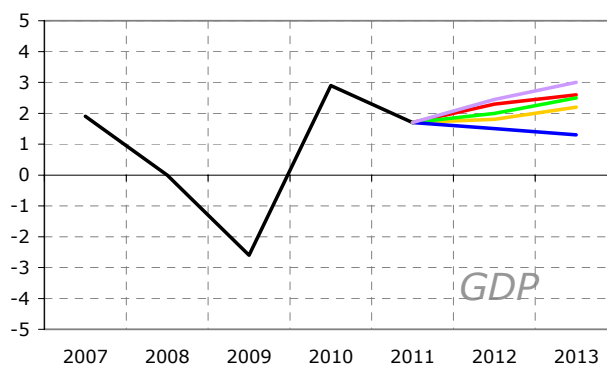
EURO AREA
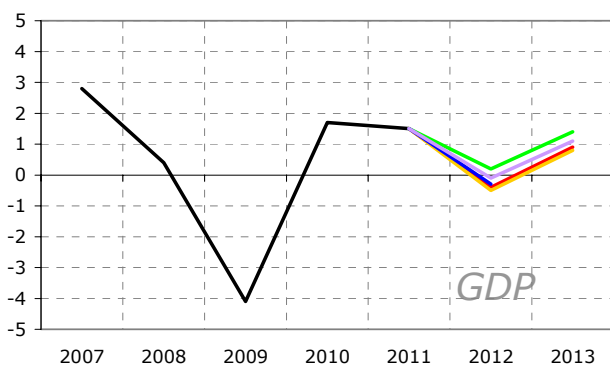
	HIST	CF	IMF	OECD	EC	ECB
2011	1.5					
2012		-0.4	-0.5	0.2	-0.3	-0.1
2013		0.9	0.8	1.4		1.1

USA

	HIST	CF	IMF	OECD	EC	Fed
2011	1.7					
2012		2.3	1.8	2.0	1.5	2.5
2013		2.6	2.2	2.5	1.3	3.0

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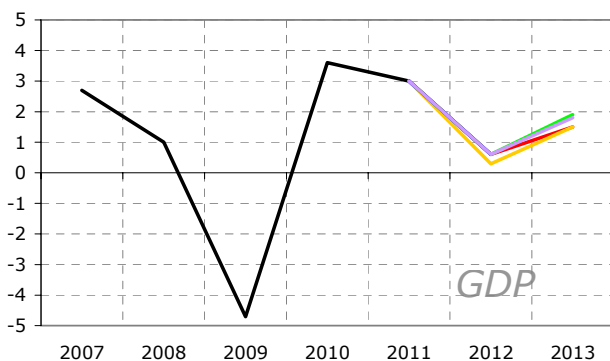
	HIST	CF	IMF	OECD	EC	DBB
2011	3.0					
2012		0.6	0.3	0.6	0.6	0.6
2013		1.5	1.5	1.9		1.8

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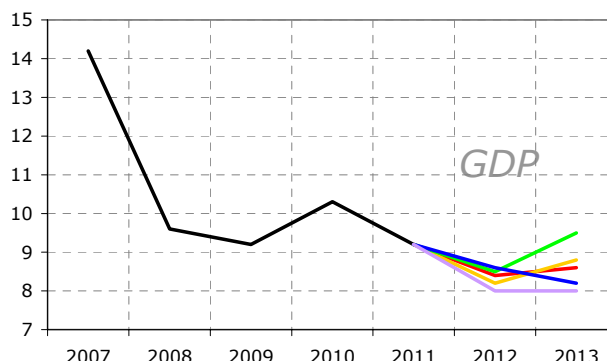
	HIST	CF	IMF	OECD	EC	BOFIT
2011	9.2					
2012		8.4	8.2	8.5	8.6	8.0
2013		8.6	8.8	9.5	8.2	8.0

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: 16 March 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

The March CF expects a 0.1 pp larger contraction of the euro area **in 2012** than the previous month's forecast. The ECB revised its euro area growth forecast down by 0.4 pp. This larger revision (compared to CF) reflects the difference in the publication frequency of the CF and ECB forecasts. By contrast, the outlook for US GDP growth improved by 0.1 pp, while the GDP growth outlooks for Germany and China this month remained at the level of the previous forecast.

EURO AREA

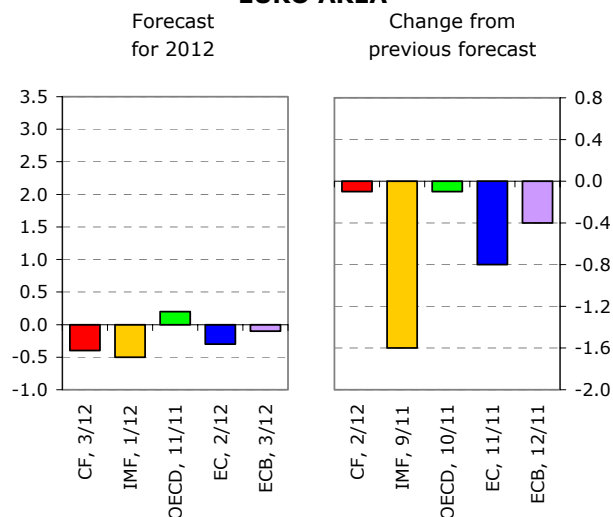Forecast for 2012 — Change from previous forecast
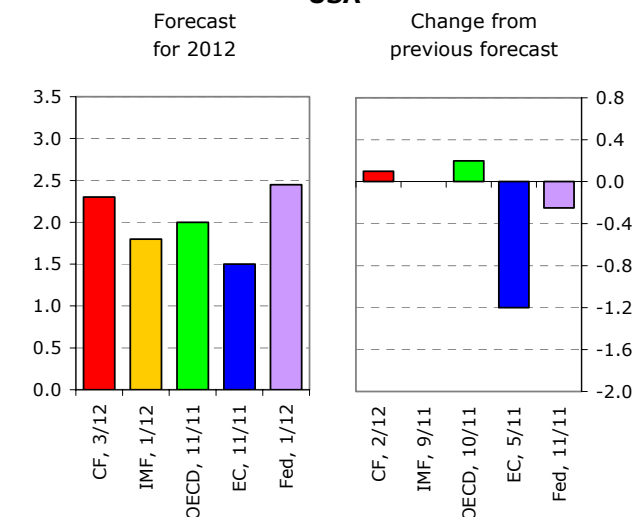
	2011	**CF**	**IMF**	**OECD**	**EC**	**ECB**
Forecast	1.5	-0.4	-0.5	0.2	-0.3	-0.1
Change		-0.1	-1.6	-0.1	-0.8	-0.4

USA

Forecast for 2012 — Change from previous forecast

	2011	**CF**	**IMF**	**OECD**	**EC**	**Fed**
Forecast	1.7	2.3	1.8	2.0	1.5	2.5
Change		0.1	0.0	0.2	-1.2	-0.3

GERMANY

Forecast for 2012 — Change from previous forecast
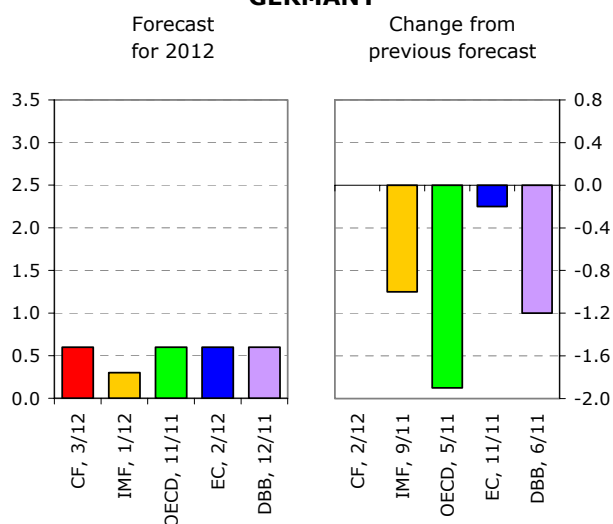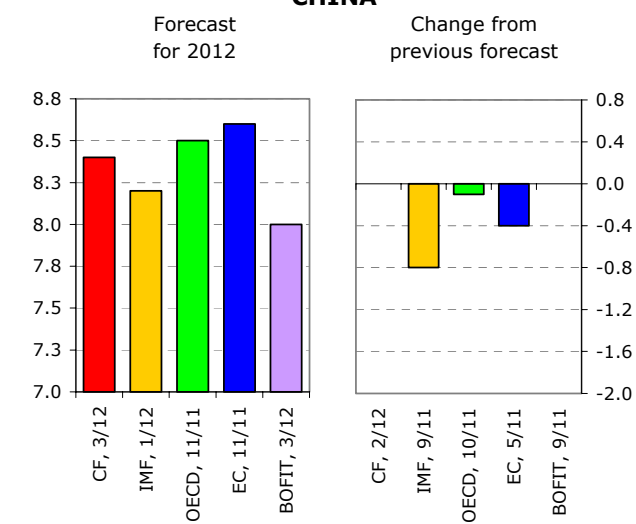
	2011	**CF**	**IMF**	**OECD**	**EC**	**DBB**
Forecast	3.0	0.6	0.3	0.6	0.6	0.6
Change		0.0	-1.0	-1.9	-0.2	-1.2

CHINA

Forecast for 2012 — Change from previous forecast

	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: 16 March 2012]

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

II.3 Inflation

Growth in energy prices (especially the surge in crude oil prices) and food prices, as well as the effect of indirect taxes and administered prices, underlies the expected rise in headline inflation **in 2012**. This year's inflation in the euro area is likely to exceed 2% (2.2% according to the latest CF and 2.4% according to the ECB's March outlook). The lowest inflation of the economies under review can be expected in Germany (1.9%). Pr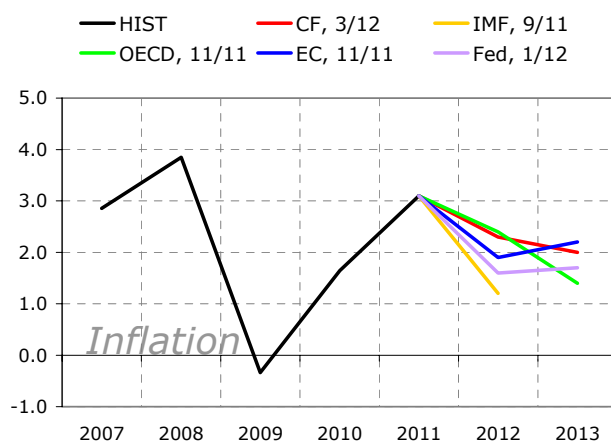ices in the USA will rise by 2.3%, while those in China will go up by 3.3% (but will remain well below the target, which in March was left at last year's level of 4%, currently leaving more room to support economic growth in the country). **2013** will see an easing of inflationary pressures in all the advanced economies under review, and inflation in these economies should remain in the range of 1.7–2%. By contrast, inflation in China will edge up to 3.7%.

EURO AREA

HIST — CF, 3/12 — IMF, 9/11
OECD, 11/11 — EC, 2/12 — ECB, 3/12
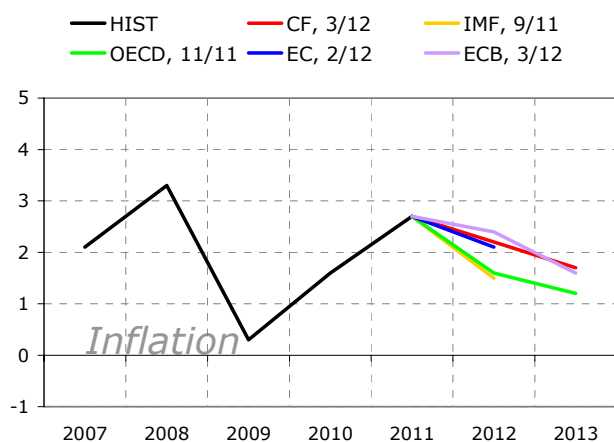
	HIST	CF	IMF	OECD	EC	ECB
2011	2.7					
2012		2.2	1.5	1.6	2.1	2.4
2013		1.7		1.2		1.6

USA

HIST — CF, 3/12 — IMF, 9/11
OECD, 11/11 — EC, 11/11 — Fed, 1/12

	HIST	CF	IMF	OECD	EC	Fed
2011	3.1					
2012		2.3	1.2	2.4	1.9	1.6
2013		2.0		1.4	2.2	1.7

GERMANY

HIST — CF, 3/12 — IMF, 9/11
OECD, 11/11 — EC, 2/12 — DBB, 12/11
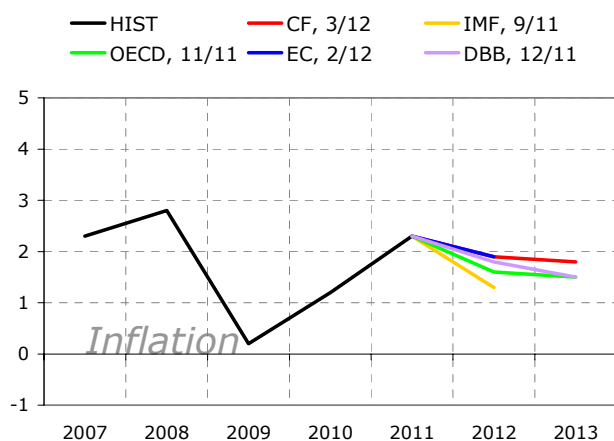
	HIST	CF	IMF	OECD	EC	DBB
2011	2.3					
2012		1.9	1.3	1.6	1.9	1.8
2013		1.8		1.5		1.5

CHINA

HIST — CF, 3/12 — IMF, 9/11
OECD, 11/11
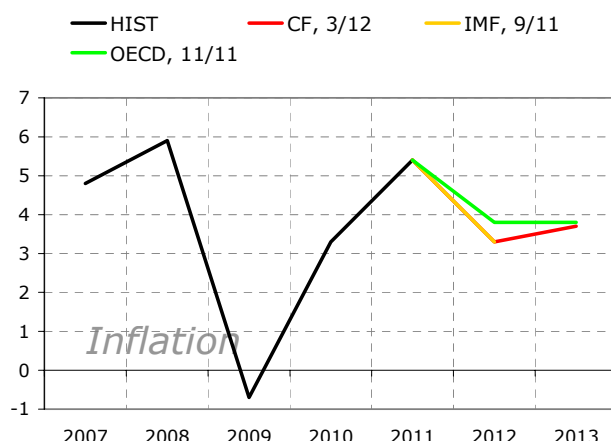
	HIST	CF	IMF	OECD
2011	5.4			
2012		3.3	3.3	3.8
2013		3.7		3.8

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: 16 March 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

With the exception of China, for which the inflation outlook for **2012** was left unchanged, the March CF expects higher inflation for all the economies under review (as compared to the February issue). The outlooks for the euro area and Germany were revised upwards by 0.2 pp and 0.1 pp respectively, while 0.3 pp higher inflation can be expected in the USA. The ECB's March outlook (the midpoint of the forecast) for 2012 is 0.4 pp lower than its December outlook.

EURO AREA

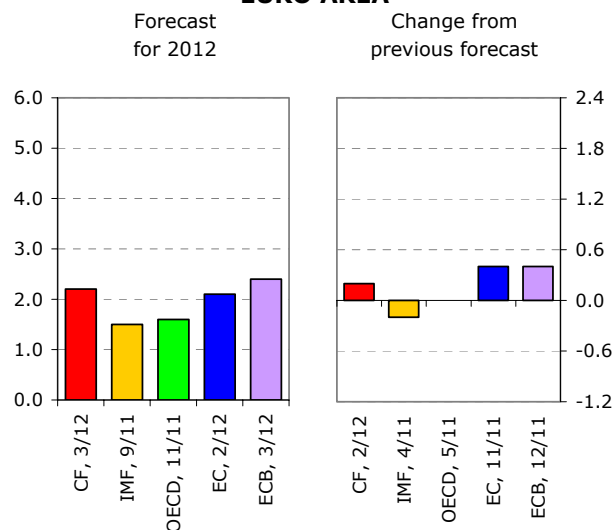|	2011	CF	IMF	OECD	EC	ECB
Forecast	2.7	2.2	1.5	1.6	2.1	2.4
Change		0.2	-0.2	0.0	0.4	0.4

USA
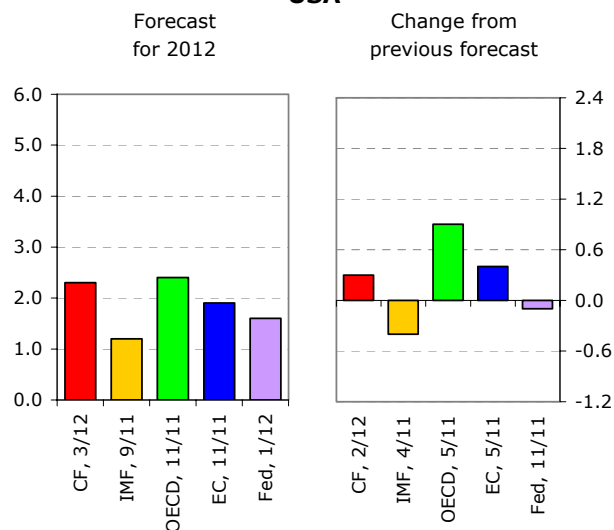
	2011	CF	IMF	OECD	EC	Fed
Forecast	3.1	2.3	1.2	2.4	1.9	1.6
Change		0.3	-0.4	0.9	0.4	-0.1

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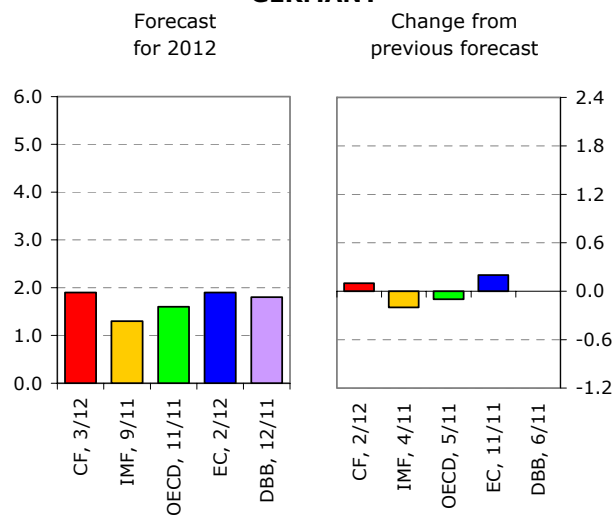
	2011	CF	IMF	OECD	EC	DBB
Forecast	2.3	1.9	1.3	1.6	1.9	1.8
Change		0.1	-0.2	-0.1	0.2	0.0

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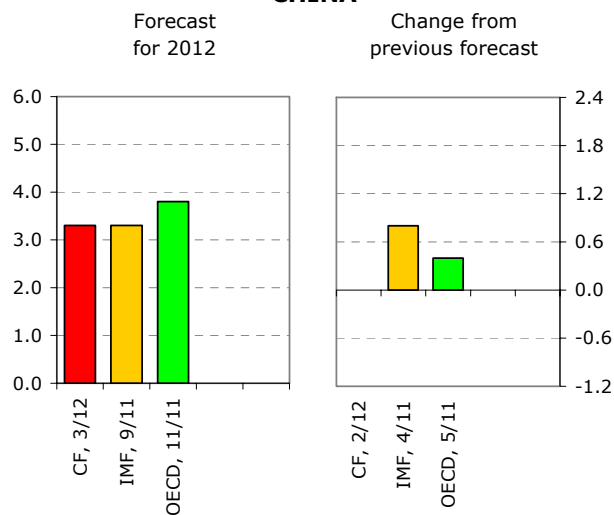
	2011	CF	IMF	OECD
Forecast	5.4	3.3	3.3	3.8
Change		0.0	0.8	0.4

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: 16 March 2012]

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

The global outlook for industrial production in 2012 H1 improved further in March. The PMI (Purchasing Managers' Index) in industry increased in all the countries and regions under review except Germany, but even there the PMI remains above 50% despite falling slightly. Expectations of future economic developments in the USA showed the biggest improvement. Besides the PMI, increases were recorded for all the other leading indicators monitored. The situation is similar in the euro area, although the growth in all the leading indicators is rather more moderate than in the USA, and the PMI, despite increasing, did not exceed 50%. The economic outlook for Germany worsened slightly compared to the previous month. In addition to the PMI, one of the two monitored leading indicators of consumer confidence declined, whereas all the indicators had risen in February.

PMI IN MANUFACTURING

Legend: euro area — USA — Germany — China

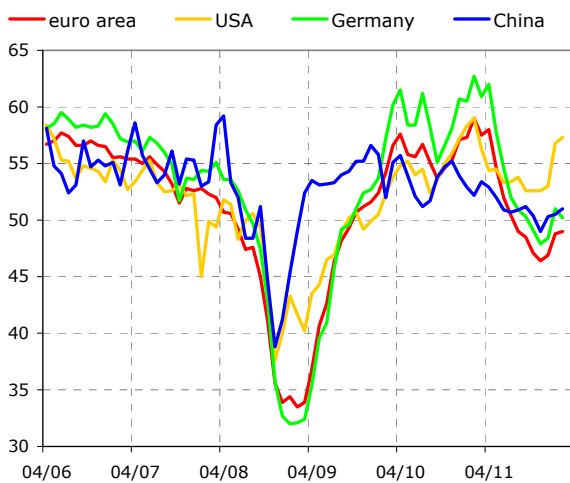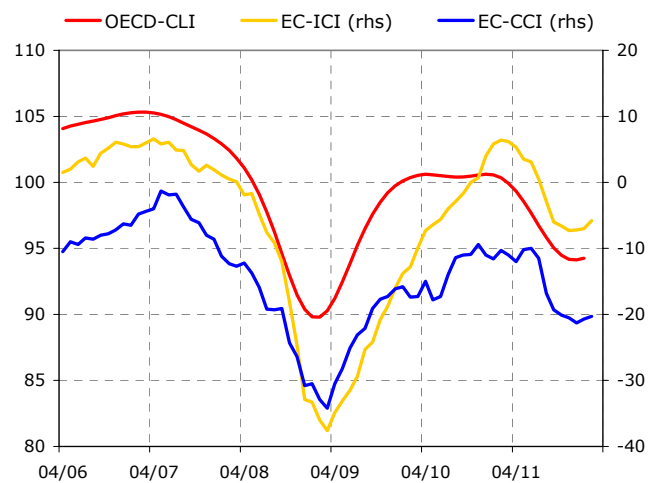|	EA	US	DE	CN
12/11	46.9	53.0	48.4	50.3
1/12	48.8	56.8	51.0	50.5
2/12	49.0	57.3	50.2	51.0

EURO AREA

Legend: OECD-CLI — EC-ICI (rhs) — EC-CCI (rhs)

	OECD-CLI	EC-ICI	EC-CCI
12/11	94.1	-7.2	-21.3
1/12	94.3	-7.0	-20.7
2/12		-5.8	-20.3

USA

Legend: UoM-CSI — CB-CCI — OECD-CLI (rhs) — CB-LEII (rhs)
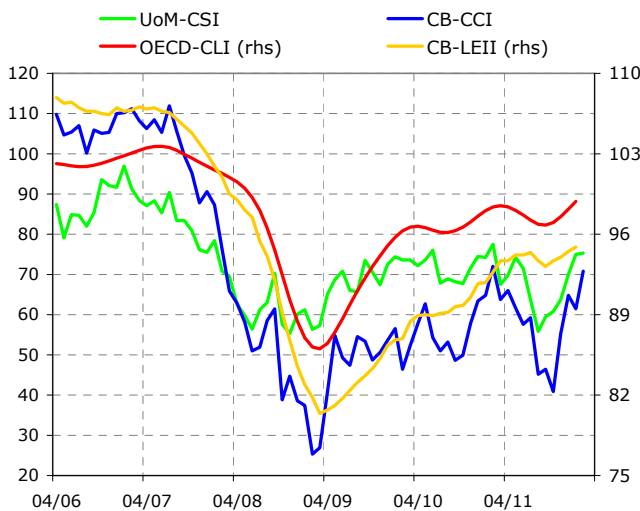
	OECD-CLI	CB-LEII	UoM-CSI	CB-CCI
12/11	98.2	94.5	69.9	64.8
1/12	98.9	94.9	75.0	61.5
2/12			75.3	70.8

GERMANY

Legend: OECD-CLI — IFO-BCI — IFO-CCI — EC-CCI (rhs)
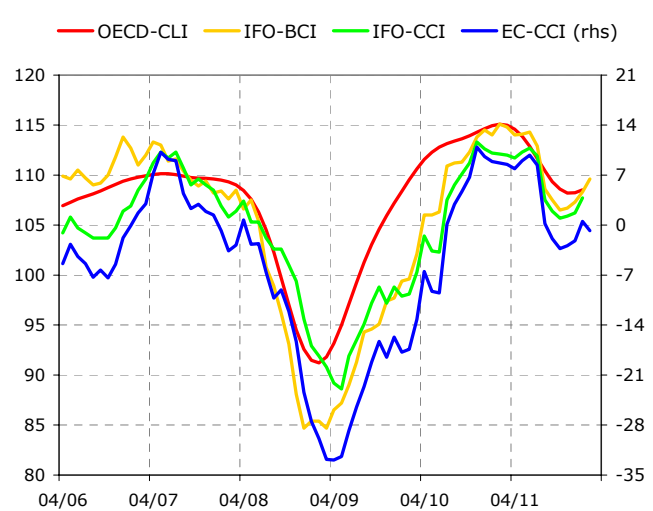
	OECD-CLI	IFO-BCI	IFO-CCI	EC-CCI
12/11	108.2	107.3	106.2	-2.2
1/12	108.5	108.3	107.7	0.5
2/12		109.6		-0.8

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: 16 March 2012]

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

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

The ECB's set of measures and lower risk aversion brought about a further decline in the unsecured 3M and 1Y EURIBOR. The 3M rate is currently even below the ECB's key reference rate, as in 2010. The current forecast based on implied rates thus shifted slightly lower (by no more than 0.2 pp) at both horizons, mainly because of further liquidity provision in the form of three-year refinancing operations (LTROs) at the end of February 2011 amid a flat key rate. The ECB's assessment of the economy also worsened slightly. It reduced its growth outlook and increased its inflation outlook at the meeting in March. The effect of ample liquidity is also visible in a further decline in the risk premium in the interbank market.

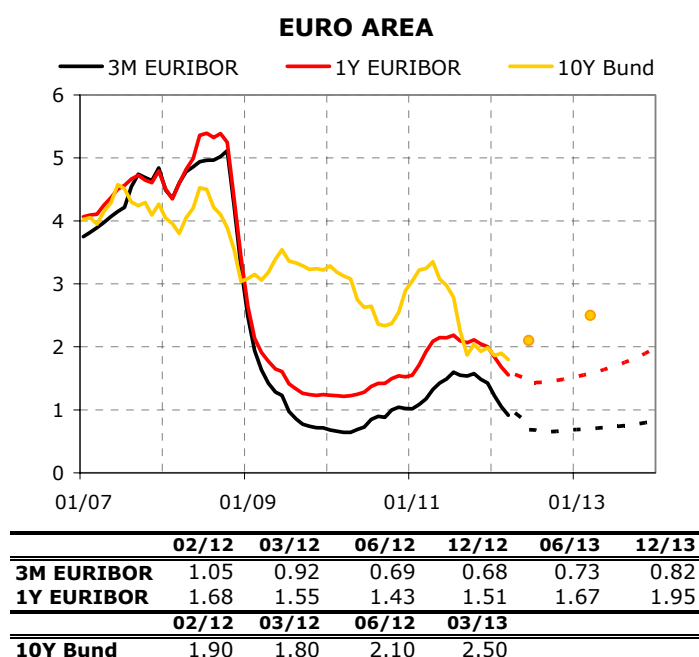The German 10Y average government bond yield decreased again in the first three months of 2012. The CF analysts left its slightly rising outlook unchanged.

EURO AREA

	02/12	03/12	06/12	12/12	06/13	12/13
3M EURIBOR	1.05	0.92	0.69	0.68	0.73	0.82
1Y EURIBOR	1.68	1.55	1.43	1.51	1.67	1.95
	02/12	03/12	06/12	03/13		
10Y Bund	1.90	1.80	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: 16 March 2012]

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

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

LIBOR dollar rates were flat in February and early March and the implied future 3M and 1Y LIBOR path was also broadly unchanged from the previous month. The 3M rate should thus remain flat for most of 2013, while the 1Y rate should start to rise gradually in mid-2012.

The FOMC meeting in March did not bring any change in Fed policy, and the rate will remain stable in 2014, too. Growth was assessed as being moderate. Labour market conditions had improved further. Oil prices pose a risk to inflation, but inflation expectations had remained stable. The overall statement was slightly more positive than in January.

The US 10Y average monthly government bond yield followed no clear trend for the fifth consecutive month, fluctuating between 1.8 and 2.1%. CF03 increased the forecast by 0.1 pp compared to the previous month.

USA

	02/12	03/12	06/12	12/12	06/13	12/13
3M USD LIBOR	0.50	0.47	0.46	0.53	0.63	0.79
1Y USD LIBOR	1.07	1.06	1.11	1.32	1.61	1.94
	02/12	03/12	06/12	03/13		
10Y Treasury	1.95	2.03	2.20	2.70		

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: 16 March 2012]

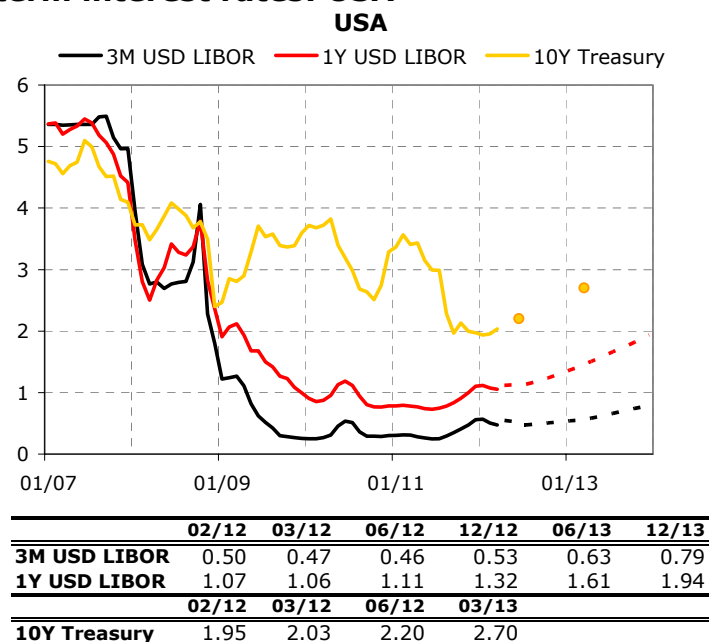Sources: Thomson Reuters, Bloomberg, CNB calculations.

Positive results of government bond auctions and ECB operations to support commercial bank liquidity gave a rise, among other things, to a substantial decline in risk aversion, and January saw renewed interest in the euro. The euro appreciated significantly against the dollar at the end of February as a result of progress on an agreement to restructure Greek debt and thanks to new long-term ECB operations. The March CF forecast expects the rate to be flat at the two-year horizon at around USD 1.3 to the euro. A major depreciation of the yen, following an announcement by the central bank that it would extend purchases of domestic bonds, also affected the new forecast. CF03 expects the rate to be flat at the current level at the one-year horizon. The British pound is also expected to show no major movements against the dollar; the main factor in the coming months will be the central bank's willingness to continue buying bonds. The forecast for the Swiss franc showed no major changes from the previous month.

US$ per Euro
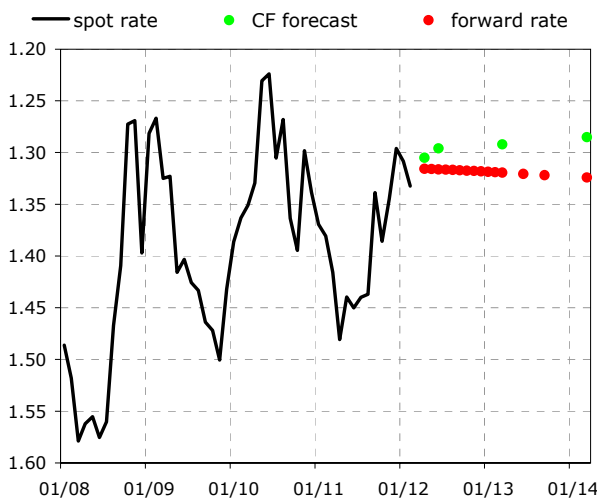
	12/3/12	04/12	06/12	03/13	03/14
spot rate	1.316				
CF forecast		1.305	1.296	1.292	1.285
forward rate		1.316	1.316	1.319	1.324

Yen per US$
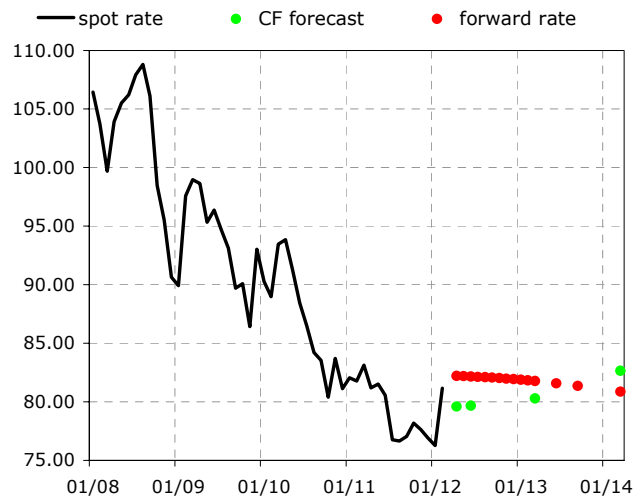
	12/3/12	04/12	06/12	03/13	03/14
spot rate	82.23				
CF forecast		79.59	79.66	80.29	82.65
forward rate		82.21	82.16	81.77	80.87

US$ per UK£
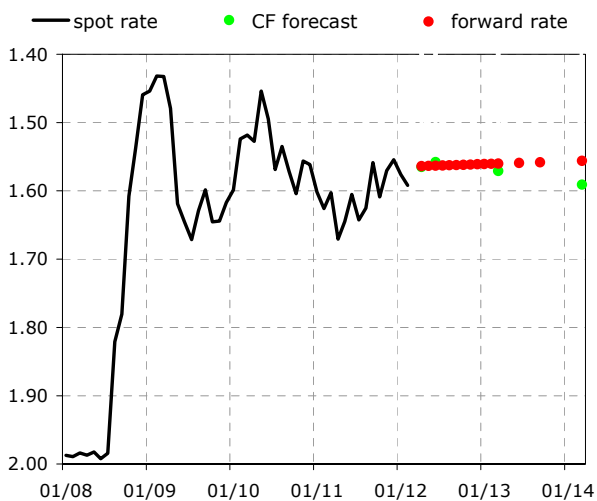
	12/3/12	04/12	06/12	03/13	03/14
spot rate	1.564				
CF forecast		1.565	1.558	1.571	1.591
forward rate		1.564	1.563	1.560	1.556

Swfr per US$
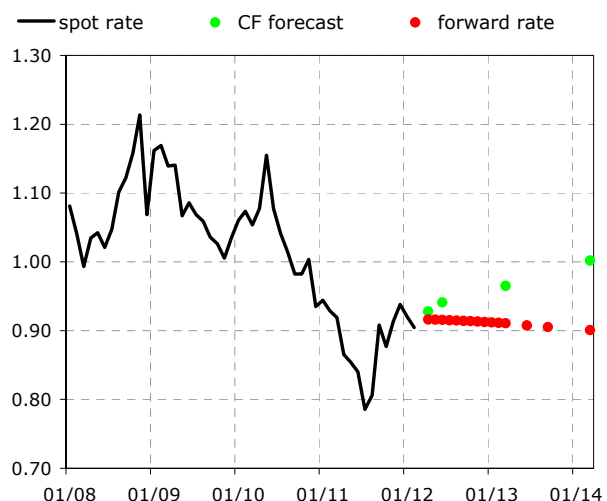
	12/3/12	04/12	06/12	03/13	03/14
spot rate	0.917				
CF forecast		0.928	0.941	0.965	1.002
forward rate		0.916	0.916	0.911	0.901

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: 16 March 2012]

Source: CNB calculation using Bloomberg and Consensus Forecasts databases.

VI.1 Oil and natural gas

The Brent crude oil price rose significantly in February, owing mainly to a further escalation of geopolitical risks. Favourable figures from the US economy, fast depreciation of the dollar and high imports of oil to China also provided support. The sharp growth halted in the last week of February, when the price of Brent oil broke through USD 125 a barrel and the market became worried that this price might jeopardise global economic growth. At that time the Brent price in both euros and pounds (as well as korunas) exceeded the historical highs recorded in July 2008. Since then the price has been oscillating in the range of USD 122–126 a barrel in response to global economic news. Although OPEC production is at a three-year high, it is only enough to cover the decline in non-OPEC production.

Owing to the current high prices, the futures-based forecast again shifted strongly upwards, although mostly at the short end. The price is therefore expected to decline by about USD 12 a barrel at the two-year horizon, to USD 113 a barrel.

OUTLOOK FOR PRICES OF OIL AND NATURAL GAS

	03/12	06/12	12/12	06/13	12/13
Brent crude oil	124.9	124.3	120.4	116.3	112.2
Ural crude oil	123.2	122.3	118.1	113.7	109.4
Natural gas	454.4	465.6	497.6	487.1	463.0

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: 16 March 2012]

Source: Bloomberg, IMF, CNB calculations.
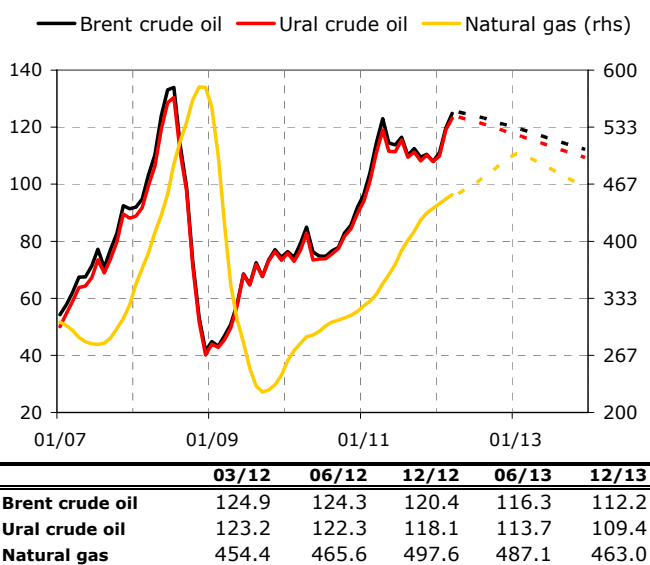
VI.2 Other commodities

The non-energy commodity index was virtually unchanged from the previous month and minimal changes could also be observed for its individual components. A slight rise in food prices was offset by an equally small decrease in industrial metals prices. The forecast also remains broadly unchanged.

As regards major food commodities, an upward outlook is observed for wheat and rice prices, which were virtually unchanged over the past month (although the price of wheat was much more volatile). The outlook for soy and maize is declining even though their prices increased (relatively quickly in the case of soy). The price of pork fell and is expected to be flat, while the price of beef moved to a new historical high and is expected to increase slightly.

Prices of technical crops (cotton, rubber) were flat and are expected to remain so. Industrial metal prices remained broadly unchanged over the past month and no change is expected for most of them going forward. As usual, only aluminium has a rising outlook.

Coal prices continued to decline, in line with the trend observed since September 2011.

OUTLOOK FOR OTHER COMMODITY PRICES

	03/12	06/12	12/12	06/13	12/13
Industrial metals	167.1	168.7	170.7	170.6	170.4
Agricultural commodities	209.2	209.1	208.1	209.4	205.7
Overall commodity basket	190.5	191.0	191.3	191.8	190.0
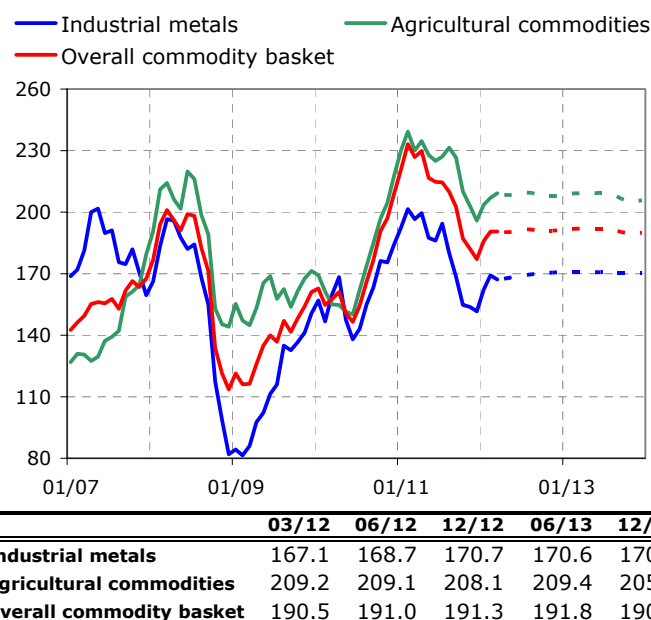
Note: Chart shows price indices, year 2005 = 100. Dashed line represents outlook based on futures.

[Cut-off date for data: 16 March 2012]

Source: Bloomberg, outlooks based on futures.

A MACROFINANCIAL VIEW OF ASSET PRICE MISALIGNMENT[1]

This article sets out to discuss asset price misalignment from the macrofinancial perspective and the ensuing risks to the real economy and financial stability. It starts by explaining the relationship between asset price volatility and misalignment, including the extreme form of misalignment, namely asset market bubbles. It then discusses the role of monetary, fiscal and prudential policies in asset price formation.

1 The formation of asset price bubbles

Prices of assets (in particular shares, bonds, property and currencies)[2] are characterised by greater volatility and often different movement compared to key macroeconomic variables (inflation, unemployment and GDP). They are interest-sensitive and forward-looking and can greatly destabilise the real economy. Asset price misalignment should be distinguished from volatility, which is a natural consequence of the functioning of the market mechanism, i.e. price formation on the basis of supply and demand. A "bubble" is an extreme form of asset price misalignment. It can be defined in a simplified way as an explosive and asymmetrical deviation of the market price of an asset from its fundamental value (explainable by the movement of relevant variables), with the possibility of a sudden and significant correction (see Kubicová and Komárek, 2011).

Figure 1: The formation of bubbles in asset markets
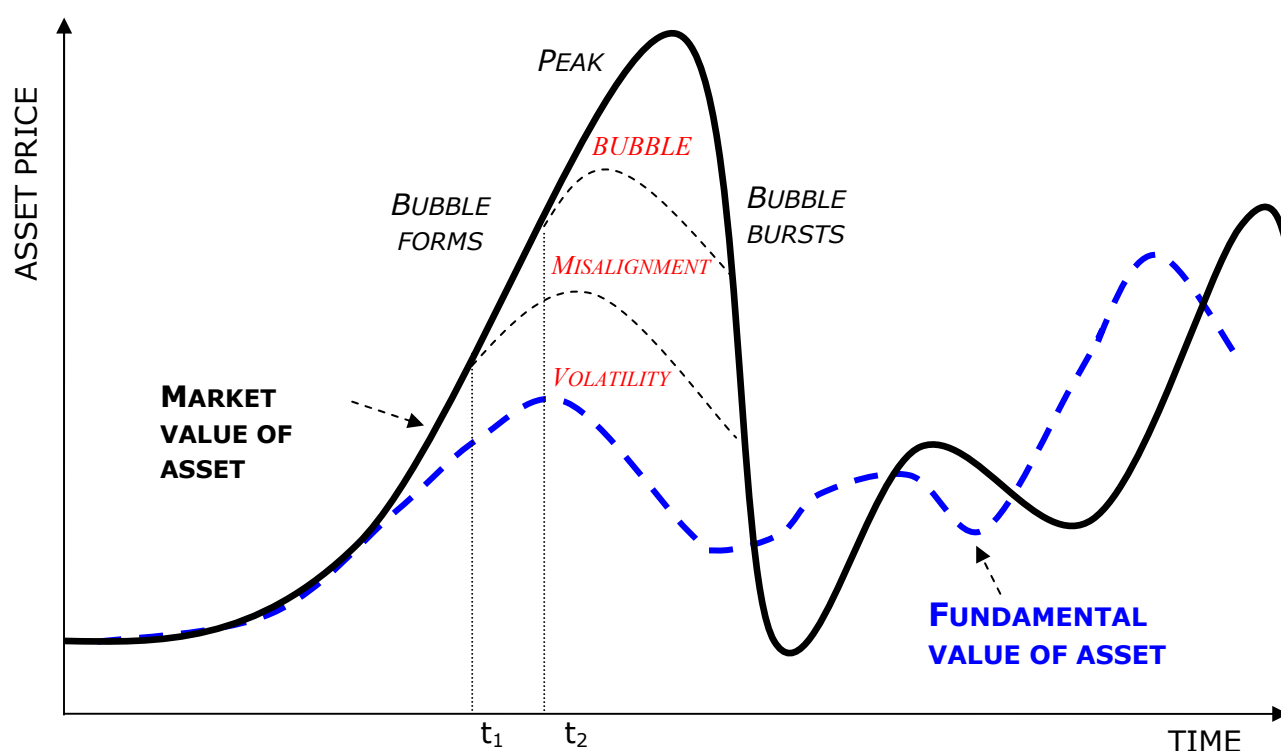
Source: Kubicová, Komárek and Plašil (2012).

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[1] Written by Luboš Komárek (Lubos.Komarek@cnb.cz). The views expressed in this contribution are those of the author and do not necessarily reflect the official views of the CNB. The author wishes to express his thanks to Jan Frait, Michal Hlaváček, Zlatuše Komárková, Ivana Kubicová and Martin Motl (all from the CNB) for their long-term collaboration on this topic.

[2] In a broader sense, asset prices also include commodity prices (including precious metals), works of art and other items that generate interest or capital income or that have non-zero alternative income on holdings. Assets can be very homogeneous or *de facto* identical (raw materials, precious metals, oil), but can also be very heterogeneous (property, works of art, many financial assets).

Figure 1 illustrates in a simplified way how bubbles form in asset markets. Initially, the market price of the asset oscillates naturally away from its fundamental value until time t_1, when the deviation widens and we talk about asset price misalignment. A similar milestone is reached at time t_2, when the asset price can be described as strongly unbalanced, i.e. as a bubble. After peaking, the asset price usually falls sharply and the bubble bursts. This often has dramatic consequences for markets and the real economy[3]. Asset price bubbles are often caused by psychological and behavioural factors, self-fulfilling expectations and the like. This makes them difficult to identify both ex ante and ex post.

The fundamental-based view of asset price formation shows that the current price of any asset is formed primarily by economic agents' expectations, which are shaped by current information on discounted future flows of income on the asset (the flow of all expected payments). The asset price is therefore affected by five fundamental factors: (i) the expected income flow generated by the asset (e.g. dividends, rent), (ii) the expected flow of income on an alternative asset (e.g. a share versus a bond), (iii) the expected future selling price of the asset, (iv) the relative risk and liquidity linked with holding the asset, and (v) the policy settings (monetary, fiscal and prudential policies).

Some asset prices (property prices and certain share prices) can be procyclical. Their growth is usually driven by the boom phase of the business cycle. This is accompanied by excessive lending (increased credit risk), which also fuels asset price growth and the creation of bubbles. Such procyclicality can stem from a favourable macroeconomic environment and over-optimism among economic agents. This, in turn, can destroy agents' rational assessment of the situation and cause them to take excessive risks. A link can therefore be found between the cyclicality of the real economy and cyclicality in risk perception and assessment. This gives rise to a "cycle of financial risk". The risk materialises at times of falling economic growth amid the gradual elimination of financial imbalances.

2 A macrofinancial view of asset prices

Prices of, and income on, assets – particularly shares, debt securities (across the entire maturity spectrum of the yield curve), currencies and property – have a significant effect on a country's real economic activity and financial stability. From the perspective of economic and political authorities, asset prices can be affected by central bank measures, which are usually focused on price or exchange rate stability (monetary policy) and financial stability (macroprudential policy), by banking regulation and supervision[4] (microprudential policy) and by government measures (fiscal policy). These policies – via their tools – simultaneously affect asset prices (see Figure 2), and a lack of discipline in any one of them can limit the effective pursuit of the others.

What, then, are the risks associated with misalignment and with its extreme form – the asset price bubble? This is one of the main questions facing economic theoreticians and economic policy-makers in this age of increasing globalisation of economies and linkages between financial markets. The Japanese, US and British experience with the consequences of major price misalignments (bubbles) in asset markets, amplified by the effects of the financial crisis, creates a clear incentive for analysing the relationship between the manner of implementation of economic (monetary, prudential and fiscal) policies and the evolution of asset prices at both the national and international level.

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[3] See Hlaváček and Komárek (2011) and Komárek and Kubicová (2011).

[4] Two models are applied around the world – the model of regulation and supervision integrated into the central bank, and the model of an independent supervisory institution.

Figure 2: Relationship between monetary, fiscal and prudential policies and asset prices
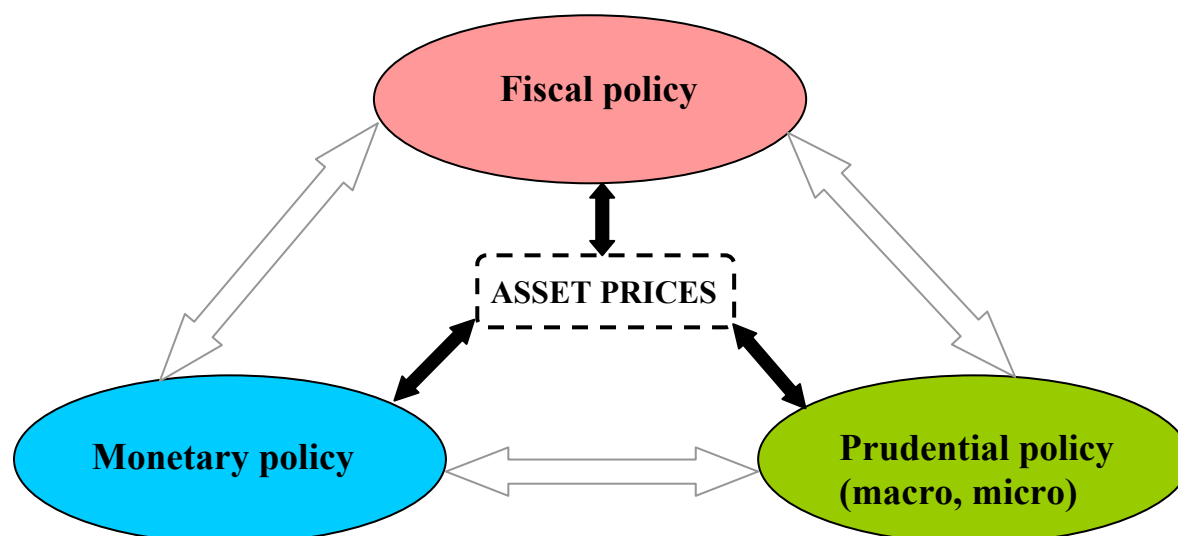
Source: Author.

3 Monetary stability and asset prices[5]

Central banks' traditional monetary policy objective is to maintain price or exchange rate stability. This objective is now also in line with the financial stability pillar. Monetary policy implementation, i.e. the mix of monetary policy measures and the aggressiveness with which they are implemented (Komárek and Rozsypal, 2007), has major impacts on asset prices. Monetary policy rates directly affect the money market, i.e. the short end of the yield curve. However, the monetary policy settings also affect financial asset markets (e.g. stock prices) and non-financial asset markets (property prices).

- The effects of monetary policy on stock prices

Monetary policy affects stock prices through several channels, which can be viewed from the perspective of firms and households. From the viewpoint of firms, expansionary monetary policy (associated with falling interest rates) makes bonds less attractive than shares. This, in turn, leads to rising demand for shares and rising stock prices. Firms are therefore motivated to issue shares, "Tobin's q" rises, and firms can purchase large amounts of new capital goods for a relatively small number of shares. Alternatively, it can be said that the cost of capital goes down, supporting investment growth and subsequently output growth. Bearing in mind the mechanisms described above, expansionary monetary policy also leads to a rise in firms' net worth. This, in turn, generates large amounts of lending, investment and, consequently, output growth. However, Fischer and Merton (1984) and Stein (1996) argue that investment also reacts to asset price changes that are not justified by fundamentals, as firms often increase/reduce their investment spending if shares are overvalued/undervalued. Firms also increase their external financing during periods of asset price "inflation", which suggests that collateral value affects external financing costs. The results of empirical studies in this area are mixed.

Turning to the effect on households, the expansionary monetary policy that generated the rise in stock prices subsequently leads to an increase in the value of the financial assets owned by households. This reduces the risk of household financial stress and

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[5] For details see Frait and Komárek (2007) and Frait, Komárková and Komárek (2011).

boosts consumption of durable goods and housing expenditure, giving rise to growth in aggregate demand and therefore in output. In the case of a negative income shock, it is better for households to hold financial assets than real assets, as the former are much more liquid. The alternative, wealth effect, view of stock price growth reveals that household wealth also rises. On the basis of the Modigliani life-cycle model, this leads to growth in household consumption, as households now have more money to spend.

- The effects of monetary policy on property prices

The effect of monetary policy on property prices is similar to that on stock prices. We focus here on describing the basic mechanisms affecting banks and households. The provision of house purchase loans, where houses often act as collateral, is an important activity of commercial banks. For banks and other financial institutions, expansionary monetary policy causes property prices to go up. This reduces the likelihood of the bank incurring a loss on the loan, which in turn causes its disposable capital to increase, enabling it to lend more. Investment activity in the economy rises and output grows.

Household expenditure is affected directly by the increase in property prices. The lower interest rates allow households to finance their housing needs more easily, boosting housing expenditure and stimulating aggregate demand. The output of the economy grows. In terms of the wealth effect, household wealth increases, giving rise to growth in household consumption and therefore in aggregate demand.

- Asset price misalignment and monetary policy

The streams of opinion in the current literature agree that asset prices should be monitored and assessed by the central bank (CB), but the CB should not derive its monetary policy target from asset prices (property price index or stock index targeting). However, there is no consensus on whether the CB should respond directly to asset price movements. Opponents of CB intervention against emerging bubbles argue that a bubble is difficult to identify reliably ex ante or even ex post using traditional quantitative methods and the information that is available (Posen, 2006). This stream of opinion argues that (i) it is hard to identify the components of asset prices (the bubble component and the fundamental component) and the factors (fundamental and "non-fundamental") they generate, (ii) it is hard to determine the optimum timing of the monetary policy response given the existing lags in the economy and with regard to early identification of bubbles, (iii) economic agents show limited willingness and/or ability to adjust (limited rationality), (iv) asset markets are highly volatile and sensitive to information, and (v) the CB has no significant information advantage over other market participants. However, the application of monetary policy instruments is considered appropriate if a clearly identifiable bubble is emerging and such action does not conflict with the CB's targets.

Advocates of a more active CB approach to bubble prevention propose that the interest rate should be gradually increased to reduce the potential costs of a sudden drop in asset prices (a "bursting of the bubble") and also concur that asset prices should be included in the monetary policy rule (Roubini, 2006). Supporters of a monetary policy response argue mainly that (i) financial instability and its sources can be eliminated, (ii) asset prices are interlinked with inflation and output, hence a "successful" CB response is possible.

If the prevailing view is that monetary policy should respond to asset prices because of the positive stabilising effect on inflation and the output gap, then sources of asset price volatility should be at the centre of interest. If asset prices (e.g. stock prices) go up because of innovations or technology and the growth is therefore "permanent", then the CB should not respond directly. However, if the increase in asset prices is based on non-

fundamental factors, the CB should intervene. An example of the difficulty of identifying individual factors is the "dot-com" bubble in the USA, where growth in stock prices due to rapid technological progress led to exaggerated investor expectations and imprudent assessment of the risks of individual stocks. However, Dupor (2001) emphasizes that pressures in the credit market raise the question of a compromise between inflation stabilisation and asset price stabilisation. If the CB uses an increase in short-term interest rates to stabilise asset prices in response to a non-fundamental shock, such intervention will foster a decline in private consumption, a rise in unemployment and a fall in inflation, which may dip temporarily below the inflation target.

4 Financial stability and asset prices

Achieving financial stability, i.e. contributing to the attainment of a level of resilience of the financial system which significantly reduces the risks of financial instability, is an important and newly acknowledged dimension of economic policy. Successful fulfilment of the objective of financial stability is affected by the achievement of monetary stability, compliance with the regulatory and supervisory framework (microprudential and macroprudential policies) and stabilising fiscal policy.

- Procyclicality of the financial system

Procyclicality of the financial system, i.e. the amplification of fluctuations in economic activity by financial intermediaries, has both natural and regulatory sources. Such procyclicality is due to over-elasticity of the economic system, i.e. the system's internal potential to gradually generate financial imbalances. Increased elasticity manifests itself in greater susceptibility of economies to boom and bust cycles. As Frait, Komárková and Komárek (2011) point out, the risk of financial instability is a strongly discontinuous variable (affected by risk expectation and perception factors) that increases in good times as leverage rises (leverage is most often expressed in terms of the ratio of loans to GDP). A fundamental requirement for growth in this risk – in addition to the availability of cheap credit – is the emergence of overly optimistic expectations about future income and asset prices. This results overall in asset price misalignment, which can lead to the development of a bubble. The tipping point occurs when economic agents become aware of the bubble, which then bursts. In this situation, the risk of financial instability changes dramatically. Banks revise their perception of the risks to their balance sheets by increasing risk margins, tightening lending standards and limiting the availability of credit. Economic agents become over-pessimistic and reduce their demand for credit. A phase of deleveraging sets in (see, for example, Fostel and Geanakoplos, 2008). Such procyclicality can feed back on the economy.

- Asset price misalignment and financial stability

Borio and White (2004) acknowledge that protecting against the aforementioned processes and the risks they generate is not easy. At the basic level they recommend combining monetary policy oriented towards price stability with macroprudential policy oriented towards financial stability. Such policy focuses more on preventing episodes of systemic financial distress that have implications for the real economy rather than on the problems of individual institutions (unless they are systemically important). Such policy must also think further about the financial system's inclination towards excessive procyclicality and its implications for economic dynamics and macroeconomic stability. Monetary policy should have a central position in the new macroprudential framework, since it is ultimately the banking sector that creates liquidity and provides the bulk of external financing. Monetary policy oriented towards pursuing simultaneous price and financial stability in the long run, along with other elements of macroprudential policy, should provide mutually supportive anchors ensuring greater macroeconomic stability.

Monetary policy should respond to the risk of financial instability by leaning against the wind, i.e. by raising interest rates to significantly positive values, when the risk is rising. By doing so, it will partly offset the under-estimation of risk by banks and their clients. After the crisis erupts, monetary policy should be eased rapidly in response to the excessive re-estimation of risk as a result of the decline in the risk of financial instability to a significantly negative level (higher-than-usual risk margins). In other words, monetary policy should "clean" using low interest rates when the risk of financial instability is rising. For a detailed discussion of this phenomenon, see Frait, Komárková and Komárek (2011).

5 Financial stability and asset prices

With regard to asset prices, as well as generally, fiscal policy should follow stable and transparent rules that allow automatic fiscal stabilisers to perform their functions fully and should refrain from the temptation to use discretionary anti-cyclical policy because of the lower operational accuracy of fiscal policy. The current sovereign debt crisis clearly revealed the risk of government debt and "dependence" on financial markets when issuing bonds. Moreover, the application of fiscal rules has moved beyond the discussion stage. These rules take four basic numerical forms: (i) budgetary rules, which reduce government budget deficits, usually by reducing the overall budget deficit; (ii) debt rules, which reduce the debt-to-GDP target ratio; (iii) expenditure rules, which set a cap on overall, primary or current expenditure in absolute terms, as a percentage rate of growth or in relation to GDP; (iv) revenue rules, which set a tax collection ceiling/floor and are aimed at increasing collection (the tax burden is increased in the event of non-compliance) or preventing excessive taxation.

Jaeger and Schuknecht (2004) provide a detailed analysis of the cyclical relationship between fiscal policy and asset prices based on data from 16 industrial countries since 1970. The empirical evidence reveals that: (i) the published forecasts for GDP growth are persistently underestimated at the beginning of asset price boom periods. As the boom persists, output gaps tend to be underestimated when the boom reaches its peak (especially in low-inflation environments). The opposite observations apply to asset price bust periods. (ii) persistent forecast errors for economic growth imply persistent "revenue surprises" compared with budget plans. Related to this is a finding that capital gains/losses and turnover taxes as well as wealth effects on consumption boost revenue disproportionately during booms but also adversely affect receipts during busts. As a result, the countries under review have often pursued procyclical policies, cutting taxes during booms and increasing them during downturns; (iii) on the spending side of budgets there are upward pressures on spending during the boom, especially in countries applying the pay-as-you-go (PAYG) policy, while the opposite can often be observed in the bust phase; (iv) looking overall at revenue and expenditure during boom-bust asset price cycles, fiscal balances tend to improve during the boom but deteriorate during bust phases. As a result, public debt ratios tend to ratchet up over full boom-bust cycles. Countercyclical fiscal policy also fosters boom-bust cycles, which encourage bubbles to form by affecting the optimism/pessimism of economic agents.

6 Conclusion

Asset price misalignment, including the extreme case of misalignment – a bubble, is a long-known phenomenon. The current interconnectedness of economies and financial markets and the experience of the current financial (debt) crisis has demonstrated the importance of eliminating procyclical policies – monetary, fiscal and prudential (both micro- and macro-prudential) – and their effect on asset prices. In the April issue of

Global Economic Outlook, we will focus on presenting practical ways of identifying misalignment (bubbles) in asset markets with an application to property markets.

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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

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