

# GLOBAL ECONOMIC OUTLOOK – JANUARY

Monetary and Statistics Department  
External Economic Relations Division

2012

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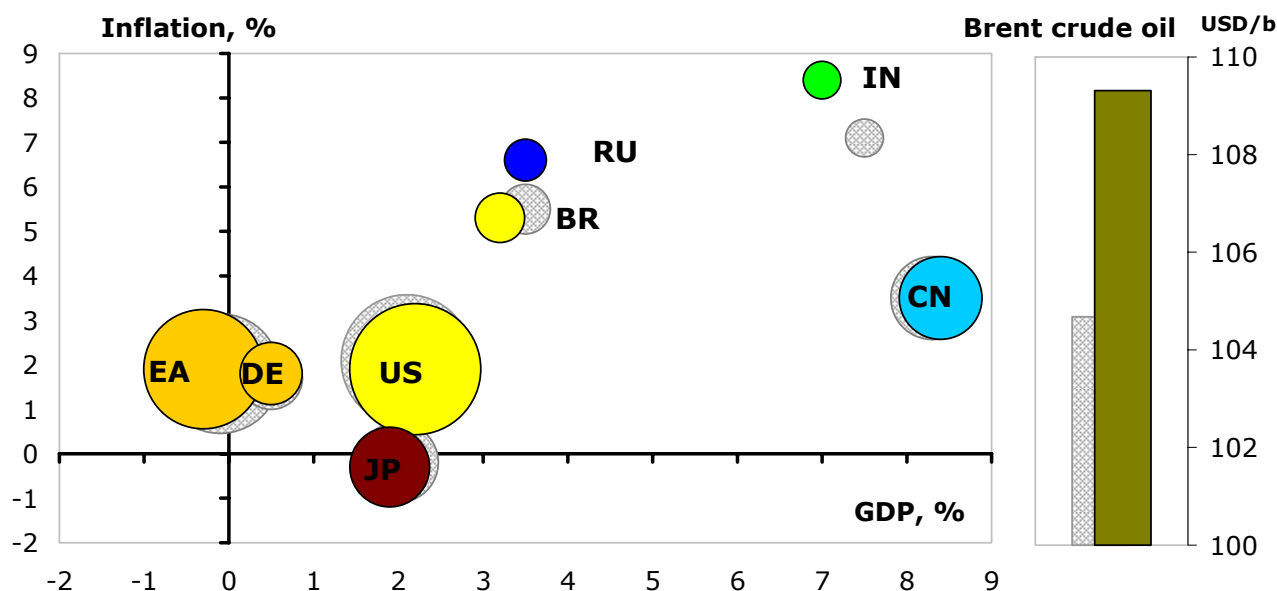
The January issue of the Global Economic Outlook presents an overview of recent and expected developments in selected territories in terms of standard indicators such as GDP, inflation, leading indicators, interest rates, exchange rates and commodity prices. In this issue, we also focus our attention on assessing liquidity risk in the euro area money market and ECB operations.

The global economic outlook for 2012 is not very optimistic. For the advanced countries – and in particular for the euro area countries – it will be a great challenge to avert the already visible threat of renewed recession. The outlooks for the USA are more optimistic than those for Europe. Except for the traditionally low inflation in Japan, inflation is projected to stand close to 2% in the advanced countries. In the event of a renewed recession scenario this represents a considerable economic risk for the euro area countries. The advanced economies are being held in check by their accumulated debt (see the colour spectrum of the chart). The probability of the debt burden of the advanced countries falling to a sustainable level is thus currently low. Standard & Poor's responded to the currently unclear solution to the debt crisis in the euro area by downgrading the ratings of most of the euro area members. Only four countries, including the economically strongest Germany, now have the highest AAA rating.

Emerging economies – the BRIC countries in particular – should achieve robust economic growth and an acceptable inflation rate. The inflation outlooks for India may cause some concern. However, the expected levels of economic growth in China, for example, are about one-third lower than at the start of the financial crisis. The good news for the global economy is that the BRIC countries (except Brazil) are not so tied up in debt. This makes it easier for them to conduct economic policy and does not act as a barrier to growth.

The global economy will continue to face high oil prices in 2012, albeit with a slightly downward outlook. With the dollar appreciating, this would imply an increase in inflation risk in numerous countries. Prices of food and industrial commodities should be slightly higher at the end of 2012 than at present. A further fall in ECB rates and stable rates in the USA are expected in 2012.

### The global economic outlook for 2012



**Public debt (% of GDP)** 5 - 10 ≤ 25 ≤ 50 ≤ 75 ≤ 100 ≤ 125 ≤ 150 ≤ 175 ≤ 200

outlook XII-2012

Note: EA – euro area, DE – Germany, US – United States, JP – Japan, CN – China, IN – India, BR – Brazil, RU – Russia. The size of each point represents the size of the country/region according to nominal GDP in US dollars in 2010 (2009 for India). The points are coloured according to the size of the public debt-to-GDP ratio in 2010. The grey colour is the CF forecast (GDP, inflation) or Bloomberg survey (oil price) for the previous month. (Cut-off date for data: 13 January 2012)

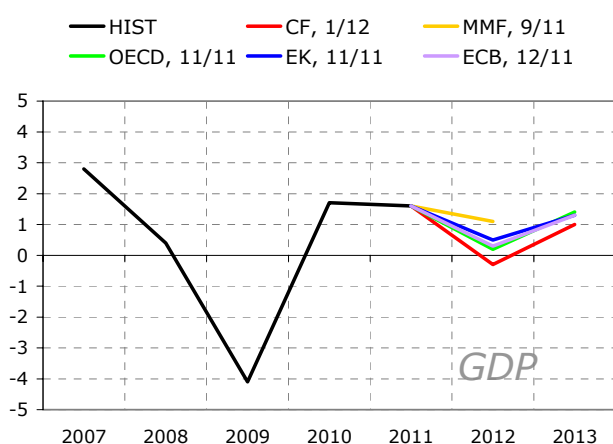
Source: CNB calculation using Bloomberg, Consensus Economics and EIU databases.

**II.1 GDP**

The January CF outlook expects euro area GDP to fall in 2012 owing to still worsening macroeconomic data. The region is expected to fall into recession in 2011 Q4, and the recession should deepen this year. Other factors include the spread of the debt crisis to large economies – France and Italy in particular – and debt-related political uncertainty. Economic growth in the EMU will decline by 0.3% overall in 2012. Although Germany remains well above the euro area average, its economic growth will fall sharply from an expected 3% in 2011 to 0.5% in 2012. GDP growth in the USA will remain at 2.2% this year, while China will see growth of 8.4%.

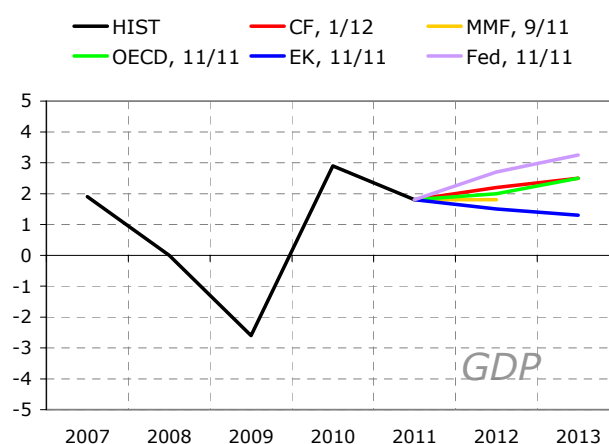
Economic activity is expected to recover in 2013 in all the countries under review. The euro area is projected to return to a growth path and expand by 1%. Germany will contribute with growth of 1.5%. GDP growth in the USA and China will change only marginally compared to 2012, with rises of 0.3 and 0.2 percentage point expected in the USA and China respectively.

**EURO AREA**



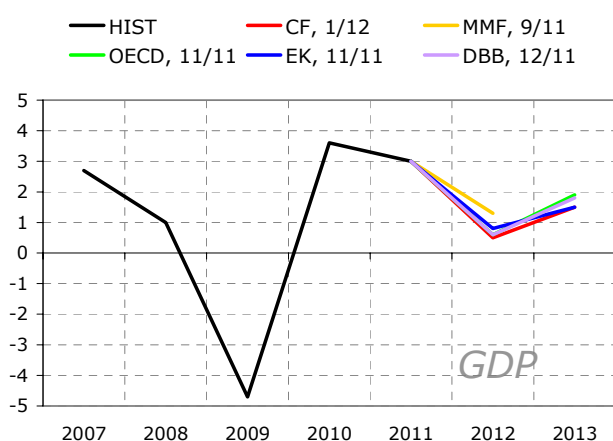
	HIST	CF	IMF	OECD	EC	ECB
<b>2011</b>	1.6					
<b>2012</b>		-0.3	1.1	0.2	0.5	0.3
<b>2013</b>		1.0	0.0	1.4	1.3	1.3

**USA**



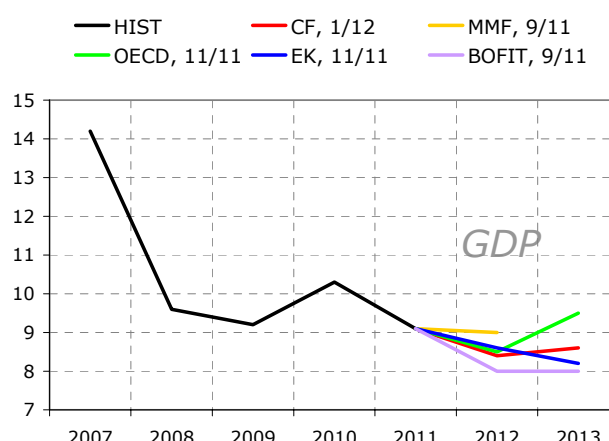
	HIST	CF	IMF	OECD	EC	Fed
<b>2011</b>	1.8					
<b>2012</b>		2.2	1.8	2.0	1.5	2.7
<b>2013</b>		2.5	0.0	2.5	1.3	3.3

**GERMANY**



	HIST	CF	IMF	OECD	EC	DBB
<b>2011</b>	3.0					
<b>2012</b>		0.5	1.3	0.6	0.8	0.6
<b>2013</b>		1.5	0.0	1.9	1.5	1.8

**CHINA**



	HIST	CF	IMF	OECD	EC	BOFIT
<b>2011</b>	9.1					
<b>2012</b>		8.4	9.0	8.5	8.6	8.0
<b>2013</b>		8.6	0.0	9.5	8.2	8.0

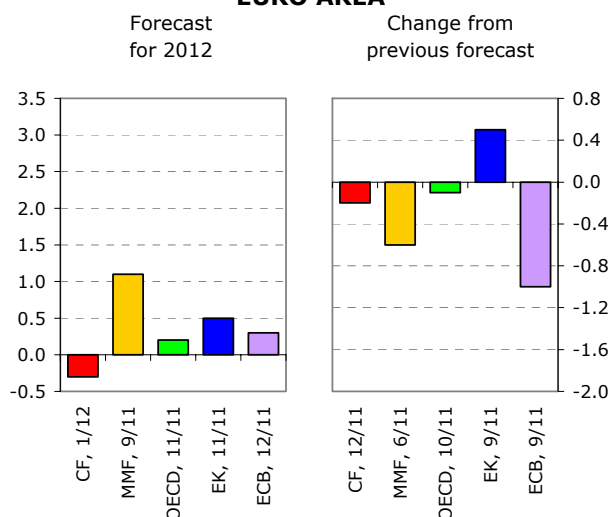
Note: Legend shows latest forecast data in format "Source, month/year of forecast publication". HIST: historical value. ECB and Fed: midpoint of range. [Cut-off date for data: 13 January 2012]

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

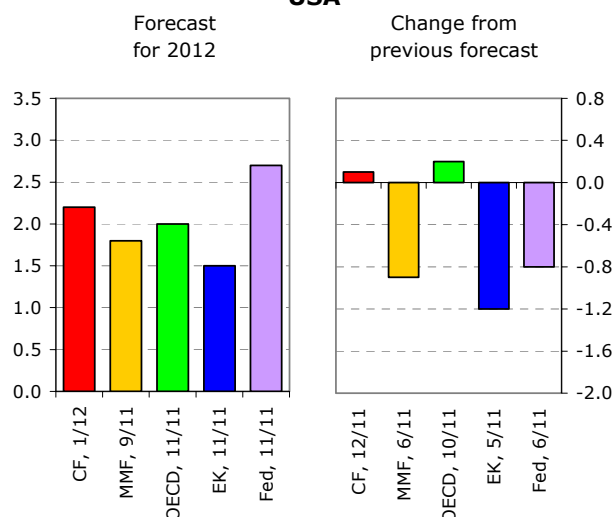
The CF outlook for the euro area for 2012 continues to deteriorate. The January forecast for GDP growth is 0.2 percentage point lower than the December forecast. CF left the outlook for economic growth in Germany unchanged. Growth in the USA and China was increased by 0.1 percentage point in both cases.

### EURO AREA



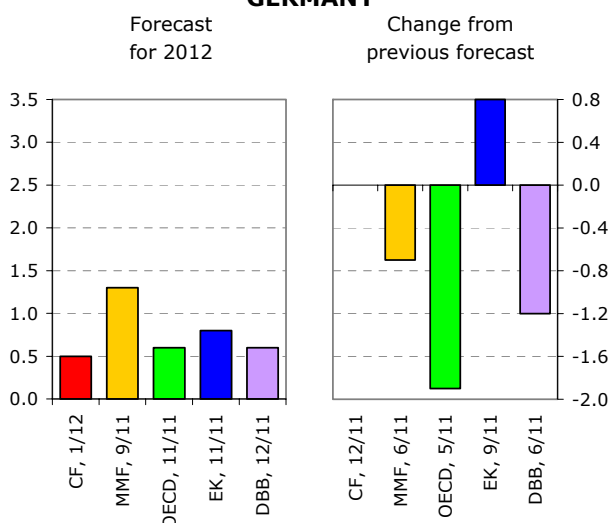
	2011	CF	IMF	OECD	EC	ECB
<b>Forecast</b>	1.6	-0.3	1.1	0.2	0.5	0.3
<b>Change</b>		-0.2	-0.6	-0.1	0.5	-1.0

### USA



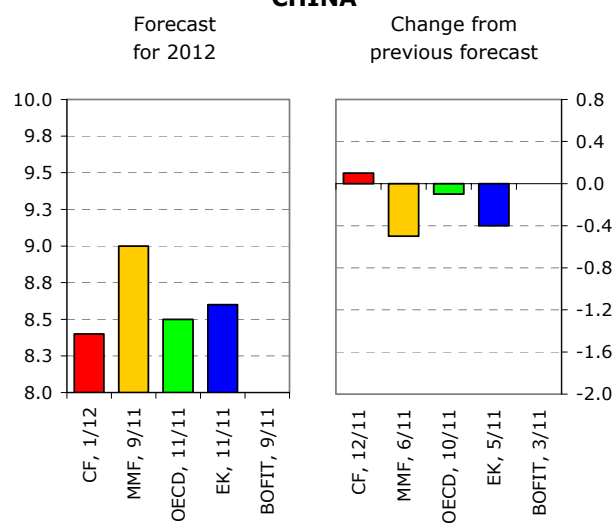
	2011	CF	IMF	OECD	EC	Fed
<b>Forecast</b>	1.8	2.2	1.8	2.0	1.5	2.7
<b>Change</b>		0.1	-0.9	0.2	-1.2	-0.8

### GERMANY



	2011	CF	IMF	OECD	EC	DBB
<b>Forecast</b>	3.0	0.5	1.3	0.6	0.8	0.6
<b>Change</b>		0.0	-0.7	-1.9	0.8	-1.2

### CHINA



	2011	CF	IMF	OECD	EC	BOFIT
<b>Forecast</b>	9.1	8.4	9.0	8.5	8.6	8.0
<b>Change</b>		0.1	-0.5	-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: 13 January 2012]

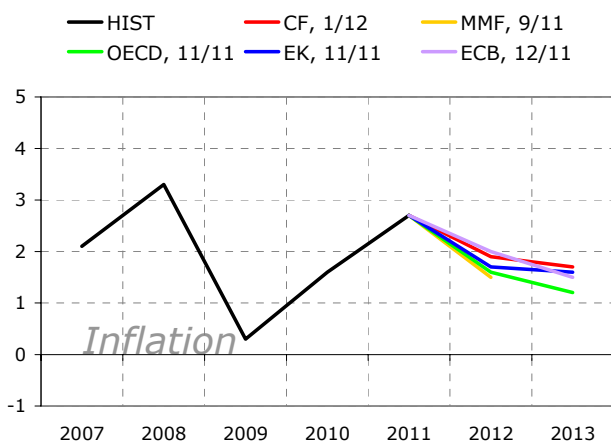
Source: CNB calculation using Eurostat, CF, IMF, OECD, EC, ECB, Fed, DBB and BOFIT databases.

### II.3 Inflation

The global downturn is slowing inflation in all the economies under review and facilitating easier monetary policy. According to the new CF forecast, inflation in the euro area will fall below 2% in 2012. Price growth in Germany will be 0.1 percentage point lower than the euro area average and amount to 1.8%. Inflation of 1.9% and 3.5% is expected in the USA and China respectively this year.

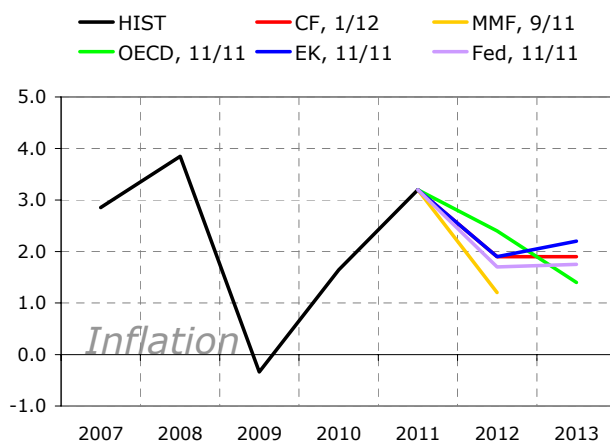
The January CF left the inflation outlook for 2013 at the 2012 level for Germany and the USA. Inflation will decrease to 1.7% in the euro area, while China will record price growth of 3.7%.

**EURO AREA**



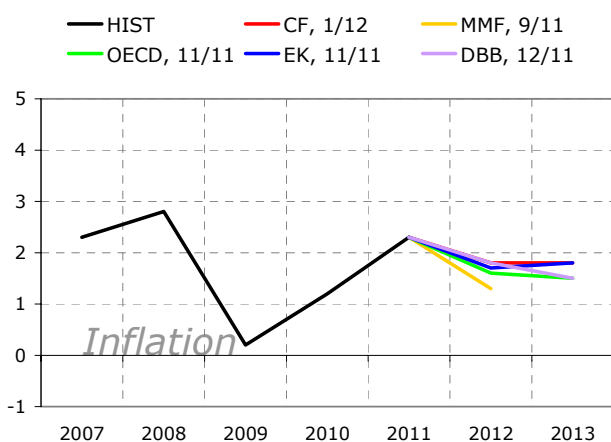
	HIST	CF	IMF	OECD	EC	ECB
<b>2011</b>	2.7					
<b>2012</b>		1.9	1.5	1.6	1.7	2.0
<b>2013</b>		1.7	0.0	1.2	1.6	1.5

**USA**



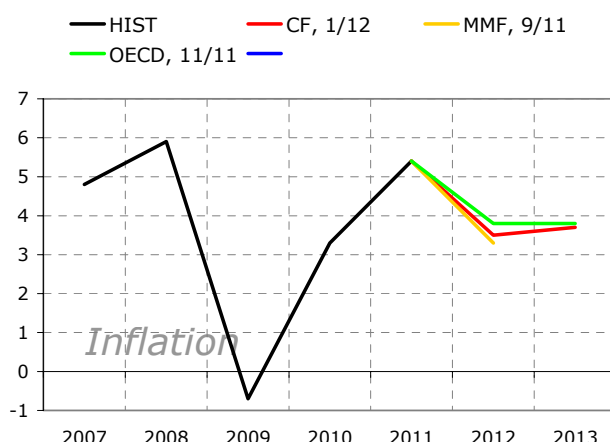
	HIST	CF	IMF	OECD	EC	Fed
<b>2011</b>	3.2					
<b>2012</b>		1.9	1.2	2.4	1.9	1.7
<b>2013</b>		1.9	0.0	1.4	2.2	1.8

**GERMANY**



	HIST	CF	IMF	OECD	EC	DBB
<b>2011</b>	2.3					
<b>2012</b>		1.8	1.3	1.6	1.7	1.8
<b>2013</b>		1.8	0.0	1.5	1.8	1.5

**CHINA**



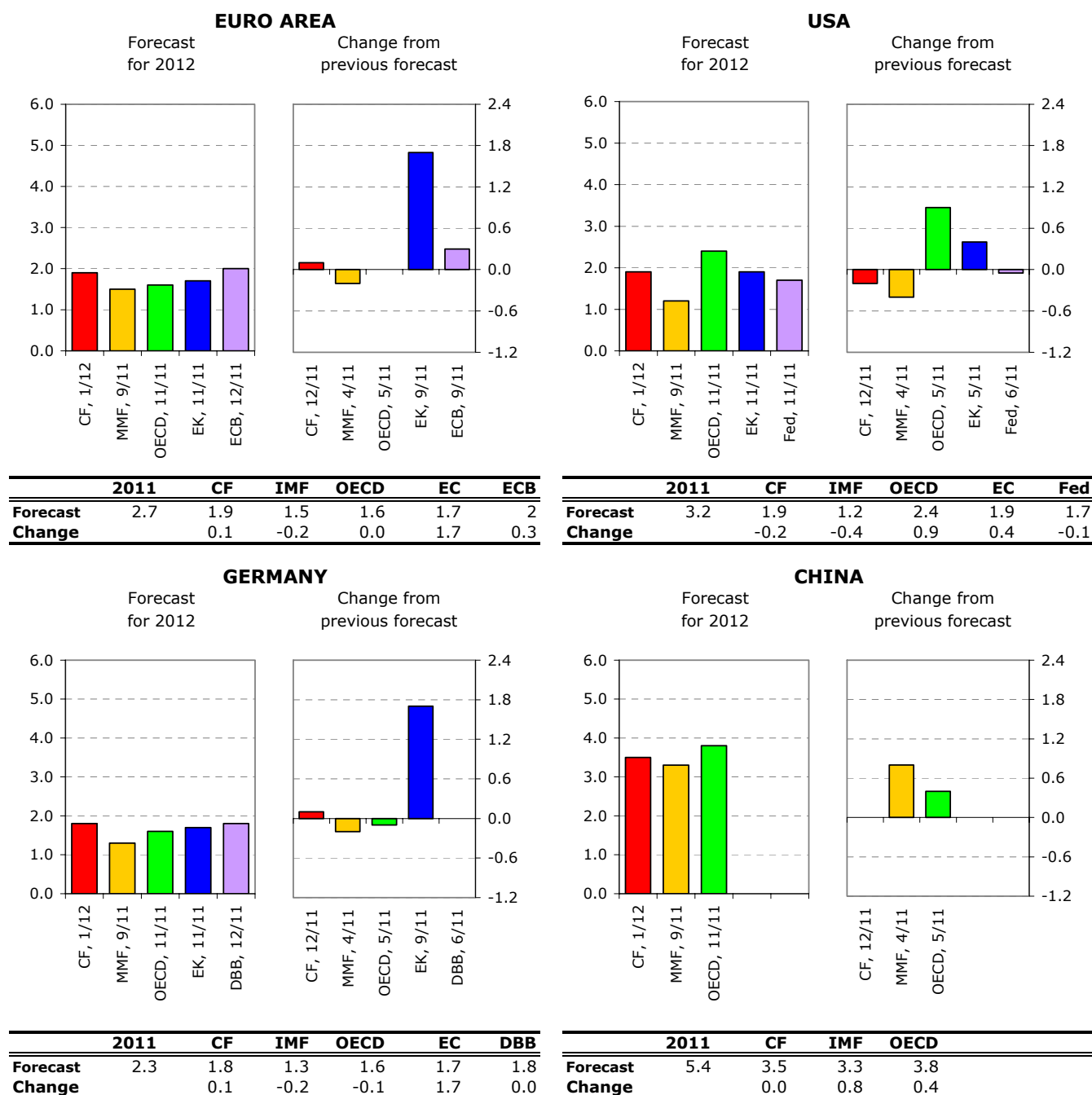
	HIST	CF	IMF	OECD
<b>2011</b>	5.4			
<b>2012</b>		3.5	3.3	3.8
<b>2013</b>		3.7	0.0	3.8

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: 13 January 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

Compared to the December forecast, the January CF expects inflation in the euro area and Germany to rise by 0.1 percentage point in 2012. On the other hand, the outlook for consumer price inflation in the USA declined by 0.2 percentage point. The new CF left the inflation outlook for China unchanged.



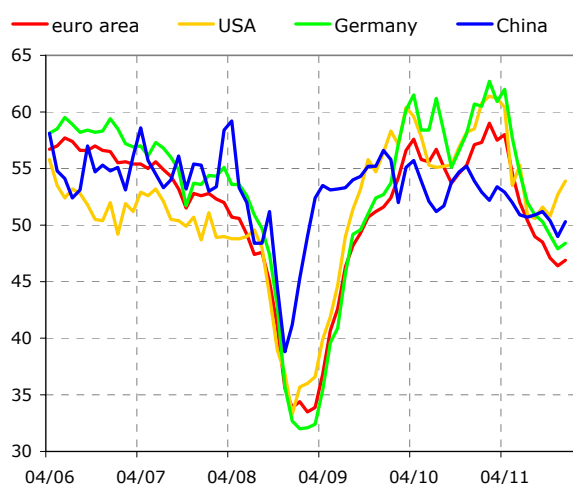
Note: Horizontal axis of left-hand (right-hand) chart shows latest (previous) forecast data in format "Source, month/year of forecast publication". HIST: historical value. ECB and Fed: midpoint of range.

[Cut-off date for data: 13 January 2012]

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

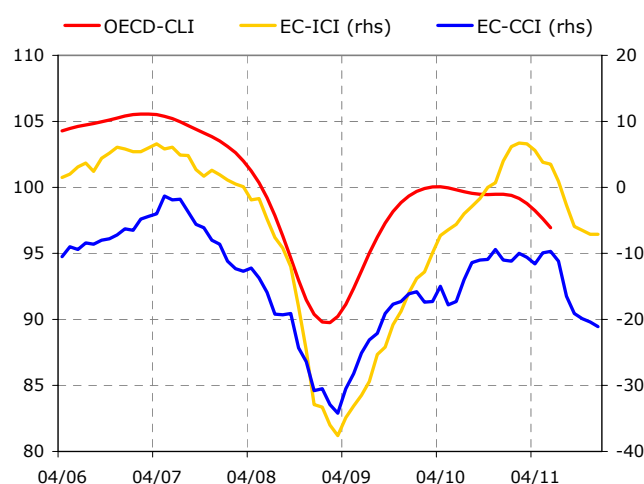
The January leading indicators again highlighted the difference between the economic outlook for the USA and that for the euro area. Economic growth expectations increased further in the USA. In addition to the PMI (Purchasing Managers' Index), which rose further to well above 50%, all the other monitored leading indicators recorded increases. Rising consumer confidence was particularly visible. Although the PMI in the euro area saw a slight increase after seven months of decline, the other indicators either remained flat at low levels or edged down further. The outlook for Germany is rather more favourable compared to the rest of the euro area. Like the PMI, which – as in the euro area – increased again after falling for seven months but remains below 50%, the other leading indicators also rose. The Chinese PMI increased slightly to just above 50% after falling below this level for one month.

**PMI IN MANUFACTURING**



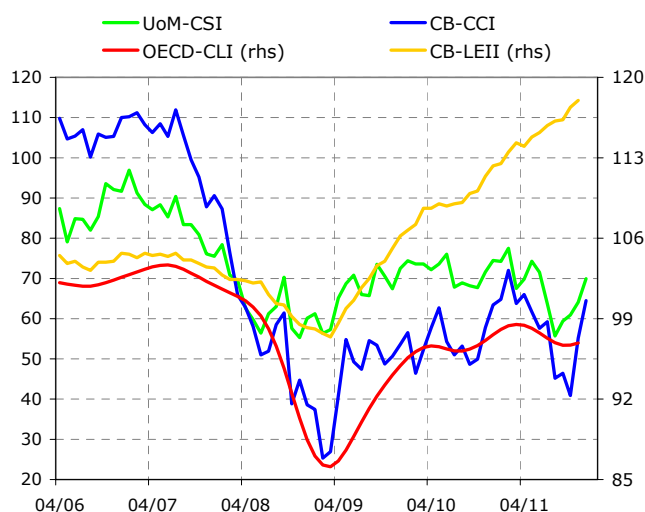
	EA	US	DE	CN
<b>10/11</b>	47.1	50.8	49.1	50.4
<b>11/11</b>	46.4	52.7	47.9	49.0
<b>12/11</b>	46.9	53.9	48.4	50.3

**EURO AREA**



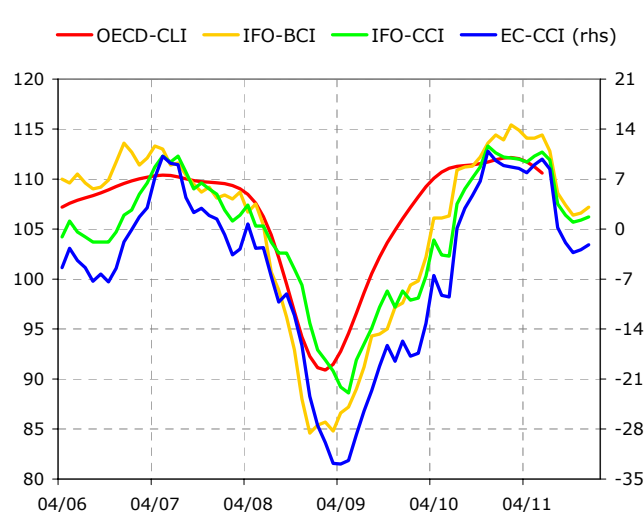
	OECD-CLI	EC-ICI	EC-CCI
<b>10/11</b>		-6.5	-19.9
<b>11/11</b>		-7.1	-20.4
<b>12/11</b>		-7.1	-21.1

**USA**



	OECD-CLI	CB-LEII	UoM-CSI	CB-CCI
<b>10/11</b>	96.7	117.4	60.9	40.9
<b>11/11</b>	96.9	118.0	64.1	55.2
<b>12/11</b>			69.9	64.5

**GERMANY**



	OECD-CLI	IFO-BCI	IFO-CCI	EC-CCI
<b>10/11</b>		106.4	105.7	-3.3
<b>11/11</b>		106.6	105.9	-2.9
<b>12/11</b>		107.2	106.2	-2.2

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, 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 January 2012]

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

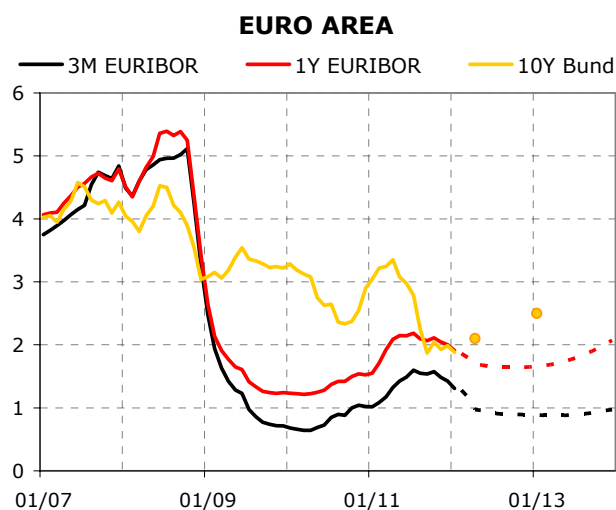


### IV.1 Outlook for short-term and long-term interest rates: Euro area

At its meeting on 12 January, the ECB left its key refinancing rate at 1%. According to CF analysts, a further lowering can be expected during 2012 Q1. The analysts' most frequent forecast for the ECB rate between June and December 2012 is 0.5%. Expectations have thus shifted to an earlier rate reduction compared to the previous month.

The 3M EURIBOR interbank rate continued to decline last month. However, the decline was faster than expected after the ECB announced the results of the first auction of three-year bank loans. Interest in the auction significantly exceeded expectations and liquidity in the banking sector rose by EUR 210 billion. This led, among other things, to a further slight decline in the implied future rate curves for both three-month and one-year maturities. The ECB's action also halted the increase in the risk premium in the euro area interbank market.

Following a decline in the first half of December, the German ten-year government bond yield was flat at around 1.9% and the CF analysts did not change the outlook for it.



	12/11	01/12	06/12	12/12	06/13	12/13
<b>3M EURIBOR</b>	1.43	1.31	0.93	0.89	0.89	0.97
<b>1Y EURIBOR</b>	2.00	1.91	1.66	1.65	1.77	2.07
	12/11	01/12	04/12	01/13		
<b>10Y Bund</b>	1.98	1.88	2.10	2.50		

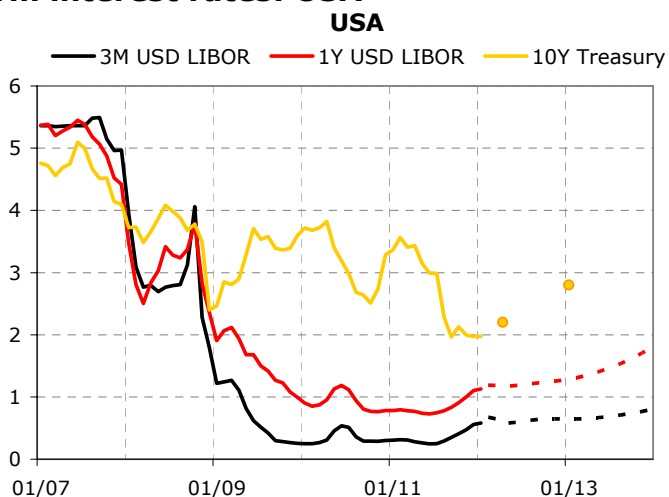
Note: Forecast for EURIBOR rates is based on implied rates from interbank market yield curve (FRA rates are used from 4M to 15M and adjusted IRS rates for longer horizons). Forecast for German government bond yield (10Y Bund) is taken from CF. Dashed lines and points represent outlook. [Cut-off date for data: 9 January 2012]

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

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

The Fed's monetary policy stance remains unchanged ahead of the January change of FOMC voting members. The key monetary policy-relevant rate is almost zero and the CF01 forecast does not expect it to change at least until the end of 2012. The increase in 3M and 1Y LIBOR dollar rates observed in the second half of 2011 halted at the start of this year as expected. The implied future 3M and 1Y LIBOR rate path was 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 from mid-2012 onwards. The rise in the risk premium on the interbank market has slowed since mid-December.

The ten-year government bond yield has been fluctuating in the range of 1.8–2.1% without a clear trend since the start of November. CF01 merely shifted the forecast upwards slightly at the one-year horizon (to 2.8%).



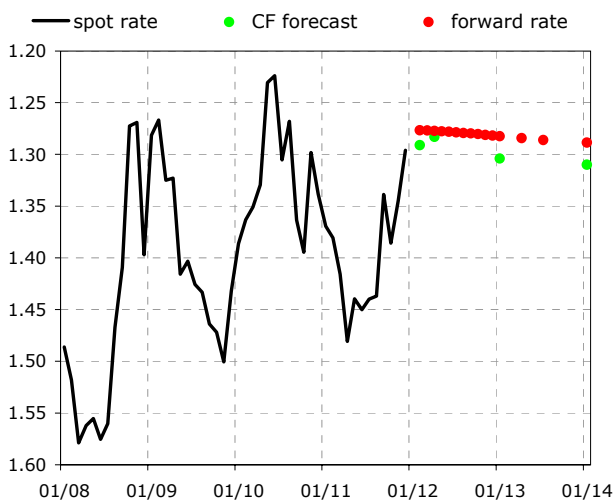
	12/11	01/12	06/12	12/12	06/13	12/13
<b>3M USD LIBOR</b>	0.56	0.58	0.60	0.65	0.68	0.79
<b>1Y USD LIBOR</b>	1.10	1.13	1.19	1.27	1.44	1.78
	12/11	01/12	04/12	01/13		
<b>10Y Treasury</b>	1.97	1.98	2.20	2.80		

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: 9 January 2012]

Sources: Thomson Reuters, Bloomberg, CNB calculations.

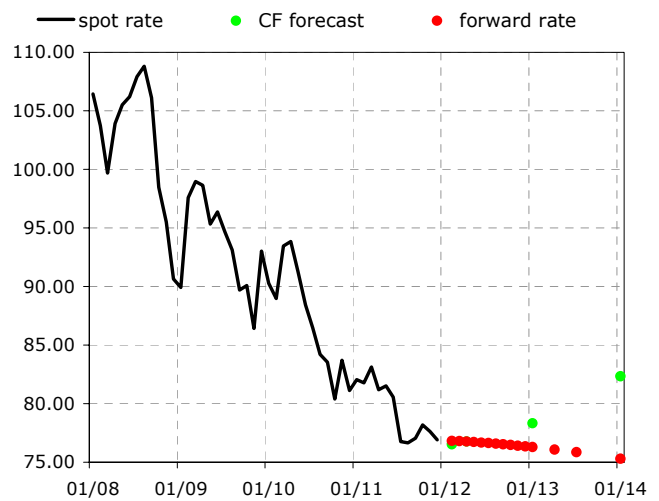
Despite a series of ECB measures, the financial markets remain jittery as a solution to the euro area debt crisis is deferred and the signs of recession intensify. The euro depreciated against world currencies, reaching a 15-month low against the US dollar in the first week of January and an 11-year low against the Japanese yen. The January CF brought a shift in the outlook towards a weaker euro, with the single European currency appreciating against the dollar by just 2.3% at the one-year horizon. The Japanese yen is viewed similarly as the dollar – according to the new CF it will remain at the current level for another three months. In addition to investor sentiment, the yen is benefiting from capital repatriation and very low inflation. The Bank of Japan intervened three times last year to no great effect, but is not yet considering introducing a currency cap. The Swiss franc remains below the level set by the Swiss National Bank and a major depreciation is expected at the one-year horizon.

**US\$ per Euro**



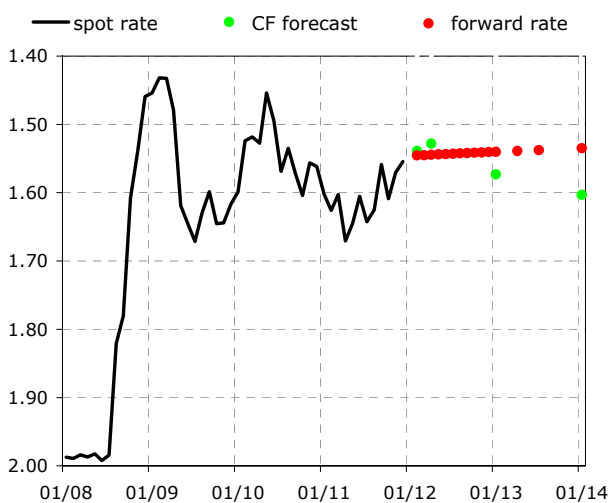
	9/1/12	02/12	04/12	01/13	01/14
spot rate	1.277				
CF forecast		1.291	1.283	1.304	1.310
forward rate		1.277	1.277	1.282	1.289

**Yen per US\$**



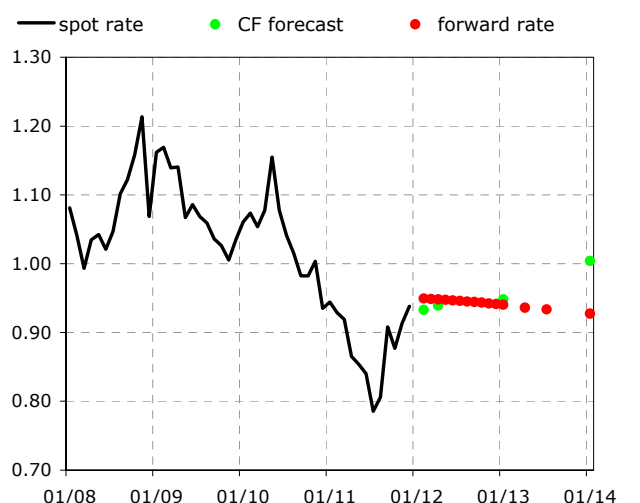
	9/1/12	02/12	04/12	01/13	01/14
spot rate	76.85				
CF forecast		76.53	76.76	78.32	82.33
forward rate		76.82	76.75	76.28	75.30

**US\$ per UK£**



	9/1/12	02/12	04/12	01/13	01/14
spot rate	0.950				
CF forecast		1.539	1.528	1.573	1.603
forward rate		1.545	1.545	1.540	1.535

**Swfr per US\$**



	9/1/12	02/12	04/12	01/13	01/14
spot rate	0.908				
CF forecast		0.933	0.939	0.948	1.004
forward rate		0.949	0.948	0.940	0.927

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: 12 January 2012]

Source: CNB calculation using Bloomberg and Consensus Forecasts databases.

## VI.1 Oil and natural gas

The Brent crude oil price has stayed in the wide, broadly horizontal range of USD 100–115 a barrel since August 2011. In mid-December it dropped to a more than two-month low of USD 103 a barrel amid market concerns that euro area politicians would not be able to stop the EMU sliding into recession. However, the price decline reversed relatively quickly when Iran launched a naval exercise to test the possibility of closing the Straits of Hormuz. A significant rise was also recorded in early January in response to favourable signals from Chinese industry and persisting tensions surrounding Iran's nuclear programme. The price of Brent crude jumped by another USD 6 to USD 113.7 a barrel and then fell only slightly. The new futures-based forecast thus moved upwards by around USD 5 a barrel from the previous month. However, the markets view the latest price rise as temporary, and the downward slope of the futures curve is thus currently even steeper. The threat of recession in the euro area and strong appreciation of US dollar are preventing any further rise in the oil price.

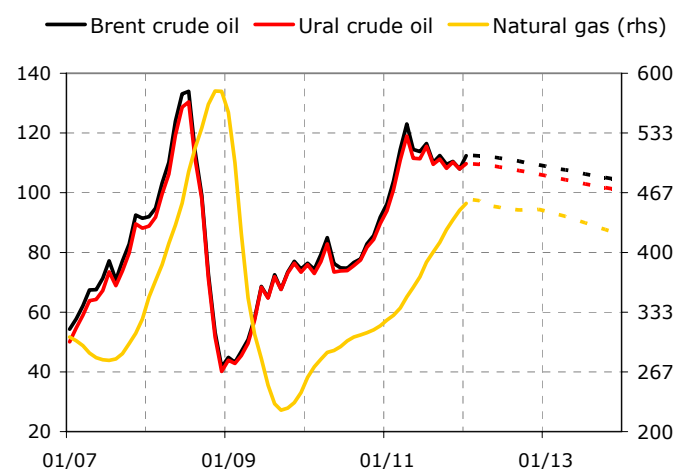
## VI.2 Other commodities

The sharp fall in the average monthly non-energy commodity price index halted in January. The rise in the index was due mainly to food commodity prices. The industrial metals price index was virtually flat for the fourth consecutive month.

The price of wheat recorded its lowest level since July 2010 in the first half of December, but grew strongly in the rest of the month and the outlook remains upward as usual. Similar movements were recorded by the price of maize, although its outlook is downward, and by the price of soy (which is expected to be flat). The price of rice saw more moderate growth in December. Following previous strong falls, prices of sugar, coffee and cocoa were broadly stable. Meat prices were also flat last month, although beef remains close to its historical high. After previous falls, the price of rubber was flat and the price of cotton rose only slightly.

As regards industrial metals, only the price of aluminium rose and is expected to continue doing so in the future. Prices of other metals were flat, as were their outlooks.

### OUTLOOK FOR PRICES OF OIL AND NATURAL GAS



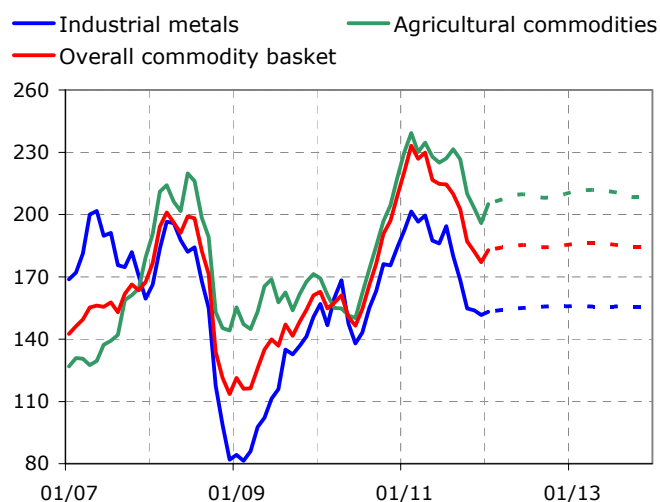
	01/12	06/12	12/12	06/13	12/13
<b>Brent crude oil</b>	112.4	111.7	109.3	106.7	104.3
<b>Ural crude oil</b>	109.7	108.7	106.1	103.4	100.9
<b>Natural gas</b>	454.8	450.4	448.0	435.3	420.6

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: 9 January 2012].

Source: Bloomberg, IMF, CNB calculations.

### OUTLOOK FOR OTHER COMMODITY PRICES



	01/12	06/12	12/12	06/13	12/13
<b>Industrial metals</b>	153.1	155.0	155.8	155.6	155.7
<b>Agricultural commodities</b>	205.0	209.7	209.9	211.4	208.8
<b>Overall commodity basket</b>	182.8	185.3	185.2	185.9	184.7

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

[Cut-off date for data: 9 January 2012].

Source: Bloomberg, outlooks based on futures.

## LIQUIDITY RISK IN THE EURO AREA MONEY MARKET AND ECB OPERATIONS<sup>1</sup>

*A freezing of the interbank market is regarded as a crisis with significant implications for the real economy, so liquidity signals are monitored closely. An increasing lack of confidence between banks will be reflected first of all in unsecured markets, but the euro area debt crisis has now affected the secured (repo) market. The repo market used to be used for financing at times of uncertainty, but is now becoming a way to obtain high-quality collateral. The European Central Bank (ECB) is standing in for the interbank market and there is increasing interest in its long-term loans and deposits. A lack of appropriate collateral has become a liquidity demand issue for a large number of banks, and without the ECB the liquidity problem might have become a solvency problem. On the other hand, asset pricing distortions are arising and interest rates mainly reflect the difficult market situation.*

### Introduction

Liquidity plays a key role in the market valuation of assets and is a sign of normally functioning markets. Liquidity risk can seriously disrupt money markets and impair the functioning of the transmission mechanism. High liquidity risk artificially increases market rates, causing the monetary conditions to tighten in real terms out of the central bank's control. It can also affect the solvency of the banking system and therefore has implications for financial stability.

### 1. Euro area money market rates and liquidity risk

Market rates have been highly volatile since the start of 2005 (Figure VII-1, left). The rates were closely linked until mid-August 2007, with the MRO rate (the interest rate for main refinancing operations) forming the lower boundary for market rates.

#### **BOX: Definitions of euro area rates**

**Euribor** is the rate at which euro interbank deposits are offered by one prime bank to another prime bank in the euro area market. The panel of contributing banks consists of 43 banks, almost all of them European. It is calculated as the average of the rates at 11.00 a.m. (CET). The highest and lowest 15% of the quotes are discarded. As it is the rate at which the best banks would borrow, it is also regarded as the key rate in the unsecured market.

**Eonia swap** is an interest rate swap relating to the Eonia rate (the "floating leg"), which is a weighted average of all overnight unsecured loans in the interbank market initiated within the euro area by selected banks (the same panel of banks as for the Euribor). The Eonia is computed by the ECB and, unlike the Euribor, is based on actual transactions (the rate at which banks actually borrowed). Overnight indexed swaps are regarded as a good market indicator of future rate expectations. They can still contain a small liquidity and term premium, but the credit risk is minimal.

**Eurepo** is the rate at which one bank offers funds in euro to another bank if in exchange the former receives from the latter collateral (government bonds) in the euro repo market. These interbank repo operations are secured and have no credit risk. Repo operations are also offered by the ECB in the form of main refinancing operations (MROs). These two-week reverse transactions are aimed at providing liquidity to the financial system.

The outbreak of the financial crisis meant a decline in euro area secured rates to the level of the key rate, while the Euribor exceeded 5%. The introduction of unconventional monetary measures and the sharp lowering of the key rate in the latter half of the year

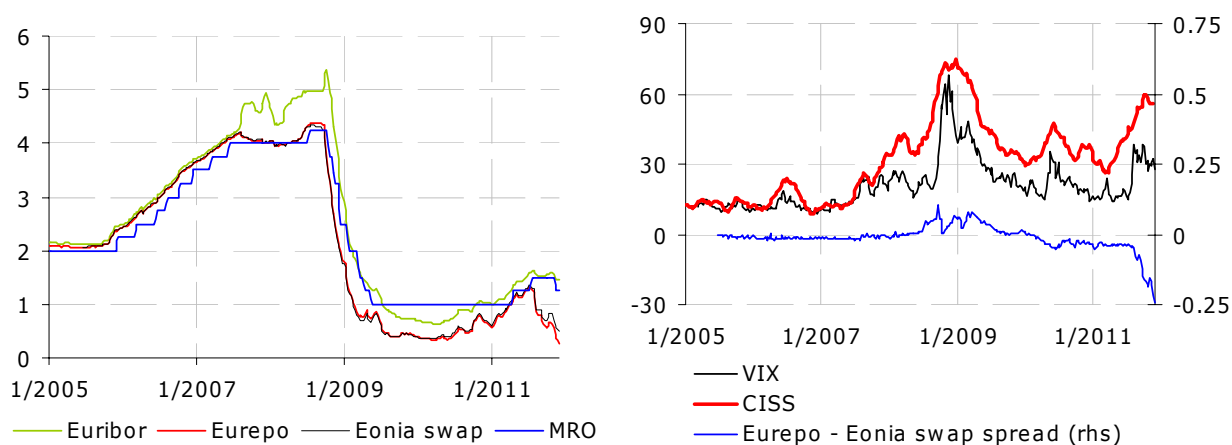
<sup>1</sup> Author: Soňa Benecká ([Sona.Benecka@cnb.cz](mailto:Sona.Benecka@cnb.cz)). The views expressed in this contribution are those of the author and do not necessarily reflect the official views of the CNB.

caused market rates to fall below the key rate. The 3M Euribor was also below the key rate from August 2009 to August 2010. The escalation of the debt crisis in 2011 led to a further fall in 3M secured rates, while the 3M Euribor remained broadly flat.

The term “liquidity risk” in finance means the risk that a given asset cannot be sold quickly enough to prevent a loss. If there are not enough counterparties in the market and demand for or supply of the asset significantly affects its price, market liquidity will dry up (causing severe market disruption, inadequate market depth and a widening bid-offer spread). In this respect, liquidity risk is linked with market liquidity risk. Funding liquidity risk is the risk that a company/bank is not able to meet its liabilities without this affecting its daily operations. Funding liquidity risk is harder to estimate; one possible approach is to measure a bank’s aggressiveness in bidding for funding. In the case of market liquidity, the indicators used depend on market structure and data availability (e.g. the bid-ask spread is used for money markets).

The Eurepo-Eonia swap spread is used as the main indicator of liquidity risk in the euro area money market. It is defined as the spread between the fully secured money market loan rate (Eurepo) and the risk-free OIS rate. In contrast to a swap contract, in the case of a secured loan liquidity is actually transferred and so the creditor requires a liquidity premium that depends on the length of the loan. This spread (or the repo rate adjusted for the expected change in rates) can therefore be regarded as a measure of liquidity risk. Other liquidity risk measures are either not freely available or indicate liquidity only indirectly. Michaud and Upper (2008) use data from the private and paid electronic platform e-MID,<sup>2</sup> which covers about 20% of the euro area money market, as a measure of money market liquidity risk. Indirect measures capturing liquidity-related risk aversion or financial stress also occur in the literature. Examples include the composite indicator of systemic stress (CISS) and the implied volatility of options in the S&P 500 index (VIX). Figure VII-1 (right) shows that liquidity risk as measured by the Eurepo-Eonia swap spread increased substantially at the peak of the financial crisis (August 2008). In subsequent months it turned negative and is currently at a historical low. By contrast, the risk aversion indicators have increased in recent months because of the debt crisis.

**Figure VII-1: 3M money market rates and liquidity indicators**



Note: Weekly data, except for main refinancing operations (MRO) instruments with maturity of 3 months; CISS is composite indicator of systemic stress (moving average); VIX is implied volatility of options in S&P 500 index. Source: CNB calculations using Bloomberg and Datastream data.

<sup>2</sup> e-MID SIM SpA is a company that runs an electronic market for interbank deposits and overnight swaps. Czech National Bank / Global Economic Outlook – January 2012

The Eurepo-Eonia swap spread is largely a general indicator and has been out of line with overall risk aversion in recent months. Liquidity risk for Euribor rates can be derived using the prime bank behaviour model discussed in the next section.

## 2. Estimating liquidity risk through CDS

One method for deriving liquidity risk for the Euribor can be found in De Socio (2010). The decomposition of the Euribor-Eonia swap spread is based on the idea that in the case of an unsecured loan a bank must face two risks in the interbank market – the risk of default (credit risk) and the risk of needing liquidity (liquidity risk) at the time of the loan. In the case of a secured loan, collateral reduces the counterparty's credit risk. When markets are functioning normally, the spread between unsecured and secured lending should be a measure of credit risk.

The credit risk is computed using information on the credit default swaps (CDSs) of the banks in the Euribor panel. Although this indicator has some evident problems at both the theoretical level (the assumption of a 40% recovery rate, the assumption of a risk-neutral probability of default, etc.) and the practical level (a limited sample of banks, short time series), it provides valuable information about the assessment of credit risk by the market. The implicit probability of default (PD) in the next three months, which is derived using a simplified approach that relies on a flat CDS curve, can be used to derive the credit risk:

$$PD_{it} \approx 1 - e^{\left(\frac{-CDS_{it}d}{1-R}\right)} \quad (1)$$

where  $CDS_{i,t}$  is the CDS spread of bank  $i$  on day  $t$ ,  $d=0.25$  and  $R$  is the recovery rate in case of default, which equals 0.4. Assuming simple arbitrage, the spread applied to an unsecured loan equals the expected loss:

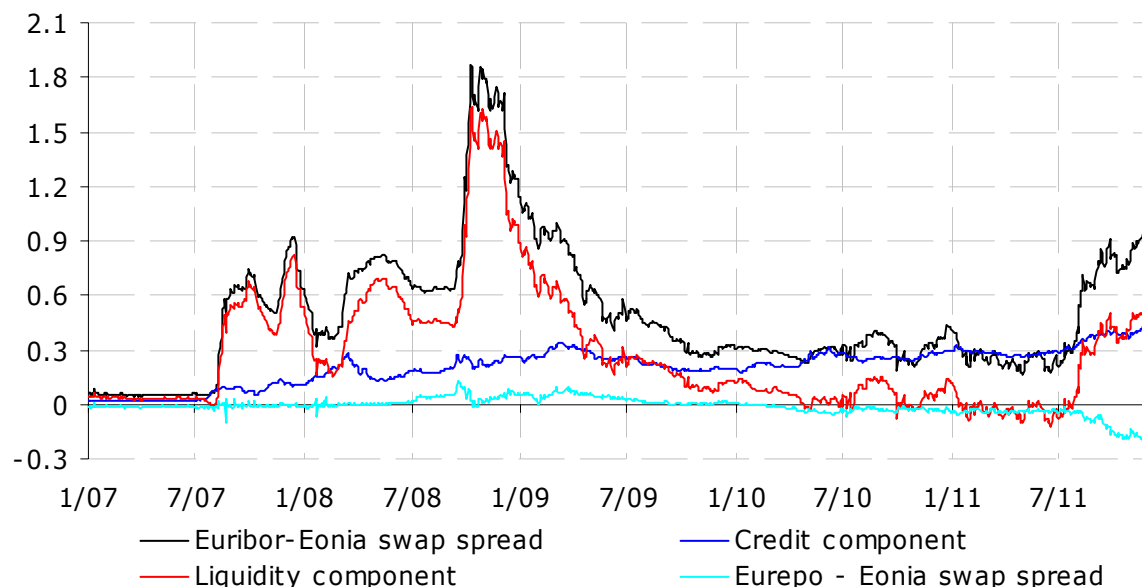
$$CS_{it} = PD_{it}(1-R) \quad (2)$$

The credit component ( $CC_t$ ) is the mean of the credit spreads ( $CS_{ij}$ ) on day  $t$  for all  $n$  banks in the panel.

$$CC_t = \frac{1}{n} \sum_i CS_i \quad (3)$$

The liquidity risk is modelled as a residual component by deducting the credit component from the Euribor-Eonia swap spread. The decomposition results are shown in Figure VII-3. It is clear that liquidity risk is the dominant factor in the evolution of the spread at the time of greatest market tension. The credit risk rose prior to the collapse of Bear Sterns (the start of 2008), then fell sharply, and started to increase again before the collapse of Lehman Brothers, peaking in spring 2009 when the major central banks introduced unconventional monetary instruments. In the months that followed, the credit component was substantial higher than before the financial crisis. It rose again during 2010, while the liquidity component fell to negative values owing to the unconventional measures in the market. The rise in risk aversion associated with the euro area debt crisis was accompanied by an increase in liquidity risk.

**Figure VII-2: Euribor-Eonia swap spread decomposition and comparison of liquidity measures**

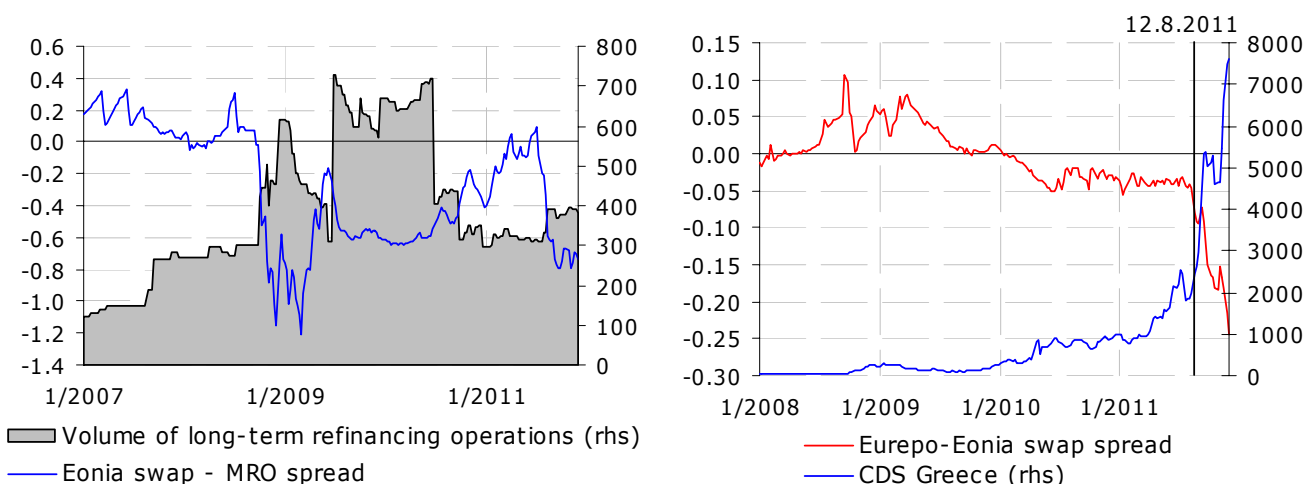


Note: daily data; percentage points; sum of credit and liquidity components gives total spread

Source: CNB calculations using Bloomberg and Datastream data.

Let us now compare the liquidity component with the main liquidity indicator (the Eurepo-Eonia swap spread). A similar liquidity trend is apparent at the time of the crisis (a rise in risk in 2008 and a fall in 2009). The two indicators also both show negative liquidity risk levels in the first half of 2011, evidently reflecting the ECB's unconventional monetary policy. However, they differ significantly as regards the current market situation. This can be explained by the evolution of the euro area debt crisis.

**Figure VII-3: ECB operations and effect of debt crisis on repo market**



Note: weekly data; line for second week of August denotes escalation of Greek debt crisis

Source: CNB calculations using Bloomberg and Datastream data.

### **The effect of the ECB's unconventional monetary policy**

The sharp deterioration in financial market conditions after Lehman Brothers collapsed had a major impact on liquidity in the Eurosystem. This led the ECB to introduce

liquidity support measures. A change from variable rate tenders with fixed allotment to a system with a fixed rate (MRO) and full allotment was agreed in October 2008. This offered unlimited liquidity to banks when the functioning of markets was seriously disrupted and banks could not raise the necessary liquidity. The list of assets eligible to be used as collateral was also expanded and other operations were offered to support long-term forex liquidity. In particular, long-term refinancing operations with longer maturities (LTOs) strongly effected liquidity, and market rates fell to their pre-crisis averages as a result of these measures. The central bank fully replaced the market in the system and liquidity risk dropped sharply. The question is: what would the theoretical Euribor level have been without the ECB's operations? If we look at the relationship between the volume of long-term refinancing operations and the Eonia swap–MRO spread (Figure VII-3, left), the Eonia swap would have been at least 0.6 p.p. higher without the liquidity support operations (averaging EUR 650 billion). If we add that the liquidity component of the decomposition would have been positive at this time, the hypothetical Euribor rate would have been at least 0.7 p.p. higher. In this respect, not only do the ECB's operations seem to be an instrument for increasing liquidity in the system, but their introduction also helped ease the monetary conditions in real terms.

### ***The effect of the debt crisis***

The repo markets played a crucial role in ensuring liquidity between banks during the recent financial crisis; investors moved to repo markets from unsecured markets due to credit risk (ECB, 2011). The spread of the debt crisis in 2011 Q3 strongly affected the underlying assets needed for repo operations (Figure VII-3, right). The downgrading of the ratings of some euro area countries reduced the supply of eligible collateral (a collateral crunch). The lack of suitable collateral in the markets resulted in further distortions in financial markets.<sup>3</sup> Investors started to prefer short operations on secured markets, including high-quality collateral. The shortage of collateral also caused a sharp fall in repo rates to the Eonia swap index level. This situation is not usual; it solely reflects investors' interest in holding underlying assets. Repo markets thus became a source of assets, not the main channel for financing the banking sector.

In an effort to normalise the functioning of the money market, the ECB introduced yet another set of measures in early December 2011 (a lower reserve requirement rate, and more long-term refinancing operations and eligible collateral). The ECB had already expanded the portfolio of eligible collateral, but this led to a build-up of lower-quality collateral (i.e. collateral which cannot be used in the market) in this institution.<sup>4</sup> Some government bonds are not accepted at all in interbank lending, so the ECB is becoming a key partner in the market. Supplying high-quality collateral to the market (a possible incentive for euro area or ECB bonds or T-bills) might be the key to renewing normal functioning of the euro area money market. However, an effort to provide banks with liquidity directly through long-term operations has so far prevailed. The December auction of three-month loans generated almost EUR 490 billion for the banking sector. However, the loans were concentrated in fewer institutions than in previous auctions and banks were expected to use them to invest in government bonds of the southern EU states. Unfortunately, a large part of the funds were returned to the ECB as deposit facilities; more than EUR 400 billion was deposited with the ECB in overnight deposits at the end of 2011. The lack of confidence among banks thus persists.

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<sup>3</sup> This "decoupling" has intensified in recent months. For instance, the December auction of German Bubills generated a yield of just 0.0005%.

<sup>4</sup> A theoretical model of such behaviour, along with a detailed discussion, can be found in Ewerhart and Tapking (2009).



**Conclusion:**

The debt crisis in the euro area had a hard impact on the financial markets and necessitated, among other things, a series of unconventional liquidity support measures by the ECB. The crisis has now turned into a systemic crisis and has hit the secured (repo) markets, which had been a safe haven for banks in turbulent times. In this respect, the impact of the downgrading of the ratings of euro area countries will be significant. A further decrease in available collateral in the market may result in greater stress on the market and an increase in market rates, which would again negatively affect the economic condition of some commercial banks and the stability of the financial system.

**References**

Bank of England (2007): Quarterly Bulletin, Vol. 47, No. 4

De Socio, A. (2011): The Interbank Market after the Financial Turmoil: Squeezing Liquidity in a "Lemons Market" or Asking Liquidity "on Tap", Bank of Italy Temi di Discussione (Working Paper) No. 819

Drehmann, M. – Nikolau, K. (2010): Funding Liquidity Risk: Definition and Measurement, BIS Working Paper No. 316, July 2010

ECB (2011): Euro Money Market Survey, European Central Bank, September 2011

Eisenschmidt, J. – Tapking, J. (2009): Liquidity Risk Premia in Unsecured Interbank Money Markets, ECB Working Paper Series No. 1025, March 2009

Ewerhart, C. – Tapking, J. (2008): Repo Markets, Counterparty Risk, and the 2007/2008 Liquidity Crisis, ECB Working Paper No. 909

Geršl, A. – Komárková, Z. (2009): Rizika likvidity a nabídek bank chování: Důkazy z globální finanční krize. Finance a úvěr – Czech Journal of Economics and Finance, 59, 2009, No. 6. [http://journal.fsv.cuni.cz/storage/1176\\_1176\\_577-92---gersl.pdf](http://journal.fsv.cuni.cz/storage/1176_1176_577-92---gersl.pdf)

Michaud, F. – Upper, C. (2008): What Drives Interbank Rates? Evidence from the Libor Panel, BIS Quarterly Review, March 2008

BOFIT	Bank of Finland Institute for Economies in Transition
BR	Brazil
BRIC	Brazil, Russia, India and China
BRICS	Brazil, Russia, India, China and South Africa
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
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
CHF	Swiss franc
ICE	Intercontinental Exchange
IFO	Institute for Economic Research
IFO-BCI	IFO – Business Climate Index
IFO-CCI	IFO – Consumer Confidence Index
IN	India
IMF	International Monetary Fund
IRS	Interest rate swap
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
RU	Russian Federation
UoM	University of Michigan
UoM-CSI	University of Michigan Consumer Sentiment Index
US	United States
USD	US dollar

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