

# CENTRAL BANK MONITORING – MARCH

Monetary and Statistics Department  
Monetary Policy and Fiscal Analyses Division

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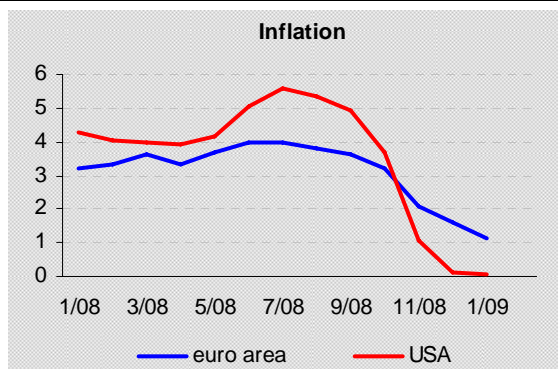
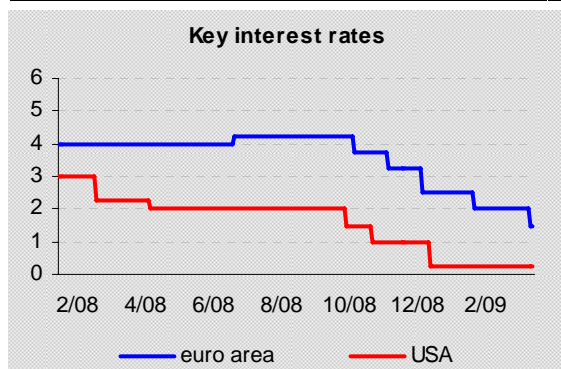
**In this issue**

The past three months were marked by the continuing interest rate cuts in the monitored central banks, which responded in this way to concerns about a sharp weakening of economic growth and the related decline in inflation. Slovakia introduced the euro on 1 January 2009, which made it the 16th euro area member state. For this reason, *Národná banka Slovenska (NBS)* will not be monitored any longer and will be replaced by another European continental inflation-targeting central bank – the Norwegian central bank (*Norges Bank*). In Spotlight we focus on the adoption of the euro in Slovakia. Our selected speech is Lars E. O. Svensson’s address on monetary policy with zero interest rates.

**1. Latest monetary policy development at selected central banks**

**ECB and Fed**

	<u>Euro area (ECB)</u>	<u>USA (Fed)</u>	The financial crisis has already fed through to the real economy, generating a significant slowdown in demand in both the euro area and the global economy. The <b>ECB</b> responded to the negative news of weak economic activity and weakening domestic and external inflation pressures in January and March by lowering the rates by 0.50 p.p. each time, to 1.5%.
<i>Inflation target</i>	< 2% <sup>1</sup>	n.a.	
<i>MP meetings (rate changes)</i>	15 Jan (-0.50) 5 Feb (0.00) 5 Mar (-0.50)	15-16 Dec (-0.75) 16 Jan (0.00)E 27-28 Jan (0.00)	
<i>Current basic rate</i>	1.50%	0-0.25%	
<i>Latest inflation</i>	1.2% (Feb 2008) <sup>2</sup>	0.0% (Jan 2008)	
<i>Expected MP meetings</i>	2 Apr 7 May 4 June	17-18 Mar 28-29 Apr	
<i>Other expected events</i>	4 Jun: publication of forecast	15 Apr: publication of Beige Book	
<i>Expected rate movements<sup>3</sup></i>	→	→	

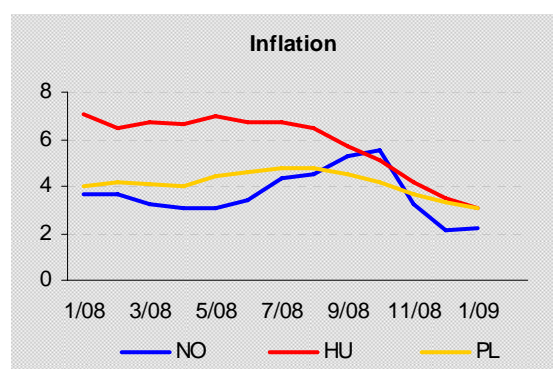
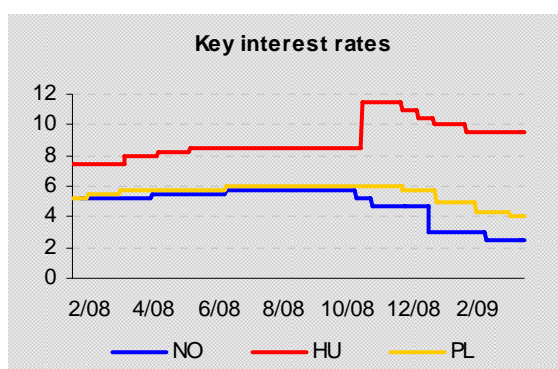


<sup>1</sup> ECB definition of price stability; <sup>2</sup> preliminary estimate; <sup>3</sup> The direction of the expected change in rates in the coming quarter is taken from the Consensus Forecast survey and from the RBNZ’s survey; E – extraordinary monetary policy meeting.

The **Fed** lowered its key interest rate to the very bottom, to a non-traditional range between 0% and 0.25%. Monetary policy eased in response to the further significantly deteriorating outlooks for economic activity, declining industrial production and employment. Despite the efforts of central authorities to provide liquidity and to strengthen the position of financial institutions, the credit market conditions remain tight. Although there is no room left for manoeuvre to reduce the rates, the Fed attempts to foster the economy through a quantitative easing of monetary policy. The Fed probably intends to continue buying up large volumes of government agencies’ debt and purchasing mortgage-backed securities, which has been for some time reflected in an increase in its balance sheet. Moreover, it is prepared to purchase government bonds if that would help improve credit market conditions.

Norway and Central European economies

	<u>Norway (NB)</u>	<u>Hungary (MNB)</u>	<u>Poland (NBP)</u>
<i>Inflation target</i>	2.5%	3.0%	2.5%
<i>MP meetings (rate changes)</i>	17 Dec (-1.75) 4 Feb (-0.50)	8 Dec (-0.50)E 22 Dec (-0.50) 19 Jan (-0.50) 23 Feb (0.00)	22-23 Dec (-0.75) 27 Jan (-0.75) 24-25 Feb (-0.25)
<i>Current basic rate</i>	2,5%	9,50%	4,00%
<i>Latest inflation</i>	2.2% (Jan 2009)	3.1% (Jan 2009)	3.1% (Jan 2009)
<i>Expected MP meetings</i>	25 Mar 6 May	23 Mar 20 Apr	24-25 Mar 28-29 Apr 26-27 May
<i>Other expected events</i>	25 Mar: publication of IR <sup>4</sup>	2nd half of May: publication of IR <sup>4</sup>	26 May: publication of IR <sup>4</sup>
<i>Expected rate movements<sup>3</sup></i>	↓	→	→



<sup>4</sup> Inflation Report; E – extraordinary monetary policy meeting

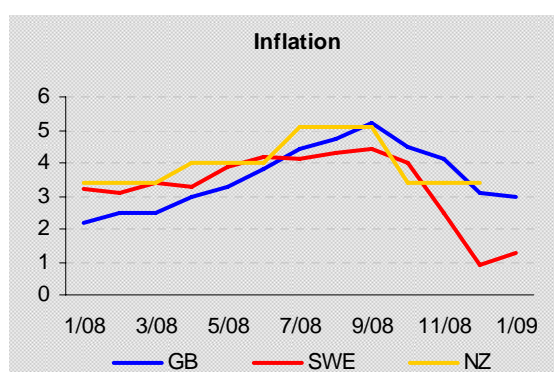
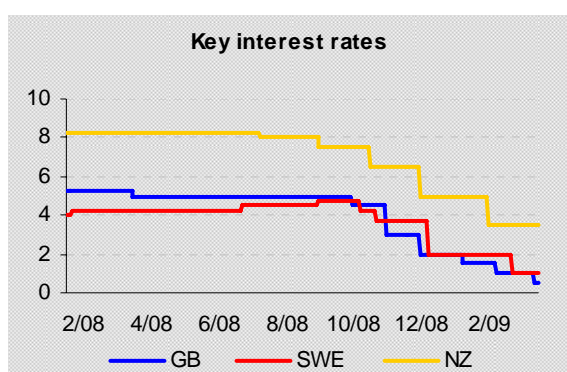
**Norges Bank (NB)** lowered its key rate twice in a row in the period under review; at first by 1.75 p.p. and later by another 0.50 p.p., to 2.50%. This was in response to an unexpectedly rapid downturn in domestic economy, a larger than expected decline in inflation and a combination of global events (a fall in oil price and a sharp decline of major foreign central banks' key rates). For the December decision-making, [a weaker level of the Norwegian krone](#) was an important inflationary factor, moderating anti-inflationary domestic and foreign pressures. According to the NB, a pronounced decline in rates reflected the risks of a sharp fall in the Norwegian economy amid moderated risks of unfavourable inflation.

The **MNB** continued the trend observed at the monetary policy meeting in November and lowered its rates three times by 0.50 p.p., thus by 1.5 p.p. in total. The lowering of the rate was due mainly to a deteriorating outlook for the Hungarian economy and to the risk that the inflation would fall below the 3% inflation target. Despite improved international financing conditions, the Hungarian economy faces foreign investor scepticism.

The **NBP** lowered its key interest rate by 1.75 p.p. in total. A significantly worse outlook for major trading partners together with a faster than expected decline in inflation made the NBP reduce interest rates. Inflation will continue to fall due to slackening domestic economic activity and the related decline in demand for labour and a moderating upward pressure on wages. Both Hungarian and Polish economies are also combating the depreciation of their currencies (see *News*). Moreover, the depreciating currency in Poland does not necessarily imply a positive effect on financial results of exporters, due to their hedging at stronger levels of the zloty, which is rather extensive.

Other selected inflation-targeting countries

	<u>United Kingdom (BoE)</u>	<u>Sweden (Riksbank)</u>	<u>New Zealand (RBNZ)</u>
<i>Inflation target</i>	2%	2%	2%
<i>MP meetings rate changes)</i>	7-8 Jan (-0.50) 4-5 Feb (-0.50) 4-5 Mar (-0.50)	11 Feb (-1.00)	29 Jan (-1.50)
<i>Current basic rate</i>	0.50%	1.00%	3.50%
<i>Latest inflation</i>	3.0% (Jan 2009)	1.3% (Jan 2009)	3.4 % (2008 Q4)
<i>Expected MP meetings</i>	8-9 May 6-7 May 3-4 Jun	20 Apr	12 Mar 30 Apr
<i>Other expected events</i>	13 May: publication of IR <sup>5</sup>	2 Jul: publication of Monetary Policy Report	12 Mar: Monetary policy statement
<i>Expected rate movements<sup>3</sup></i>	→	→	→



The **BoE** continued to ease monetary policy in recent months and lowered its key interest rate three times in a row by 0.50 p.p., to 0.50%. By lowering the rates, it responded to the strongly decreasing inflation forecast due to very adverse outlook for economic growth at home and abroad. The BoE acknowledged that it expected a fall in inflation below the 2% inflation target in the second half of the year. Tight credit conditions for corporations and households persist in the economy. The financial system remains sensitive to negative news, despite measures adopted by central authorities to support the stability of the British financial system. A decision to purchase assets of the commercial sector to foster money and loan supply was announced at the meeting in March (see *News*).

A pronounced lowering of the key interest rate of 1.00 p.p. to 1.00% in February was a result of an unanimous decision by the Riksbank’s Executive Board. By this, the Riksbank responded to the stronger worsening of economic activity than expected in December due to a decline in foreign trade. A global decline in economic performance further reduced oil prices, which also fostered a fall in inflation.

The **RBNZ** followed up on previous decisions, lowering again the key interest rate by 1.50 p.p., to 3.50%. This was due to significantly worse outlooks for domestic and external economic growth. Monetary policy has been gradually eased since July 2008, with the cut in the rates totalling 4.75 p.p.

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## 2. News

### ECB publishes the results of its monetary policy operations in 2008

The ECB's income from monetary policy operations increased compared to the previous year, reaching almost EUR 29 billion. However, some counterparties, namely Lehman Brothers Bankhaus AG, three subsidiaries of Icelandic banks, and Indover NL, defaulted on refinancing operations, and the value of claims amounted to EUR 5.7 billion. As the income, the potential loss from these operations will be redistributed among the Eurosystem's national central banks in proportion to their shares in the ECB's capital.

### Fed de facto "announces its inflation target" at 1.7–2.0%

On 18 February 2009, the Fed for the first time published long-term economic projections for output growth, unemployment and inflation by FOMC members. So far, quarterly economic projections had been released only at the three-year horizon. Now, a longer-term projection has been released as well, by which, in the case of the inflation rate, the Fed has de facto introduced its inflation target (1.7–2.0 %). The reason is that the achieving of the Fed's dual objectives (maximum employment and price stability) can be expected in such a distant future.

### Temporary currency arrangements – so called swap lines continue to function

The Fed continues providing swap lines (about which we informed in previous issues of the Central Bank Monitoring), with the extension of currency arrangements to 30 October 2009 applying to the following central banks: ECB, Bank of England, Reserve Bank of Australia, Banco Central do Brasil, Bank of Canada, Danmarks Nationalbank, Bank of Japan, European Central Bank, Bank of Korea, Banco de Mexico, Reserve Bank of New Zealand, Norges Bank, Monetary Authority of Singapore, Sveriges Riksbank a Swiss National Bank.

### Fed expands some one-day FOMC meetings to two days

FOMC meetings in March, August, September and December 2009 will take two days. These meetings were previously planned as one-day meetings, but two days mean additional time for more detailed discussion according to Fed representatives.

### Fed takes a further step to enhance its transparency

The Fed has created on its website a section informing in detail about credit and liquidity programs which it has created in the context of the financial crisis and which it is currently implementing. The development of the individual programs is supplemented with the information on the Fed's balance sheet items.

### Fed continues to implement its programs and is ready to conduct „quantitative easing“

The Fed continues to purchase problem assets (see [the list](#)) and is ready within the so called quantitative easing of the monetary policy (used mainly if there is no room for interest rate reduction) to purchase U.S. Treasury securities.

### Slovakia is the sixteenth euro area country

Slovakia introduced the euro on 1 January 2009, which made it the 16th euro area member state. We take a closer look at this event in Spotlight. In connection with the termination of the NBS's independent monetary policy, we cease to monitor it starting with this issue of the Central Bank Monitoring and replace it with Norges Bank (NB), which belongs to advanced inflation-targeting central banks.

### Press statements by the authorities of the Central and Eastern European region

A number of central banks in the CEE region have made verbal interventions against the weakening of their currencies, with the coordinated statements by the Polish, Hungarian, Czech and Romanian central banks released on 23 February meeting with the biggest response. These statements called the recent weakening of the individual currencies ([PLN](#), [HUF](#), [CZK](#) a [RON](#)) unjustified and particularly the Polish and [Romanian governors](#) raised the possibility of using additional instruments to support

their currencies. On 4 March, the CEBS members representing supervisory authorities of the CEE Member States (the Czech Republic, Slovakia, Poland, Bulgaria, Romania and Hungary) issued a common position on the warnings regarding the assessment of the CEE region and its financial systems.

#### **Narodowy Bank Polski continues in currency swap arrangement**

The Narodowy Bank Polski, the Central European Bank and the Swiss National Bank agreed to continue in the currency swap arrangement in effect since 15 October 2008 on conducting EUR/CHF foreign exchange swaps. These EUR/CHF swap operations will be conducted weekly until the end of April 2009, to support the Polish interbank Swiss franc market. Specifically, the SNB will provide the NBP with Swiss francs against euro, while the NBP will provide the Swiss francs to its counterparties against Polish zloty. The [Magyar Nemzeti Bank](#) joined the swap arrangement on 28 January 2009.

#### **Magyar Nemzeti Bank is actively involved in providing loans and financing the economy**

Over recent months, the Magyar Nemzeti Bank has continued in introducing new instruments and using swap operations in order to support the financing of the economy. Specifically it means to conduct regularly [three-month and six-month EUR/HUF swap operations](#) designated to domestic financial institutions. This involves government securities tenders, the widening of eligible counterparties (financial institutions) entering tenders and a series of auctions in which the MNB extended the range of accepted collateral by EUR/CHF denominated government securities.

#### **Riksbank continues to provide collateralised loans to selected market segments**

The Riksbank continued in the October auction and on [21 January](#) offered again a three-month loan against commercial papers. The minimum interest rate for this auction is the repo rate plus 0.40 percentage point. The maximum amount of the loan is SEK 40 billion. The Riksbank thus wants to improve the supply of loans to the corporate sector. In February and at the beginning of March, the Riksbank offered further three-month and six-month loans. The minimum interest rate for these auctions is expressed as a sum of the repo rate plus 0.20 percentage point always in the volume of up to SEK 25 billion for each maturity. The Riksbank also introduced a loan [programme](#), in which it will provide SEK loans with maturities of three and six months against traditional collateral and loans with maturities of three, six and twelve months against commercial papers at variable interest rate.

#### **Bank of England is ready to use monetary policy quantitative release**

The BoE decided to support money and credit supplies through private sector asset purchases in the value of up to GBP 75 billion. [It started to purchase](#) commercial papers and corporate bonds through [Asset Purchase Facility](#), which is financed by T-bill sales in the volume of up to GBP 50 billion. This [programme](#) aims at renewing the corporate credit market functioning. GBP 75 billion asset purchase will be conducted partly through Asset Purchase Facility, and at the same time, medium and long-term government bonds will be purchased at the secondary bond market to meet the objective of drawing on GBP 75 billion. Asset purchases will be conducted for approximately three months.

#### **Bank of England publishes US Dollar Repo Operations in 2009 Q1**

On 19 December 2008, the BoE announced schedules for six US Dollar repo operations to be conducted in the first quarter of 2009. The operations will be conducted in weekly intervals at fixed interest rate.

#### **RBNZ extends the range of securities eligible as repo operations collateral**

In January, the RBNZ extended the range of securities eligible as collateral for open market operations. Currently, corporate bonds and certain types of asset-backed securities can be used as collateral.

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### 3. Spotlight: Adoption of the euro in Slovakia

*On 1 January 2009, the euro became Slovakia's official currency, taking the number of euro area countries to sixteen. In Spotlight we examine Slovakia's process of accession to European monetary structures and in particular its experience with putting the euro into circulation. This is a follow-up article to previous issues of Central Bank Monitoring (December 2005 and June 2008) dealing with Slovakia's ERM II entry and the assessment of Slovakia's preparedness for the adoption of the euro in last year's Convergence Reports of the European Commission and the European Central Bank.*

#### **Period prior to euro adoption decision: Slovakia's process of accession to European monetary structures**

The introduction of the euro as Slovakia's legal tender marked the culmination of the country's long-running efforts to achieve full integration into European structures. Slovakia's entry into the euro area can also be viewed as another milestone in the process of accession of the economies of the Central European region to the single monetary policy area. Slovakia joined the EU on 1 May 2004, simultaneously becoming a member of the Economic and Monetary Union (EMU) along with the other nine new member states. At the same time, Slovakia and all the other new member states secured a temporary exemption, or derogation, from the obligation to introduce the euro and undertook to work towards introducing the euro in their accession treaties.

In July 2005, Slovakia adopted a National Euro Changeover Plan setting out its strategy for adopting the single currency and defining 1 January 2009 as the changeover date. Slovakia planned to introduce the euro simultaneously in cash and scriptural (non-cash) form without a transitional period (the "Big Bang" scenario) and with a very short dual circulation period (see below). In March 2007, it issued an updated National Plan containing a revised timetable of legislative steps and defining the position, responsibilities and tasks of the government plenipotentiary for the euro. A further update of the National Plan was published in April 2008. In addition to many revisions, it contained information on starter kits (again, see below).

A major step towards euro adoption was Slovakia's entry into the Exchange Rate Mechanism of the European Monetary System (ERM II)<sup>1</sup> on 25 November 2005 at a central rate of SKK 38.4550 to the euro. This was followed by a three-year stay in the ERM II. Before the euro adoption decision was made and the koruna's conversion rate against the euro was set, the central rate was twice revalued to a final value of SKK 30.1260. Despite this, Slovakia managed to keep its currency within the permitted fluctuation band of  $\pm 15\%$  around the central rate during its stay in the ERM II. This was subsequently assessed as successful fulfilment of one of the convergence criteria for entry into the euro area.

Before the euro adoption decision, Slovakia had to show that it was compliant with all the other Maastricht convergence criteria – not just the exchange rate stability one. Fulfilment of all the criteria is assessed on the basis of the Convergence Reports of the European Commission and the European Central Bank (ECB). Given the positive assessments in these reports, the Council of the EU in the composition of the ministers of finance and economics (Ecofin), after consultation with the European Parliament and the EU Council, decided in summer 2008 to allow Slovakia to adopt the single currency and set Slovak koruna's conversion rate against the euro at the aforementioned SKK 30.1260.

#### **Preparations for and course of changeover**

Mandatory dual display of prices of goods and services in Slovak koruna and euro started on 24 August 2008 and will continue until the end of 2009. As in other countries adopting the euro, this is intended mainly to help the public to get used to the new nominal amounts (prices, wages, etc.) expressed in the new currency and also to protect all economic agents against abuse of the new

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<sup>1</sup> A commentary on Slovakia's ERM II entry can be found in the [December 2005 issue of Central Bank Monitoring](#).

currency in the form of hidden price increases. Inspectors from the Slovak Commercial Inspectorate are conducting checks to make sure that dual prices are being displayed correctly. The inspectors check whether prices are being correctly converted and rounded and whether they are being dual displayed at all. Another important activity aiding the euro changeover was the adoption of a code of ethics in response to public concerns that prices of goods and services would go up. The code was introduced to ensure that the entire changeover process was transparent and to prevent consumers from being harmed during the revaluation of goods and services. The Slovak government passed a “General Act” to ensure a transparent changeover to the euro. Fines can be imposed for breaches of this law. In extreme cases, prison sentences can be imposed under criminal law.

Another key element of the successful changeover was timely frontloading of euro notes and coins. Coin frontloading started on 6 September 2008 and banknote frontloading a month later. The frontloading process itself was aimed at the banking sector, specifically at 16 commercial banks. Sub-frontloading of around 14,000 companies was subsequently launched at the start of November. By the end of 2008, 51.1 million notes and 338.9 million coins had been frontloaded. During December 2008, starter kits containing 45 coins worth €16.60 went on sale. In all, 1,320,000 kits were distributed. These kits were part of the sub-frontloading of the population and were intended to prevent pressure on the stock of coins that might have arisen if customers paid in only banknotes and were given change in coins. Moreover, in the last few weeks before the changeover some commercial banks offered advance exchange of Slovak korunas for euros at the official conversion rate free of charge.

The exchange of korunas for euros was implemented in accordance with the National Changeover Plan of the Slovak Ministry of Finance and the Slovak National Bank. To ensure the required volume of cash, the NBS borrowed 188 million euro notes with a total nominal value of €7.1 billion from Eurosystem reserves. Coins were minted at Kremnica Mint in Slovakia, which produced 499 million coins with a total nominal value of €165.2 million. Detailed information on the banking sector’s changeover to the euro can be found in the press release [Euro conversion in the banking sector in Slovakia is proceeding successfully](#) and additional information on frontloading is given (in Slovak) in [Predzásobenie, druhotné predzásobenie eurovou hotovosťou a vývoj peňazí v obehu v SR](#).

The dual circulation period lasted from 1 January to 19 January 2009. To guarantee a smooth changeover, commercial banks stayed open on the weekend of 3–4 January and took on extra staff to exchange cash. By 5 January, all bank products were available in the new currency. No major problems linked with the changeover were reported in commercial banks. The Slovak koruna ceased to be the official legal tender on [19 January 2009](#), when the dual circulation period ended. Slovak korunas can still be exchanged for euros in commercial banks free of charge, although only in limited quantities (100 coins until 30 June 2009 and 100 banknotes until 31 December 2009). Above these limits, fees may be charged by banks. The NBS will exchange koruna banknotes for an unlimited period of time. In the case of coins, the redemption period will run only until the end of 2013. The withdrawal of Slovak korunas is going quickly and smoothly, with [92% of cash](#) having been taken from circulation in the first month.

### **Impact of euro adoption on price level hard to quantify**

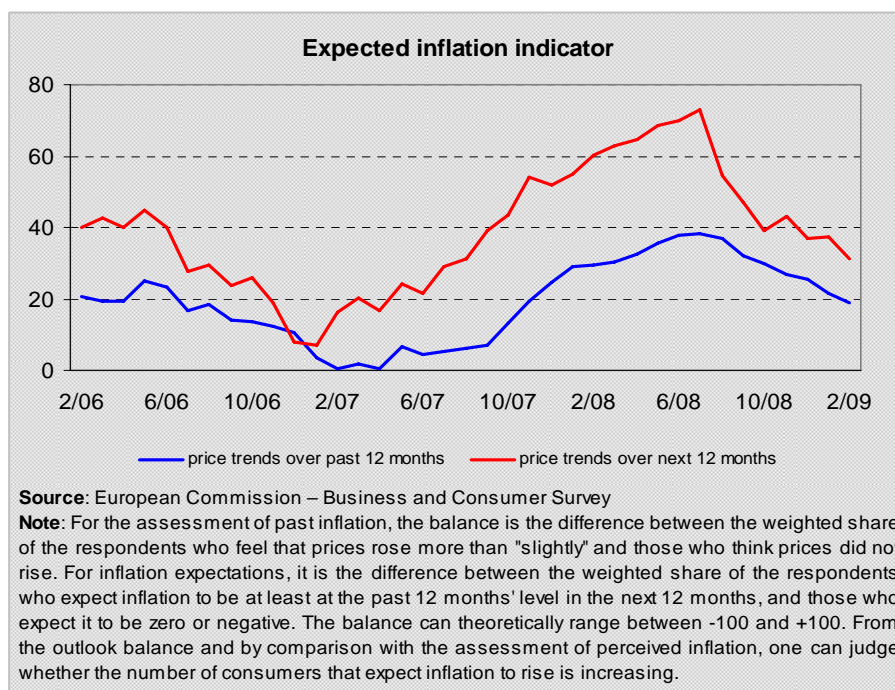
An [OECD study](#) has estimated the impact of euro adoption on the price level in Slovakia at 0.3 percentage points. NBS Governor Ivan Šramko mentioned the same figure in a [speech given in Riga, Lithuania](#). The impact of the euro changeovers in other countries has also been estimated at around 0.3 percentage points. The public has often had the impression that the rise in prices of goods and services has been higher than that reported by statistics offices. A role is played by psychological factors influencing public perceptions of price growth. In particular, price rounding during minor transactions, often involving coins (e.g. parking machines, public transport tickets, newspapers) and/or made very frequently (daily or weekly), gives rise to perceptions of increased prices.<sup>2</sup> It is interesting to observe the indicators of inflation perceived and expected by households as compiled

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<sup>2</sup> Euro changeover effects. Eurostat, Euro-Indicators, news release, Annex, 18 June 2003.



by the European Commission. The following chart shows these indicators for Slovakia.



The indicators reveal a rise in perceived inflation up to mid-2008 and a subsequent fall in recent months (the blue line). The indicator of expected inflation also peaked in mid-2008 and later fell markedly (the red line). In both cases this corresponds to the paths of inflation, inflation perceptions and inflation expectations in other EU countries in relation to the impacts of global inflation factors in late 2007 and the first half of

2008. The specific factor of euro adoption in Slovakia thus seemed to play no major role in the evolution of either of these indicators or of inflation itself.

#### **Loss of independent monetary policy and change in status of Slovak National Bank**

The changeover to the euro has fundamentally changed the status and role of the NBS. The NBS is now part of the Eurosystem (comprising the ECB and the central banks of the euro area member states). It has shared responsibility for the single currency and for implementing the common monetary policy in the euro area. This also means that Slovakia has lost its independent monetary policy and will not be setting its own interest rates, hence the NBS is no longer responsible for monetary policy-making in Slovakia. Slovakia thus retains just a few other economic policy instruments to influence its economy, such as fiscal and structural policy. As a small, export-oriented economy, Slovakia can moreover expect less external vulnerability and more economic stability in the current period of turbulence as a result of introducing the euro.

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#### 4. Selected speech: Lars E. O. Svensson on monetary policy with a zero interest rate

*In this part we summarise the speech "[Monetary policy with a zero interest rate](#)" given by Lars E. O. Svensson, Deputy Governor of Sveriges Riksbank, in Stockholm on 17 February 2009.*

In his speech, Lars Svensson examined the options for conducting monetary policy in an environment of very low interest rates and the prevention of such a situation. He began by saying that from the practical perspective interest rates cannot be reduced below zero, as economic agents would prefer to retain cash (yielding a zero interest rate) rather than bonds; a liquidity trap would arise in the economy. If interest rates are close to zero the real economy is weak, and if expectations of deflation simultaneously gain in strength non-interest-rate solutions need to be found. In such a situation, real market rates, i.e. nominal market rates (expressed as the sum of the central bank monetary policy rate and the spread along the yield curve) adjusted for expected inflation, can be too high compared to the level appropriate to stabilise inflation around the inflation target and stabilise the real economy.

If central bank rates hit zero, real rates can be lowered either by reducing the spread (for example by implementing measures to improve the functioning of the financial markets) or in particular by affecting inflation expectations. Mr Svensson regards the latter as the solution and offers several ways of doing so. The first is to set a credible inflation target and conduct a transparent monetary policy, which should ensure that inflation expectations do not fall too low and deflation fears do not arise. The second is to establish a price level target in the form of an average inflation target of, for example, 2% for the following five years. This should stabilise long-term inflation expectations even if low or negative inflation is expected in the short term. The final option, according to Mr Svensson, is to use the exchange rate as a monetary policy instrument. This forms part of his proposal of a "Foolproof Way" for a small open economy to escape from a liquidity trap. The Foolproof Way consists of the following three measures: (i) the introduction of a price level target as described earlier, (ii) the introduction of an exchange rate target that is consistent with the price level target, (iii) a return to a floating exchange rate when the price level target has been attained, either with the old inflation target or with a new price level target. In this context, Mr Svensson explained that the introduction of a temporary exchange rate target cannot be considered a competitive devaluation. If the zero lower bound for the interest rate did not exist, the central bank could always reduce real interest rates in the economy by reducing monetary policy rates, which would lead to a depreciation of the domestic currency. Using the exchange rate as a monetary policy instrument for which no bounds exist should therefore not be seen as more controversial than using any other method affecting expectations of the future price level.

Mr Svensson then turned his attention to quantitative easing. He emphasised that this policy is ineffective if it is not expected to be permanent. In his view, there is no way for the central bank to make a credible commitment to a larger money supply in the future. He also stated that an expansionary fiscal policy also plays an important role in dealing with deflation expectations when interest rates are close to zero. Its effectiveness is, however, dependent on the degree of Ricardian equivalence (the degree of substitution between public and private saving), the initial size of the national debt, the structure of public expenditure and the proposed tax reductions.

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