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## ENLARGING EUROPEAN MONETARY UNION

*Joining the European Union implies eventually joining the monetary union. For the Central and East European Countries (CEECs), this means that the central parities of their currencies against the euro have to be defined carefully when they enter the ERM Mark II. These parities need to be consistent with the requirements of nominal stability set out in the Maastricht Treaty, as well as with the needs of economic catch-up faced by the transition economies. Estimating the real equilibrium exchange rate provides a tool for characterising the situation of the five future members of the Union. While some have been able to maintain their real exchange rate close to its fundamental equilibrium level, others have experienced strong volatility along with overvaluation. The prospects of joining the EMU now appear to be guiding the strategies of central banks: most countries are stabilizing their exchange rates against the euro, though not always at rates close to equilibrium parities. Capital flows will play a key role in the ability of central banks to defend selected parities.*

As of 1 May 2004, the European Union will have ten new members. Eight<sup>1</sup> of these candidates are Central and Eastern European Countries. In contrast to the United Kingdom and Denmark, which are members of the European Union but not the euro-zone, the future EU members have no opting out clause. As a result, the CEECs and other candidates will have to adopt the euro in time, as it is part of the *acquis communautaire*.

They will therefore have to fulfil the Maastricht criteria. In particular, their nominal exchange rates will have to remain stable with respect to the central parity set within the ERM Mark II, for a period of two years before entering the euro-zone. This level of central parity is thus crucial: when prices are rigid (which is the case at least in the short term), it is the nominal exchange rate that sets the real exchange rate, i.e. the price competitiveness of an economy. Competitiveness, in turn, conditions economic catch up, as it determines the competitive position of a country (both in foreign as well as domestic markets) and affects long term, foreign capital inflows.

The future enlargement of the Union is different to the expansions which brought in Portugal, Spain and Greece. Leaving aside Slovenia, whose living standard has already reached 70% of the EU's average, the GDP per capita of the CEECs at purchasing power parity does not exceed 40% of the EU's. The new candidates must both meet the nominal Maastricht criteria and converge on the development levels of their European partners. This requires the real exchange rate to have reached its fundamental equilibrium rate

(see Box 1). Under these circumstances, relative prices are indeed compatible with catch up, and the nominal exchange rate should be stable, with the forex markets not expecting any exchange rate adjustment.

Estimating the central parity set at the moment of entry into the ERM Mark II, which has not yet been fixed, is not an easy exercise. However, using estimates of the real equilibrium exchange rate, it is possible to measure the path which the CEECs should follow for their monetary integration into the Union to succeed. This is the goal of the research presented here, which covers five future members: the Czech Republic, Slovakia, Slovenia, Poland and Hungary.

### Box 1 – THE NOMINAL EXCHANGE RATE, THE REAL EXCHANGE RATE AND PRICES

The nominal exchange rate defines the price of a currency in terms of another currency. It does not have the same consequences on the real economy whether the price level (or the rate of inflation) is relatively strong or weak. Indeed, it is only possible to gauge the purchasing power of a currency or the price-competitiveness of an economy by comparing the nominal exchange rate to relative prices. The ratio  $s^*/p$  defines the real exchange rate, i.e. the purchasing power of a money in terms of goods (where  $s$  stands for the nominal exchange rate, while  $p$  and  $p^*$  represent respectively the level of domestic and foreign prices). It is this real exchange rate that is crucial to the real economy. While an overvalued exchange rate weakens an economy, it is not efficient either for the exchange rate to be excessively undervalued: in this case imported goods are more expensive and strengthen inflationary pressures, as the terms of trade may depreciate excessively. Hence, it is important to let the real exchange rate find its equilibrium level.

1

1. The five countries studied here (the Czech Republic, Slovakia, Slovenia, Poland and Hungary), along with the three Baltic states: Estonia, Lithuania and Latvia.

## The Present State of Play

These five countries have begun their transition with relatively rigid exchange rate regimes. But financial liberalization has thereafter permitted considerable capital inflows that have disrupted the management of the exchange rate, to such an extent that all these currencies have been allowed to float (with varying degrees of freedom, depending on the country). If the nominal exchange rate is set by the markets, then it determines the real exchange rate, in the short term at least. At the same time, fundamental forces drive the medium and long term behaviour of an exchange rate. The market rate may thus differ from the equilibrium rate, leading to misalignments in the real exchange rate. Indeed, some CEECs (notably Slovakia) would appear to suffer from real exchange rate overvaluation. On the one hand, unemployment is still high, suggesting that there is a shortfall in demand, which could be made up by a rise in foreign demand, brought about by a depreciating exchange rate. On the other hand, current account deficits remain high (except in Hungary and Slovenia). While these have been financed until now by Foreign Direct Investment (FDI), which is generally held to bring in stable capital, most capital inflows have been linked to privatisation programmes, and there is no guarantee that FDI will continue to flow during the years ahead (Table 1).

Table 1 – Selected Macroeconomic Indicators for 2001

2

	Unemployment Rate (%)	Inflation Rate (%)	Current Account (% of GDP)	Net FDI Flows (% of GDP)	Portfolio Investments (% of GDP)
Poland	17.5	5.5	-4.0	3.9	1.0
Czech Republic	8.9	4.7	-5.1	9.4	1.8
Slovakia	18.6	7.3	-8.6	7.1	-1.1
Hungary	8.0	9.2	-2.1	4.0	2.9
Slovenia	11.8	9.4	0.2	2.0	0.4

Sources: WIIW and IMF.

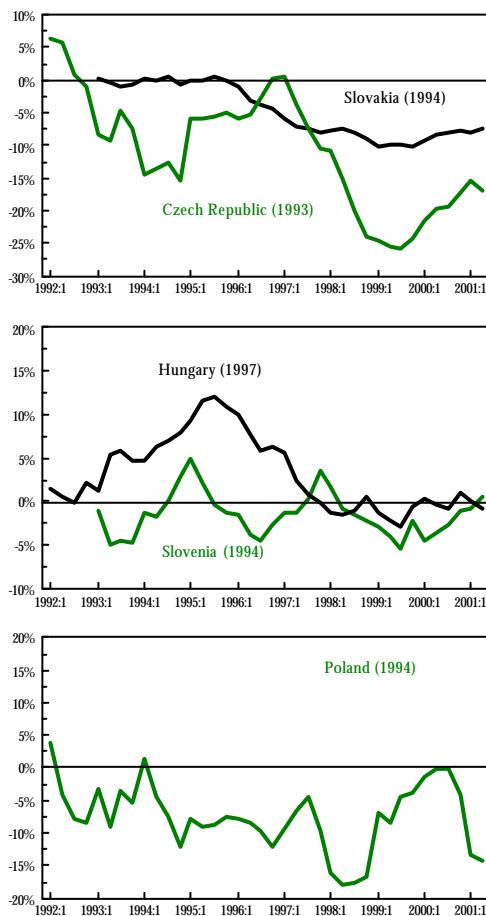
## Appropriate Levels for the Real Equilibrium Exchange Rate

To measure exchange rate misalignments, an empirical model has been developed in which the Fundamental Real Equilibrium Exchange Rate (FEER) is classically defined being consistent with the simultaneous attainment of internal and external equilibrium (respectively non-inflationary growth and stable inflows financing the current account deficit). This model makes it possible to estimate the behaviour of the FEER for each of the five currencies with respect to a currency basket made up of dollars and euros (Box 2), from early 1992 through to the second half of 2001<sup>2</sup>. To measure the under or overvaluation of a currency, macroeconomic

equilibria criteria are used to identify a year in which the real exchange rate is close to its fundamental equilibrium<sup>3</sup> value. By using this reference rate, it is possible to measure misalignments in the quarterly exchange rate by comparing the estimated FEER with the actual movements of the exchange rate. The baseline year is bracketed in Graph 1, which gives the results of the estimates.

These results are sensitive to the choice of the baseline year. Nevertheless, they very significantly highlight the strong heterogeneity of the real exchange rate movements of the CEECs: Slovenia has been able to stay close to the equilibrium rate, as has Hungary (the crawling pegs which were established a while ago have greatly contributed to this stability). In contrast, the three other countries have experienced strong exchange rate volatility, with overvaluation pressures. While the volatility may be explained by the opening up of the capital accounts, the overvaluation results both from an inflow of foreign capital and restrictive monetary policies geared to reducing inflation.

Graph 1 – Real exchange rates: distortions with respect to the fundamental equilibrium rate - 1992-2001, quarterly data



Note: a negative (positive) value indicates over (under) valuation.

Source: Author's calculations.

2. This is the effective real exchange rate, i.e. the real exchange rate expressed with respect to a basket of currencies (euros and dollars), weighted according to the share of trade partners in CEEC trade. The weightings are set out in Table 1.

3. For further information see A. Lahrèche-Révil & B. Egert, "Estimating the Fundamental Equilibrium Exchange Rates of Central and Eastern European Countries: The(M)U Enlargement Prospect", CEPII Working Paper, forthcoming.

## Box 2 – MEASURING THE EQUILIBRIUM EXCHANGE RATE

In this study, the equilibrium exchange rate is given by the simultaneous dynamics of the domestic and foreign equilibria, which in turn are given by the standard variables found in the theoretical and empirical literature\*.

Domestic equilibrium is defined by the relative prices of the non-tradable sector and the tradable sector, which is exposed to international competition. It is determined by the Balassa-Samuelson effect, which stipulates that the real exchange rate will appreciate as a country's development catches up: the productivity gains allow wages to be increased in this sector. This rise then spreads to the non-tradable sector, in which productivity tends to lag, so that costs and ultimately prices rise too. This supply-side effect is accompanied by a demand-side effect: both households and the government consume more as an economy develops. This rise in consumption affects above all non-tradable goods and services, and leads to a price rise in this sector and hence a rise in the general price index.

As for the external equilibrium, it is summarised by the evolution of the current account. The terms of trade (the price of exports/the price of imports) are a key component in this. But their impact is ambiguous: while strong terms of trade indicate a good trade specialization and is compatible with an improvement in the current account, a rise in the terms of trade due to weakness in price competitiveness will be accompanied by a deterioration of the current account. In the first case, the real exchange rate should appreciate, whereas it should depreciate in the latter. Furthermore, shifts in the real exchange rate also depend on trade policy: protectionist policies make it possible to have an appreciated real exchange rate, while trade liberalization weakens the current account balance and requires a depreciation of the real exchange rate.

Technically, the empirical model is estimated within the framework of a three-equation VAR model, which seeks to provide three long term relationships (cointegration à la Johansen) between the variables presented above. The results obtained are indeed consistent with the theory: the relative prices of non-tradable goods depend both on the Balassa effect and on the demand effect. The current account deteriorates with a rise in the terms of trade and trade liberalization. The real exchange rate appreciates with the rise in relative prices and depreciates with a worsening of the current account.

\* The CEPPII has also developed another way for estimating the equilibrium rate, based on J. Williamson's approach. See V. Couderet & C. Couharde, "Exchange Rate Regimes and Sustainable Parities for CEECs in the Run-up to EMU Membership", CEPPII Working Paper, n° 2002-15, December 2002.

## Appropriate Parities Against the Euro

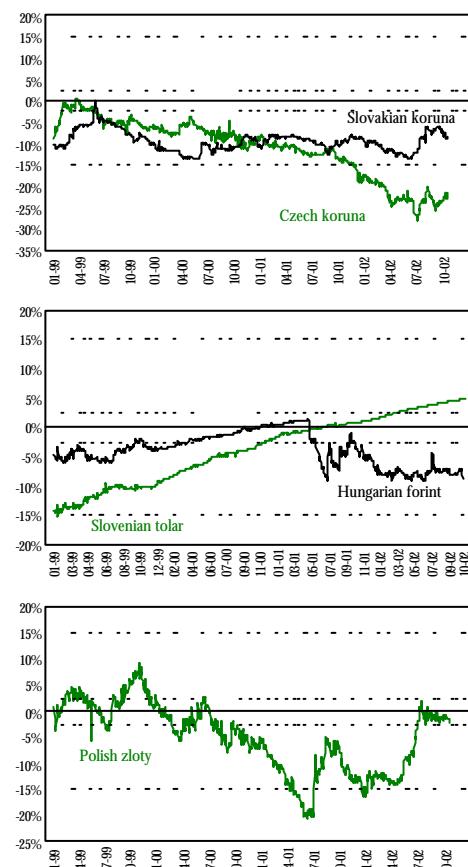
**I**t is vital that entry into a fixed exchange rate regime like the ERM Mark II is well prepared, in order to avoid exchange rate crises which are almost inevitable if the central rate is badly set. In contrast, if the central parity is held to be credible, then it plays a key role in shaping expectations.

From this point of view, it is interesting to observe the recent behaviour of nominal rates against the euro with respect to its equilibrium value. The real exchange rate misalignments that have been estimated for mid-2001 make it possible to define a nominal equilibrium exchange rate vis-à-vis the euro (Table 2). It is then possible to plot daily exchange rate movements from early 1999 to November 2002 against this norm. The horizontal lines in Graph 2 represent the ±2.5% and ±15% fluctuation margins that have been used historically in the EMS/ERM. To be sure, the nominal exchange rate level estimated for mid-2001 may, of course, no longer be relevant at the end of 2002, in as far as fundamentals and prices have changed. Furthermore, exchange rate movements within the ERM Mark II margins

may differ from those experienced in the last four years, as economic agents may modify their behaviour when their operating environment, in this case the exchange rate regime,

Graph 2 – The nominal exchange rate vis-à-vis the euro: exchange rate movements between 1999-2001, with respect to the norm estimated for 2001, daily data

3



Note: the horizontal lines represent the ±2.5% and ±15% fluctuation margins of the EMS.  
Source: Authors' calculations.

Table 2 – The nominal equilibrium exchange rate against the euro, during the second semestre 2001\*

	Poland	Czech Republic	Slovakia	Hungary	Slovenia
Share of the euro in currency basket	62%	80%	74%	83%	89%
Nominal exchange rate against the euro in the 2 <sup>nd</sup> quarter 2001:					
. Observed rate	3,49	34,30	43,00	257,46	214,44
. Equilibrium rate	4,12	38,39	47,54	263,90	217,94
Nominal exchange rate overvaluation	15%	11%	10%	2%	2%

\* The bilateral, nominal equilibrium is measured by combining estimations of the distortion of the real effective exchange rate and the weight of the euro in the reference basket of currencies. The equilibrium exchange rate between the euro and the dollar is identified as the observed exchange rate during the 2nd quarter 2001.

Source: Authors' calculations (A. Lahreche-Révil & B. Eger, forthcoming, see note 3).

changes. Nevertheless, the results highlight the constraints faced by the CEECs when selecting their ultimate exchange rate against the euro.

Some cases are spectacular. Slovenia illustrates sharply the trade-off between real exchange rate and nominal exchange rate stability in a transition country which continues to be more inflationary than existing EMU members, despite the significant progress it has made. Its smooth crawling peg regime has allowed Slovenia to offset the inflation differential with its partners and to stabilise its real exchange rate. Entering the ERM Mark II would prohibit such offsetting devaluation. The likely persistence of inflation differentials, however, will lead to a real appreciation of the tolar and might endanger economic growth, if the differential exceeds the normal rise in prices associated with economic catch-up (the Balassa-Samuelson effect, see Box 2). Poland is another extreme case at the end of the period. The nominal appreciation of the zloty observed between early 2000 and mid-2001 (leading to a 15% overvaluation) has been reversed, the nominal exchange rate now being stabilized against the euro. As of the third quarter of 2002, the zloty has remained within the ±2.5% fluctuation margins of nominal equilibrium exchange rate.

The exchange rate movements for the other three countries have been similar to Poland's: the nominal exchange rate has stabilized at the end of the period, as the prospects of EU membership have probably much influenced central banks. This is especially the case for the Hungarian forint, which has settled at a rate quite close (i.e. to within 5%) of the nominal equilibrium exchange rate as measured for 2001, and has remained within narrow margins. The Slovakian koruna has shown greater volatility (the de facto observed fluctuations margins are about ±5%) and pressure for exchange rate appreciation does not yet seem to be contained. As for the Czech koruna, the exchange rate has probably been stabilized at an overvalued level rate, in as far as the real exchange rate was itself already largely overvalued in mid-2001.

The stabilization of exchange rates is generally rooted in monetary policy being subordinated to the exchange rate target. The alternatives facing the CEECs today are quite complex, and depend to a large extent on the behaviour of capital flows. Indeed, two scenarios are possible: if foreign capital continues to flow into the CEECs, leading to

appreciating exchange rates, then the central banks should reduce their interest rates. The danger in this case is that domestic pressure on inflation builds up in the medium term, pushing price increases beyond the levels fixed by the Maastricht Treaty.

On the other hand, if FDI inflows fall off, financing current account deficits will have to rely on short term capital, or a fall in foreign exchange reserves. The exchange rate regime is weakened in either case, and the risks of depreciation rise. If the markets believe the central parities to be overvalued, then interest rates should rise in order to compensate the expected exchange rate depreciation. Inflationary pressures will then diminish, but the growth outlook and the success of enlargement in terms of economic catching up may be undermined, and the interest rate objectives may not be respected (according to the Maastricht Treaty, long term rates should not exceed by more than 2 percentage points the average rate of the three countries with the lowest rates of inflation). Thus, successful membership of the EU and the adoption of the euro imply that the entry parities in the ERM Mark II need to be carefully defined. These rates will result from political negotiation between governments, as it is the latter which are responsible for the exchange rate policy of the euro, according to the Maastricht Treaty. The history of the 12-member euro-zone suggests that if the adopted parities are credible, then market expectations converge on them, and so the adoption of a common currency can occur without too many disruptions. Market expectations must, however, also be channelled. The central banks of the candidate countries seem ready to do this, as, according to this study, most of them appear to be seeking to stabilise their exchange rates. But it seems unlikely that the ECB will commit itself to guaranteeing the existing parities, given its primary objective of price stability in the euro-zone. As a result, successful entry into the euro will depend almost exclusively on the credibility of the announced parities and on the will (and capacity) of the central banks of the candidate countries to defend these parities.

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