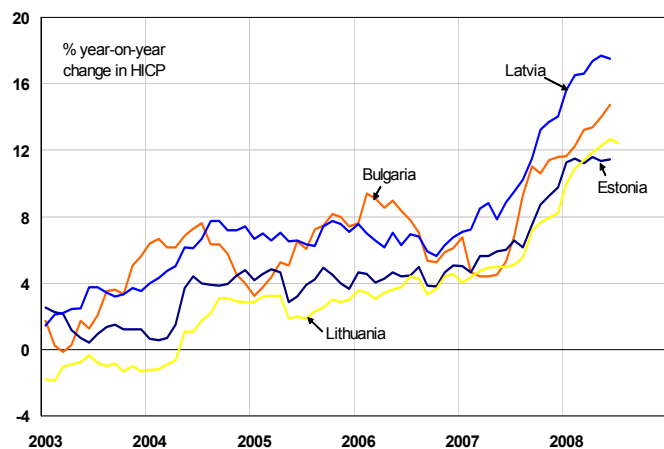


Economic catch-up and price-level convergence in the countries of Central and Eastern Europe (CEE)

- As their economies catch up, the real exchange rates of Central and Eastern European (CEE) countries are appreciating, which means that domestic prices are rising faster than in the euro area. This is a typical feature of transition economies, reflecting sharp gains in labour productivity and a sizeable accumulation of productive capital, which ultimately leads to convergent price levels.
- The way in which real exchange rate appreciation occurs in CEE countries (via a rise in the nominal exchange rate or an inflation rate differential with the euro zone) is nevertheless liable to have an impact on their economic situation and on the pace of price convergence, given their status as EU Member States.
- Under flexible exchange-rate regimes, real appreciation may to a large extent take place via an appreciation of the nominal exchange rate. This dampens inflationary pressures and allows the central bank to maintain positive real interest rates, having no exchange rate target. Relatively stable domestic financing conditions ensure a sufficient level of savings, which limits macroeconomic and financial imbalances.
- Choosing a fixed exchange rate reduces exchange rate risk and its attendant risk premium. However, strong inflationary pressures stemming from real appreciation may lead to the emergence of negative real interest rates in a situation conducive to nominal interest-rate convergence, thus fuelling economic overheating. Expansionary financing conditions are likely to encourage rapid credit growth and boost asset prices sharply, notably property prices. The dynamism of domestic demand may in turn lead to excessive real exchange rate appreciation, accompanied by a widening of external deficits and rising external debt.
- Countries that decide to fix their exchange rate risk external and domestic imbalances that could compromise their ability to sustainably meet the convergence criteria required for euro zone accession, particularly price stability.

This study was prepared under the authority of the Treasury and Economic Policy General Directorate and does not necessarily reflect the position of the Ministry for the Economy, Industry and Employment.

Inflationary pressures in the fixed exchange rate CEE countries



Source: Eurostat.

1. Economic catch-up of CEE countries goes hand in hand with real exchange rate appreciation, leading to inflationary pressures and/or an appreciation of the nominal exchange rate

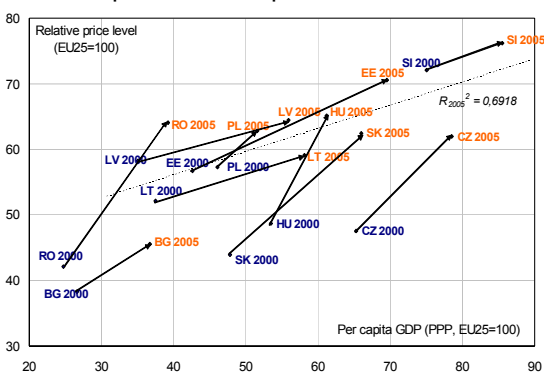
1.1 Rising living standards in CEE countries have been accompanied by a convergence of price levels with those in the euro area

The new EU Member States have enjoyed strong growth in the last few years, leading to rapidly rising living standards as measured by per capita GDP. Economic catch-up, implying a rise in purchasing power for domestic economic agents relative to those in the other EU member countries, has brought with it a trend appreciation of the real exchange rate (i.e. a rise in domestic price levels relative to those in the euro area). The positive correlation between per capita GDP growth and a rise in the general price level is a specific feature of transition economies and has been observed in all CEE countries since the early 2000s.

This empirically documented relationship between rising per capita GDP and relative increase in the price level occurs via a number of channels proceeding either from supply-side factors, related to the restructuring of the production system and higher productivity gains resulting from the catch-up, or from demand-side factors, associated with changes in the components of growth and in the behaviour of economic agents. The sustainability of observed developments depends on these factors' relative importance.

In the Czech Republic and Slovakia, per capita GDP has reached a higher degree of convergence than have relative price levels (see Chart 1), implying that these countries still have some way to go in terms of real appreciation. Conversely, the economic overheating that has taken place in Bulgaria, Romania and Latvia in recent years has led to a steep rise in price levels relative to living standards.

Chart 1: Per capita GDP and relative prices in the CEE countries (2000-2007)



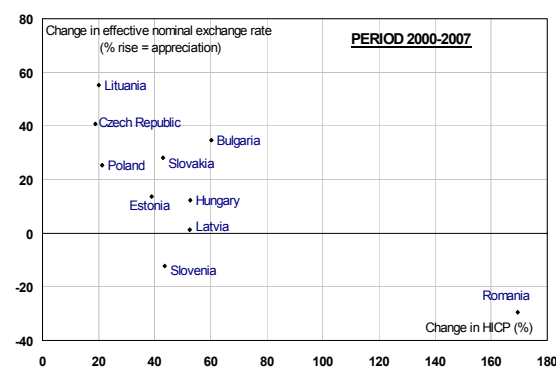
Source: Eurostat.

1.2 Depending on the exchange rate regime, trend real exchange rate appreciation has led to a rise in the nominal exchange rate and/or inflationary pressure

In terms of policy mix, this phenomenon of real appreciation can be accommodated in a variety of ways depending on each country's exchange rate system and monetary policy.

A distinguishing feature of the CEE countries is the very wide disparity of their monetary regimes, which range from flexible exchange rate regimes with inflation targeting (Poland, Czech Republic, Slovakia, Romania, and Hungary since March 2008); intermediate managed float regimes (Hungary until February 2008) or "crawling peg" (Slovenia before May 2004); fixed exchange rate regimes (Latvia, Slovenia from May 2004 until its accession to the euro area); and currency board regimes (Estonia, Lithuania and Bulgaria).

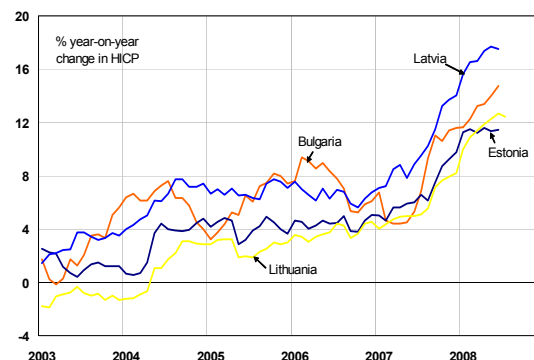
Chart 2: Nominal exchange rates and inflation in the CEE countries



Source: National central banks.

The countries of Central Europe, with either flexible or managed exchange rate regimes, have seen their nominal effective exchange rate appreciate over the period, which has no doubt helped contain inflation (see Chart 2). Conversely, Slovenia, which registered a controlled depreciation of its nominal exchange rate prior to joining the European Exchange Rate Mechanism (ERM II), experienced relatively strong inflation, even though per capita GDP at the beginning of the period was distinctly higher than the average for CEE countries. Following a more unstable process, the case of Romania illustrates how inflationary developments may be triggered by nominal exchange rate depreciation in an economy subject to the constraint of a major and enduring real appreciation.

Chart 3: Inflation in the fixed exchange rate CEE countries since 2003



Source: National central banks.

The case of countries under fixed exchange rate regimes may initially appear less clear-cut, mostly due to changes

in the anchor currencies. Initially, these countries' currencies were generally pegged to a basket of dollars and euros (or the Deutschmark before 1999) in varying proportions. Until 2000, the euro's depreciation against the dollar resulted in an appreciation of these currencies against the euro (which accounted for the lion's share of their external trade). This prompted a rise in the nominal effective exchange rate (especially in the Baltic states and

Bulgaria), thereby containing the rise in domestic prices. These currencies are now exclusively pegged to the euro, against a background of a growing shift in their external trade towards the euro zone, which has brought with it a degree of stabilisation of the nominal effective exchange rate and a resurgence in inflationary pressures in the last few years (see Chart 3).

2. Real exchange rate appreciation can be considered an equilibrium phenomenon to some extent, reflecting strong labour productivity gains and a substantial accumulation of productive capital

2.1 The Balassa-Samuelson effect may be enough to explain an inflation differential, but does not account for its scale in the case of the CEE countries

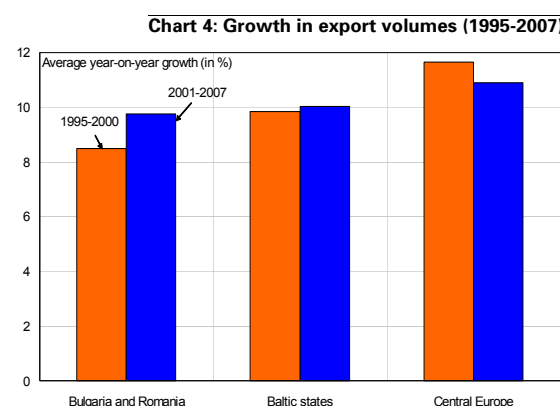
According to an initial explanation put forward by Balassa and Samuelson (1964), the difference in the rise in domestic prices relative to foreign prices in catch-up economies fundamentally stems from the *productivity differential between exposed and sheltered sectors* in these economies.

In the tradable goods sector, where prices are assumed to be determined at a global level, productivity gains allow for a rise in wage levels without loss of competitiveness. Assuming a certain degree of inter-sectoral labour factor mobility, these wage rises will tend to diffuse to the rest of the economy, including to the sheltered sector, where productivity gains are assumed to be smaller. Productivity gains in the exposed sector may thus translate into price increases in the sheltered sector and hence push up the overall price level index. The resulting real appreciation can be considered an "equilibrium" phenomenon in the sense that it ultimately depends on labour productivity gains that preserve the external competitiveness of the economy, even if such gains are not uniformly spread between sectors.

The Balassa-Samuelson effect may likely be at play in the CEE countries for two reasons at least. First, against the backdrop of the generally weak, possibly even negative, rise in the employment rate over the period, growth has been primarily driven by sustained labour productivity

gains, averaging 5% annually between 2000 and 2007, ranging from 2.8% in Bulgaria and Slovenia to 8.3% in Lithuania (see Table 1). Apart from being fuelled by the development of the private sector, rising productivity can also be ascribed to improvements in the economic and institutional environment, better quality in financial intermediation, the building of transport and commercial infrastructures, reorganisation of legal rules governing property rights and labour relations, etc.

Second, despite the observed real appreciation, the CEE countries do not appear to have experienced any erosion of their trade competitiveness, as attested to by their export volume growth, over 7% annually on average for all countries in the region, notwithstanding the fact that trade performance also reflects a pronounced improvement in non-price competitiveness (see Chart 4).



Source: National institutes of statistics.

Table 1: Growth, employment and productivity gains in the CEE countries (2000-2007)

	Real GDP growth (% YOY)	Employment growth (% YOY)	Unemployment 2007 (%)	Real labour productivity gains (% YOY)
Bulgaria	5.7	2.9	6.9	2.8
Romania	5.6	-0.2	6.4	5.8
Latvia	8.8	1.0	6.0	7.8
Lithuania	7.5	-0.8	4.3	8.3
Estonia	8.6	1.6	4.7	7.1
Poland	4.1	0.4	9.6	3.7
Slovakia	5.6	1.3	11.2	4.3
Hungary	4.0	0.4	7.3	3.6
Czech Republic	4.5	0.4	5.4	4.1
Slovenia	4.3	1.5	4.9	2.8

Sources: National institutes of statistics.

In practice, however, the Balassa-Samuelson effect by no means appears to account for all of the real appreciation actually observed in the CEE countries.

Beyond the diversity of methodologies employed, most empirical studies tend to underscore its poor ability to explain overall inflation. According to the survey by Egert, Halpern and MacDonald (2006) of the main recent empirical studies on the subject, the inflation differential with the euro zone directly entailed by the Balassa-Samuelson effect proves to be marginal in CEE countries, especially for those that experienced the sharpest real appreciation (see Table 2).

Several arguments can be put forward to account for the weakness of this contribution:

- the fact that the PPP hypothesis is far from being empirically verified for tradable goods, whose prices tend to drift upwards due to hefty non-price competitiveness gains;
- the achievement of non-negligible productivity gains in the sheltered sector, which correspondingly reduces the productivity differential with the exposed sector of the economy.

Table 2: Balassa-Samuelson effect and real appreciation, in annual averages (mean estimations) %

	EE	LV	LT	CZ	HU	PL	SK	SI	BG	RO
Balassa-Samuelson effect	0.4	0.2	0.4	0	1.3	1.3	0.1	0.3	-0.8	0.5
Real appreciation (1993-2002)	10	10	10	5	3	4	4	1.5	6	6

Source: Egert, Halpern, MacDonald (2006).

Interpretation: In Estonia, the average annual real appreciation was 10%, of which 0.4% was due to the Balassa-Samuelson effect.

Although such explanations do not entirely invalidate the Balassa-Samuelson effect, they do underscore its limits. Yet it would probably be mistaken to conclude that demand factors predominate in the observed appreciation in the real exchange rate for all CEE countries, despite the persistence of sizeable current account deficits over the period.

2.2 Productive capital accumulation contributes to the upward trend in price levels and accounts for the existence of large external imbalances associated with economic catch-up

An alternative explanation, based on less restrictive assumptions and formalised by Bhagwati (1984) within a general equilibrium framework, links the differences in the relative price of services and manufactured goods between rich and poor countries to their respective *per capita* capital endowments.

The relative abundance of capital in relation to labour in rich countries results in a higher relative return on labour as compared with that in poor countries. Countries with high per capita GDP thus enjoy a comparative advantage for the production of capital-intensive goods, which generally tend to be manufactured goods in the exposed sector of the economy, whereas poor countries will tend to specialise in less capital-intensive activities, which the model identifies with services in the sheltered sector. At equilibrium, the relative price of services in terms of tradable goods within each economy depends on the quantities produced, which in turn depend on their relative costs of production. This will thus be higher in rich economies than in poor ones. Assuming that there are no trade restrictions, which imply a unique price for tradable goods, the relative price level in the sheltered sector, and hence the overall price level in the economy, will consequently be higher in those economies with the best per capita capital endowment.

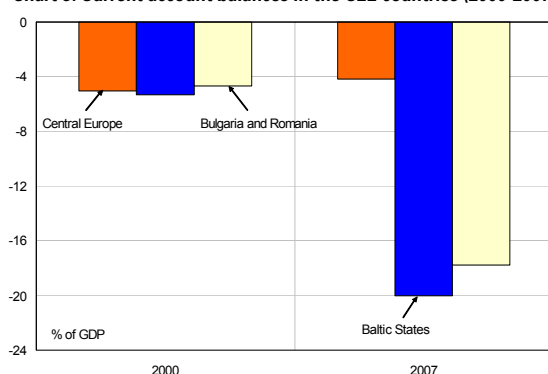
In dynamic terms, the model implies that an increase in capital intensity in the economy must lead to a relative rise in the price of services and consequently to an overall price level convergence with the reference zone. Insofar as growth attained with capital deepening entails an expansion of the tradable goods sector together with overall productivity gains, such an explanation does not exclude the Balassa-Samuelson effect, which focuses more restrictively on labour factor productivity. Furthermore, the Bhagwati model appears more economical in its characterisation of the production process, requiring no assumption with reference to differences in productivity between sectors, or between rich and poor countries, in order to account for price differentials.

This explanation of price level convergence in the catch-up economies can be considered especially apposite in the case of the CEE countries. Indeed, it accounts for another major feature of the economic transition in Central and Eastern Europe, namely the persistence of large current account deficits, financed by stable non-resident investment flows.

Current account deficits in CEE countries have been consistently above 4% of GDP on average since the beginning of the 2000s, for the most part driven by sizeable trade deficits (see Charts 5 and 6). Between 2000 and 2007, however, the trade position of central European countries' improved distinctly, the most advanced (the Czech Republic especially) now recording surpluses. On the other hand, trade imbalances have widened significantly in the Baltic states, as well as in Bulgaria and Romania, rising to very high levels (Bulgaria's and Latvia's deficit on goods and services exceeded 22% of GDP at the end of 2007).

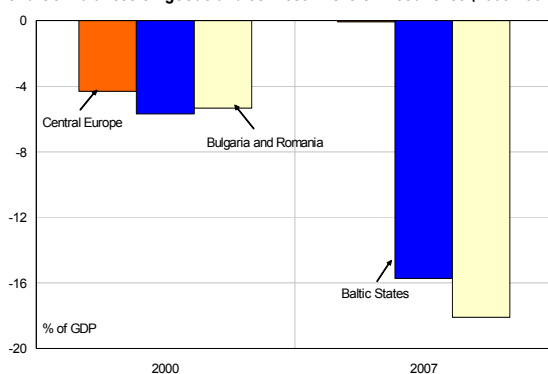
In a context of dynamic exports, these trade imbalances have arisen primarily as a result of large import flows, particularly in intermediate and capital goods, which have boosted capital per capita.

Chart 5: Current account balances in the CEE countries (2000-2007)



Source: IFC.

Chart 6: Balances on goods and services in the CEE countries (2000-2007)



Source: IFC.

As a complement, the prospects of future profits resulting from European economic integration and investment opportunities created by privatisation prompted sustained non-resident capital inflows, especially in the form of foreign direct investment (FDI), thus encouraging stable financing of these countries' external deficits. In central Europe (with the exception of Slovenia, which for a long time maintained restrictions on its capital account), in Romania and Bulgaria, FDI have consistently represented roughly 50% of gross capital inflows. The relative importance of FDI has been lower in the Baltic states, whose current account deficits have been largely financed by interbank funding, with the share of portfolio investment in these countries expanding recently.

Overall, massive imports of intermediate and capital goods, financed and partly driven by sustained FDI inflows, have led to a sharp increase in the CEE countries' per capita capital endowment and aggregate productivity. These developments have most probably helped raise the real exchange rate's equilibrium path, enabling a rapid and generally sustainable price level catch-up.

Nevertheless, Baghwati's explanation of price level convergence is based on highly specific assumptions regarding the allocation (confined to the tradable goods sector) and financing (generated from domestic savings, or at least exogenous) of capital. These assumptions do not appear to be fully satisfied in the CEE countries.

Tableau 3 : CEE countries balances of payments

	Bulgaria		Romania		Balkans	
	2000	2007	2000	2007	2000	2007
Current account balance (% of GDP)	-5.6	-21.7	-3.8	13.8	-4.7	-4.0
Balance on goods and services (% of GDP)	-5.3	-21.8	-5.3	14.4	-5.3	-3.7
FDI (% of GDP)	7.9	20.6	2.9	5.7	5.4	13.2
FDI (% of capital flows)	84.8	54.1	42.0	31.4	63.4	42.8
Portfolio investment (% of GDP)	-1.4	-0.6	0.3	0.2	-0.6	-0.2
Other investments (% of GDP)	-0.3	16.5	2.6	11.3	1.2	13.9
Reserves (% of GDP)	-3.2	0.0	-2.6	3.7	-2.9	1.9

	Latvia		Lithuania		Estonia		Baltic states	
	2000	2007	2000	2007	2000	2007	2000	2007
Current account balance (% of GDP)	-4.7	-22.8	-5.9	-10.7	-5.3	-17.3	-5.3	-16.9
Balance on goods and services (% of GDP)	-7.4	-20.7	-6.3	-10.4	-3.2	-10.7	-5.7	-13.9
FDI (% of GDP)	5.1	7.1	3.3	5.2	5.8	4.5	4.7	5.6
FDI (% of capital flows)	35.5	15.7	46.9	28.1	63.8	32.5	48.7	25.4
Portfolio investment (% of GDP)	-4.1	-1.4	2.3	-0.8	1.6	-2.4	-0.1	-1.5
Other investments (% of GDP)	4.3	20.3	0.6	11.3	-0.4	13.5	1.5	15.0
Reserves (% of GDP)	0.1	-3.6	-1.1	-5.0	-0.5	-0.5	-1.1	-3.0

	Poland		Slovakia		Hungary		Czech Republic		Slovenia		Central Europe	
	2000	2007	2000	2007	2000	2007	2000	2007	2000	2007	2000	2007
Current account balance (% of GDP)	-5.8	-3.7	-3.5	-5.4	-8.3	-4.9	-4.8	-2.5	-2.8	5.0	-5.0	-2.3
Balance on goods and services (% of GDP)	-6.4	-2.7	-2.3	-0.5	-3.7	2.5	-5.5	4.9	-3.5	-1.9	-4.3	0.5
FDI (% of GDP)	5.4	3.4	10.1	3.5	4.5	1.1	8.7	4.5	0.4	-0.2	5.8	2.5
FDI (% of capital flows)	67.1	37.7	72.5	118.8	57.0	73.0	80.9	82.6	10.3	9.8	57.6	48.9
Portfolio investment (% of GDP)	2.0	-1.1	3.9	-0.6	-0.9	-1.5	-3.1	-1.5	1.0	-4.9	0.6	-1.9
Other investments (% of GDP)	-1.6	6.3	-	-	6.6	6.3	1.2	-0.1	22	12.9	1.8	1.7
Reserves (% of GDP)	-0.4	-3.1	-5.2	-5.2	-2.2	-0.1	-1.4	-0.4	-0.9	0.4	-1.7	-1.7

Sources: National central banks.

Indeed, FDI are far from being confined exclusively to the tradable goods sector. While non-resident capital has enabled countries such as the Czech Republic or Slovakia to build robust export bases in the manufacturing sector, Poland, for example, has received substantial inflows in the retailing sector (supermarkets) and in telecommunications. Overall, the growing contribution of services to aggregate value added in all CEE countries tends to indicate that the structure of production due to increased per

capita capital endowment has not only benefited the exposed sector alone.

Above all, far from representing an exogenous factor, non-resident capital flows essentially depend on investment opportunities within economies that are structurally incapable of generating sufficient saving rates to finance their rapid growth associated with catch-up. Yet this last feature of CEE transition economies crucially depends on domestic financing conditions, which can notably be influenced by the prevailing exchange rate regime.

3. The scale of the macroeconomic and financial imbalances in the fixed exchange rate regime CEE countries may reflect excessive real appreciation

3.1 Given the extent of imports and capital inflows, the CEE countries' external deficits reflect above all a structural saving-investment gap

Domestic savings are insufficient to meet the dynamic demand for investment that fuels economic growth. Despite the resulting external imbalances, this situation is not problematic as long as capital accumulation backs the building up of future production and export capacities.

However, against a background of real appreciation common to all of the countries in the region, the worsening of both internal and external imbalances in countries that have pegged their currency to the euro is also very likely evidence of excessively favourable financing conditions, in a context of converging nominal interest rates.

3.2 Converging nominal interest rates within the European Union undermine savings rates in the CEE countries that maintain fixed exchange rates for the euro

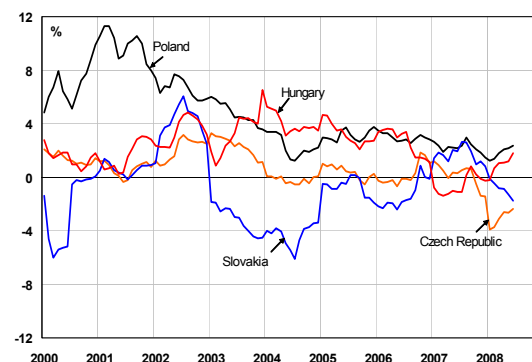
Countries with a floating exchange rate can run an autonomous monetary policy allowing interest rates to differ markedly from those prevailing in the euro zone (this is especially the case with Hungary, given the very specific deterioration of its public accounts over the period, and more recently Romania, as result of global financial turbulence). Conversely, pegging a currency to the euro in a context of free capital movements amounts to setting up convergent financing conditions, even in economies still experiencing an accelerated catch-up process (e.g. Latvia), where neutral interest rates are distinctly higher

than those in the more advanced economies (see Table 4).

This low level of nominal interest rates is having considerable consequences in CEE countries. Given the strong inflationary pressures linked to economic catch-up, nominal interest rate convergence amounts translates into very low real interest rates in countries facing accelerated growth.

In central European countries with flexible exchange rate regimes, where inflationary pressures have partly been contained by the nominal appreciation of the exchange rate, real interest rates currently range between 0% and 3% (see Chart 7).

Chart 7: Real interest rates¹ in CEE countries with flexible exchange rates



Source: National central banks.

In the Baltic states and Bulgaria, where inflationary pressures have been less subdued within the fixed exchange rate regimes, real interest rates have turned negative since entry into the European Union (see Chart 8).

(1) 3-month interbank rates deflated by the year-on-year change in HICP.

Tableau 4 : CEE countries and the convergence criteria - state of play (2008)

	Price stability	State of public finances		Exchange rate	Interest rate
	HICP (%) ^a	Public sector deficit 2007 (% of GDP)	Public debt 2007 (% of GDP)	Participation in ERM II	LT interest rate (%)
Czech Republic	4.4	-1.6	28.7	No	4.5
Hungary	7.5	-5.5	66	No	6.9
Slovakia	2.2	-2.2	29.4	November 2005	4.5
Poland	3.2	-2	45.2	No	5.7
Estonia	8.3	2.8	3.4	June 2004	-
Lithuania	7.4	-1.2	17.3	June 2004	4.6
Latvia	12.3	0	9.7	April 2005	5.4
Romania	5.9	-2.5	13	No	7.1
Bulgaria	9.4	3.4	18	No	4.7
<i>Reference value</i>	3.2	-3	60		6.5

a. Average 12-month inflation rate in March 2008 as calculated in the convergence reports, based on best performances: Malta (1.5%), Netherlands (1.7%) and Denmark (2%).

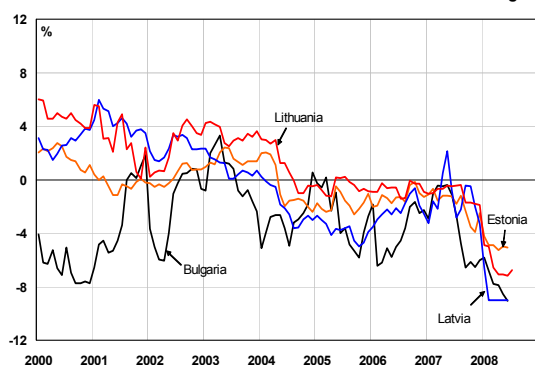
Source: European Commission and European Central Bank Convergence Reports (May 2008).

Tableau 5 : Household savings rates in the CEE countries (2000-2007)

(% disposable income)	2000	2001	2002	2003	2004	2005	2006
Slovenia	13.9	15.4	16.2	13.5	14.4	14.2	-
Czech Republic	8.5	7.4	8.1	7.4	4.9	5.8	4.9
Hungary	-	-	-	-	11.3	11.0	-
Slovakia	11.1	9.1	8.9	7.1	6.2	7.2	6.5
Poland	10.7	12.1	8.4	7.8	7.2	7.7	-
Estonia	4.1	3.1	0.5	-1.1	-1.0	-0.8	-0.7
Lithuania	4.1	3.7	1.8	0.9	0.4	1.5	-
Latvia	2.9	-0.4	1.2	2.4	2.5	1.5	-
Romania	-	-	-	-	-	-	-
Bulgaria	-	-	-	-	-	-	-
<i>France</i>	14.9	15.6	16.7	15.6	15.6	15.0	15.3
<i>Germany</i>	15.1	15.2	15.7	16.0	16.1	16.3	16.2

Source: Eurostat.

Chart 8: Real interest rates in CEE countries with fixed exchange rate regimes



Source: National central banks.

Falling real interest rates go hand in hand with weakening domestic savings.

The CEE countries' low savings rates are traditionally ascribed to low household incomes and poor-quality financial intermediation. However, convergent nominal interest rates have not been conducive to strengthening savings, at least not in the short term. Indeed, despite vigorous growth and rising incomes, falling nominal and real interest rates have been accompanied by a decline in the savings rate, since EU accession, from an already low level (see Table 5).

In fact, the low level of real interest rates have prompted a surge in domestic lending over the period - admittedly starting from still comparatively low levels - leading to a process of catching up with more developed economies. In this context, currency appreciation (in flexible exchange rate regimes) or diminishing perceptions of exchange rate risk (in currency board or hard peg regimes) influences the pattern of external borrowing, which tends to take the form of loans in or index-linked to foreign currencies. The credit boom also pushed up asset prices, especially in the construction and housing sectors.

While these developments have remained relatively subdued in central Europe, the financial situation of countries with fixed exchange rate regimes has deteriorated in recent years, with a sharp increase in the foreign currency-denominated private sector debt.

Overall, low real interest rates prevailing within fixed exchange rate regimes are likely to induce economic overheating for countries that have opted for price convergence to occur via inflation, even though initial appreciation stems from productivity gains and is partly connected with the rate of capital accumulation in the economy. Via the credit channel, the savings-investment imbalance is liable to result in domestic price pressure that does not derive from supply-side restructuring factors but appear to be

directly driven by demand factors. Lower real interest rates, leading to overshooting of the real exchange rate, therefore worsens external imbalances in CEE countries.

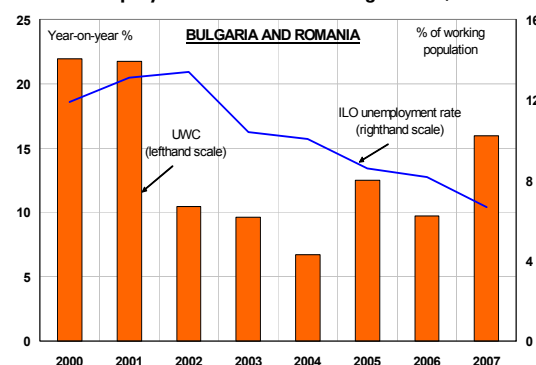
Apart from excessive inflation related to traditional demand factors, specific factors have contributed to pushing up prices, hence constituting channels for real appreciation: administered price increases, excise duties and VAT harmonisation that correspond to prices in line with those of partner countries, thereby improving the comparability of goods and services within the single market. While these factors may have strongly contributed to effective price level increases, as attested to by the surge in inflation sparked in CEE countries by the harmonisation of indirect taxes at the time of their EU accession in spring 2004, their impact on real appreciation is nevertheless bound to be temporary, provided price-wage spirals can be contained.

More durably, wage pressures have been a powerful driver of rising price indexes in recent years, as economies have overheated. Wages increases have exceeded productivity gains as a direct result of labour market pressures due to excess domestic demand, leading to a pronounced rise in unit labour costs in all CEE countries, at a time when the unemployment rate appears to have stabilised or even to be declining (see Charts 9 to 11).

In view of the healthy medium-term growth outlook and full employment, such cost pressures look unlikely to abate spontaneously in the near future.

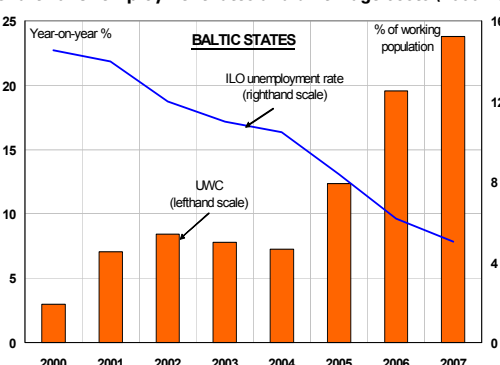
Marc GERARD

Chart 9: Unemployment rates and unit wage costs (2000-2007)



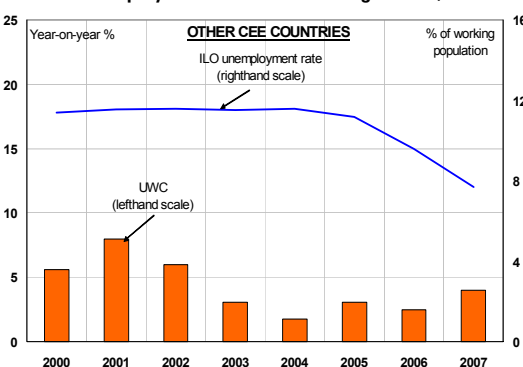
Source: Eurostat.

Chart 10: Unemployment rates and unit wage costs (2000-2007)



Source: Eurostat.

Chart 11: Unemployment rates and unit wage costs (2000-2007)



Source: Eurostat.

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