

# REAL EXCHANGE RATE APPRECIATION IN TRANSITION ECONOMIES

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**Abstract:** Real exchange rate appreciation in transition economies is the consequence of productivity change, capital inflows, and a return to a long-run equilibrium level due to initial nominal and real depreciation. Hence, real exchange rate appreciation is a natural, equilibrium phenomenon resulting from fundamental factors and long-run equilibrium exchange rate appreciation. Growing current account deficits in transition economies refer to the fact that currencies are overvalued and price competitiveness of exports is deteriorating. Explored causes of real exchange rate appreciation are wage and price indexation, inconsistent economic policy, the Ballasa-Samuelson effect and capital inflows, with different repercussions on external and internal (dis)equilibrium depending on the actual exchange rate regime.

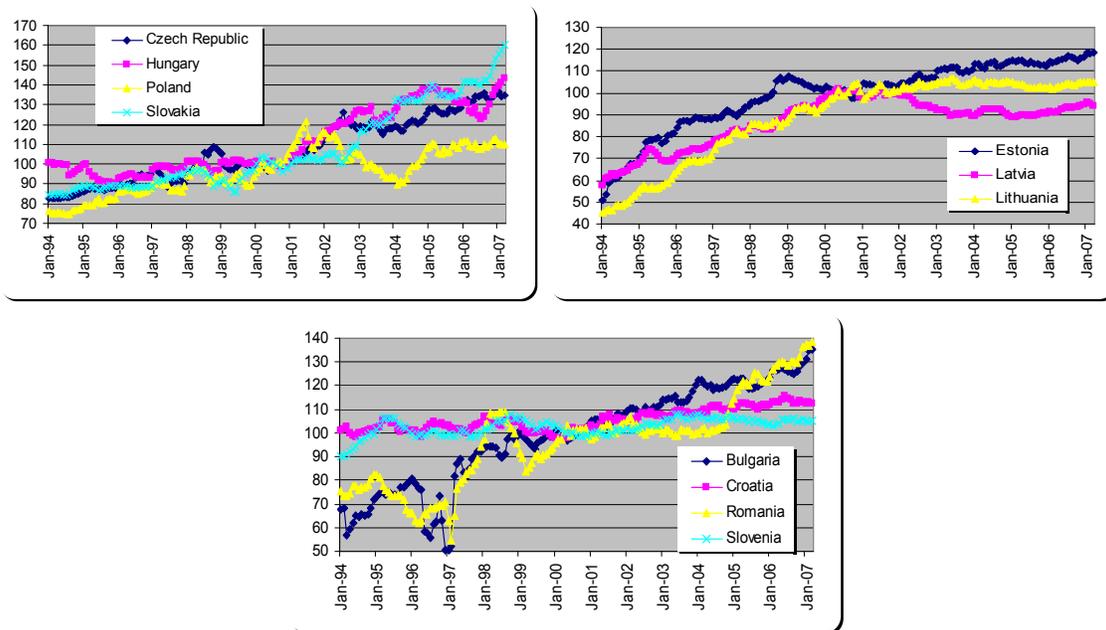
**Key words:** fundamental factors, catching-up process, wage and price indexation, Ballasa-Samuelson effect, capital inflows

**JEL:** E6, F3, F4

## Introduction

The common and immanent characteristic of transition economies is the real exchange rate appreciation (RER appreciation). It is the result of residual inflation regarding trade partners. Relatively higher price level could reflect the case of overvalued currency with all the negative effects on external equilibrium or the fundamental effect. Despite the evident RER appreciation in transition economies, it is not simple to detect the overvaluation effect and fundamental effect. Figure 1 presents the rising trend of a RER appreciation in selected transition economies in the period 1994-2007. Baltic states, Central and Eastern European countries and Balkan countries in the transition have all more or less showed a trend of a RER appreciation.

**Figure 1:** Rising RER appreciation for selected transition economies in the period 1994-2007 (base year, 2000)



Source: BIS (2007)

The trend of RER appreciation in the transition process is connected with different factors. At the beginning of transition, countries experienced *excessive nominal and real depreciation*, i.e. currency undervaluation. Returning to the equilibrium level, after initial excessive nominal and real depreciation, was followed with real appreciation. *Price liberalisation and tax reforms* are the factors that *per se* contributed to overall price level increase in comparison to the EU. Bearing in mind the lower level of development of transition economies compared to the EU, faster economic growth is related with *technological changes and productivity improvements*. An especially highlighted factor of RER appreciation is the growing difference in the productivity of tradable and non-tradable sectors and inflation created due to this difference. Mentioned process is known as the *Ballasa-Samuelson effect* (the BS effect). Due to productivity rise and achieved macroeconomic stability, transition process is accompanied by *capital inflows*, which, with ineffective or omitted sterilization, contribute to the increase in domestic liquidity, prices or RER appreciation. With the necessity of complete capital liberalisation as a condition for EU integration, capital inflows will have a potentially growing influence on RER appreciation in transition economies.

### 1. The nature of RER appreciation in transition economies: distortion vs fundamental effect

RER appreciation can be caused by the following factors:

- backward wage and price indexation or unanchored inflationary expectations
- inconsistent (over-expansionary) economic policy
- the Ballasa-Samuelson effect
- capital inflows

Empirically, less attention has been dedicated to backward wage and price indexation, and inconsistent economic policy than to natural or equilibrium factors of a real exchange rate appreciation as a result of catching-up process.

Successful macroeconomic stabilization at the beginning of the transition process with the exchange rate as a nominal anchor restrained inflationary expectations, created important credibility for monetary authorities, eliminating or substantially reducing the influence of adverse indexation. Due to anchored and restrained inflationary expectations using the exchange rate as a nominal anchor, **backward indexation factor** has empirically been very rarely investigated. Negative influence of subjective factors or **inconsistent economic policy** with excessive expansiveness (especially with predetermined exchange rate peg), cause RER appreciation and currency overvaluation. For instance, Czech Republic conducted inappropriate (regarding fixed parity) expansionary fiscal policy, that among other factors (premature capital liberalisation and ineffective reallocation of mainly short run capital inflows to consumption) contributed to crisis-driven exit from the exchange rate as a nominal anchor. Slovakia, due to inadequate macroeconomic policy and slow structural reforms, was also forced to abandon the parity and accept a more flexible exchange rate regime. Crespo-Cuaresma et al. (2005) explored the determinants of exchange rate movements for six transition economies (Czech Republic, Hungary, Poland, Romania, Slovakia, Slovenia) in the period 1993-2002 with panel cointegration method. Their model is mainly monetary (monetary approach to exchange rate determination), explaining exchange rates from the aspect of monetary policy or money supply. Excessive money supply (over-expansionary monetary policy) causes the nominal exchange rate depreciation<sup>1</sup>. It is confirmed that nominal exchange rate, to a significant extent, can be explained with the trends of money supply and real industrial production.

Backward wage indexation and inconsistent economic policy cause higher inflation, real exchange rate appreciation, currency overvaluation, competitiveness deterioration and unsustainable current account deficit. It is the **distortion effect** (misalignment view) that can be corrected with important *nominal and real exchange rate depreciation*. Contrary to the mentioned effect, the BS effect and capital inflows also induce higher price levels in transition economies compared to the EU level. From that aspect, real appreciation, relative price movements and inflation are an **equilibrium phenomenon** (fundamental view) or the reflection of changed fundamental macroeconomic variables<sup>2</sup>. Real appreciation caused by these factors is related to the catching-up process. As a consequence of equilibrium RER appreciation, the *nominal exchange rate appreciation* should follow. The connection between real appreciation and external imbalance in the

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<sup>1</sup> The model includes the real factor i.e. the BS effect. Higher prices of non-tradables compared to tradables sector (as a result of productivity rise in sector exposed to international trade), generate the tendency of RER appreciation.

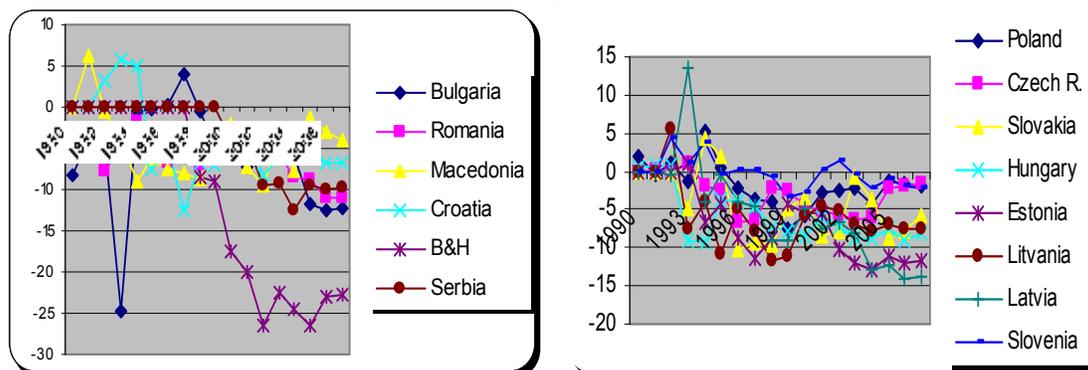
<sup>2</sup> Fundamental factors influencing the RER are: productivity change, interest rate differentials, public consumption, foreign debt, foreign direct investments, and terms of trade. Rise in productivity, foreign direct investments, interest rate, public spending, and improvements in terms of trade, contribute to the RER appreciation. The increase in foreign debt weakens the currency causing the RER depreciation.

Factors with the influence on RER can be observed from the aspect of demand and supply side. Typical cause at the supply side is the BS effect, and at the demand side public spending, terms of trade, capital inflows. Supply and demand side shocks are viewed as real. Nominal or monetary shocks arise from domestic or foreign monetary policy, like changes on the foreign exchange market.

light of two mentioned effects (misalignment and fundamental effect) are investigated by Roubini and Wachtel (1998), Brouwer (2004), Frait et al. (2004), Masten (2002).

It can be concluded that real appreciation, as a residual inflation compared to that of the main trade partners, has multiple causes. Very often, their combination is unclear, so it is hard to determinate whether real appreciation is mainly driven by the fundamental or the misalignment effect, whether the competitiveness is deteriorating and the current account deficit is (un)sustainable. So, an important dilemma is whether the real appreciation implies an overvalued currency i.e. a deterioration of competitiveness and the current account balance. The dominance of misalignment effect in RER appreciation is stressed by Roubini and Wachtel (1998). Real appreciation arising from a return to a long run equilibrium RER after the initial, excessive real depreciation and changes in fundamental macroeconomic variables will not cause competitiveness deterioration and unsustainable current account deficit. The prevalence of equilibrium RER appreciation or the fundamental effect in transition economies is advocated by Frait et al. (2006), Egert and Lommatzsch (2004), Broeck and Sløk (2001), Coudert and Couharde (2002), and Adahl (2000). The fact that transition economies, beside real appreciation, suffer from chronic current account deficit, points to the presence of an overvalued currency factor (Figure 2).

**Figure 2:** Current account deficit (percent from GDP) for selected transition economies in the period 1990-2007



Source: IMF (2007)

Figure 2 shows that in the period 1990-2007 the majority of transition countries have had a negative current account balance (as a % from GDP), or external imbalance in the form of current account deficit.

## 2. Backward wage indexation or unanchored inflationary expectations

Inflation inertia is the expression often used for residual inflation with the usage of exchange rate as a nominal anchor. All transition economies *de jure* or *de facto* used the exchange rate as a nominal anchor in the beginning stage of transition, the phase of macroeconomic stabilization. Over time, the benefits from the exchange rate as a nominal anchor policy were decreasing and the costs were growing. With the weakened influence on inflation, growing residual inflation, real appreciation and external imbalance (current

account deficit), the policy of exchange rate as a nominal anchor has a limited scope<sup>3</sup>. After achieved macroeconomic stability and due to new challenges (further nominal convergence, acceleration of a real convergence to EU, capital liberalisation, accomplishing the criteria for joining the EMU), certain transition economies switched to a more flexible exchange rate arrangements (Czech Republic in 1997, Slovakia in 1998, Poland in 2000, Serbia in 2006). With the adoption of a more flexible exchange rate regime, mentioned countries accepted a new anchor for reducing inflationary expectations – inflation target within the new monetary strategy (inflation targeting). Other transition economies, given the combination of structural and external factors<sup>4</sup>, preferred the rigid form of exchange rate regimes (Estonia, Lithuania, Latvia, Bulgaria).

Hence, the crucial reason for the temporary effectiveness of exchange rate as a nominal anchor policy in the phase of macroeconomic stabilization (exchange rate based stabilization program – ERBS) is the fact that inflation does not converge completely and automatically to the level of the main trading partners. There are additional reasons for inflation inertia in the ERBS program. Purchasing power parity is not a complete and automatic mechanism of price equalization for products included to international trade. Domestic and foreign products are not perfect substitutes. If inflation inertia exists in the tradable sector (most exposed to competitive pressures, assuming PPP), it is more emphasized in the non-tradable sector not included in international trade. Non-tradable sector does not feel the pressures of international competition, so inflation convergence is even slower.

One of the reasons of inflation inertia is the nominal wage inertia. Nominal wages adjust more slowly, due to rigidity and backward indexation to past inflation levels (backward looking wage indexation). The dominance of backward or forward looking indexation in ERBS depends upon the credibility of economic policy and concrete stabilization program. The presence of wage and price indexation is the sign of unsuccessful anchoring of inflationary expectations. Unanchored inflationary expectations reflect inadequacy or ineffectual nominal anchor (exchange rate, monetary aggregate or inflation rate/range). The success of stabilization policy based on the exchange rate as a nominal anchor depends on the initial inflation level. If the inflation is chronically high (below 30% yearly), ERBS is less successful. The expressed inflation inertia is connected with lost confidence related with failures of previous stabilization programs. With the credibility loss of monetary policy, inflationary expectations are formed on unsuccessful, past experiences. However, if inflation problem is acute, so high inflation levels or hyperinflation exist, there is more chance to successfully use the exchange rate as a nominal anchor in restraining the inflationary expectations. Hence, ERBS is characterized by a certain level of inflation inertia, but there is a difference depending the success of stabilization program, credibility of economic policy and inflationary history (Eichengreen et al, 1998).

Dornbusch (1985) researched the problem of backward wage indexation in Latin America ERBS at the end of 1970s in Chile and Argentina. He concluded that the accumulation of potential dangers and disequilibrium were behind the apparently successful stabilization policy, that posed the threat to inflation decrease. The key factor

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<sup>3</sup> For more details about problems of targeting in transition economies, see Josidifis and Beker (2007).

<sup>4</sup> With respect to exchange rate regime choice from the aspect of traditional and contemporary approach, structural and external variables, see Beker (2006b).

of ERBS failure was backward wage indexation or the fact that every year wages were rising in accordance with the inflation in the previous year. Real wages increased because nominal wage increase surpassed the inflation rate, which was substantially lowered by the exchange rate as a nominal anchor policy. As a result of real wage growth, purchasing power of wages increased compared to tradable goods. Dornbusch presented the overvaluation mechanism in ERBS programs with a few simple equations<sup>5</sup>:

$$p_t = a w_t + (1 - a) (\cancel{e_t} + p^*) \quad (1)$$

- $p_t$  – domestic inflation
- $w_t$  – wage inflation
- $a$  – the ratio of wages in generating the inflation
- $e_t$  – expected exchange rate depreciation
- $p^*$  - euro-zone inflation
- $1-a$  – the ratio of euro-zone inflation in domestic inflation

The equation (1) shows that inflation level in a certain country  $p_t$  (measured through CPI) is equal to average of wage inflation  $w_t$  and international inflation  $p^*$  (for transition economies, euro-zone inflation rate). The ratio of wages in generating inflation is labeled with  $a$ , while  $1-a$  presents the ratio of euro-zone inflation rate in domestic inflation (euro-zone inflation is increased with expected exchange rate depreciation  $e_t$ ). Furthermore, two rules of indexation are assumed. The first, exchange rate is not changed, hence  $e=0$  (fixed exchange rate policy i.e. exchange rate as a nominal anchor). The second, wage level is determined with past inflation ( $w_t = p_{t-1}$ ), or:

$$p_t = a p_{t-1} + (1-a) p^* \quad (2)$$

Following the equation (2), it can be concluded that the aim of fixing the exchange rate (the assumption that  $e=0$ ) is the convergence of domestic inflation rate  $p_t$  to euro-zone inflation rate  $p^*$ . The obstacle to the desirable convergence is the wage indexation according to past inflation level  $p_{t-1}$ . Domestic inflation rate convergence to euro-zone inflation rate is much faster with the smaller ratio of wages (the elimination of backward indexation process) and larger ratio of euro-zone prices in determining the domestic inflation rate. So, the exchange rate policy could be used successfully for disinflation

<sup>5</sup> The equations are from Dornbusch (1985), but the authors interpreted them from the aspect of transition economies considering (beside the ERBS) the inflation inertia in flexible exchange rate regimes and inflation targeting as a monetary framework.

with the accomplishment of certain conditions. Above all, achieving credibility so as to form inflation expectations in the forward-looking rather than backward looking fashion, implying that current nominal anchor adequately anchors (lowers) inflationary expectations. Openness improves the disinflation strategy because of the increase in the ratio  $p^*$  in determining the domestic inflation rate. Gomez (2003) argues that inflation inertia, that raises the disinflation costs due to wage indexation according to past inflation level ( $w_t - w_{t-1} = p_{t-1} - p_{t-2}$ ), could be restrained with the usage of several negotiation methods of central banks about wage increase: inflation target, predicted inflation rate, the review of inflationary expectations or some combined measure of inflationary expectations. The author concludes that high central bank credibility and frequent negotiation about the wage level could lower the inflation inertia and disinflation costs. Regarding the wage indexation and backward looking prices within the ERBS, Edwards (1992)<sup>6</sup> recommended a certain wage control along with a heterodox stabilization program.

Some studies<sup>7</sup> maintain that the credibility of economic policy in order to restrain wage indexation is crucial for the success of the ERBS. Credible economic policy and the stabilization program are connected with lower expected inflation levels – expressed forward looking process in the wage and price forming. Klyuev (2001) defined the exchange rate regime choice model (logit model) with the panel data of 13 transition economies in Central and Eastern Europe<sup>8</sup> in the period 1990-1998. The part of the model represents the relation between past and current inflation in the form of backward wage indexation. At the lower inflation rates, high indexation degree will lead to the flexible exchange rate regime choice, that happened in Poland, Czech Republic, Slovakia and Serbia after depleting the benefits of the exchange rate as a nominal anchor policy. At higher inflation rates, depending on the significance of external competitiveness as the goal for economic authorities, indexation can lead to a more aggressive rigid regime, more flexibility or no influence on the choice (if some of the extremes of exchange rate arrangements are currently in use). Bulgaria was forced to leave the managed floating regime in the hyperinflation circumstances in 1997 and accept the rigid regime in the currency board form. Currency board, like other rigid regimes (euroisation and monetary union) provides the credibility for monetary authority due to legal and institutional obligations of its maintenance<sup>9</sup>.

Unanchored inflationary expectations and, consequently, wage and price indexation, point to nominal anchor inefficiency. Although backward wage indexation and inflation inertia are mostly related with temporary character of the exchange rate as a nominal

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<sup>6</sup> Edwards (1992) investigated the exchange rate as a nominal anchor and ERBS used in Chile and Mexico. In Chile, ERBS was estimated as unsuccessful, but in Mexico as relatively successful. The better program incorporated larger nominal exchange rate depreciation at the beginning (RER depreciation), leaving the significant space for export sector in the conditions of eventual, gradual RER appreciation. Other difference is a heterodox stabilization program that, beside monetary and fiscal policy (subjected to peg maintenance), included the income policy. Hence, with the direct wage and price control, indexation to past inflation was confined.

<sup>7</sup> Celasun (2003), Gomez (2003), Horvath and Jonas (1998), Edwards (1992).

<sup>8</sup> Albania, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Poland, Romania, Slovakia and Slovenia.

<sup>9</sup> With respect to arguments *pro et contra* for rigidly fixed exchange rate regimes (euroisation/dollarization, currency board and monetary union), see Beker (2006a).

anchor policy, the same indexation problem can be present with the usage of alternative anchors. After the initial application of exchange rate as a nominal anchor, transition economies used exchange rate as a nominal anchor (Estonia, Latvia, Lithuania, Bulgaria, Bosnia and Hercegovina) or the inflation target (Poland, Czech Republic, Slovakia, Hungary, Serbia, Romania) in the phase of faster real convergence and after achieved macroeconomic stability. Certain transition economies accepted more flexible exchange rate regimes in the phase after established macroeconomic stability, while further nominal convergence was achieved through inflation targeting. In the mentioned situation, countries can also be confronted with unanchored inflationary expectations. Besides inflationary expectations, the problem presents 'free' exchange rate floating that *per se* contributes to the inflation change. In that case, the assumption from the equation (1) regarding the stability of  $e_t$  is annulled, and exchange rate depreciation directly and indirectly can raise inflation and threaten the inflation target.

$$p_t = a \underbrace{w_t}_{\text{wage indexation}} + (1 - a) \underbrace{(e_t + p^*)}_{\text{flexible exchange rate}} \quad (3)$$

Difficulties to achieve and maintain low inflation are in fact the reason why inflation targeting should be conducted in the conditions of already attained macroeconomic stability, when inflationary expectations are significantly restrained. The fact that nominal and real exchange rate appreciate in the conditions of capital inflows in transition economies and that price level does not decrease points to the fact that inflationary expectations are anchored according to expected long run exchange rate (so, appreciation is regarded as temporary), and not to targeted and achieved inflation rate<sup>10</sup>. In any case, unanchored inflationary expectations, wage and price indexation according to past (higher) inflation level, and inflation inertia, contribute to higher residual inflation and RER appreciation. In the circumstances of peg maintainance, the problem is that higher inflation means overvalued currency and unsustainable external imbalance. If the flexible exchange rate is used, there is a possibility for nominal exchange rate depreciation in the amount of residual inflation, so overvalued currency could be corrected with the improvements in the external situation. But, exchange rate depreciation could endanger the inflationary stability and undermine the monetary strategy of inflation targeting. Having in mind that exchange rate channel is the most dominant in monetary transmission mechanism in most transition economies, exchange rate depreciation can be transmitted to inflation increase through direct (aggregate demand increase) and indirect mechanisms (rising price of imported inputs and final products). Inflation target is achieved, not so much through referent interest rates (open market operations), but through exchange rate appreciation due to capital inflows. On the other hand, appreciation deteriorates an already critical problem of current account deficit. However, the mentioned (at least theoretical) solution of simultaneous achievement of external and internal balance in the flexible exchange rate regime, and the

<sup>10</sup> See Fabris (2007) on details about inflation targeting in the Serbian economy or the potential dangers of inflation targeting.

role of nominal exchange rate as a shock absorber, are the key motives for exchange rate regime change in the certain transition economies in the direction of more flexibility.

### 3. The Balassa–Samuelson effect

RER appreciation in transition economies (and in general, developing countries) is associated with the BS effect<sup>11</sup>. BS effect starts from the productivity and wage growth in the sector included in international trade (the tradable sector). With trade liberalisation and economy opening, the sector with significant exposition to external competition is the tradable sector. Productivity in the tradable sector rises faster and nominal wages follow this increased productivity. Wage growth justified with productivity rise, is not problematic from the aspect of inflationary pressures. The problem presents the transmission of wage increase to sectors not involved in international trade (non-tradable sector) where productivity is not increased. Assuming mobile labour and nominal wages equalization between sectors, wages grow also in non-trade sector (services sector and public sector). The mentioned part of unjustifiable wage growth is reflected in inflation and presents more or less the cause of RER appreciation in the transition catching-up process. Given that average wage growth surpasses average productivity rise, overall inflation level increases. The resulting inflation leads to RER appreciation.

BS effect on inflation of acceding countries to EU  $p^A$  regarding inflation of member countries of EMU  $p^E$  can be presented through several equations<sup>12</sup>:

$$p^A_T = p^E_T + \varepsilon \quad (4)$$

Tradable sector inflation exposed to international trade for acceding country  $p^A_T$  is equal to the inflation rate in the same sector in EMU  $p^E_T$  increased by the depreciation rate  $\varepsilon$ . The equation (4) shows that the law of one price functions for the tradable sector through international trade arbitrage (one of the BS assumptions is that PPP holds only for tradable sector).

$$p^A = a p^A_N + (1-a) p^A_T \quad (5)$$

$$p^E = a p^E_N + (1-a) p^E_T \quad (6)$$

The equations (5) and (6) indicate that inflation in acceding country and the euro-zone consists of inflation in tradable and non-tradable sectors depending on the ratio of these products ( $a$  is ratio for non-tradable and  $(1-a)$  for tradable sector) in CPI (labeled as  $p$  in the equations). Under assumptions that wage growth in the country is the same for both sectors, and that ratio of tradable and non-tradable sectors is equal in creating overall inflation ( $a=(1-a)$ ), follows that:

$$p^A - p^E = \varepsilon + a [(g^A_T - g^A_N) - (g^E_T - g^E_N)] \quad (7)$$

<sup>11</sup> The assumptions of the BS effect are: real wages are connected with tradable sector productivity; nominal wages have the equalizing tendency between sectors; dual productivity is related with relative prices of tradable and non-tradable sector; and purchasing power parity holds for the tradable sector. For details, see Egert (2005).

<sup>12</sup> Equations are from Buiter and Grafe (2002).

The main point of the BS effect can be found in the equation (7). Difference in the inflation rate of the acceding country and the euro-zone is equal to the depreciation rate of nominal exchange rate of the acceding country  $\varepsilon$ , plus the ratio of non-tradable sector in the consumer basket  $\alpha$ , multiplied by the productivity difference between tradable  $g^A_T$  and non-tradable  $g^A_N$  sector of the acceding country and the euro-zone ( $g^E_T$  i  $g^E_N$ ). Due to the catching-up process, sector productivity difference is larger in transition acceding country compared to the euro-zone. However, because of the exposition to external competition, tradable sector has larger productivity compared to the non-tradable sector, and nominal wages equalize (by assumption) between the sectors independently from productivity. Consequently, relative prices of non-tradable goods will rise faster compared to tradable goods. With a given exchange rate ( $\varepsilon = \theta$ ), total inflation will be higher in the acceding country than in the euro-zone i.e. RER appreciation will be initiated in transition economy.

It has already been emphasized that the BS effect is an equilibrium, natural factor of RER appreciation or the reflection of changed fundamental macroeconomic variables in the transition catching-up process. BS effect and real appreciation created due to this factor can stress the conflict between real and nominal convergence, as well as the conflict between two Maastricht criteria of nominal convergence in the phase of joining the EMU. Equilibrium, natural or fundamental RER appreciation on the base of productivity rise causes higher inflation compared to the that in the EMU. If the exchange rate has to be preserved within the target zone +/-15% in the preparatory phase of joining the EMU (Exchange rate mechanism II – ERM II), the criteria of relative stability for the currency in two years period can be accomplished with contractionary measures for inflation decrease. But, contractionary measures are unfavorable from the aspect of real convergence or economic growth acceleration. On the other hand, the criteria of participating in ERM II in two years period can be achieved with higher inflation, but with threatening the Maastricht criteria about inflation (inflation rate cannot be higher than 1.5% comparing to the average of three countries in EMU with the lowest inflation rate). The criteria about participating in ERM II and inflation criterion in the circumstances of the equilibrium RER appreciation induced by the BS effect are in collision. If both criteria have to be fulfilled, inflation should be reduced with contractionary measures that are in conflict with the real convergence process. Buiter and Grafe (2002), Grauwe and Schnabl (2004), Masson (1999), Brouwer (2004), Szapary (2000), Adahl (2000) emphasize the importance of equilibrium real appreciation connected with BS effect. Two options are stressed: the first, price stability is possible if exchange rate appreciates (ratio of non-tradable sector in CPI multiplied with the difference in productivity for tradable and non-tradable sector); second option, exchange rate remains stable but inflation will be higher compared to the EU level. Inflation stemming from the productivity growth in the tradable sector, is the result of equilibrium price movements, but nevertheless directly endangers the Maastricht inflationary criterion.

Empirical research mainly confirmed the BS effect existence in transition economies. De Broeck and Slóik (2001), analysing transition economies (Central and Eastern Europe and Baltic states) in the period 1993-1998, conclude that RER appreciation comes from the BS effect. RER movements caused by rising productivity of the tradable sector, are especially important for the countries that are closer to joining the EU, because of

accelerated catching-up process. Hence, RER appreciation is not a deviation or a misalignment effect, but rather an equilibrium phenomenon that does not endanger external competitiveness.

However, other empirical investigations into the BS influence on RER appreciation in transition economies confirmed that it is not prevalent in determining inflationary tendencies and RER appreciation<sup>13</sup>. The estimated magnitudes of influence of the BS effect on RER appreciation are different, although average influence is estimated at 1.5% to 2.5% compared to the EU average and more compared to the three countries with the lowest inflation level. Egert (2005) analysing Bulgaria, Croatia, Romania, Russia, Ukraine and Turkey, concludes that the BS effect is similar with the eight EU new member states in Central and Eastern Europe. BS effect has limited influence on total inflation and exchange rate determination (the exemption is only Croatia, where the stronger influence is empirically proven). For most transition economies, transmission effect of productivity in the tradable sector on relative prices of non-tradable sector is not so significant. Balász et al. (2002) with the panel cointegration technique analyse the BS effect on RER appreciation on the sample of nine transition countries (Croatia, Czech Republic, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia) in the period 1995-2000. It is concluded that the BS effect has a limited role in determining the real appreciation and that this effect will not pose a threat for simultaneous nominal convergence and the fulfillment of Maastricht criteria. The key reason is a small ratio of non-tradable sector in CPI (on average the services ratio is 30% in CPI). But, further progress in real convergence will strengthen the services ratio in CPI, and then the BS effect will have potentially higher influence on RER appreciation. Wachtel (2004), observing and analysing other empirical studies about the the BS influence in transition economies, points out that the BS effect has the influence on inflation and RER in these countries. However, the estimated influence of the BS effect is relatively small, about 1% on a yearly basis. The strength of the BS influence weakens with the income convergence that other empirical studies confirm (the most expressed influence is 1%-2% and decreases over time). Similar results found Flek, Markova and Podpiera (2002) using panel data of Czech Republic and selected EU countries. The authors claim that BS effect on RER appreciation in the case of Czech economy is close to zero and that even in the case of rapid productivity growth in the tradable sector it would hardly exceed one percentage point. Coricelli and Jazbec (2001) investigated the influence of structural factors of the catching-up process (supply side shocks) on the RER appreciation in the transition economies. They argue that structural reforms or productivity change do not affect the RER appreciation at later stages of transition. The investigated supply side effects diminish after five to six years, when other factors (on the demand side) start to dominate.

#### **4. Capital inflows**

Transition process normally includes financial liberalisation. EU Treaty clearly obligates the future members to complete the capital account liberalisation. The experience with full capital mobility within the ERM I has not been encouraging, pointing to the potential

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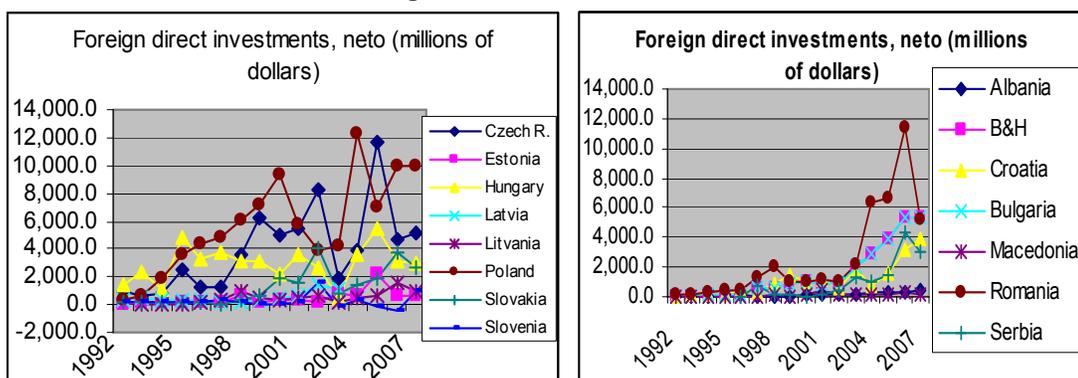
<sup>13</sup> For a review of empirical results about the BS influence in transition economies, see Wachtel and Korhonen (2004).

dangers of participating in the ERM. Financial liberalisation is a more complex process than international capital liberalisation, which by nature comes last. Williamson and Mahar (1998) identify six dimensions of financial liberalisation: (1) elimination of credit controls; (2) interest rate deregulation; (3) free entry in the banking sector or the financial services sector; (4) bank autonomy; (5) private ownership of banks; and (6) liberalisation of international capital flows.

Transition economies become the target of significant capital inflows thanks to the successfully accomplished stabilization program and attractiveness due to EU integration. Foreign capital movements are enabled with capital liberalisation, at a slower or faster pace, depending on reform steps. Having in mind the danger of rapid speculative capital inflows, and especially outflows, in the conditions of unsustainability of internal and external economic position of the country, gradual liberalization is a more frequent approach. Currency crises during 1990s<sup>14</sup> clearly reminded transition economies about the dangers of fast and full capital account liberalisation.

After the stabilization phase and inflation reduction, the focus of economic policy in transition economies moved to output and employment growth, or real convergence. Having in mind a low saving level and inexistence of internal sources for economic growth inducement (investment and export activities strengthening) there was a necessity for external source of financing real convergence. Capital liberalisation makes external financing of economic growth possible. Foreign direct investments are the form of capital flows especially important for economic growth and real convergence. Figure 3 presents growing foreign direct investments in selected transition economies in the period 1990-2007. The figure shows that ex-transition economies (now EU members) and transition economies expressed rising trend of foreign direct investment inflows. Some countries have stronger tendency (Poland, Czech Republic, Hungary), others indicate weaker increase in foreign direct investments (Slovenia, Slovakia, Estonia, Macedonia, Albania), but the common characteristic is growing inflows during the transition process.

**Figure 3:** Foreign direct investments inflows in selected transition economies in the period 1990-2007



Source: EBRD (2008)

<sup>14</sup> ERM I in 1992; Mexico in 1994; Thailand, Indonesia and Korea in 1997 (Asian crisis); Russia and Brazil in 1998; Argentina and Turkey in 2000.

Problems about capital liberalisation emerged because this process was conducted with the soft currency peg. On the basis of 'impossible trinity' or trillema<sup>15</sup>, fixed parity can withstand the capital liberalisation but only if the economic policy is completely credible and devoted to peg preservation (even if the sacrifice is internal equilibrium goals or the recession pressures). Maximum credibility is connected with super fixed exchange rate regimes (currency board or euroisation). In the case of transition economies, the currency board has been used in Estonia, Litvania, Bulgaria, Bosnia and Hercegovina. Estonia and Lithuania with very high levels of capital liberalisation (near 100%) kept the currency board as an exchange rate regime until the preparatory phase for joining the EMU. On the other hand, Poland, Czech Republic, and Hungary with soft parities (conventional parities with +/-1% fluctuation margins, crawling peg, basket peg and narrow corridors) through the process of capital account liberalisation have left the soft peg. These intermediate regimes, in conditions of significant capital inflows and outflows, are vulnerable to speculative attacks. Under speculative actions, Czech Republic and Slovakia were forced to abandon the fixed exchange rate in 1997 and 1998 respectively. The problem were not long-run capital inflows in the form of foreign direct investments that are in the function of economic growth, but speculative capital that provoked currency crisis or disorderly exit from fixed or intermediate exchange rate regimes.

Due to rapid capital inflows into the foreign exchange market, foreign currency supply increases like the domestic currency. Excessive liquidity in the national economy has inflationary effects, so the central bank is often forced to sterilize higher domestic liquidity. However, sterilization demands effective monetary policy instruments and relatively developed financial market. Besides, sterilization is a very costly measure, because central bank motivates open market operations with higher interest rate that again attracts capital in national economy (uncovered interest rate parity). Except the inflationary influences, capital inflows affect the nominal and RER appreciation (if the exchange rate fluctuates on the foreign exchange market). Having in mind that appreciation worsens the difficult problem of external disequilibrium in transition economies, the central bank is obliged to intervene on the foreign exchange market with selling domestic currency to withhold further deterioration of price competitiveness. If the central bank does not sterilize excessive liquidity due to capital inflows in circumstances of fixed or intermediate exchange rate regimes, then nominal exchange rate depreciation should happen. The advantage of flexible exchange rate is the fact that its fluctuations annul distorted equilibrium on internal balance. Increased inflation results in nominal exchange rate depreciation.

In the circumstances of peg maintenance, nominal appreciation doesn't happen, but RER appreciation with negative implications on external disequilibrium. The peg defense often demands restrictive measures to mitigate inflationary tendencies. The pressures to internal and external balance initiated with capital inflows in the circumstances of fixed exchange rate regime motivated some transition economies to accept the managed or 'free' floating regimes (Poland, Czech Republic, Slovakia, Serbia). Bekx (2002), exploring the problem of the exchange rate regime choice from the aspect of variable conditions in transition economies, concludes that capital liberalisation has a significant impact on the exchange rate regime change in the transition process. Capital inflows can

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<sup>15</sup> About exchange rate regimes and 'impossible trinity or trillema' see Beker (2006a).

be more easily controlled under flexible regimes, because exchange rate uncertainty discourages variable and speculative flows. Rapid inflows under the flexible regime would cause exchange rate appreciation. The more flexible regime means less chance for capital inflows to create inflationary pressures. The only option for fixed parity maintenance, confronted with huge capital inflows, is the *contractionary fiscal policy* for inflation reduction and mitigation of RER appreciation. Whereas capital inflows are sensitive to interest rates, restrictive monetary policy can be used as a measure for fixed parity defense, but not for prevention of large capital inflows (higher interest rate attracts it even more). Thus, fiscal policy has the task of restraining aggregate demand and mitigating RER appreciation. Masson (1999) argues that capital liberalisation or vulnerability under massive capital inflows and outflows is one of the key reasons for real appreciation and unsustainable pegs in transition economies. Analysing capital inflows in the form of foreign direct investments for 13 transition economies (Baltic states and Central and Eastern European countries) in the period 1992-1997, the author examines the growth of capital inflows in per capita dollars. In the circumstances of important capital inflows and complete capital deregulation, the obligation to keep the parity is aggravated. Rapid and massive capital inflows and productivity growth are the key causes of the RER appreciation in transition economies, raising the necessity for nominal exchange rate change.

Ul Haque et al. (1997), analysing capital inflows in transition economies argue that three options remain for economic authorities: sterilized interventions, fiscal restriction and exchange rate appreciation. Sterilization is not a preferable option if the financial market is underdeveloped i.e. there are no instruments that would help the central bank to retract excessive liquidity through open market operations. Capital inflows sterilization is also a costly measure, because central bank pays the interest rate to participants in open market operations. Despite the downsides, sterilization is a measure often used by central banks to regulate and absorb the excessive liquidity initiated by capital inflows and foreign currency supply on the foreign exchange market. Fiscal contraction, in order to restrain inflation during massive capital inflows, stifles the economic activity and protracts real convergence process. Monetary policy as a potential instrument for inflation reduction is not an option, because interest rate increase attracts capital even more. Finally, nominal appreciation and switching to flexible regimes is the step that numerous countries have accepted but with the sacrifice of the deterioration in price competitiveness.

Capital inflows are an interesting phenomenon in the transition process. *First*, it is almost the usual and accompanying effect of a successful stabilization program. Also, they are necessary to finance the development process regarding the low level of national savings. Besides, capital inflows are the natural consequence of capital liberalisation, the common element of all transition plans. *Second*, inflationary pressures (growth of money supply) are created without sterilization with inducing effects on investments and/or personal consumption. Sustainable capital inflows are directed to productivity growth and unsustainable in consumption. *Third*, sterilization and contractionary monetary policy do not solve the problem because higher interest rate will further attract foreign capital. Sterilization is not possible if the financial market is underdeveloped, so there are no adequate instruments for the absorption of money supply. *Fourth*, fiscal contraction can maintain the parity and decrease overheating, but at the cost of recession. *Fifth*, capital

inflows with appreciation pressures are not always a fundamental phenomenon (like productivity growth or the BS effect), although it is the accompanying effect of the catching-up process in transition economies. Speculative capital inflows could postpone solving the key problem i.e. the necessity for depreciation, as a natural outcome of preserving a stable RER in the conditions of residual inflation. *Sixth*, these problems can be temporarily solved with capital controls. The temporary nature is emphasized, because the EU demands total capital account liberalisation as one of the conditions for joining. *Seventh*, dilemma on the relation – fiscal contraction vs nominal exchange rate change (switching to flexible exchange rate regimes) influenced the choice of Czech Republic, Slovakia, Poland, Hungary and Serbia. These countries have chosen the option of switching to a more flexible exchange rate arrangements.

## **Conclusion**

The paper considers possible determinants of RER appreciation, a phenomenon common for most transition economies. Inflation inertia or slower inflation convergence to the level of the EU is the result of objective and subjective factors, the distortion effect and fundamental causes. Except for the factor of inconsistent and non-credible economic policy (as subjective elements), RER appreciation is interesting from the aspect of transition process that naturally creates it. The theoretical concepts of backward wage indexation, the BS effect and capital liberalisation are presented, as possible factors of RER appreciation. After the theoretical consideration, empirical part emphasizes the attitudes of particular authors regarding investigated factors. The literature includes numerous studies on the BS effect and capital deregulation as key factors of fixed and intermediate exchange rate unsustainability in the transition process. Although it is a fact that the BS effect has an impact on RER appreciation, it is not confirmed to be empirically dominant. Hence, the same factor cannot be used as an excuse for growing appreciation. Capital inflows *de facto* contribute to inflationary tendencies in the circumstances of unsterilized capital inflows or to nominal appreciation under the flexible exchange rate regime, so the real appreciation is certainly inevitable. Nevertheless, growing external disequilibrium in the form of current account deficit clearly points out that a change in fundamental economic variables due to the transition process is not the only factor of real appreciation. Currencies of transition economies are overvaluated having in mind the worsened price competitiveness in the export sector. What remains is to empirically sort out the role of specific factors in RER appreciation or current account deficit for particular transition economies.

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