Evolutionary Discussion of Euro Adoption in the New EU Member Countries – Stylized Facts[1]

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Abstract:

The aim of this paper is to provide discussion and empirical analysis of some stylized facts in respect to the anticipated process of Euro adoption in Central and Eastern European countries. Variety of those stylized facts includes so-called budgetary arithmetic approach, real convergence theory, and the problem of „impossible trinity" in the period of membership in ERM-II system. Implications for monetary and fiscal policy mix are outlined based on the empirical analysis.

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Introduction:

This paper provides insights into "stylized facts" of the theoretical analysis backing up the Eurozone enlargement procedures in a converging country, which has been adopting Maastricht criteria and trying to comply with other acquis rules.

Discussion on the single currency adoption in new Member States (then candidate countries) began in 1999, at the same time when the single currency emerged. At that time, Polish professor and governmental advisor *Jacek Rostowski* published an article in Wall Street Journal, where he pledged for speedy euro area enlargement, even at a cost of unilateral single-currency adoption. Others such as *Rudiger Dornbusch* expressed similar views.

These and similar attitudes were more or less influenced by the sentiment of deteriorating world monetary crisis. In the early 2000s, fiscal and monetary authorities came up with their official statements about scheduling the single currency project.

In 2001 and 2002, central banks of all the Central and Eastern European countries, admitted to the EU in 2004, supported openly the earliest possible entry into the Euro area. There was an estimate, that new CEE countries may join the Eurozone by 2007. (Considering anticipated participation of those countries in ERM II immediately after the EU admittance, it was technically the nearest feasible date.) In Hungary, central bankers repeatedly promoted a strategy of fast Eurozone accession in a long term, being reflected in May 2001 adoption of the exchange rate regime equivalent to ERM II parameters.

Later under assistance of CEE central banks, governments outlined official strategies for the Euro adoption. Similarly, they have taken on the responsibility to negotiate and periodically update their convergence programs, a main part of which is planning for consolidation of public finance. Therefore, convergence programs have prolonged in several CEE countries.

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Moreover, EC forecasts indicate that governments would face difficulties when fulfilling the convergence programs. According to the last review of the public finance published in the European Economy[2], central European economies (unlike Baltic states) would not fulfill their convergence programs updated in 2005 in following years. Whereas, "not fulfilling" visible even in case of Slovenia and Slovakia occurs within the Maastricht criterion fulfillment, a 3 percentage Maastricht target is replaced by a shortfall in case of the Czech Republic and Poland. The least optimistic is the prognosis for Hungary that would fall behind its own convergence program nearly by four percentage points according to the prognosis.

Chart 1: Conditions and forecast of public finance versus convergence programs

Country	**Public budget conditions**	**2004**	**2005**	**2006**	**2007**	**2008**
Czech Republic	Conditions and forecast (hereafter CF)	-2,9	-2,6	-3,2	-3,4	
	Convergence program (hereafter CP)	-3,0	-4,8	-3,8	-3,3	-2,7
Poland	CF	-3,9	-2,5	-3,0	-3,0	
	CP	-3,8	-2,9	-2,6	-2,2	-1,9
Slovakia	CF	-3,0	-2,9	-2,7	-2,1	
	CP	-3,2	-4,1	-2,9	-1,6	-1,3
Slovenia	CF	-2,3	-1,8	-1,9	-1,6	
	CP	-2,0	-1,7	-1,7	-1,4	-1,0
Estonia	CF	1,5	1,6	1,4	0,8	
	CP	1,7	0,3	0,1	0,0	0,0
Lithuania	CF	-0,9	0,2	-1,0	-1,0	
	CP	-1,0	-1,5	-1,5	-1,4	-1,3
Latvia	CF	-1,5	-0,5	-0,6	-0,9	
	CP	-1,4	-1,5	-1,4	-1,3	-1,0
Hungary	CF	-5,4	-6,1	-6,7	-7	
	CP	-5,4	-6,1	-4,7	-3,3	-1,9

Source: EC 2006

The aim of this paper is not only to depict current condition of the issue that is widely known, but also to attempt the summary of "stylized facts" of the discussion on the euro adoption in CEECs that has been already proceeding since 1999, as mentioned above.

1. Fact a) Real and nominal convergence of new Member States

New Member States, which economies are now dynamically integrating into the big European market, are not only relatively smaller but also converging in real terms.[3] Comparing data in Chart 1, we can easily support that with the evidence. A raw 9 figures growth rate differentials in particular new Member State (NMS-8) against EU 12 based on a calculation in national currency, a raw 10 figures this

[2] EC: Public Finances in EMU, European Economy 3/2006, pgs. 265 - 283

[3] Standardly, we consider as a real convergence a catching-up process measured by real GDP per capita indicator.

difference when including an appreciation trajectory of the real exchange rates in those countries. We can observe that the euro area did not grow by a higher rate than 2% between the years 1993 – 2006. On the contrary, an obvious dynamic growth in the range of 3 and 6 percent yearly, measured by in national currency, is evident in the Central and Eastern European economies during that given period. Moreover, the growth difference in percentage points between NMS-8 and EU 12 even triples, if we consider a long-term process of the real appreciation.

Real economic growth measurement in the euros offers an alternative view at economic performance measurement in a long-term period. This conception is not identical with a bare measurement of the GDP growth rate displayed in another currency – euro (constant or current exchange rate). Analyzed conception of the real GDP measurement in the euros is based on the theory of relative purchasing power parity, where positive inflation differential is attended by nominal exchange rate depreciation. Admittedly, nominal exchange rate development in transitory countries does not correspond to an assumption mentioned above. In this case, we can state that, if appreciation of the real exchange rate is continuous and thus it does not reflect merely speculative form of the nominal exchange rate strengthening, it is possible to use this conception as an alternative analysis of the economic growth in transitory economies under the catching-up process. A GDP growth rate or wage increase in the euros can be symbolized after calculating the logarithm in a following equation:

$Y_{EUR} = Y_{NAC} + p_{NAC} + iER_{NAC/EUR} - p_{EUR}$. Here, p_{NAC} stands for inflation in the transitory economy, $iER_{NAC/EUR}$ complies with a nominal exchange rate appreciation index and p_{EUR} depicts inflation in the euro area.

Chart 2 Comparison of the convergence processes in NMS-8

Average growth rate in 1994-2006	**CZ**	**SK**	**HU**	**PL**	**LIT**	**LAT**	**EST**	**SLV**
GDP growth rate in NAC	3,2	4,6	3,8	4,5	4,5	6,2	6,0	4,0
Inflation	5,1	7,5	11,7	10,2	11,0	9,1	10,8	8,0
NAC/EUR	33,3	40,2	223,5	3,8	4,0	0,6	15,6	200,9
Nominal appreciation	1,4	-0,3	-6,7	-4,6	3,0	1,0	-0,1	-4,5
Inflation in EU-12	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0
Inflation differential	3,0	5,4	9,5	8,1	8,8	6,9	8,6	5,9
Real appreciation	4,5	5,1	2,2	3,1	12,1	8,0	8,5	1,2
GDP growth rate in EUR	7,8	10,0	6,1	7,8	17,1	14,7	15,0	5,2
GDP difference in NAC vs. EUR	-4,7	-5,4	-2,3	-3,3	-12,6	-8,5	-9,0	-1,2
GDP growth rate differential in NAC vs. EU 12 (1,9 %)	1,2	2,6	1,9	2,6	2,6	4,2	4,0	2,1
GDP growth rate differential in EUR vs. EU 12 (1,9 %)	5,9	8,0	4,2	5,8	15,2	12,7	13,0	3,3

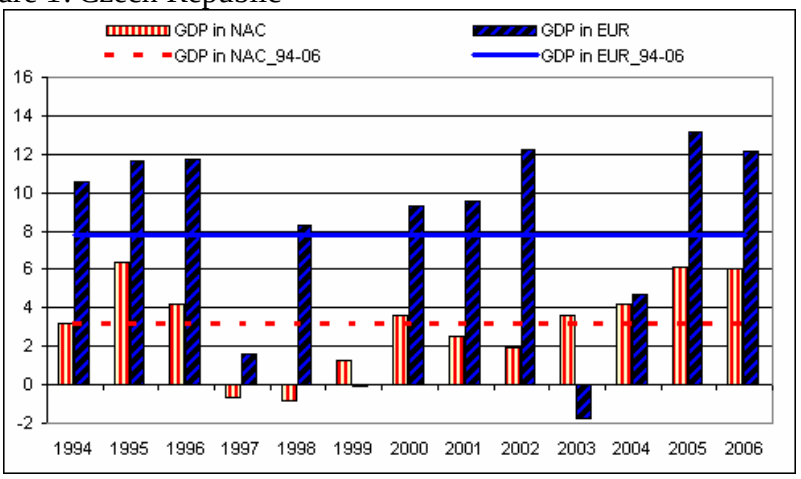
Source: Eurostat, IMF, OECD. Author's calculation.

Real convergence is accompanied, despite small deviations in empirics, by a nominal convergence – price level equalization. Standardly, we are used to explain this phenomenon, as catching-up countries are approaching more economically developed countries both in their economic and price levels (including internal price structures), using a Balassa – Samuelson theory.

Under the conditions, when a real converging country operates in the free floating exchange rate regime, a nominal convergence can proceed either due to the nominal exchange rate appreciation (exchange rate channel of the nominal convergence) or due to higher domestic inflation rate in non-tradable sector (inflation channel). Therewith, we shall admit, in case of a nominal convergence through the exchange rate channel, that the change of the internal relations of the prices between tradable and non-tradable goods would be reached by a decrease in tradables' prices expressed in national currency. On the contrary, the only possible channel of the nominal convergence under the pegged nominal exchange rate is a positive inflation differential of the catching-up economy. The same holds true for a real converging country that adopts a single currency.

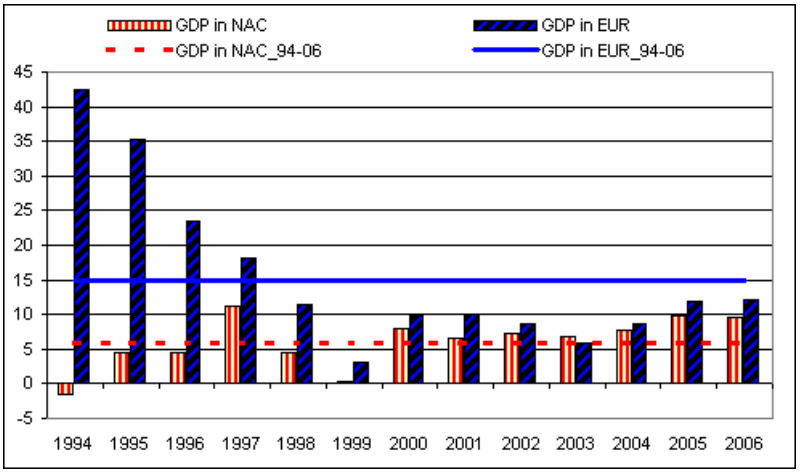
Following figures display the differences in long-term growth rate expressed in the euros or national currencies in a particular country:

Figure 1: Czech Republic



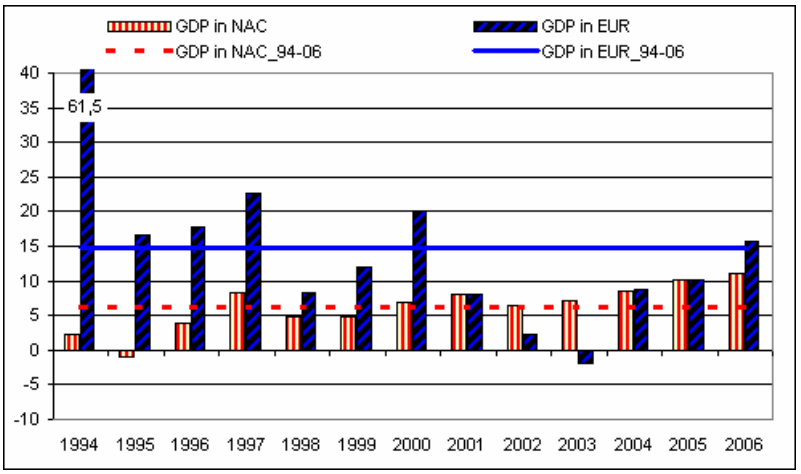
Source: Eurostat, IMF. Author's calculation.

Figure 2 Estonia



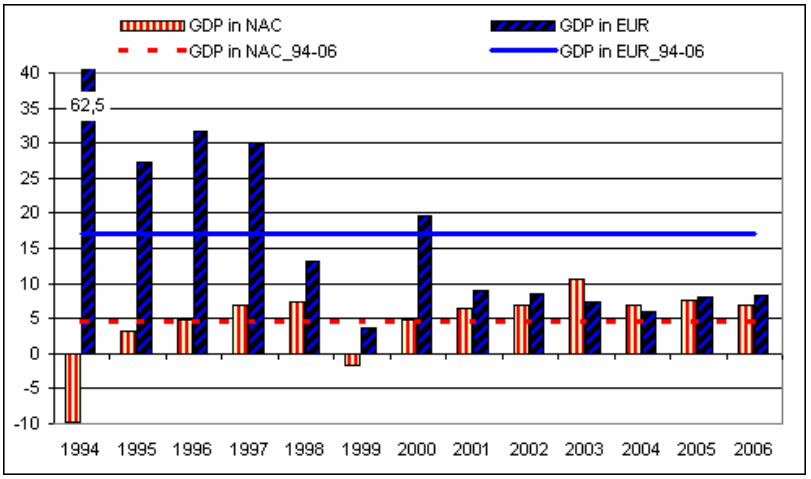
Source: Eurostat, IMF. Author's calculation.

Figure 3: Latvia



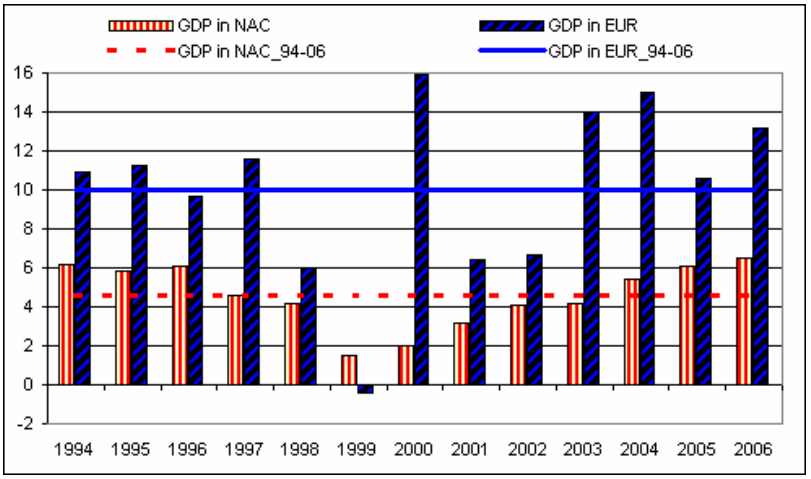
Source: Eurostat, IMF. Author's calculation.

Figure 4: Lithuania



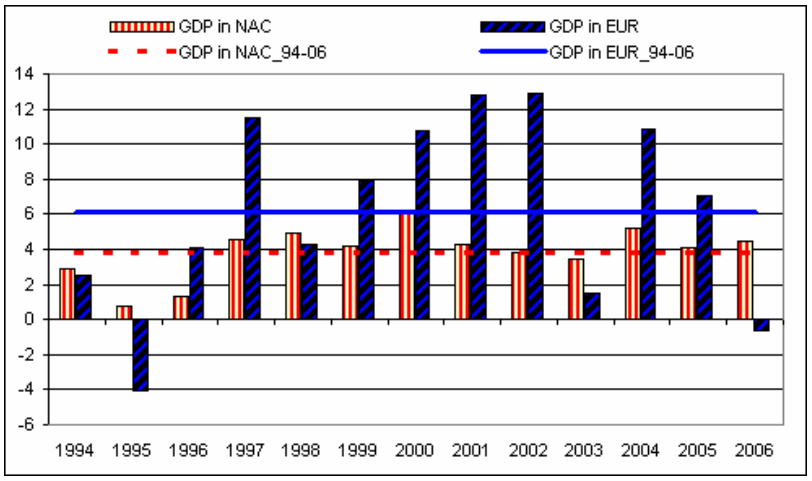
Source: Eurostat, IMF. Author's calculation.

Figure 5: Slovakia



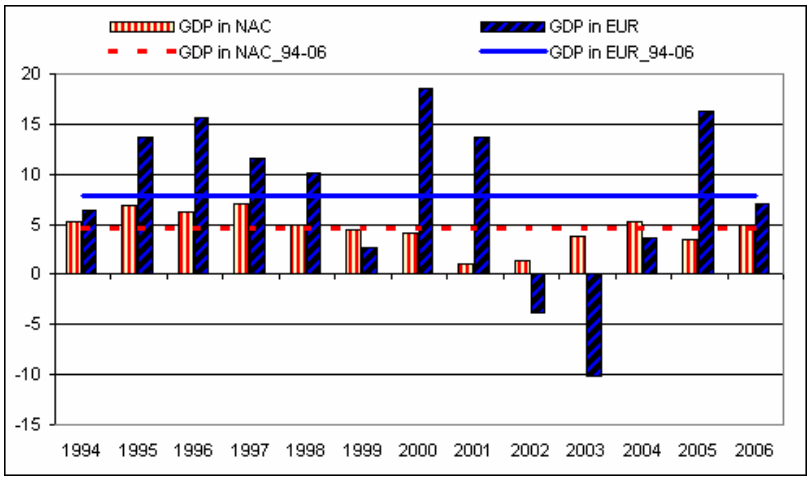
Source: Eurostat, IMF. Author's calculation.

Figure 6: Hungary



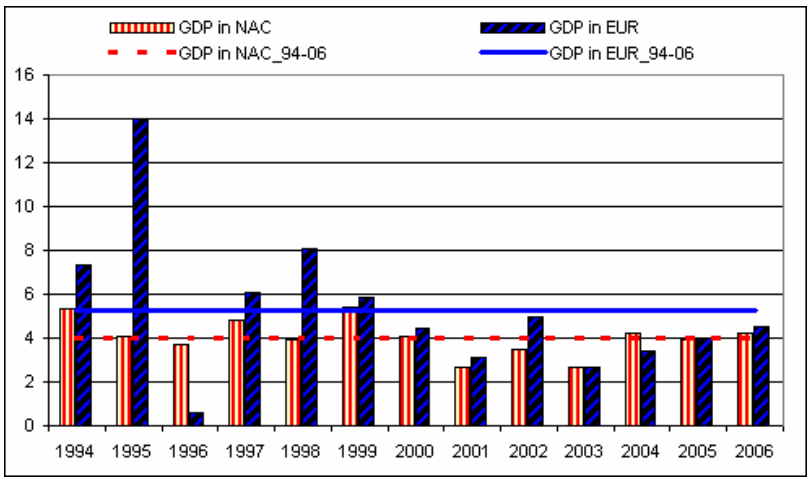
Source: Eurostat, IMF. Author's calculation.

Figure 7: Poland



Source: Eurostat, IMF. Author's calculation.

Figure 8: Slovenia



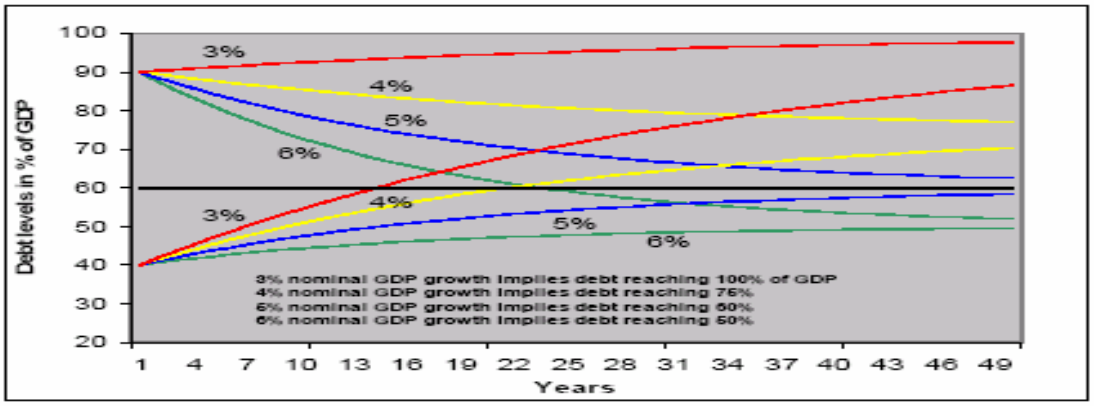
Source: Eurostat, IMF. Author's calculation.

2. **Fact b) Maastricht convergence criteria were created for a different group of countries, in a period with diverse parameters of an economic development.**

Maastricht monetary and fiscal convergence criteria were designed for the purpose of "adjusting" selected nominal indicators, for a group of countries with relatively similar economic level and as a guarantee of consolidated public finances in those countries.

Fiscal criteria were designed using so called "debt arithmetics" linking a degree of a nominal GDP growth rate, a level of interest rates, level of budget deficit and a change in the relative level of a public debt. Based on the parameters of the European economy at the beginning of 1990's, it appeared that maximal 3 percentage deficit of the public finance measured against the GDP is the right indicator that shall guarantee the convergence of the degree of public debt towards the 60 percentage level of the GDP, from above or from below. Today's simulations accomplished by EC according to the same logic prove that the economy shall demonstrate a 5-percentage growth rate to converge the debt level towards 60-percentage share on the GDP.

Figure 9: Debt development, presupposing 3% deficit of public finance – depending on various GDP growth rates



Source: Deroose, Langedijk (2005)

Debt arithmetic also suggests, that rapidly growing country stabilizes its debt at relatively higher deficits of public finance than a country that is growing more slowly. Whilst straitjacket of the Maastricht budget deficit criterion prolonged by the Stability and Growth Pact for the euro area members can be too loose for developed and slowly growing countries, it may be unnecessarily tight for rapidly growing converging countries.

Debt arithmetic can be aptly depicted as carried, for example, by Šindel et al. 2007 (p. 27):

„Now, we approach next step and determine so called steady-state debt as a percentage of GDP ($\bar{d}$); hence, the level, at which a debt as a percentage of the nominal GDP does not change and where $\dot{d} = 0$ holds. If we substitute $\dot{d} = nb - (g + p)\bar{d}$ into the equation of a debt change, we get $0 = nb - (g + p)\bar{d}$. Now, we transform $\bar{d}$ on the left side of the equation, getting $(g + p)\bar{d} = nb$ and we make $\bar{d} = \frac{nb}{(g + p)}$ independent, $\bar{d} = \frac{nb}{y_N}$ respectively, obtaining the debt level that does not change as a % of GDP. The level

of balance that does not change the ratio of so called steady-state debt towards the GDP at given GDP growth rate corresponds to $nb = \bar{d} \cdot y_N$."[4]

3. **Fact c) Maastricht exchange rate and inflation Maastricht criteria under the EU economic conditions accomplish the condition of so called „impossible trinity".**

As the theory of economic policy (e.g. setting of the IS/LM/BP model), so a number of experiences in combination with pegged nominal exchange rate and an effort to carry on another anchor of the monetary policy in the environment of a free capital movement indicate, that the exchange rate and inflation target might be potentially conflicting.[5]

4. **Fact d) A long-term effort to keep fixed nominal exchange rate and very low inflation rate at the same time is in a contradiction with the process of real and nominal convergence.**

Nominal convergence might proceed in a real converging economy through either exchange rate or inflation channel, as mentioned above. An attempt to carry on a long-term simultaneous compliance of both exchange rate and inflation criterion might thus lead to a delay or deformation of the real convergence process.

5. **Fact e) The euro adoption in new Member States would not significantly threaten price stability (inflation target) specified by the ECB.**

However, we might question an optimality of the ECB's price stability definition (including its amendment in 2003); a weight of new Member States is so small, that the nominal convergence process after their entering the euro area would not cause a necessity to change the ECB's monetary policy, as clearly documented e.g. by Reuter a Sinn[6].

Timing the Euro area entry for new Member States – A problem of optimalization or a political choice?

Adoption of a European single currency has both its costs and benefits[7]. We might assume that costs of the Euro adoption would decline over time, whereas benefits would grow, as shown by. Begg et al. (2002). A single currency builds unifying market parameter that lowers transaction costs and eliminates risks in various areas of international economic integration. Dual optic in case of the euro adoption – an optic of the national authorities (primarily governments) and an optic of the Commission, or ECB respectively – may be used to investigate the issue.

On the side of national authorities, it seems that entering the Euro area is a prime question of political choice: whether and to what degree the governments are

[4] NB – government budget balance; D – government debt; y_N – nominal GDP growth rate; g – GDP growth rate in constant prices; p - inflation

[5] E.g. Mishkin and Hebbel (2002) clearly indicate that on the page 3, within their definition of the full-fledged inflation targeting.

[6] Reuter, M., Sinn, H. W.: The Minimum Inflation Rate for Euroland, NBER WP 8085

[7] See e.g. Šaroch, Tomšík, Srholec, p. 15

able and willing to meet convergence programs. On the side of EU authorities, recent cases of Slovenia and Lithuania demonstrate, that convergence criteria might be applied strictly, although they may not limit the accession in a long term. Many national central banks are now more aware of the potential conflict between simultaneous fulfillment of the exchange rate convergence criterion and inflation criterion and the real convergence process.

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