

ALTERNATIVE MONETARY STRATEGIES BEFORE EMU MEMBERSHIP IN CENTRAL EUROPE

Novák, Zsuzsanna, Ph.D, Corvinus University of Budapest, Hungary

ABSTRACT

As more and more transition countries join the eurozone it is becoming reasonable to investigate what monetary policy might be most successful for countries prior to the introduction of the euro. One possible alternative is inflation targeting, which has found application in numerous economies in the last two decades, including the Visegrád Countries.

In this paper I am introducing some important aspects and an empirical examination of the monetary policy of the Visegrád Countries. I am providing an overview of previous empirical findings and trying to make some comparisons of new EU and recommendations for pre-accession countries, such as Croatia.

I. INTRODUCTION

The catching-up process of Central European economies has always been followed by exquisite interest, the international literature abounds in analyses on the economies of the region, preoccupied by discussions on the subject of European integration. In the present paper I am introducing some aspects of the economic convergence process of the four Visegrád Countries over the past one and a half decades in such a monetary framework – known as inflation targeting – which has been adopted by various industrial and emerging countries since 1990 and has determined the preparation period for eurozone membership of the countries under examination. This paper focuses on the period of the convergence process between 1990 and 2010 with special regard to the years after 1997, the first year of applying inflation targeting in Central Europe.

My investigation was spurred by two main objectives: the examination of (1) whether inflation targeting was a suitable strategy for the compliance with the price stability criterion of the Economic and Monetary Union for the Visegrád Countries and by the same token (2) whether inflation targeting provides better results than other monetary policy regimes applied by new EU member states before eurozone accession.

The future development of the four EU member states is largely influenced by their price and cost competitiveness which have so far proved to be reconcilable with the price stability goal and can even be supported by a well-defined monetary policy. The recent crisis of the system of financial intermediaries calls our attention to watchfully evaluate the real economic effects of the self-supporting central bank interventions and reconsider the timing of the pressing monetary union membership.

II. THE HYPOTHESIS OF THE STUDY AND PRECEDING EMPIRICAL RESEARCH RESULTS ON INFLATION TARGETING

According to the hypothesis of the study monetary policy conducted in the frames of inflation targeting has been more successful in supporting disinflation than other strategies based on monetary targeting or exchange targeting during the convergence process of Central and Eastern European countries. Furthermore, it is presumed that those countries where budgetary deficit assumed above average proportions since EU accession have been less successful in anchoring inflationary expectations, moreover, the choice of exchange regime can influence the effectiveness of antiinflationary policy.

Research results on the effectiveness of inflation targeting have shown a diverse picture in the economic literature. Hu (2003) and Wu (2004) justified that inflation targeting among developed OECD countries proved to be overperforming any other monetary policy in both curbing inflation and even in safeguarding a balanced growth for the real economy. The examination of Mishkin-Schmidt-Hebbel (2006), in contrast, failed to shore up arguments for IT-countries (IT: inflation targeting) reaching outstanding results in arresting inflation. In their view the performance of these countries have simply gone through a similar disinflationary process as was typical of most industrialised countries in the 90s. Nevertheless, there is a broad group of experts who agree that inflation targeting has delivered extra gains in anchoring inflationary expectations, which is manifested in both the level and volatility of inflation. Concerning the prerequisites of an auspicious application according to Truman (2003), Batini-Laxton (2005).

Schaeter and al. (2002) the lack of fiscal discipline, adequate econometric models for forecasting inflation, and advanced financial markets can not be reconciled with the IT strategy. Celasun-Gelos-Prati (2004) emphasised that fiscal consolidation is of key importance for emerging countries to be able to bear down inflationary expectations. At the same time Batini-Laxton (2005) established that the applicability of the IT-system does not surmise a rigorous set of criteria, thus emerging economies can adopt it in case they define appropriate institutional and technical goals. Novák (2009) investigating a panel of developed OECD and emerging Central European IT-countries came to the conclusion that inflation targeting contributed to decreasing the persistence of inflation in both group of countries, though in Central European countries credibility deficiencies in economic (above all fiscal) policy and the inflexibility of foreign exchange policy often distorted the effectiveness of monetary policy.

III. INFLATION TARGETING AND NOMINAL CONVERGENCE IN THE VISEGRÁD COUNTRIES

After the repeal of official exchange rates and foreign exchange controls the Visegrád Countries first applied a world currency as nominal anchor (German Mark, US dollar) in their foreign exchange policy and later adopted an exchange rate regime bound to the euro. A sooner or later shift to a floating exchange rate environment was also made to enable market forces to operate more efficiently in the economy. This latter contributed to a better applicability of the inflation targeting monetary strategy adopted with different timing and reference values by the four countries (Table 1).

Inflation targeting, based on *a medium-term inflation target announced by the central bank, enhanced central bank accountability and transparency, a wide range of economic analysis for forecasting inflation*, is a monetary policy strategy which enables the use of discretionary elements. Monetary policy in this system follows the inflation target as ultimate goal expressed as the level or an interval of the annual change in the consumer price index and the inflation forecast serves as intermediate target usually supplemented by an interest rate operational objective. Inflation targeting, even if having no strict system of criteria, can only be effective if the inflation target is credible, and the whole government dedicates itself to anti-inflationary policy (Neményi, 2008). A broad political consensus between the central bank and the actors of the economy can lead to a better anchoring of inflationary expectations contributing to a successful disinflation process.

Among transition economies the Czech Republic was the first to introduce the above system and has ever since been reckoned among the most successful appliers among emerging economies. In addition, it defined a specific inflation measure net of the effect of administrative prices and indirect taxes. The outstanding performance of the Czech Republic in inflation targeting was due to the strict provisions on central bank independence, the fiscal discipline of the government and that all monetary policy goals were subordinated to price stability which enhanced the credibility of central bank measures. (Horská, 2001)

Poland started inflation targeting under an unstable financial situation with inflation overreaching 10% and under the less flexible crawling peg regime. Poland – just like Slovakia and Hungary – uses the consumer price index as inflation indicator for policy implementation. The shift to the new system was not crowned by such a great success as in the Czech Republic at the beginning as simultaneous exchange policy objectives and the less stringent fiscal policy measures impeded the disinflation process, nevertheless, since the adoption of a more flexible exchange regime Poland has also made a significant progress. (Horská, 2001)

Slovakia started targeting inflation implicitly in 1998 and announced an explicit medium target after 2004. Slovakia, therefore, has a very short experience in the monetary strategy discussed above and followed a rather mixed approach with due regard to exchange rate stability and all policy goals set in a way that best served the preparation for eurozone membership.

The evaluation of Hungary's monetary policy in the last ten years raises disputable questions. Until 2004 foreign exchange policy stabilisation distracted the attention of monetary decision makers from focusing on the announced inflation target. Furthermore, the rather lax fiscal policy between 2002 and 2006 also decelerated the nominal convergence. (Neményi, 2008).

Table 1: Inflation targeting regime in the monetary policy of the CEECs¹

Country	Inflation target	
	Progress	Percentage rate
Czech Republic	1997: introduction of the regime	1998: 5,5-6,5, 1999:4-5, 2000: 3,5-4,5, 2001: 2-4, 2002-2005: 1-3, 2006: below 3, 2007: 2
Poland	1998: introduction of the regime 1998-2003: objective: reducing the rate of inflation 2003-: targeting inflation at a $2,5 \pm 1\%$	2003: 3-1 after 2003: $2,5 \pm 1$
Hungary	2001: introducing inflation targeting	2002: $4,5 \pm 1$, 2003: $3,5 \pm 1$, 2004: $3,5 \pm 1$, 2005: 4 ± 1 , 2006: 3, 2007: 3 ± 1
Slovakia	1998-2005: implicit inflation targeting 2005-: explicit inflation targeting 2009: EMU membership	2005: $3,5 \pm 0,5$ mid-term strategy: 2006: 2,5 2007-2008: 2,0

The Czech National Bank defined the inflation target as 2% for years beyond 2010, Hungary has been seeking to fulfil an inflation target of about 3% since 2006. Poland has committed itself to stabilise inflation at a constant $2,5 \pm 1\%$ level, whereas Slovakia made a successful accession to the EMU in the frames of inflation targeting in January 2009.

In the struggle to achieve an inflation rate close to the 2% reference value of the ECB, we can observe that in Hungary the disinflation process has slowed down between 2003-2005 and in Slovakia price deregulation and tax harmonisation caused problems in the pursuit of the monetary policy to curb inflation in the first years of the operation of the new system. The Czech Republic and Poland has all in all followed a successful antiinflationary policy. As for the exchange rate system, the Czech Republic, Poland has had a floating exchange rate regime in the last as it were ten years, whereas Slovakia joined the ERM II. at the end of 2005 and managed its foreign exchange policy in this regime before the adoption of the euro. Hungary started independent float in 2008 after keeping the exchange rate against the euro within a $\pm 15\%$ band around a central parity. As a general tendency it is conspicuous that these countries have moved towards a more flexible exchange rate regime in the last years which has enabled focusing on inward stabilisation and does not necessitate such a great stock of foreign currency reserves.

Table 2: CPI Inflation rates in the CEECs 1990-2006

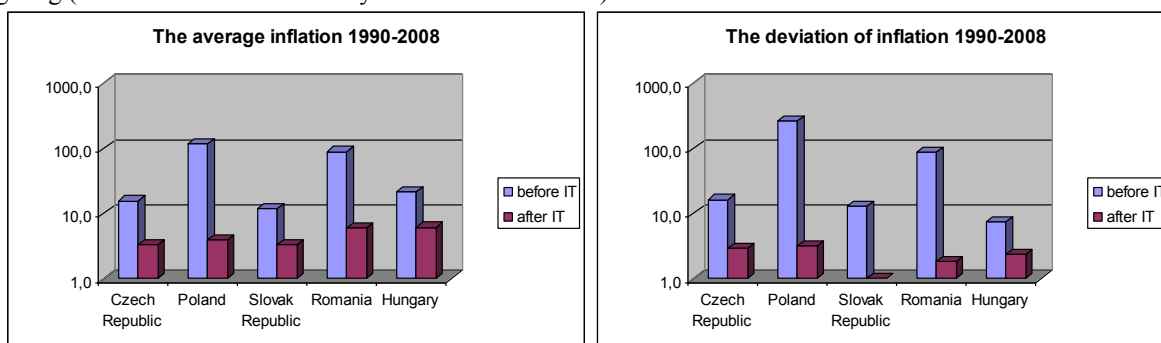
Year	Czech Republic	Poland	Hungary	Slovakia
1990-1994	52	249,3	32,2	58,3
1995	9,1	27,8	28,3	7,2
1996	8,8	19,9	23,5	5,8
1997	8,5	15	18,5	6
1998	10,7	11,8	14,2	6,7
1999	2,1	7,2	10	10,4
2000	3,9	10,1	10	12,2
2001	4,7	5,3	9,1	7,2
2002	1,8	1,9	5,2	3,5
2003	-0,1	0,7	4,7	8,5
2004	2,6	3,6	6,8	7,4
2005	1,6	2,2	3,5	2,8
2006	2,1	1,3	4,0	4,3
2007	3,0	2,6	7,9	1,9

Source: NBC, NBS, NBP, MNB

After the system change the fall in inflation was spectacular in the transition economies (especially in Poland after a hyperinflation of over 100% at the beginning of the 90's to less than 30% by 1995) as price deregulation started and hidden inflation became revealed. Even after 2000 the disinflation process can generally be appraised as expeditious for all the Visegrád Countries (Table 2) which was largely influenced by the way inflation targeting was realised. The system change was followed by a gradual rise of consumer prices and the change of relative prices, in which the

dissolution of administrative prices and indirect tax reforms played an important role. The four countries under examination belong to the frontline of the world concerning central bank independence which might have been partly due to the requirements of inflation targeting in relation to central bank transparency and accountability (Beblavy, 2003). In countries where monetary policy commitment was supported by a disciplined fiscal policy, antiinflationary policy proved to be even more successful. Concerning inflationary expectations the Czech economic actors seem to react in the most flexible way to permanent external shocks among the four countries, the inflation inertia (persistence) in the Czech Republic the behaviour of economic actors is comparable to that in Germany and Austria (CNB 2007, MNB 2008). In contrast, economic agents in Poland, Slovakia and Hungary can still be characterised with somewhat backward-looking price expectations but the level and volatility of inflation has significantly slackened since the introduction of inflation targeting (Figure 1-2). The same goes for Romania following the system since mid 2005.

Figure 1-2: The average and the standard deviation of inflation before and after the introduction of inflation targeting (Romania as control country with data since 2000)



Source: IMF IFS, own calculation based on quarterly statistics

As regards fiscal processes it is easy to prove that three out of the four countries had met the 60%/GDP state debt criterion by 2006 but Hungary and Poland failed to cut budgetary deficit to a satisfactory extent so as to reach the 3% limit by the same year and debt dynamics have accelerated (reaching 80% in Hungary by 2011). Both Hungary and Poland could successfully eliminate a part of the inherited state debt after transition due to the privatisation of state-owned companies bearing large debts and the release of part of the external debt in the case of Poland. The lack of a general structural reform and less resources from privatisation revenues, however, entailed an increase in state debt and budgetary deficit in the years between 2000 and 2006 (Appendix 1-2).²

IV. THE QUESTION OF EUROZONE MEMBERSHIP

From the point of view of fulfilling the Maastricht criteria Slovakia showed the best results in 2007 and 2008 (Table 3) which is not surprising as among the four countries only Slovakia joined the EMU in January 2009. As a consequence of the successful financial stabilisation in the last ten years, all the four countries have got closer to the eurozone average in respect of the convergence criteria but since 2007 there has been a slight halt in the nominal convergence process which was followed by the deterioration of economic performance owing to the global financial crisis forcing fiscal policy decision-makers to launch crisis management packages.

Table 3: Convergence criteria in 2008-2010

Country	Inflation (%) (HICP)			Budgetary balance (GDP%)			State debt (GDP %)			Long-term interest rate (%)		
	2008	2009	2010	2008	2009	2010	2008	2009	2010	2008	2009	2010
Czech Republic	6,3	0,6	0,3	-2,7	-5,9	-5,7	30	35,4	39,8	4,6	4,8	4,7
Poland	4,0	4,2	3,9	-3,7	-7,1	-7,3	47,2	51	53,9	6,1	6,1	6,1
Slovakia	3,9	0,9	0,7	-2,1	-8	-7,9	27,8	35,4	41	4,7	4,7	3,9
Hungary	6,0	4,0	4,8	-3,8	-4	-4,1	72,9	78,3	78,9	8,2	9,1	8,4

Reference value*	3,2%		1%			-3			60	6,5		6,0%
-------------------------	-------------	--	-----------	--	--	-----------	--	--	-----------	------------	--	-------------

Source: Eurostat, ECB

Comment: On the basis of the 2008-2010 ECB convergence reports

Hungary counts to the least disciplined member states of the EU regarding budgetary processes and slightly also lagged behind in diminishing price level growth until 2008 partly on account of the backward-looking nature of inflationary expectations and the less favourable fiscal processes. Furthermore, the implementation of corrective fiscal measures seems to be inevitable, as since the reform of the Stability and Growth Pact in 2005 it is evident that new member states will not get any derogation concerning the fiscal criteria (Orbán-Szapáry, 2004).

The globalisation of international financial markets has made the domestic currency of small, open economies vulnerable as a consequence of sudden capital in- and outflows, the issue of eurozone integration therefore emerges from time to time as an urgent question.

The summary of the various central bank examinations enables the comparison of the costs and benefits of abandoning the substantive monetary policy and choosing the eurozone membership instead. (Table 4). The data below were predicted on the basis of the enlargement of external trade by approximately 75% after accession to the EMU (within a period of about 20 years) which can not be underpinned according to the eurozone tendencies experienced so far. (MNB 2008). Among the expected consequences of EMU-membership above all the reduction in transaction costs are worth emphasising bringing advantages for the companies operating in the real sphere (as financial institutions fall short of some of their revenue because of the same reason).

The benefits from introducing the common currency principally affect trade in the long run. The equalization of interest rates to be expected in the future can still contribute to the reduction in the level of rates through the decrease in the interest premia. Notwithstanding, it can also be presumed that the sudden drop in interest rates can lead to an overheated economy and further indebtedness, as it was observed in the case of some earlier eurozone members (e.g.: Portugal). (MNB 2008)

Table 4: The advantages and disadvantages of eurozone membership

Country	The decrease in transaction+ administrative costs and foreign exchange risk (one-time effect on the level of GDP)	The long-term effect of the decrease in interest rates	The increase of external trade and other long-term effects (annual GDP growth)	The cost of lost seigniorage and other income	Effects of disinflation or higher than before inflation
Czech Republic	Comparable to the other countries	The joint effect of the two factors would have enhanced GDP by 1,68% in the case of eurozone accession in 2006 + a 1,4% annual saving for enterprises because of the decrease in exchange rate risk		-0,86% for enterprises	1-3% real appreciation
Poland	0,14+0,07 %	-(150-200) basis points	+ 0,35-0,77% GDP growth	n.a.	the decrease in GDP growth by a 0,3-0,8%. during two years
Slovakia	0,3+0,05+0,02%	0,5-1% point decrease in interest rates	+ 0,4-1% GDP growth	-0,03% one-time+ -0,04% annual	1,5% greater inflation

Hungary	+ (0,11-0,22) +0,08 %	+ 0,08-0,13 % GDP growth	+ 0,55-0,76% GDP growth	-0,17-0,23%	-
---------	-----------------------------	-----------------------------	----------------------------	-------------	---

Source: Research Centre, Mendel University (2007), Borowski et al. (2004), NBS (2004), Csajbók-Csermely (2002)

V. PANEL REGRESSION: METHODS AND RESULTS

I tested the statistical goodness of the inflation targeting monetary strategy relying for the Visegrád group and a control group on the basis of an analysing study of Wu (2004) with the help of the regression equations included in the same supplemented by various indicators influencing the rate of inflation (current account balance, relative price changes, the expansion of domestic consumption) with an econometric model estimation.

The basic equation used for estimating quarterly inflation was as follows:

$$\pi_{it} = \beta_0 + \beta_1 D_{it} + \beta_2 \pi_{i,t-1} + \beta_3 C_{it} + \beta_4 T_{it} + \varepsilon_{it} \quad (1)$$

The dependent variable in the equation was the quarterly inflation rate (consumer price level increase compared to the corresponding period of the previous year) measured in the selected countries (π_{it}), the explanatory variables are the following: a dummy variable reflecting the policy choice of the country (with a value of 1 if the country is inflation targeter and 0 if not) a one-period lagged quarterly inflation variable $\pi_{i,t-1}$. The C variable compresses the country-specific, whereas the T variable the periodically different (time-specific) variables which are common for all the countries (and thus might be corresponded to supply-shock inflation), and ε is the error term. (The i index denotes the particular countries and the t index stands for the given quarter of a year. If the β parameter takes a value between 0 and 1 it indicates that the inflation rate follows a stationary autoregressive process with regression toward the mean. Alternative ways of filling in the C variable is using public (household) consumption to GDP ratio, trade balance or current account balance as percentage of GDP (as most countries in Central Europe have an outstanding economic openness the change in these variables can well reflect demand shocks), variables measuring government spending (expenditure or deficit to GDP), or the change in dual productivity capturing the Balassa-Samuelson effect of relative price dynamics in the tradable and non-tradable sector. Instead of using the consumption/GDP variable most studies recommend an approximation of the output gap (see e.g. Ball-Sharidon (2003)) for accounting for the Phillips-curve effect. An estimation on the output gap and dual productivity, however, exceed the present scope of research as emerging countries have very limited and fragmentary time series. Ball and Sharidon (2003) assign the relative price change of international commodity price index as the variable under T , denoting external, time-variant effect, which I also adopt in the regression.

I used the same approach in a preceding study comparing OECD countries including Visegrád Countries, which were all inflation targeters in 2009 (Novák, 2009). The panel regression presented in this study extended to 14 countries (12 new EU member states since 2004 and two countries – Croatia and Turkey – on the waiting list for EU accession). For an appraisal of the choice of monetary policy I use a control group for the panel estimation consisting of the Baltic countries, South-Eastern European countries and the rest of the Central Eastern European countries (see Appendix III.) Estonia, Latvia and Lithuania have maintained a currency board since the beginning of the transition period (Estonia then entered in EMU in 2011), Bulgaria has followed the same strategy since 1997. Slovenia operated exchange targeting before joining the eurozone in 2007. Cyprus and Malta set explicit exchange targets before adopting the euro in 2009 and Croatia maintains a quasi-fixed exchange regime bound to the euro. The rest of the countries (Visegrád Countries, Romania and Turkey) are inflation targeters. I compared the inflationary process before and after introducing inflation targeting for the whole sample and for the countries in the focus of the examination. I preserved the indicator of the quarterly inflation rate with a one-period lag from the original function of the model as well as the inflation targeting dummy, the statistical significance level of which formed the basis of the hypothesis examination. The variables of the original model for difference in difference estimation were replenished with variables of overriding significance and of processable time series, such as household consumption, trade balance, current account balance, government expenditure, supplemented with international commodity price indices. For the estimation of the regression equation obtained this way the necessary data were provided by the IMF IFS data basis for the period between 1990 and 2008. I adopted the indicators for

inflation targeting from the study of Batini-Laxton (2005) and various central bank report of the selected countries.

The OLS regression results for the whole sample and time series is contained in Table 5 containing the most significant explanatory variables. The coefficient of the inflation rate with a one-period lag (β) is significant but less than one which shows decreasing persistence of inflation for the whole sample. The inflation targeting dummy can only be accepted at a 10% significance level, but has a uniformly negative sign in all regression estimates (containing different variables). Household consumption seems to account for a positive change in quarterly inflation rate as second most significant after the lagged inflation variable together with the trade balance having relatively strong explanatory power with an under 5% p value.

Table 5: Pooled OLS for the CEECs quarterly inflation

Included 14 cross-sectional units

Time-series length: minimum 39, maximum 86

Dependent variable: pt

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
pt_1	0,780489	0,0190801	40,9059	<0,00001	***
D (it)	-0,0810094	0,0466201	-1,7376	0,08263	*
household_consumption	0,177892	0,0583047	3,0511	0,00235	***
trade balance	0,579346	0,242525	2,3888	0,01712	**
Mean dependent var	0,210420	S.D. dependent var	0,921651		
Sum squared resid	235,9412	S.E. of regression	0,522571		
R-squared	0,695519	Adjusted R-squared	0,694462		
F(4, 864)	493,4049	P-value(F)	2,4e-221		
Log-likelihood	-666,3063	Akaike criterion	1340,613		
Schwarz criterion	1359,677	Hannan-Quinn	1347,908		
rho	0,391361	Durbin-Watson	1,203789		

Comparing the above results with that of Novák (2009) we can establish some interesting facts about the 1990-2010 period inflation progress of the new EU countries. The before-crisis investigation revealed that the Visegrád Countries' quarterly inflation strongly reacted to international commodity prices and the IT dummy was significant for the whole OECD sample and the Visegrád Countries (this was also proved by renewed regression on the period 1990-2010, see Appendix IV.). Visegrád countries have gained disinflationary advantages from introducing the new regime and are strongly set out to international commodity price shocks due to their flexible exchange rates. At the same time the current investigation on new EU members (and two new future entrants) showed that countries pursuing an inflation targeting strategy might have some advantage compared to other new EU members in their price convergence but the significance level of the choice of monetary policy is doubtful, and therewith it is questionable whether countries having a floating regime (inflation targeting countries) are better-off during their preparation to eurozone as great fluctuations of exchange rates during turbulent financial periods might melt down the advantages of flexible exchange rate adjustment to fixed currency regimes. Raw material prices do not exercise strong influence on domestic inflation rates of the CEECs, trade balance shows a much stronger impact on the same. The relatively low R^2 suggests that the inclusion of further parameters in the regression is worth considering as well as the application of an improved methodological solution because of the great number of the missing data for analysis.

VI. CONCLUSIONS

The disciplinary power of the inflation criterion of the EMU definitely has a positive impact on the economic policy of countries that are in for joining the eurozone. During the period between 1994 and 2001 there was a trade-off between economic growth and disinflation but following 2001 the Visegrád Four were able to sustain the pace of economic growth together with international competitiveness, manifested in the growing export activity in the frames of inflation targeting. The goals and instruments of monetary policy and fiscal policy should therefore be

defined in a way that best serves the price stability goal and facilitates the necessary development that the structural characteristics of the economy make desirable.

In the field of *nominal convergence* Slovakia proved to be the best performing economy which made it qualify for EMU membership in January 2009. In essence – apart from the case of Hungary – the Visegrad Countries managed to comply with the Maastricht criteria by 2007 (disregarding that only Slovakia has joined ERM II. by then). Hungary is somewhat lagging behind as it was not able to combat inflation to the required level for a longer period of time before 2008 and has continuously breached the fiscal discipline criteria. The high level of inherited state debt, the discretionary fiscal policy measures in recent years, the backward-looking nature of economic actors' inflationary expectations, and the barriers of the exchange policy have made it difficult to accomplish all nominal convergence conditions necessary for eurozone maturity. Since 2000 (till 2008) the currencies of the neighbouring economies constantly appreciated and as the exchange rate is the most important transmission channel of monetary policy, the price level convergence happened through the nominal exchange rate and not through a major excursion of the consumer price index.

Concerning *real convergence* – measuring it in GDP per capita terms – the Czech Republic enjoys precedence, whereas by now all the four countries have reached 50% of the eurozone per capita GDP at purchasing power parity. In the remaining period of economic adjustment price level growth and the accession of the welfare level will continue to go hand in hand, thus the price and cost competitiveness of the economy will get even more emphasis.

The inflation targeting monetary policy has proved to be the right choice for the Visegrad countries in the period 1997-2008 and could be statistically proved, however, since 2008 the economic slowdown and financial instability in the four countries (especially Hungary thanks to its ambiguous fiscal processes) made it questionable whether this monetary regime due to its discretionary elements and more flexible operation can overperform other monetary regimes, or an alternative pegged currency system. In the case of Croatia and Turkey being future entrants of the EU it is therefore recommendable to render due attention to the right choice of the monetary regime and above all maintain a continuous communication with the public to better anchor inflationary expectations and create confidence in economic policy.

(a) Acknowledgements: For useful constructive comments and suggestions I am grateful to anonymous reviewers and B&ESI Conference Participants; all errors remain mine.

APPENDIX

State debt in the CEECs 1989-2007

Year	Czech Republic	Poland	Hungary	Slovakia
1989	13,7	280,6	71,4	35,7
1996	13,1		73,6	30,3
1997	12,7		63,9	33
1998	15		61,6	34
1999	16	40,1	60,9	47,2
2000	18,2	36,8	55,4	49,9
2001	25,3	36,7	53,5	48,7
2002	28,8	41,1	57,2	43,3
2003	38,3	45,4	56,9	42,6
2004	37,4	43,6	57,6	43,6
2005	30,24	47,06	61,58	34,17
2006	30,11	47,65	65,63	30,44
2007	28,7	45,2	66,0	29,4

Source: ESCB and European Commission

Budgetary deficit in the CEECs 1992-2007

Year	Czech Republic	Poland	Hungary	Slovakia
1992	n.a.	n.a.	-6,9	n.a.
1996	-3,1	-3,6	-3,0	-7,4
1997	-2,4	-4	-4,8	-6,2

1998	-5	-2,1	-4,6	-3,8
1999	-3,6	-1,4	-3,9	-7,1
2000	-3,7	-0,7	-3,0	-12,3
2001	-5,9	-3,8	-4,4	-6
2002	-6,8	-3,6	-9,2	-5,7
2003	-11,7	-4,5	-6,2	-3,7
2004	-3	-4,8	-4,5	-3,3
2005	-3,54	-4,32	-7,78	-2,8
2006	-2,94	-3,79	-9,21	-3,69
2007	-1,6	-2,0	-5,5	-2,2

Source: MNB, ESCB and European Commission

Monetary regimes and the start of transition to inflation targeting

Country	Monetary regime	Starting date of inflation targeting
Bulgaria	Currency Board	-
Croatia	Exchange targeting	-
Czech Republic	Inflation targeting	The end of 1997
Cyprus	Exchange targeting	-
Estonia	Currency Board	-
Hungary	Inflation targeting	June 2001
Latvia	Currency Board	-
Lithuania	Currency Board	-
Malta	Exchange targeting	-
Poland	Inflation targeting	January 1999
Romania	Inflation targeting	August 2005
Slovenia	Exchange targeting	-
Slovakia	Inflation targeting	The end of 2004
Turkey	Inflation targeting	2002

Pooled OLS on the Visegrád Countries inflation regression

using 258 observations, Included 4 cross-sectional units, Time-series length: minimum 63, maximum 66

Dependent variable: pt

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
pt_1	0,914442	0,0175125	52,2166	<0,00001	***
it	-0,00578055	0,00228731	-2,5272	0,01210	**
household_cons_	0,00961333	0,00434439	2,2128	0,02780	**
nyersanyag_vila	0,0165731	0,00410208	4,0402	0,00007	***
Mean dependent var	0,071294		S.D. dependent var		0,062023
Sum squared resid	0,046004		S.E. of regression		0,013458
R-squared	0,979998		Adjusted R-squared		0,979762
F(4, 254)	3111,250		P-value(F)		2,2e-214
Log-likelihood	747,4399		Akaike criterion		-1486,880
Schwarz criterion	-1472,668		Hannan-Quinn		-1481,165
rho	0,311980		Durbin-Watson		1,319877

ENDNOTES

1. The table can be found in original in Wisniewski, A. "A visegrádi országok felkészültsége a GMU-csatlakozásra", *Közgazdasági Szemle*, 2005/9. pp. 664-682. The original table has been updated on the basis of the information provided by the four central banks: CNB, NBP, NBS, MNB
2. Data calculated according to ESA 95 since 2004.

REFERENCES

- Ball L., Sheridan, N., "Does Inflation Targeting Matter?", IMF Working Paper, 03(129), 2003.
- Batini N., Laxton D., "Under What Conditions Can Inflation Targeting Be Adopted? The Experience of Emerging Markets". Paper prepared for the Ninth Annual Conference of the Central Bank of Chile. "Monetary Policy Under Inflation targeting", Santiago, Chile, 2005.
- Beblavy, M., "Central bankers and central bank independence", Scottish Journal of Political Economy, 50. (1), 2003.
- Borys, M. M., Polgár, É. K., Zlate, A., "Real Convergence and the Determinants of Growth in EU Candidate and Potential Candidate Countries - A Panel Data Approach", ECB Occasional Paper No. 86, 2008.
- CNB, The Czech Republic's Euro-area Accession Strategy (2003). Document approved by the Government on 13 October 2003. www.cnb.cz. Downloaded: 10.12. 2008
- CNB, Analysis of the Czech Republic's current economic alignment with the euro area 2007. Approved by the CNB Bank Board on 1. November 2007. www.cnb.cz. Downloaded: 10.12. 2008
- Csaba, L., "Pótlólagos felvételi követelmény-e az euróérettség?", *Közgazdaság*, XLVI. (2). sz., 2002, pp.32-46.
- Csajbók, A., Csermely, Á., "Az euró bevezetésének várható hasznai, költségei és időzítése", *MNB Műhelytanulmányok* (24), 2002.
- Csermely, Á., "Az inflációs cél követésének rendszere Magyarországon", *Közgazdasági Szemle*, LIII. (12), December 2006, pp.1058-1079.
- Darvas, Zs., Szapáry, Gy., "Az euróövezet bővítése és euróbevezetési stratégiák", *Közgazdasági Szemle*, LV. (110), Október 2008, pp. 833-873.
- Égert, B., "Real convergence, price level convergence and inflation differentials in Europe", Working Paper 138, Wien, Österreichische Nationalbank, Eurosystem, 2007.
- European Central Bank, The reform of the Stability and Growth Pact: an assessment, 13 October 2003.
- European Central Bank, "The reform of the Stability and Growth Pact", *ECB Monthly Bulletin*, August 2005. pp. 59-73.
- European Central Bank, Convergence Report, May 2008, <http://www.ecb.int/pub/pdf/conrep/cr200805en.pdf>
- European Central Bank, Convergence Report May 2010, <http://www.ecb.int/pub/pdf/conrep/cr201005en.pdf>
- Gyórfy, D., "Költségvetési kiigazítás és növekedés az Európai Unióban – Tanulságok Magyarország számára", *Közgazdasági Szemle*, LV. (11), November 2008, pp. 962-986.
- Horská, H., Inflation targeting in Poland - A comparison with the Czech Republic, The Advanced Studies Program at the Kiel Institute of World Economics (Prague, University of Economics, 2001)
- Hu, Y., Empirical Investigations of Inflation Targeting (Institute for International Economics, 2003)
- Jankovics, L., "Inflációs célkitűzés rendszere: az első másfél évtized tanulságai", *Közgazdaság*, XLIX. (10), Október 2005, pp. 4-25.
- Losoncz, M., „Monetáris és fiskális politika - Néhány feszültségforrás az EMU-ban”, *Európai Tükör*, November 2003, pp. 82-117.
- Losoncz, M., *Európai uniós kihívások és magyar válaszok.* (Budapest, Osiris Kiadó, 2004).
- Mendel University, Study of euro introduction on the economy of the Czech Republic. (Mendel University, Research Centre, 2007)
- Magyar Nemzeti Bank, Inflation targeting system, 2004, www.mnb.hu, downloaded: 10.05.2008
- Magyar Nemzeti Bank, Elemzés a konvergenciafolyamatokról, 2008, www.mnb.hu, downloaded: 10.12.2008
- Mishkin F. S., Schmidt-Hebbel, K., „One decade of inflation targeting in the World: What do we know and what do we need to know?” Working Paper 8397, 2001, Cambridge, National Bureau of Economic Research
- NBP, Monetary Policy Guidelines for the Year 2004 (National Bank of Poland, 2003)
- NBP, A Report on the Costs and Benefits of Poland's Adoption of the Euro (National Bank of Poland, 2004)
- NBS, Monetary Programme of the NBS until the year 2008 (National Bank of Slovakia, 2004)
- NBS, The effects of euro adoption on the Slovak economy (NBS Research Department, 2006)
- Neményi, J., "A monetáris politika keretei Magyarországon", *Hitelintézési Szemle*, 7 (4), 2008, pp.321-334.
- Novák, Zs., A monetáris politika és a gazdasági konvergencia néhány összefüggése. Doktori (PhD értekezés) (Szent István Egyetem, Gödöllő. Gazdálkodás- és Szervezéstudományi Doktori Iskola, 2009)
- Oomes, N., "Maintaining Competitiveness Under Equilibrium Real Appreciation: The Case of Slovakia", IMF Working Paper, 15(65), 2005

- Orbán, G., Szapáry, Gy., "The Stability and Growth Pact from the perspective of the New Member States", MNB Working Paper, 2004/4.
- Rácz, M., "A stabilitási és növekedési paktum érvényesítésének problémái és a lehetséges megoldás körvonalai. Közgazdasági Szemle", LI. (10), Október 2004, pp. 970-986.
- Schaechter, A. et al., "Establishing Initial Conditions in Support of Inflation Targeting", IMF Working Paper, 2002(102)
- Surányi, Gy., "A pénzügyi válság mechanizmusa a fejlett és feltörekvő gazdaságokban", Hitelintézeti Szemle, 7(6), 2008, pp.594-597.
- Truman, E. M., Inflation Targeting and the world economy (Institute for International Economics, 2003)
- UniCredit Group, Competitiveness Report Czech Republic. Analysis by the UniCredit Group New Europe Research Network, 2003, <http://www.unicreditgroup.eu>. Downloaded: 10.05.2008.
- Wisniewski, A., "A visegrádi országok felkészültsége a GMU-csatlakozásra", LII. (9), Közgazdasági Szemle, Szeptember 2005, pp. 664-682.
- Wu, T. Y., Does Inflation Targeting Reduce inflation? An Analysis for the OECD Industrial Countries (Banco Central do Brasil, 2004)