

Zsuzsanna Novák

Corvinus University of Budapest
Department of Finance, Hungary
e-mail: zsuzsanna.novak2@uni-corvinus.hu

MONETARY POLICY REGIMES, DISINFLATION AND GROWTH IN CENTRAL EUROPE

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Abstract

At the end of the 80's Central European Countries started to abandon their administratively fixed exchange rates and gradually adopted new monetary regimes with more or less emphasis on the exchange rate, inflation and growth targets. This study analyses the economic background of the choice of monetary regime in these countries and their success in curbing inflation. The main question the paper addresses is whether any of these monetary strategies can be regarded as more beatific in the pursuit for achieving a close to eurozone level inflation. The paper also points out that the antiinflationary policy can only be efficient in the long run if it does not endanger the keeping up of the eurozone average growth rate in these converging economies. A panel examination delivered by the study of 15 Central and Southern European Countries – similarly to De Grauwe and Schnabl, 2008 – provides evidence of inflation targeting as being an effective policy to reduce inflation, however, reveals biased results concerning economic performance.

Keywords: monetary policy, economic convergence, inflation

1. INTRODUCTION

The paper gives a brief overview of the monetary policy regimes pursued by the new members and some advocates of the European Union. The emerging economies of Central and South Eastern European countries have to face the urging requirement of real economic convergence and disinflation at a time. Their way of catching up is largely influenced by the monetary policy framework they opted for. The main goal of my research is therefore to investigate which alternative regime supports EMU accession in the most adequate way. After introducing some main characteristics of the particular economies the paper compares the growth and inflationary tendencies of 15 Central and South Eastern European countries between 1995 and 2012 and tests some factors of inflation and growth in an OLS framework to find empirical evidence whether monetary policy affects nominal and real convergence significantly.

2. BACKGROUND

The 15 countries examined in the paper (Bulgaria, Croatia, Czech Republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Serbia, Slovakia, Slovenia and Turkey) have chosen fairly different economic policy strategies in their European integration process. As common features of all the countries making efforts to comply with EU (eurozone) requirements the strong commitment to the embedment into the world economy by goods and capital market liberalisation and the commitment to disinflation can be emphasised which created consensus among leading economists of these countries and the international financial experts. Within this commitment to world economic opening the particular countries have chosen specific objectives and tools, nevertheless, disinflation has played an indisputably dominant role in the choice of economic policy alternatives.

Among monetary policy regimes inflation targeting, having been a fashionable policy direction for the recent decades, relies on diverse special literature as for its theoretical footing as well as for its practical results. Its main advantage is provided by the direct definition of a numerical medium term inflation target in contrast to other regimes where the intermediate target (monetary aggregate or exchange rate) does not directly connect to the change in the price level. A central bank operating in an open economy in this regime will attempt to smooth inflation and output (see among others Svensson, 2006):

$$L=\omega_1(\pi-\pi^*)+\omega_2(y-y^*) \quad (1)$$

In the case of small open economies experts most often cited in this field (see among others Mishkin-Schmidt-Hebbel, 2006), strongly recommend to build in exchange rate stability in the loss function of the central bank and in inflation forecasting models as target variable which expresses that the central bank has to manage exchange fluctuations causing major economic distortions. The loss function in this conception is as follows:

$$L=\omega_1(\pi-\pi^*)+\omega_2(s-s^*)+\omega_3(y-y^*) \quad (2)$$

There is no need for deeper theoretical or empirical reasoning to accept the above form of the loss function as a general description of the objective function of the central bank of a small and open economy – with weights reflecting national priority ranking – and therewith as an equation well describing the economies under examination in this paper.

There might occur rather strong deviations, though, if we allow that any of the above parameters take zero value. Under fixed exchange rate inflation smoothing can be unnecessary, and if inflation targeting is interpreted in a strict sense, all the above parameters apart from the inflation difference should be regarded as zero. This can signify the best possible solution if information on aggregate demand and the exchange rate channel of the transmission mechanism is not reliable, hence it is worth concentrating on the medium term inflation target in a narrow sense. Small open economies should also follow suit in annulling certain targets when they are sensitive to exogeneous shocks. These countries, furthermore, are better off if they follow exchange targeting before seeking price stability and can even pursue a currency board system (Orlowski, 2008) which as we will later see is a widespread solution in the Baltic countries. The so called flexible inflation targeting can be reconciled with more emphasis on output gap and the mitigation of exchange fluctuations. (Svensson, 2006).

Inflation targeting is considered as widely supported for its greater flexibility as it generally provides greater room for manoeuvre for central banks to set in discretionary tools. In the case of Central and Eastern European countries the introduction of the regime came to front after these economies were torn by the Asian and Russian crisis and were forced to commit themselves to a well defined policy rule. (Orlowski, 2008).

Later on it will be shown that inflation targeting has overall proved to contribute to successful disinflation in most examinations but succeeded in meeting other objectives in the central bank's loss function to different degrees in various countries. The general alternative to targeting inflation was exchange targeting (or currency board) in the new modern market economies of Europe. It is worth examining how countries with different strategies have performed in nominal and real economic performance and whether inflation targeting can be regarded as outstanding or at least such implying any advantage as regards inflation and output growth.

3. METHODOLOGY

The first part of the research briefly introduces the monetary policy preceding euro adoption of the new member states of the EU joining in 2004 and 2007 as well as Croatia, Serbia and Turkey well supplementing the above group as regards their economic development and geographic closeness. Beyond a general description of the various monetary policy objectives and tools the paper points at some distinguishing economic conditions of the selected countries. Countries were grouped according to their geopolitical background which does not always correspond to the choice of monetary policy regime.

In the second part, for the sake of a better comparison of the effectiveness of monetary policy, the strength of inflation persistence was estimated and the impact of some variables which have a strong theoretical link to inflation in a panel regression framework. The statistical goodness of the inflation targeting monetary strategy was tested relying on the data of seven inflation targeters and 8 non-inflation targeters (as control group) on the basis of the methodology recommended by Wu (2004) with the help of regression equations with 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:

$$\pi_{it} = \beta_0 + \beta_1 D_{it} + \beta_2 \pi_{i,t-1} + \beta_3 C_i + \beta_4 T_i + \varepsilon_{it} \quad (3)$$

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 ($\pi_{t,1}$). 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_2 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 and public debt 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 and Sharidon, 2003) for accounting for the Phillips-curve effect. Foreign exchange volatility, M2-to-GDP ratios, real GDP growth and gross fixed capital formation to GDP variables in the data set were also included as recommended by De Grauwe and Schnabl (2008) and Staehr (2010) to account for financial market processes and the Bhagwati-effect stemming from relative increase in capital endowment. Ball and Sharidon (2003) assign the relative price change of international commodity price index as the variable under T , denoting an external, time-variant effect, which was also adopted in the regression.

Average output growth and inflation data were also compared in the period to reflect the trade-off between inflation and output growth during the convergence process of the selected countries.

The quarterly data of IMF IFS was used for inflation, export and import, quarterly GDP and Eurostat database for productivity, M2 and fixed capital formation for analysis. Some data series (for example in the case of Malta, Croatia, and Serbia) started later than 1995 because of historical reasons and M2 data were not available after euro introduction (in the case of Slovenia, Estonia, Malta, Cyprus, Slovakia). For the latter the eurozone average was applied instead of country specific variables after EMU accession. In addition, the OLS estimation of Gretl is able to process time series with missing data.

4. MONETARY POLICY REGIMES PRECEDING EMU ACCESSION

Baltic countries

After a 40-45% drop in GDP following the gaining of independence of the three Baltic countries a period of GDP growth began in 1995, and after the Russian crisis in 1999 a more stable economic period followed (Sutela, 2002). Before the 2008 global financial crisis an overheated economy characterised the three Baltic states with high levels of private foreign currency debt and around 10% inflation.

Having given up attempts to maintain a floating exchange regime at the beginning of economic transition all the three countries shifted to fixed exchange regimes in the frames of a currency board (Latvia and Estonia) and in a close to currency board system (Lithuania) between 1992-1994. The maintenance of a currency board requires 100% foreign exchange reserves to safeguard the value of the domestic currency in circulation. Thanks to the well defined nominal anchor interest rates and inflation generally align to the economy whose domestic currency is the anchor for the currency board.

The Baltic countries' economic convergence can be best characterised by early full capital liberalisation, fixed exchange rates and an open economy often facing high current account deficit (Sutela, 2002). The three countries joined the ERM II. in 2004-2005 and Estonia has been a eurozone member since 2011.

The Visegrad group

The Czech Republic, Slovakia, Poland and Hungary was gradually shifting from exchange targeting to a flexible exchange regime (by fully liberalising capital markets) and inflation targeting between 1998 and 2001. After a serious drop in output and two- to three-digit inflation between 1990-1995 the four countries successfully stabilised the economy by the end of the 90's and reduced inflation under 10% (Novák, 2009).

These countries pioneering in inflation targeting in Central Europe had to face a dual postulate: stabilising the price level and their fiscal position. Inflation targeting is often identified as a policy regime having no strict prerequisites, the lack of adequate financial markets and institutional background as well as the commitment of the fiscal authority to price stability (even if central bank independence is ensured as in the Visegrad Four) can hurdle the effectiveness of the monetary policy following the medium term inflation forecast. Fiscal deficit often prevented the fulfillment of the Maastricht criteria in all these countries

but especially Hungary has been suffering under a mostly above (and Poland a close to) 60% public debt unique in the region which entailed high interest rates and a loss of credibility of economic policy which would be crucial for anchoring inflationary expectations.

The global financial crisis badly hit Hungary and the Czech Republic, Slovakia and Poland have relatively suffered less fallback and have partly regained growth potential. Slovakia has been a member of the EMU since 2009.

Cyprus and Malta

Cyprus and Malta while starting from an economically less dependent situation on the eurozone countries – with strong ties to the United Kingdom - introduced the euro as currency peg preceding (Cyprus) or following (Malta) EU accession and conducted exchange rate targeting until the introduction of the euro in 2008.

Capital liberalisation became effectual in Malta in the 90's, and by 2004 in Cyprus.

Whereas maintaining the highest M2-to-GDP ratios among acceding countries, both Cyprus and Malta countries have stabilised inflation under 5 percent throughout the whole period, but the economic performance has decelerated since the recent crisis which has led to a close to eurozone debt-to-GDP level (80%) (Eurostat, 2013) in both countries with the deterioration of the financial environment.

Slovenia, Croatia and Serbia

The successors of the former Yugoslavia – including Slovenia, Croatia and Serbia – formed their self sufficient monetary policy and introduced national currencies within a fixed exchange system after the wartime hyperinflation in the 90's. Monetary policy in this region was largely influenced by the dominant role of the euro, the strong euroisation, in everyday economic transactions and the savings of private actors. (Barisitz, 2004)

Slovenia moved towards full capital liberalisation at the beginning of the 2000's. Price stability was realised first in the frames of monetary targeting, then maintained under implicit exchange targeting. Slovenia until its joining to the eurozone in 2007 maintained a rigid fiscal policy with an often positive fiscal balance and this way was the first to meet the Maastricht criteria among the new EU members.

Croatia and Serbia were still suffering under the long-lasting effects of the war at the beginning of the 2000's which primarily appeared in the twin deficit and foreign indebtedness. Croatia maintains an officially

managed float system with a narrow band around the central parity of the currency exchange against the euro, whereas Serbia applied fixed regimes (with a band and later crawling peg) before the introduction of inflation targeting and managed float in 2006 in a relatively high inflationary environment – above 10% inflation (IMF, 2013).

The global financial crisis has been accompanied by the deceleration of economic performance in recent periods in all the three countries and a growing public debt even negatively affecting the Slovenian financial sector but Croatia due to its dynamic development before 2008 is now among the more developed countries of the region as regards GDP per capita and is going to become an EU member in 2013.

Romania, Bulgaria and Turkey

After a hyperinflationary period of all the three Southern countries in the 90's, apart from the year 2007, Bulgaria has managed to keep inflation below 10% since 2000 but Romania and Turkey started the 2000's with above 50% inflation rates (IMF, 2013). The beginning of the 90's in addition meant stagflation in Bulgaria and Romania as a consequence of the transformation period and a lot of financial stabilisation measures were necessary also in the highly dollarised economy of Turkey.

Bulgaria similarly to the Baltic countries undertook a currency board regime after the serious recession in 1996-97 and could successfully anchor inflationary expectations (Hristov, Zaimov, 2003).

Romania first adopted monetary and exchange rate targets as nominal anchor and in mid 2005 finally changed to inflation targeting under managed floating.

Turkey also has a long history of policy regime changes: from managed floating to crawling peg, and monetary targeting to implicit and explicit inflation targeting. Explicit inflation targeting was launched in 2006 after fiscal stabilisation, the decrease of interest rate volatility and currency appreciation. After the crisis Turkey came up against a depreciating currency and increasing interest expectations which made the central bank reformulate inflation targeting and introduce financial stability as supplementary goal to price stability. (Kara, 2012).

All the three countries underwent a serious abatement in economic performance during the crisis, Turkey leading the list with a 15% decrease in on quarter, however, Turkey is on a strong economic growth path in contrast to other European countries and neither of the three has to cope with huge public debt levels (public debt is between 30-40% in all these countries by now).

5. PRECEDING RESEARCH RESULTS ON INFLATION TARGETING

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. 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. However, high government deficit and the political influence on central bank decisions (Orlowski, 2008) can not be reconciled with the IT strategy. 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.

High degree of dollarization can also be a disadvantage and lead to high domestic interest rates. Nevertheless, IT-systems can be effective in overbearing inflationary expectations even in countries with no stable financial system established if the commitment of the monetary authority is credible like in the Czech Republic, Poland and Turkey. (Orlowski, 2008)

De Grauwe and Schnabl (2008) found evidence that in Central and South Eastern Europe exchange rate stability and inflation targeting contributed to disinflation, however, inflation targeting did not contribute to output growth.

inflation t_1	0,727282	0,0206898	35,1517	<0,00001
exchange volatility	77,9384	9,14855	8,5192	<0,00001
GDP growth	-1,01938	0,318701	-3,1986	0,00143
commodity prices	0,0532851	0,087226	0,6109	0,54142
M2/GDP	-4,80497	1,34234	-3,5795	0,00036
export-to-GDP	0,351838	0,0927352	3,7940	0,00016
gross capital investment to GDP	-1,05555	0,235249	-4,4870	<0,00001
public expenditure to GDP	-2,7688	0,429089	-6,4527	<0,00001

R-squared	0,706174	Adjusted R-squared	0,703639
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Dependent variable: GDP_growth

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>
it dummy	-0,327125	0,257408	-1,2708	0,20428
GDP_growth_1	0,711079	0,0285382	24,9167	<0,00001
exchange volatility	1,74777	0,341727	5,1145	<0,00001
M2/GDP	-0,196377	0,102042	-1,9245	0,05477
treasury bill interest rate	-0,0211974	0,00790026	-2,6831	0,00750
euro introduction	-0,665061	0,527477	-1,2608	0,20786

R-squared	0,721764	Adjusted R-squared	0,719438
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Table 1 Inflation and output growth regressions

Source: IMF, Eurostat, 2013, author's calculation

By regressing quarterly inflation rates (see Table 1) with the help of country-specific and time-variant variables inflation targeting dummy always appears with a negative sign but as significant only at a 10% level. Exchange rate stability (calculated as proposed by De Grauwe and Staehr (2008) against the SDR basket) seems to have a significant bearing on the CPI. At the same time, whereas exchange volatility also contributes to output growth in the period examined, inflation targeting seem to have a negative impact on the countries' real convergence even this negative lacks strong explanatory power.

The model with the highest R^2 value was selected for both inflation and output growth. Some variables could not be involved in the same regression as endogeneity might distort there coefficient and p values, therefore the number of variables is rather restricted. As proposed by De Grauwe and Schnabl (2008) and Staehr (2010) it is advisable to repeat the examination in a GMM framework to better tackle the problem of the endogeneity between data in a future research.

7. CONCLUSIONS

In the times of great moderation inflation targeting was widely acknowledged as a system which plays a crucial role in inflation stabilisation and even smoothes output volatility. The period of the recent global financial crisis further strengthened views on the adequacy of the inflation targeting regime. If we closer investigate the convergence process of Central and South Eastern Europe we have to ascertain that compared to fixed exchange regimes and exchange targeting the IT strategy has not brought surplus in the fight against inflation and in the real economic catching up of transformation economies based on empirical results. There are countries which successfully carried out financial stabilisation relying on foreign currency pegs and could avoid suffering greater losses caused by the extreme volatility of the exchange rate. From a theoretical viewpoint inflation targeting still does provides an extra gain: it involves economic actors in the game between the monetary authority and the public, channels expectations and therewith makes them more aware of the interaction between economic policy and their everyday economic transactions.

REFERENCES

Book with an author

Novák, Zs. (2009). A monetáris politika és a gazdasági konvergencia néhány összefüggése. Doktori (PhD értekezés, Szent István Egyetem, Gödöllő. Gazdálkodás- és Szervezéstudományi Doktori Iskola

Journal paper

Ball, L., Sheridan, N. (2003). Does Inflation Targeting Matter? *IMF Working Paper, 03(129)*

Barisitz, S. (2004). Exchange Rate Arrangements and Monetary Policy in Southeastern Europe and Turkey: Some Stylized Facts. *Oesterreichische Nationalbank (OeNB), Focus on European Economic Integration 2/04*

De Grauwe, P., Schnabl, G. (2008). Exchange Rate Stability, Inflation, and Growth in (South) Eastern and Central Europe. *Review of Development Economics, 12(3)*, pp. 530-549

Hristov, K., Zaimov, M. (2003). Shadowing the euro: Bulgaria's monetary policy five years on. *BIS papers No. 17*, pp. 61-78.

Hu, Y. (2003). *Empirical Investigations of Inflation Targeting*, Institute for International Economics. *IIE Working Papers Series WP No. 03-6*

Kara, A. H. (2012): Monetary Policy in Turkey After the Global Crisis. *Central Bank of the Republic of Turkey, Working Paper No: 12/17*

Mishkin, F. S., Schmidt-Hebbel, K. (2001). One decade of inflation targeting in the World: What do we know and what do we need to know? *Working Paper 8397*, Cambridge, National Bureau of Economic Research

Staehr, K. (2010): Inflation in the New EU Countries from Central and Eastern Europe: Theories and Panel Data Estimations. *Bank of Estonia, Working Paper Series 6/2010*

Sutela, P. (2002). Combining the Incompatibles: Fixed Exchange Rate, Liberalisation and Financial Development in Estonia. *Bank of Finland. Institute for Economics in Transition, BOFIT No. 8.*

Svensson, L. E. O. (2006). Optimal Inflation Targeting: Further Developments of Inflation Targeting. Central Bank of Chile. *Working Papers, No. 403*

Wu, T. Y. (2004). Does Inflation Targeting Reduce inflation? An Analysis for the OECD Industrial Countries, Banco Central do Brasil, *Working Paper Series 83*

Paper published in conference proceedings

Batini, N., Laxton, D. (2005). 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

Orlowski, L. T. (2008). Advancing inflation targeting in Central Europe: Strategies, policy rules and empirical evidence. Paper Presented at the *European Association for Comparative Economic Studies (EACES) 9th Bi-Annual Conference: Development Strategies – A Comparative View.*