4 DOES THE INFLATION TARGETING HAVE A POSITIVE ROLE UPON THE CONVERGENCE OF THE INFLATION RATE?

- The Case of Romania -

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Abstract

This article asks whether the monetary regime of inflation targeting that Romania chose is favorable to the inflation convergence with the EU. We analyze a few of the standard models of inflation convergence and apply some of them for the case of Romania. We also use the experience of the other CEE countries to derive lessons for the inflation targeting policy and the convergence process of Romania. We find that the inflation targeting regime supports the inflation convergence and generally the nominal convergence with EU.

Key words: Inflation Targeting, Nominal Convergence, Maastricht Criteria.

JEL classification: **E52**, **E31.**

1. Introduction

The economic integration of the Central and Eastern European countries (CEE) is a long-term process that started with the 2004 EU enlargement and will continue with the integration of Romania and Bulgaria on 1st of January, 2007. As in the case of the other countries, the future integration in the Economic and Monetary Union (EMU) is conditioned by the fulfillment of the economic convergence preconditions from the Copenhagen agreement regarding the real convergence, and those of the Maastricht treaty regarding the nominal convergence. That is why it is essential to know the degree up to which Romania fulfills the criteria of nominal and real convergence.

There are extensive debates regarding the real and nominal convergence (Halpen and Wyplosy, 2001; Buite and Grafe, 2002; de Broeck and Slok, 2002; McKinnon,

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1984; de Grauwe and Schnabl, 2004), which show that it is actually impossible a simultaneous achievement of the nominal convergence (for example, the stability of the currency and of the prices) and of the real convergence (faster economic growth). Until now, the solutions of overcoming this dilemma have been, in most of the cases, in contradiction with the nondiscriminatory principle applied by the European Central Bank, so that they have not had any practical applicability.

According to some opinions, the fulfillment of the real convergence has to be done either in parallel or before the nominal convergence. For the CEE countries that have passed through a period of extensive and deep reforms and which are now in the phase of completing the transformation and restructuring of their economies, bridging the gap of the gross domestic product per capita at the standard PPP implies a longer process, which will also be sustained by the EU integration. However, Christodoulakis (2004, p. 13) warns that there is a risk to consider the EU integration a magic way to accelerate the economic growth and to wish an immediate entry into the euro monetary system, while, actually, the fulfillment of the economic convergence implies a realistic and credible plan with specific objectives for each stage of the transition plan, according to the strategic structural reforms established in Lisbon and accompanied by a coherent policy able to ensure the credibility and coordination of the economic actions.

For Romania, it is important to know the degree of the convergence criteria fulfillment and the impact of the policies which sustain their achievement. Moreover, a few studies had as object the analysis of the degree of the convergence fulfillment in countries like Romania and Bulgaria, which were included in the second EU extension wave (Isărescu, 2004; Schnabl, 2004; Kutan and Yigit, 2004; Figuet and Nenovsky, 2006).

In the next sections, we concentrate only upon the inflation rate convergence, which is considered as absolutely necessary for the EMU accession by the architects of the EU. We also try to find out if the inflation targeting regime accelerates the process of reaching the inflation convergence criteria, based on the experience of Romania and other CEE countries. This paper is structured as follows: the first section deals with models that can be applied in order to study the convergence process. The next section studies the effects of the IT adoption for the inflation dynamics in the CEE countries and draws a few lessons for Romania. The fourth section focuses on the inflation convergence process in Romania and which is the impact of the change in monetary policy on the inflation dynamics. The last section ends the article by underlining the main results.

2. Models applied in the study of the nominal convergence

In the theory of economic growth, the testing of the convergence implied the use of the dispersion method as an initial condition for the regressions. In this context, the convergence was reached at that time horizon for which the dispersion of the series tended towards zero. On the other hand, the initial test of convergence verifies whether the relationship between the rates of economic growth and the initial series is

negative. Later studies have started to consider the structural differences that led to modifications of the convergence tests in order to reveal the effects of other variables, and thus to test the hypothesis of the conditioned convergence in the analysis that used data series from several countries.

Regarding the convergence models, some studies (Haug, MacKinnon, Michelis, 1999; Mentz, Sebastian, 2003; Kutan and Yigit, 2005; Orlowski, 2005) use the stationarity and Johansen co-integration methods (1988) developed by Stock and Watson (1988) to determine the long term trend which implies long term time series. The application of these techniques has many times led to the rejection of the time series, the main explication being that the cointegration property is valid only in the presence of sufficient long-term series which are not influenced by disturbance elements.

Following the views of F. Busetti, Forni, Harvey and Venditti (2006), while the stationarity tests and the Unit Root Test (ADF) allow the detection of the convergence, the stationarity test is a useful tool for the study of convergence in the case that the indicators are converging, if the differences among them remain stable over time. The ADF test is more useful to reveal whether the two variables and the analyzed series are in a convergence process.

The theoretical model which is fundamental in order to determine the convergence satisfies the condition:

$$\lim_{r\to\infty} E(y_{t+r} \; Y_t)=\alpha_t \qquad (1)$$

where Y_t represents the past and current observations. The convergence can be absolute if $\alpha=0$, otherwise it is relative or conditioned.

The simplest convergence model is an AR(1) process:

$$y_t - \alpha = \varphi(y_{t-1} - \alpha) + \eta_{t,} \qquad (2)$$

where η_t are the marginal differences of the shocks, while y_0 is the condition which is initially established.

We can rewrite the equation (2) in terms of the error corrections and we get:

$$\Delta y_t = \gamma + (\varphi - 1)y_{t-1} + \eta_t \qquad (3)$$

where: $\alpha\ (1-\varphi\ )$ is a negative function of the gap in two regions after they get to a permanent difference of values α.

We test the convergence condition by the ADF test: H_0: $\varphi = 1$ while the alternative is: $H_1 : \varphi < 1$.

The power of the ADF test depends on the initial conditions, in other words, on how far is y_0 relative to α (see Muller and Elliot, 2003).

The generalization of the equation (2) in a dynamic process of the type AR(p) is given by the equation (4):

$$\Delta y_t = \gamma + (\varphi - 1)y_{t-1} + \gamma_1 \Delta y_{t-1} + \gamma_{p-1} \Delta y_{t-p+1} + \eta_t \qquad (4)$$

with : $0 < \varphi < 1$.

The ADF test is based on this type of regression.

We consider that the indicators from the two countries are convergent if Δy_t (the difference between the two indicators) is a stationary process.

Hall, Robertson and Wickens (1997) used the Kalman filter as a fundamental technique for testing the convergence, while some other studies (Holmes, 2000) used the principal components analysis (developed by Snell) by which they verified whether the principal component is stationary over the long-term relative to a reference value (Germany, for example), or panel data regression techniques (Busetti and others, 2006; Figuet and Nenovsky, 2006; Kutan and Yigit, 2004a and 2004b), standard deviations and pooled least square estimation (Hein and Truger, 2002), or models of general equilibrium.

The many available techniques and their permanent improvement leads to the conclusion that there are many other aspects which drew the attention of the interested researchers in the theoretical and practical aspects of the convergence, each method used having certain advantages but some limits, too, which imposed a close interpretation of the data, which is more critical since sometimes the use of several techniques on the same time series has led to slightly different results.

The choice of one or another technique was conditioned by the purpose of the research and by the questions to which an answer was looked for, which reveal a large number of choices: from the properties of the convergence of inflation in the euro zone, to the issue whether the mechanism of the exchange rate helps the acceleration of the convergence (Busetti and others, 2006), to the economic policies that can sustain the stability of some indicators in the long run (Devereu, 2003; Hein and Truger, 2002; de Grauwe and Schnabl, 2004; A. Haug, MacKinnon and Michelis, 1999; Orlowski, 2005, etc). In the study of the nominal convergence for Romania, we followed the approach by Barros and Garoupa (1995) in their study on convergence for the case of Portugal and the graphical method, the statistical methods (variances, variation coefficients) and stationarity tests.

3. The inflation targeting as a monetary policy which supports inflation convergence in the CEE countries

The CEE countries have as a medium term objective the nominal convergence with the euro area economy. In order to achieve this convergence, the monetary policy had to be modified to answer to this new macroeconomic objective. As Orlowski (2001) has shown, the transition economies need an autonomous monetary policy which allows for the stabilization of the inflation by internal means, having in mind the EU integration. From this perspective, the monetary policy should be characterized by two essential features: forward looking and transparency.

By definition, see Svensson (1999) and Orlowki (2000), the inflation targeting (IT, henceforth) is a policy that is based on a pre-announced target, on transparent strategies and on mechanisms by which the actual deviations of the inflation from the pre-announced target are corrected. Thus, IT appears as the most attractive of the monetary policies for the CEE countries with respect to the achievement of the nominal convergence objectives.

In this section, we present the causes for which the inflation targeting has proved to be the most credible desinflation policy too, and why the inflation targeting has helped the nominal convergence process.

The transition process has implied numerous inflationary shocks, so that the inflation has become a continuous problem for all the transition economies. This permanent inflation has led to the necessity of stabilizing the prices. In order to achieve this, the policy makers decided that they have to choose a nominal anchor, which in some cases was the exchange rate, while in other cases, the monetary aggregates.

The exchange rate has functioned well as a nominal anchor at the beginning of the transition, but, after a while, the transition economies had to face the problems of a fixed exchange rate. Because the inflation rate has continued to be present, a real appreciation resulted, which caused a balance of payments disequilibrium. In the context of the financial crises of the mid 90's, the transition economies have started to look for another nominal anchor.

For the CEE countries, more precisely the Czech Republic, Poland and Hungary (CPH henceforth), the inflation targeting appeared, in the end, as the best nominal anchor. The inflation targeting has numerous advantages relative to other options, such as:

- The Central Bank continues to maintain its autonomy and can answer both the external and internal shocks;
- It is very important that by choosing the inflation rate as an anchor, the relationship between the money and inflation is not anymore essential;
- Moreover, this choice is much more transparent, as the public can understand easier this type of monetary policy.

There are a few controversies regarding the inflation targeting in the transition economies, which led to discussion upon how proper is this type of monetary policy for these countries. Such an economy should be characterized by a sound fiscal position. Also, there are a few criteria which characterize the monetary policy in itself: there should be a deep understanding of the transmission mechanism between the monetary policy and inflation, the Central Bank should be independent, and, also, the practice of monetary policy should be both transparent and easy to be evaluated. Moreover, such an option excludes any other kind of other nominal anchors. There is also the requirement that the financial markets are well developed.

The three countries in question, the Czech Republic, Poland and Hungary, do fulfill the above criteria, but not in a full manner. One of the problems which raises questions for them, and, generally speaking, for the transition economies, is the limitation in the forecasting ability. As Orlowski (2000) has shown, the current inflation in the transition economies is unstable relative to its trend, so that there are fundamental problems in the inflation targeting.

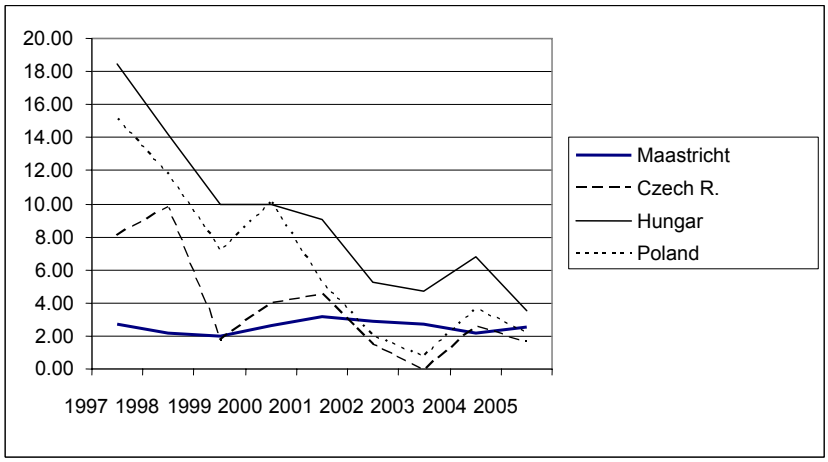
From the experience that was accumulated in these countries, we try to extract some conclusions. We can estimate the success of this policy through a few criteria. However, for the present study, only those criteria that are related to the nominal convergence process are significant. In this respect, a first criteria regards how much this policy has helped the desinflation process, and moreover, the convergence

toward the reference inflation rate. An evaluation criteria as much significant as the first one regards the degree with which the inflation targeting has helped the inflation stabilization.

The inflation dynamics in the three countries and the relative gap to the Maastricht are presented in Figure 1.

Figure 1

Inflation dynamics in the three countries



Source: Authors' own computations based on Eurostat data.

The figure shows that the inflation targeting has implied a growing nominal convergence relative to the inflation criterion, but also the acceleration of the disinflation process in itself.

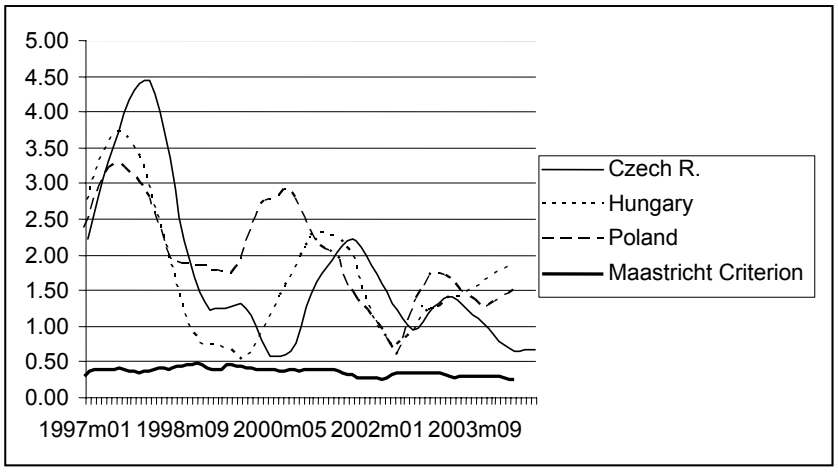
First of all, one may notice that the degree of convergence towards the inflation rate depended on the time of this regime choice. Thus, the Czech Republic, the first country of the CPH to adopt IT was also the first country to get fastest to the reference target, while Hungary, the last country in this group to adopt IT, had a much lower convergence speed.

Second, the IT has brought a relative convergence between the three countries. Thus, after 2001, the Czech Republic and Poland, the first countries to adopt IT, had similar dynamics of the inflation rate. Hungary started to behave in a similar way starting in the year 2005.

The second criterion regards the volatility of the inflation rate. In order to measure the degree by which the inflation rate has decreased, we used the standard deviation coefficient computed for a two years rolling window. The choice of a „rolling window" allows an illustration of the process of a decreasing volatility in a dynamic way, by which we can put in evidence some features which would not be so obvious from the simple coefficient of standard deviation computed for the whole period, as it results from Figure 2.

Figure 2

Volatility computed as standard deviation based on rolling 2 years periods



Source: Authors' own computations based on Eurostat data.

One may notice some remarkable similarities with the previous figure, which give us a much cleared image of the nominal convergence in these countries. First of all, on an average term of two years, the inflation targeting has led to a decrease in the volatility of inflation. However, unlike the case of the disinflation, this process has not been stable, a fact that can be seen from the temporary growth in the volatility at the beginning of the year 2000.

Moreover, the convergence towards the level of the volatility of the reference rate has happened faster in those countries that adopted the IT earlier. Thus, the Czech Republic had the fastest decrease in the volatility of the inflation, while in the 2004-2005 period was the country with the closest level of volatility relative to the volatility of the reference rate.

The IT has brought not only a continuation of the disinflation process and of the nominal convergence process, but also of the inflation stabilization. Although the IT requirements are demanding and imply a high level of complexity of the financial institutions, the benefits of the IT are obvious from the CPH countries experience.

In the process of inflation targeting there are possible numerous mistakes, missing targets, some errors that lead to a worsening of the parameters, like periods when the inflation accelerates and becomes unstable. However, the experience of the CPH countries shows us that these occurences are temporary, and in the medium and long run, IT brings with itself remarcable results. In this context, Romania - that chose the IT regime starting with 2005 - after accomplishing the preconditions necessary for this type of monetary policy would surely benefit from the advantages of a reduced volatility and a growth in the convergence speed.

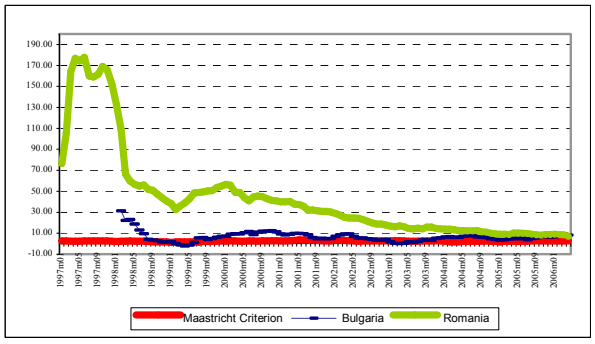
4. The inflation dynamics in Romania in the pre and post IT adoption period

The Maastricht criteria regarding the inflation convergence contain a "mobile target" (Isărescu, 2004), which is related to the inflation level in the three of the best performer countries of the EU. Thus, the determining of the mobile targets it is not a simple process at all, as they change from one month to the other and from one year to the other, depending on the dynamics of these indicators in the EU countries.

Romania has difficulties in reaching this criterion before the integration at the January 1st, 2007, although the last years have revealed successes in reducing the inflation. Regarding the inflation rate expressed as the consumption goods index (CPI), the analysis for the period January 1997-April 2006 reveal a convergence period after the year 2002 both for Romania and Bulgaria (Figure 3) under the circumstances of very different monetary policies.

Figure 3

Inflation convergence in Romania and Bulgaria



Source: Eurostat and INS Prices Bulletin for Romania

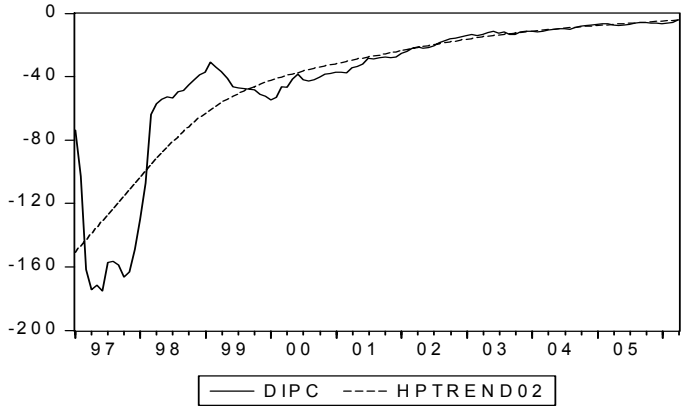
One may conclude that immediately after the currency board was introduced, Bulgaria has known an accelerated disinflation process, which allowed for the inflation rate to came down to a single digit number, while, Romania, which continued the inflation control through the monetary aggregates, has known a longer period of two digits inflation. The situation has changed after the end of 2004, when Romania has registered for the first time a single digit inflation rate (with the exception of April and May of 2005), so that in the spring of 2005 it has passed to an inflation targeting regime as the Czech Republic, Hungary and Poland had proceeded before the EU integration. In this context, we can notice that there were several months in which Romania performances were closer to the Maastricht criteria than those of Bulgaria, which validates the EU experts restraints not to advise a particular monetary policy for reaching the nominal convergence criteria imposed to the candidate states, as they were aware of the advantages and the disadvantages which any specific policy implies.

These results differ from those of Figuet and Nenovksy (2006), who studied the convergence in Bulgaria and Romania and concluded that the currency board policy applied by Bulgaria has contributed in this country to the reach of the convergence criteria regarding the inflation, while Romania did not accomplish the convergence criteria for any of the indicators in the 1997-2004 period (inflation rate, nominal and real GDP, money supply M1, the credit and the deposit interest rate). As a methodological tool, the authors have used panel analysis in a VAR type model with fixed effects in order to separate the countries and the groups of countries.

In order to deepen the analysis of the convergence, we use the ADF test applied to the difference between the Maastricht criteria for the inflation and the inflation rate in Romania (DIPC). One may notice that the two series are in a convergence process, which is much more pronounced after 2004, a fact that it is obvious from the use of the Hodrick-Prescott filter (HP TREND02), as it results from Figure 4.

Figure 4

Inflation rate convergence in Romania



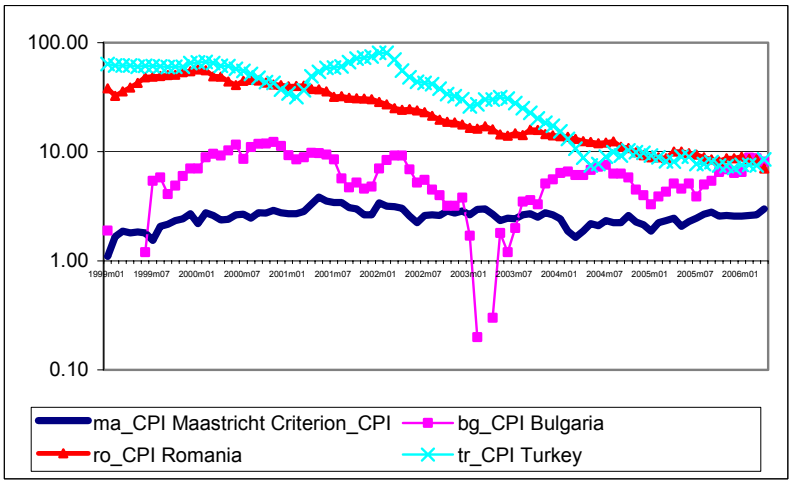
Source: Authors' own computations based on NIS Prices Bulletin.

We extended the analysis regarding the convergence of the inflation to the countries of the next wave (Romania, Bulgaria and Turkey, as it results from Figure 5), and we found that the data for the period January 1999–April 2006 revealed that Bulgaria had a monthly inflation rate which varied with large amplitudes (up to a maximum of 12.3% in November 2000 and a minimum of -0.1% in February and March 2003), but within a band much closer to that of the Maastricht criteria (computed after 2004 for 25 states). By applying the Ben-David (1993) method, the data reveal the fact that in Romania and Turkey the authorities have made constant disinflation efforts, so that the inflation rate developed a strong downward trend, which indicated a convergence pattern. The values of the k coefficients for both countries were positive, which indicated the inexistence of the convergence of the indicators. In Bulgaria, the policy makers had to confront a higher volatility of the relative prices, the efforts being directed towards

ensuring a stability of the prices within a band as close as possible to the convergence criteria., the values of the k coefficient being negative for both 1999-2006 period (-0.9173) and for the period January 2003-April 2006 (-2.5240). These results confirm the view of J.M. Figuet and N. Nenovsky (2006), who investigated the same indicator for Romania and Bulgaria using a fixed effect panel model in order to separate the countries and the groups of countries.

Figure 5

The dynamics of the inflation rate logarithm in Romania, Bulgaria and Turkey, relative to the Maastricht criterion



Source: Eurostat data.

5. Conclusions

The techniques applied to the statistical data regarding the inflation convergence revealed some results which appear in others studies too, namely that Romania has a pattern of convergence for this criterion.

The experience of Romania and of the other CEE countries proves that there are no unique solution for macroeconomic policies and, among them, first of all the monetary and the exchange rate policies, that can ensure an immediate and successful reach of the convergence criteria, which explains the flexible policy of the EU regarding the national strategies that aim at achieving the convergence criteria.

Learning from the experience of the Czech Republic, Hungary and Poland, Romania has opted for a flexible exchange rate regime and monetary policy of inflation targeting. This option allows a greater space for policy making in controlling the speculative attacks on the national currency due to the attractions of the short term capitals, stimulated by the big spread between the domestic interest rates and the EU interest rates. At the same time, this monetary policy continues the disinflation

process in Romania supporting the achievement of nominal convergence criterion implied by the future economic integration in EMU.

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