

## EVALUATION MODEL OF THE REAL CONVERGENCE OF THE CENTRAL AND EAST EUROPEAN STATES IN RELATION TO EMU

Lecturer Ph.D. Vasile-Liviu ICHIM

"Ștefan Lupascu" Institute of European Studies - Iasi, Romania

[liviuichim@univ-st-lupascu.ro](mailto:liviuichim@univ-st-lupascu.ro)

### **Abstract:**

*The accomplishment on short term of the nominal convergence criteria does not represent a guarantee for the fact that the single currency adoption will ensure the EMU performance. Analyzing the GDP/capita, the economic opening degree, weight of the bilateral trade with the community states as part of the foreign trade and the national economy structure, we observe that among the Central and East European states, now EU members, Latvia, Poland, Lithuania, Bulgaria and Romania are characterized by a low real convergence in comparison to the Eurozone. The increase of the international competitiveness is essential for the economies of these states, and EMU does not favor this action because, inside a monetary union, the macro-economic policy is more restrictive. Romania, Lithuania and Bulgaria appear to be disadvantaged by the perspective of single European currency adoption because the trade connections with the Community states are less intense – their intra-community trade does not exceed 2/3 of the total foreign trade – and at the same time are significantly different from the Eurozone economic structure. Therefore, in this case, the adhesion to the Euro must be postponed for a long period of time that will allow both intensification of trade connections with other EU member states, and also the structural transformation of national economies. Taking into account de analyzed indicators, entrance of Poland in Eurozone is first conditioned by improvement of the economic performances and for these is necessary to preserve the monetary and foreign currency policies interdependence.*

**Keywords:** EU/Eurozone, optimum currency areas, monetary policy, real convergence, asymmetric shocks.

**JEL Classification:** F36, F41

## **INTRODUCTION**

The functioning of a monetary union is based solely on ensuring the nominal convergence of economies in the member states as assumption for efficient application of a common monetary policy. On the other hand, on a long term, the nominal convergence can be supported only if the real convergence exists and is secured, while the nominal economy mirrors the real economic situation.

As a result, by fulfillment of the Maastricht criteria in a short period of time is not enough to guarantee that the adoption of the single currency will surely lead to achievement of three important economic objectives by the states that possess a low degree of real convergence, objectives that define an optimum currency area: full employment of the labor force, price stability and balance of the payment statement.

Out of these reasons and in order to value more the opportunity of European single currency adoption by the ex-communist states, it is necessary to determine the real convergence degree of their economies in comparison to Eurozone.

### **1. INFORMAL CRITERIA FOR EUROZONE ADHESION**

Theoretically is necessary to fulfill three conditions in order to accede to EMU.

First, there must be fulfilled the criteria that ensure the nominal convergence known also under the name of "Maastricht criteria". Second, it's compulsory to achieve legal convergence and this implies that the national legislation is compatible with the provisions of the treaty regarding the EMU.

Third, it will be taken into account a series of other elements, namely "development of Euro", results of the market integration, situation and progress of the current payment statements and also a progress examination for the unitary salary expenses and some price indices", according to Article 121(1) of the Treaty on European Community.

As concerning the real convergence, there is not imposed any rule and there are not mentioned references in any juridical effects generating document of ECB or European Commission. The Maastricht Treaty indirectly mentions that the economic and social cohesion is necessary in order to eliminate the disparities among states and regions. The real cohesion can be appraised function of income level measured by GDP/capita, by the degree of the economic opening, by the weight of the bilateral trade performed with the Community countries as part of the amount of exterior trade and by the national economy structure (these elements being included in the informal criteria for adhesion).

The opportunity for Eurozone adhesion and establishing the moment when the adoption of the single European currency is benefic for the national economy require a complex analysis that must be related to the priority economic-social objectives, analysis that would give answers to the following questions:

- Adoption of the single European currency by the ex-communist states is enough to favor the growth in the competitiveness concerning the economies of these states and reduction of the development gaps against the Eurozone?
- For this to happen, must there be fulfilled *ex ante* a series of conditions?
- How important is the real convergence in comparison to the nominal one from EMU extension point of view?
- How accentuated are the economic development disparities and how can we measure the real convergence?

In this purpose and using the four informal adhesion criteria we will perform an evaluation at level of year 2006 of the real convergence in the Central and East European states - Bulgaria, Czech Republic, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia and Hungary - in relation to EMU. We also included in this analysis Slovenia and Slovakia, even though these states joined the Eurozone on 1st of January 2007 and 1st of January 2009, respectively, in order to estimate the relevance of the obtained result.

By comparing the obtained results for each state from the four indicators of the real convergence, we will build an aggregated index that will measure the opportunity for adoption of the single European currency by each of the above-mentioned ten states. The work methodology proposed is as follows: as we will analyze the currency optimum criteria, we will grant to these states points from 1 to 10 and, in the end, the smallest score will indicate the most suitable state for adoption of single European currency, and the greatest score will allow identification of the state with the smallest degree of currency optimum in relation to EMU (including 12 states).

## 2. EVALUATION OF THE REAL CONVERGENCE OF THE CENTRAL AND EAST EUROPEAN STATES

GDP/capita can be considered as the indicator underlining in the best way the differences of economic and social development appearing in these states due to the fact that it represents a summation of several factors, as for example: the structure of the national economy, different productivities registered in various fields of economy, technological degree, distribution of the employed population in the economic fields or overflow of the production factors. This offers a general image of the work productivity measured at macro-economic level, of the population purchasing power, and, at the same time, underlines the competitiveness of the national economy.

According to this indicator, among the ten analyzed states (Table 1), the ones with best performances in 2006 were Slovenia and Czech Republic with a GDP/capita of 80.62% and 72.09%, respectively, at level of Eurozone, while in the rest of the states the purchasing power is smaller than 60% from the level registered in EMU, the smallest values being registered in Bulgaria (33.72%), Romania (34.11%) and Poland (48.06%). In comparison to 2005, the smallest growth rhythms for this indicator were registered in Romania (1.71%), Poland (1.26%), and Hungary (2.10%), and the greatest in Estonia (8.03%), Latvia (6.78%) and Slovakia (6.15%).

**Table 1. GDP/capita in the ex-communist states and Eurozone for 2006**

| State          | GDP/capita |       | Points |
|----------------|------------|-------|--------|
|                | PPS        | %     |        |
| Slovenia       | 20,800     | 80.62 | 1      |
| Czech Republic | 18,600     | 72.09 | 2      |
| Estonia        | 15,900     | 61.63 | 3      |
| Hungary        | 15,300     | 59.30 | 4      |
| Slovakia       | 14,900     | 57.75 | 5      |
| Lithuania      | 13,500     | 52.33 | 6      |
| Latvia         | 13,100     | 50.78 | 7      |
| Poland         | 12,400     | 48.06 | 8      |
| Romania        | 8,800      | 34.11 | 9      |
| Bulgaria       | 8,700      | 33.72 | 10     |
| Eurozone       | 25,800     | 100   | –      |

*Source:* processed acc. to Eurostat, 2008

Therefore, we ascertain that the reduction in the development differences is slower in the poor states as Romania and Poland, that are the largest states from the analyzed group, and this can be as a result of the extended structural changes that these states' economies must go through and this calls for an important investing process and a huge and long term financial effort.

The degree of economic opening is computed as a proportion of the amount of goods and service imports and exports, and GDP, and the relevance of this indicator is given by the fact that according to optimum currency areas theory, the more an economy is open the more appropriate is to adhere to a monetary union, because the policy of national currency depreciation in the purpose of exportation stimulation is not enough, the exports including an important volume of imports. This point of view was decisive in the development of European Union when it was discussed the problem concerning the adoption of a single currency under condition that a single market already exists (European Commission 1990).

This indicator was considered by Ronald I. McKinnon as an important criterium that must be used when it is decided the creation of a monetary union (McKinnon, 1963), producing an answer for the challenge launched by Robert Mundell by means of the theory of optimum currency areas (Mundell, 1961). McKinnon supports the necessity of adopting a single currency by the states that register a high degree of economic opening.

The data from Table 2 concerning year 2006, show that the ex-communist states have a high degree of economic opening, of over 100%, with exception of the largest states from the analyzed group: Romania, with an indicator value of about 78%, and Poland, with 82%, respectively. The highest values are registered in Slovakia (175%), Estonia (174%) and Hungary (154%).

The place occupied by Poland and Romania acknowledges the hypothesis that says that the more extended a state is, more closed is its economy, as it happens in case of EU, Japan and United States that register values under 33%.

Another criterion reflecting the real convergence and, at the same time, justifying the extension of the Eurozone, is the degree of trade integration of the ex-communist states in the Community trade (Table 3).

As the trade exchanges among the member states of EU are more intense, the greater are the advantages of using a single currency, due to the disappearance of the currency risk and reduction of the cost generated by the currency exchange. At the same time, the trade integration implies also a better synchronization of the business cycles, and this reduces the risk of asymmetrical shock appearance that could impose taking different decisions as concerning the monetary policy.

From this point of view, the most appropriate for adoption of the Euro currency are Czech Republic, Slovakia, Poland, Latvia and Hungary, while Romania, Lithuania and Bulgaria would register small advantages as a result of EMU adhesion.

**Table 2. The degree of economic opening, in 2006**

| State          | Export<br>goods and services | Import<br>goods and services | Degree of<br>economic<br>opening | Points |
|----------------|------------------------------|------------------------------|----------------------------------|--------|
|                | % of GDP                     | % of GDP                     | % of GDP                         |        |
| Slovakia       | 84.2                         | 91                           | 175.2                            | 1      |
| Estonia        | 83.2                         | 90.7                         | 173.9                            | 2      |
| Hungary        | 77.8                         | 76.7                         | 154.5                            | 3      |
| Czech Republic | 76.3                         | 71.9                         | 148.2                            | 4      |
| Bulgaria       | 63.7                         | 83.7                         | 147.4                            | 5      |
| Slovenia       | 65.7                         | 69                           | 134.7                            | 6      |
| Lithuania      | 59                           | 71.6                         | 130.6                            | 7      |
| Latvia         | 43.3                         | 68                           | 111.3                            | 8      |
| Poland         | 40.2                         | 42                           | 82.2                             | 9      |
| Romania        | 33                           | 45.3                         | 78.3                             | 10     |

*Source:* processed acc. to Eurostat, 2008

**Table 3. Integration degree of the trade performed in the ex-communist states as part of EU trade in 2006**

| State          | Weight of the<br>intra-Community trade | Points |
|----------------|----------------------------------------|--------|
|                | % of total external trade              |        |
| Czech Republic | 83.06                                  | 1      |
| Slovakia       | 81.03                                  | 2      |
| Poland         | 75.78                                  | 3      |
| Latvia         | 75.11                                  | 4      |
| Hungary        | 74.63                                  | 5      |
| Slovenia       | 73.25                                  | 6      |
| Estonia        | 70.75                                  | 7      |
| Romania        | 66.05                                  | 8      |
| Lithuania      | 63.11                                  | 9      |
| Bulgaria       | 60.95                                  | 10     |

*Source:* processed acc. to Eurostat 2007a, 2007b

The additional information concerning the real convergence and synchronization of the business cycles are offered by the national structure economies in comparison to the Eurozone (Table 4).

Analyzing the contribution of the main activities to achievement of Gross Value Added (GVA) we observe that the states confronted with transition to the market economy have a different economic structure in comparison to EMU, which was achieved during administration by means of a central plan, and as a result of: forced industrialization, trade exchanges directed mostly towards communist state block, trailing of the economy and banking system under condition of lack of competition, bankruptcy institution and quasi-isolation from the occidental economies that promote the economic and social progress.

The smallest deviations from the structure of the Eurozone are registered in Estonia, Latvia and Hungary, and the greatest deviations are seen in Lithuania, Czech Republic and Romania. In Czech Republic, Slovakia, Lithuania and Romania, the industry has a greater contribution to the GVA achievement than in EMU, while the agriculture occupies an important place in Romania, Bulgaria and Lithuania, states that out of these reasons are found on the last places of the established hierarchy based on the resemblance criterion as concerns economic structure. It can be observed that Romanian economy is farthest from the EMU economy having a contribution five time greater than the agriculture to GVA and a modest share of services: almost 56% against 71.6% registered by the Eurozone economy.

The great contribution of agriculture to GVA achievement is not implicitly a negative aspect, but, both in Romania and also in Bulgaria, this situation is reached under conditions of low performance registered not only in agriculture, but also in industrial sectors. As a result, it is essential for these states to receive investments targeted to technology renewal in the purpose of economic performance development.

**Table 4. Contribution of the main activities in achieving GVA in the ex-communist states in 2006**

| State          | Agriculture, hunting and fishing |              | Industry and construction |              | Services |              | Total        | Points |
|----------------|----------------------------------|--------------|---------------------------|--------------|----------|--------------|--------------|--------|
|                | % of GVA                         | Deviations % | % of GVA                  | Deviations % | % of GVA | Deviations % | Deviations % |        |
| Estonia        | 3.2                              | 1.4          | 29.1                      | 2.5          | 67.7     | 3.9          | 7.8          | 1      |
| Latvia         | 3.7                              | 1.9          | 21.4                      | 5.2          | 74.9     | 3.3          | 10.4         | 2      |
| Hungary        | 4.3                              | 2.5          | 30.7                      | 4.1          | 65.0     | 6.6          | 13.2         | 3      |
| Poland         | 4.4                              | 2.6          | 31.7                      | 5.1          | 63.9     | 7.7          | 15.4         | 4      |
| Slovenia       | 2.5                              | 0.7          | 34.1                      | 7.5          | 63.4     | 8.2          | 16.4         | 5      |
| Slovakia       | 4                                | 2.2          | 35.0                      | 8.4          | 61.0     | 10.6         | 21.2         | 6      |
| Bulgaria       | 8.5                              | 6.7          | 31.5                      | 4.9          | 60.0     | 11.6         | 23.2         | 7      |
| Lithuania      | 5.5                              | 3.7          | 34.9                      | 8.3          | 59.6     | 12.0         | 24.0         | 8      |
| Czech Republic | 2.9                              | 1.1          | 38.3                      | 11.7         | 58.8     | 12.8         | 25.6         | 9      |
| Romania        | 9.6                              | 7.8          | 34.5                      | 7.9          | 55.9     | 15.7         | 31.4         | 10     |
| Eurozone       | 1.8                              | 0.0          | 26.6                      | 0.0          | 71.6     | 0.0          | 0.0          | -      |

Source: processed acc. to Eurostat 2008

**Table 5. Opportunity level of adhesion to EMU of the ex-communist countries**

| State          | GDP/capita | Degree of economic opening | Trade integration | Structural convergence | Opportunity level of adhesion to EMU | Ranking by opportunity level of adhesion to EMU of the ex-communist countries |
|----------------|------------|----------------------------|-------------------|------------------------|--------------------------------------|-------------------------------------------------------------------------------|
|                | Points     | Points                     | Points            | Points                 | Total points                         |                                                                               |
| Estonia        | 3          | 2                          | 7                 | 1                      | 13                                   | 1                                                                             |
| Slovakia       | 5          | 1                          | 2                 | 6                      | 14                                   | 2                                                                             |
| Hungary        | 4          | 3                          | 5                 | 3                      | 15                                   | 3                                                                             |
| Czech Republic | 2          | 4                          | 1                 | 9                      | 16                                   | 4                                                                             |
| Slovenia       | 1          | 6                          | 6                 | 5                      | 18                                   | 5                                                                             |
| Latvia         | 7          | 8                          | 4                 | 2                      | 21                                   | 6                                                                             |
| Poland         | 8          | 9                          | 3                 | 4                      | 24                                   | 7                                                                             |
| Lithuania      | 6          | 7                          | 9                 | 8                      | 30                                   | 8                                                                             |
| Bulgaria       | 10         | 5                          | 10                | 7                      | 32                                   | 9                                                                             |
| Romania        | 9          | 10                         | 8                 | 10                     | 37                                   | 10                                                                            |

Out of the comparing analysis and summing up the points assigned to these ten states for each indicator taken into account (Table 5) we ascertain that Estonia, Slovakia, Hungary, Czech Republic and Slovenia have a high degree of real convergence in comparison to Eurozone, while Romania, Bulgaria, Lithuania, Poland and Latvia register low levels of convergence.

The importance of the obtained result is proven by the fact that Slovenia and Slovakia, presently members of EMU, are part of the states possessing a high real convergence. Also, we consider that the hierarchization of states according to the opportunity level for Eurozone adhesion, established based on the indicators of real convergence computed for 2006 will not suffer significant modifications on medium and long term because the macro-economical variables taken into account, generally register little modifications from one year to another.

## CONCLUSIONS

Starting from the assumption that a common monetary policy can be efficiently applied in a group of national economies characterized by a high level of real convergence that can support on long term the nominal convergence, we can estimate the adhesion opportunity of ex-communist states to Eurozone from analysis of the following indicators: GDP/capita, economic opening degree, weight of the bilateral trade with the community states as part of the total foreign trade and structure of the national economy.

Such an analysis underlines two state groups, one - including Estonia, Slovakia, Czech Republic, Hungary and Slovenia – more close to EMU from the perspective of real economic characteristics and also able to pass to the single currency in a reasonable period of time (among these, Slovenia and Slovakia already adopted the Euro), and another - including Latvia, Poland, Lithuania, Bulgaria and Romania – characterized by a low real convergence against Eurozone.

For the economies of the second group, increase of international competitiveness represents an essential feature, and Eurozone adhesion does not favor this fact because there are growing constraints actioning over the macro-economical policies. The macro-economical political decisions in these states must support the systemic transformation of national economies, to support the sparing process (by means of an appropriate fiscal policy and an efficient and reformed fiscal system), and also the investing system.

Out of these reasons we believe that adhesion of Romania, Bulgaria, Lithuania and Poland to Eurozone should take place after minimum ten years from adhesion to EU, period of time necessary to reduce the development gaps.

## REFERENCES

1. European Commission 1990. One Market, One Money, *European Economy*, 44: 178-200.
2. Eurostat 2007a, External and intra-European Union trade, Monthly statistics Issue number 10, Eurostat Statistical Books. Available from Internet: <[http://epp.eurostat.ec.europa.eu/cache/ITY\\_OFFPUB/KS-AR-07-010/EN/KS-AR-07-010-EN.PDF](http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-AR-07-010/EN/KS-AR-07-010-EN.PDF)>.
3. Eurostat 2007b, EU economic data pocketbook, 1-2007. Available from Internet: <[http://epp.eurostat.ec.europa.eu/cache/ITY\\_OFFPUB/KS-CZ-07-001/EN/KS-CZ-07-001-EN.PDF](http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-CZ-07-001/EN/KS-CZ-07-001-EN.PDF)>.
4. Eurostat 2008, Europes in figures. Eurostat yearbook 2008. Available from Internet: <[http://epp.eurostat.ec.europa.eu/cache/ITY\\_OFFPUB/KS-CD-07-001/EN/KS-CD-07-001-EN.PDF](http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-CD-07-001/EN/KS-CD-07-001-EN.PDF)>.
5. McKinnon, R. I. 1963. Theory of Optimum Currency Area, *American Economic Review*, 4, September: 717-725.
6. Mundell, R. 1961. A Theory of Optimum Currency Areas, *American Economic Review*, 51: 657-665.