The Analysis of the Nominal Convergence in the New Member States of the European Union

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The main objective of this research is to determine the stage where stands the new Member States of the European Union, that are not part of the euro area, in terms of nominal convergence. Based on comparative analysis, the research has highlighted that Romania, along with Bulgaria, Poland and the Czech Republic meet the criteria imposed by the Maastricht Treaty and are prepared from this point of view to join the euro area. The study also revealed the need to reform the nominal convergence criteria, because of their limitation.

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Introduction

The literature defines economic convergence as a process of reducing the gaps between countries with different levels of development. In

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this regard, it was determined two types of convergence: nominal and real.

The researches made by different authors, such as Valdes (1999), Bergs (2000) and Bjorksten (2001) shows that, over time, nominal convergence can generate real convergence, macroeconomic stability achieved through fiscal discipline and prices stability, and by stimulating international trade and investment, favoring economic growth.

In the following we will focus on nominal convergence.

This type of convergence is represented by the evolution of some indicators (interest rate, inflation, exchange rate, public debt, budget deficit) within the meaning of the values set in the Maastricht Treaty. These values are considered optimal for adopting the euro.

Nominal convergence criteria laid down in the Maastricht Treaty, have a limited character, this is evidenced by recent the developments in the Central and Eastern Europe economies. Thereby, was demonstrated a series of contradictions between these criteria. On the one hand, the reduction of the interest rate leads to an increase of the inflationary pressures. On the other hand, the strict control of the inflation involves, more often, an increasing interest rates and an appreciating exchange rate, which can lead to failure to fulfill the nominal convergence criteria. Lewis and Staehr (1997) reveal certain problems which concern the convergence criteria.

In the case of enlargement of the European Union, there arise difficulties in determining the inflation reference value (integration of new countries had lowered setpoint). Thus, it is increasingly difficult for Member States to comply with the reference value.

Dobrinsky (2006) and Lewis (2007) showed that after recent enlargements the reference value has diminished. Jonas (2006) demonstrated that it is not appropriate to have a unique benchmark for the entire European Union, being more relevant to set two benchmarks: a reference value for the countries situated in the

descending phase of the economic cycle, and a benchmark for the countries that are in the period of overheating of the economy.
Regarding the fact that the establishment of the inflation reference value is by referring to the three best performing countries in this regard, Busetti et al. (2006) noted that this method can generate the situation where the state is included in all the three best performing countries in the field, but at the same time may not meet the nominal convergence criteria.

Economic convergence models

The neoclassical convergence model Solow-Swan is a foundation in terms of formalizing the process of economic development. This model shows that in the long run, the economies tend towards equilibrium. Solow-Swan model is based on a number of assumptions: the economy is in steady growth rate, the labor savings rate is constant and exogenous, and the production process is based on capital and labor. One of the main implications of Solow-Swan model is represented by the process of economic convergence. This model shows that less developed countries will close the gap with developed countries, and the growth rate and the production per capita will reach the same level at the end of a certain period of time.
The model assumes that states have the same institutional frameworks, saving rates and identical production technologies. The model implies that there is a higher return on capital in the economies with lower levels of capital per capita. Thus, a less developed economy should record a marginal efficiency of capital higher than in a developed economy because it has lower capital levels and per capita production.
Therefore, if there are identical savings rates in the two economies, the poorest state will develop faster because each additional monetary unit of the investment will generate more services and more goods than in a developed economy. Solow-Swan model shows that, in a poor economy, the savings will be exceeded by the investment, because will be attracted investment flows from the rich countries, due to the high

rate of physical capital return, accelerating the process of economic convergence. Also, the technology transfer from the industrialized countries to the emerging economies may cause faster growth of the latter.

The Solow-Swan neoclassical convergence model presents a number of limitations. The Solow-Swan neoclassical convergence presents a number of limitations. Some analysts say that one of these limitations is the rudimentary analysis of the effects of government policy on economic growth provided by the neoclassical model, being ignored the ways in which these policies can influence the growth rate of GDP / capita.

Another limitation of the model is the expression of technological progress as the sole factor in stimulating GDP / capita, other variables are considered to exert only a level effect. Thirdly, the exhaustive nature of the model is demonstrated by the number of variables that can capture the influence of the international flows on economic growth. Mankiw, Romer and Weil elaborated in 1992 the neoclassical dynamic model. They propose, as a exogenous variables the human capital accumulation and the physical capital.

The authors show that the augmented version of Solow-Swan neoclassical model explains 80% of the income variation. By introducing the variable that estimates the human capital accumulation, results in more precise estimations of the other variables that compose the model (population growth, physical capital, savings rate). The model predicts that high-income economies have a yearly growth rate lower than the economies with low initial income. Gradually, the exogenous growth models were replaced by the endogenous growth models.

These models can be grouped into AK models, which stipulates economic growth in the absence of the technical progress and models according to which the economic activities in research and development sector in developed countries generate technical

progress. AK model assumes a production proportional to the capital stock of a state. The capital is accumulating according to the Solow model equation ($\Delta K = sY-\delta K$), the rate of population growth is considered zero. For any capital stock, the economy is in a state of balanced growth.
Since the total investment is always higher than depreciation, the increase in capital stock does not stop in time. It represents a model in which the capital has constant returns and the marginal productivity of supplementary capital used is A.
Also, the revenue growth rate is a increasing function in comparison with the investment rate. Thereby, the policies that aim this rate influence in a positive way the economic growth process.
To remove the limitations of the Solow-Swan model, many researchers have restructured some hypotheses, especially in the direction of transition to increasing returns and assimilating the technological progress as an endogenous factor. The endogenous growth models offer different interpretations regarding the existence of convergence and shows that technical progress may have a key role. The endogenous growth models, Lucas (1998), Romer (1986), highlighted that the technology plays a fundamental role in increasing the productivity, emphasizing the importance of the policies for the research and development costs, and the dispersion of technical progress across borders.

The situation of the nominal convergence in the new Member States of the European Union, that have not yet adopted the single currency
In order to create an economic and monetary union, they were introduced nominal convergence criteria as fundamental benchmarks on which to judge the ability of states in the European Union to join the eurozone.
Essentially, nominal convergence criteria is a series of macroeconomic indicators, which were adjusted to different reference levels

considered to be sustainable for the macroeconomic stability of the euro area.
The reference values on which it evaluates the degree of compliance of a State of the European Union in relation to nominal convergence criteria are shown in Table 1.

Table 1
The nominal convergence criteria established in the Maastricht Treaty

Nominal Convergence Indicators	Maastricht Criteria
Inflation rate (HICP) (percent, annual average)	<1.5 pp above the average of the three best performing Member States
Long-term interest rate (percent per annum)	<2 pp above the average of the three best performing Member States in terms of price stability
Exchange rate (vs. euro) (percentage change)	±15 percent
General government deficit (percent of GDP)	Below 3 percent
Government debt (percent of GDP)	Below 60 percent

Source: made by the author

The analysis of nominal convergence in the New Member States of the European Union, that are not part of the eurozone, was made for 2015. The analysis was conducted based on the comparison of the values of the macroeconomic indicators recorded in the new EU Member States that have not yet adopted the euro (Bulgaria, Czech Republic, Hungary, Poland, Romania, Croatia), and the reference values of the indicators.

In Table 2 we can see that, in 2015, all new Member States of the European Union included in the analysis meet the convergence criteria related to the inflation rate, interest rate and exchange rate fluctuations.

Table 2

The values of the nominal convergence criteria, in the new EU member states that have not adopted the euro, in 2015

Nominal Convergence Indicators/GEO	Bulgaria	Czech Republic	Croatia	Hungary	Poland	Romania
Inflation rate (1.2)	-0.10	0.34	-0.46	-0.07	-0.99	-0.59
Long-term interest rate (5.3)	2.49	0.58	3.55	3.43	2.70	3.47
Exchange rate (±15 percent)	-	+0,6/-9,7	+2,0/-1,7	+6,0/-6,0	+2,0/-4,4	+2.1/-3.5
General government deficit (below 3 percent)	-2.1	-0.4	-3.2	-2.0	-2.6	-0.7
Government debt (below 60 percent)	26.7	41.1	86.7	75.3	51.3	38.4

Source: Table made by the author based on Eurostat and World Bank data

Regarding government deficit, the only state that does not meet this nominal convergence criteria is Croatia (3.2%). On the other hand, the convergence criterion related to government debt is fulfilled only by Romania, Bulgaria, Czech Republic and Poland. Hungary and Croatia record levels of public debt above 60% of GDP. Analysing this data, we can say that Bulgaria, Poland, Czech Republic and Romania meet the nominal convergence criteria, being prepared in this regard to join the euro area.

Among the new EU Member States (which joined in 2004, 2007 and 2013), Estonia, Cyprus, Slovenia, Slovakia and Malta have already adopted the euro. Convergence programs adopted by some of these countries for accession to the euro zone may represent a starting point for the development and implementation of successful integration models for countries that expect to join the euro area, including Romania.

Estonia was based on a convergence which covered a short period of time and the effects were felt once the the financial crisis burst. In the case of Malta, the nominal convergence policy coordination has allowed the reduction of the budget deficit and inflation, an downward trend of interest rates in the long term, and the maintaining stability of the exchange rate at the time of entry into ERM II.

The strategy adopted by Cyprus for nominal convergence criteria involved the interplay of a set of policies that targeted several sectors (monetary policies very effectively coordinated, completed with a diversified landing of structural reforms).

Analyzing the new Member States of the European Union situation (both those that have adopted the euro, and those that intend to enter into euro area), in terms of economic convergence, we can say that the centerpiece of any economy should be represented by the sustainability and the quality of the economic convergence processes. Achieving this goal is difficult, especially in Central and Eastern Europe economies, which lately based their growth rates especially on increasing the demand for non-tradable goods.

Conclusions

The critical analysis of economic convergence models has led to a more accurate understanding of the foundation on which is based the process of economic convergence.

It has also been shown that the variation intervals imposed by the Maastricht Treaty should be amended so that they can be adapted to

the current macroeconomic conditions, to avoid certain macroeconomic slippages due to the adversarial relationships that are created between the predetermined values of the nominal convergence indicators.

On the other hand, the research shown that, of the new Member States of the European Union that have not yet adopted the euro, Romania, along with Bulgaria, the Czech Republic and Poland meet the nominal convergence criteria and are prepared, from this point of view, to join the euro area.

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