THEORETICAL AND PRACTICAL ASPECTS REGARDING THE EXCHANGE RATE AND THE EQUILIBRIUM EXCHANGE RATE IN ROMANIA

Alina Georgeta AILINCĂ, PhD Candidate [*]
Camelia MILEA, PhD [**]
Floarea IORDACHE, PhD [***]

Rezumat

Integrarea în Uniunea Economică şi Monetară presupune participarea la Mecanismul Ratelor de Schimb II (MRS II) şi îndeplinirea criteriilor de convergenţă nominală instituite prin Tratatul de la Maastricht. În aceste condiţii, devine crucială alegerea parităţii centrale la intrarea în mecanismul MRS II cât mai aproape de cursul de schimb de echilibru al monedei naţionale faţă de euro, acest fapt asigurând o dezvoltare economică armonioasă în MRS II şi respectiv, ulterior, în Uniunea Economică şi Monetară (UEM). Existenţa a numeroase metodologii de calcul, fiecare cu avantajele şi dezavantajele ei, face extrem de dificilă alegerea unei anumite abordări pentru determinarea

[*] *Scientific researcher III, Centre of Financial and Monetary Research "Victor Slăvescu", Romanian Academy*

[**] *Scientific researcher III, Centre of Financial and Monetary Research "Victor Slăvescu", Romanian Academy*

[***] *Scientific researcher III, Centre of Financial and Monetary Research "Victor Slăvescu", Romanian Academy*

cursului de schimb nominal şi real de echilibru. Acest articol nu îşi propune stabilirea unei anumite metodologii de determinare a cursului de schimb de echilibru pentru România, ci îşi doreşte să contureze o viziune personală asupra problematicii complexe a cursului de schimb şi a cursului de schimb de echilibru. În condiţiile actuale, ale manifestării unor vulnerabilităţi şi tensiuni încă puternice ca urmare a efectelor crizei economice şi financiare globale, este prematură stabilirea unui curs de echilibru leu/euro adecvat cerinţelor impuse de intrarea în MRS II, mai ales că o stabilire inadecvată poate face dificilă menţinerea cursului în banda impusă de criteriul de la Maastricht şi poate chiar constitui o invitaţie pentru atacuri speculative la adresa monedei naţionale, generând dezechilibre economice.

Abstract

The integration within the Economic and Monetary Union requires the participation to the Exchange Rate Mechanism II (ERM II) and meeting the nominal convergence criteria set by the Maastricht treaty. Under these circumstances, it becomes crucial to establish the central parity upon entering ERM II as close as possible to the exchange rate of equilibrium of the national currency versus the Euro. This would support a harmonious economic development within the ERM II and, subsequently, within the Economic and Monetary Union (EMU). Given the many methodologies of calculation, each one with its advantages and disadvantages, it is extremely difficult to select a specific approach in order to set the nominal and real exchange rate of equilibrium. The aim of this paper is not to set a specific methodology to determine the exchange rate of equilibrium, but to give our personal opinion on the complex issue of the equilibrium exchange rate. Under the current conditions of the, still strong vulnerabilities and tensions due to the effects of the global economic and financial crisis, it is premature to set an exchange rate of equilibrium leu/Euro adequate to the requirements set by the integration within the ERM II, particularly since an inadequate rate might make it difficult to maintain the currency on the variation band imposed by the Maastricht criterium and may even be an invitation for

speculative attacks on the national currency, which may cause economic imbalances.

Keywords: exchange rate, exchange rate of equilibrium, exchange rate mechanism, Economic and Monetary Union

JEL Classification: E42, F15, F31

1.   Introduction

Romania' participation to the final stage of the Economic and Monetary Union (EMU) presumes the sustainable fulfilment of the criteria of nominal convergence established by the Maastricht Treaty and the efficient and advanced accomplishment of the real convergence. Under the conditions in which the tensions from the Euro zone persist, Romania, which intends to adopt the Euro, must have a well prepared economy and to set a realistic date for the accession.

The crisis from the Euro zone shows that the Economic and Monetary Union has not favoured the real convergence, and the EMU has not got the institutions and the policies prepared well enough in order to cope with crises of liquidity and insolvency. The crisis, with the effects it has induced, has stressed the need for competitiveness of any country which wants to join the Euro zone.

It is important to show that the old requirements for accession have been expanded, the stress being laid also upon the adoption of an European governance, on a sustainable level of indebtedness, on limiting the exposure on foreign currencies or on the local currency, on predictable and transparent fiscal policies.

At the same time, the integration within the EMU also requires the participation in ERM II and setting the central parity upon entering the ERM II as close as possible to the national exchange rate of equilibrium towards the Euro. The realistic determination of the exchange rate of equilibrium is of particular importance for a proper development of the national economy within the ERM II and, subsequently, within the EMU.

In Romania, at the end of 2011, just two of the five indicators of nominal convergence stipulated by the Maastricht treaty were met, the indicator regarding the public debt (not higher than 60% of the GDP) and

the one regarding the exchange rate (which stipulates a margin of fluctuation of +/- 15%, such as the one set for ERM II) (ECB, Convergence Report, May 2010). However, in order to join the ERM II and thereafter the Euro zone, Romania must set a correct level of the exchange rate of equilibrium, since it is known that a central exchange rate that is set wrongly (overestimated or underestimated) may cause imbalances that are difficult to correct afterwards. As it is known, the overestimated exchange rate may generate the decrease the foreign competitiveness, may deteriorate the balance of trade, may slow the process of real convergence and may increase the vulnerability to speculative attacks; the underestimated exchange rate may increase the exports, may improve the state of the current account and may increase the economic competitiveness, but it also allows the inefficient allocation of the capital and leaves room for inflationist pressures which are extremely difficult to control by the countries with a history of hyperinflation or high inflation. Thus, setting an exchange rate as accurate as possible allows it to become a signal of the competitiveness of the economy and may prevent situations of vulnerability that can develop as speculative attacks on the exchange rate, which may start currency crises. The adoption of the Euro and the interest of the foreign investors depend on the stability of the national currency from the member state candidate for admission into the EMU.

2. Advantages and disadvantages of the classical methods which estimate the exchange rate of equilibrium

There are many methods to determine the exchange rate of equilibrium and all of them have advantages and disadvantages that we have to take into consideration.

Thus, *the purchasing parity power* (*PPP*), the simplest method, ignores, among others, the existence of the permanent real shocks in the economy, the existence of the non-tradable sector and the existence of the administered prices; the only determinant of the exchange rate is the level and evolution of the prices. According to Officer (1982, p. 125), Pigou was the first one to criticise the PPP method arguing that by decomposing the general level of prices in a country in tradable and non-

tradable prices, there is no reason for the relative prices (the real domestic exchange rate) to be the same in every country.

Although the *Harrod-Balassa-Samuelson method* (*HBS*) provides more solid hypothesis than the PPP method to determine the long-term exchange rate of equilibrium, it also has many shortcomings: the use of the index of industrial production prices (IIPP) as proxy variable for the prices of tradable goods and services, the use of the consumer prices index (CPI) as proxy variable for the prices for non-tradable goods and services, and the fact that it ignores the specificity of each country in defining the tradable and non-tradable sectors.

The *monetary method* was used initially by the Bretton-Woods fixed exchange rate system in order to analyse the changes in the balance of payments. This model attempts to show that the exchange rate is influenced both by the goods market and the financial market. The monetary model presumes that all prices are flexible and PPP is verified continuously (see Mundell, 1961, 1963 and Fleming, 1962; for tests see MacDonald and Taylor, 1993). Although the monetary method improves the conceptual framework of the previous methods, it doesn't take into account the rational bubbles that may deflect the exchange rate from equilibrium.

The method of the *Behavioural Equilibrium Exchange Rate (BEER)* has been advocated in the papers of Elbadawi (1994), Faruqee (1994), Clark and MacDonald (1998), as well as by MacDonald (2000). Although BEER catches the movement of the real exchange rate, it doesn't specify the base theoretical model, testing some macroeconomic variables with the purpose to identify the long-term relations between them and the exchange rate. At the same time, the method doesn't catch clearly the equilibrium component of the basic variables, the transmission mechanism of the influence which the basic variables have on the exchange rate, as well as its low relevance in the case of small time series.

The method of the *Fundamental Equilibrium Exchange Rate (FEER)* has been defined by Williamson as that level of the exchange rate which is "consistent with ideal macroeconomic performance" (Williamson 1994).

The FEER approach, initiated by Williamson in 1983, aims to determine the exchange rate which allows the simultaneous accomplishment of the internal equilibrium (NAIRU or *output gap* zero) and of the external equilibrium. Although FEER has been the most used method to determine the exchange rate of equilibrium until the 2000 years, it ignores the HBS effect, generating a highly underestimated value of the exchange rate of equilibrium. At the same time, the model preserves the difficulty of estimating the sustainable level of the potential GDP and of the current account, as well as the low elasticity that make the exchange rate insensitive to the sustainable level of the current account.

The approach of the *Natural Equilibrium Exchange Rate (NATREX)* has been introduced by Stein (1994, 1995), and, being an extension of FEER, it allows determining the medium term and long term equilibrium exchange rate by using a small size dynamic model of general equilibrium. The disadvantages of the method consist in the exclusion from the calculation of the speculative capital flows and of the variation of the currency reserves, as well as the strong stress on the economic theory and on data quality, which are problematic factors for an economy experiencing a catching up process.

The use of other methods too, such as *VAR structural (SVARs)* or of the methods based on arbitrage conditions, don't provide full clarity in determining the equilibrium exchange rate. Although SVARs method tries to catch the effect of a shock on the exchange rate, it has difficulties in choosing the starting point (in equilibrium or not), and while the methods based on arbitrage identify a condition of arbitrage that equals the predicted depreciation of the exchange rate with the differential of nominal interest rate adjusted with a risk premium, they are unable to provide a level of the equilibrium exchange rate, showing only the way to it.

Therefore, our study focuses rather on the theoretical identification of the logic connections between the macroeconomic variables that determine the evolution of the exchange rate, outlining some aspects that are useful for the determination of an equilibrium exchange rate fundamented as correctly as possible.

3. Some theoretical and practical aspects regarding the exchange rate and the equilibrium exchange rate in Romania

It is known that when the amount of demanded currency equals the amount of offered currency, we may say that the market of that particular currency is in equilibrium for a specific exchange rate, the equilibrium exchange rate. The equilibrium of the currency market is achieved with the help of demand and offer curves, the intersection of which gives the variables of equilibrium. The change of the equilibrium exchange rate of a particular currency may occur if these curves change.

Among the factors that may generate the change of equilibrium on the currency market there are: the change of the relative levels of the income, the change of the relative level of prices, the change of the relative level of the interest rates as well as the level and the evolution of the current account deficit of the balance of payments. In time, the factors do not influence simultaneously and uniformly the exchange rate, which means, implicitly, that they have to be taken into consideration while observing their particularities of action in order to detect the deviation from the equilibrium rate.

Taking into account these theoretical aspects, it is interesting to see the evolution of the exchange rate of the leu from 1990 up to present.

Starting with March 2003, the National Bank of Romania changed to Euro as reference currency because Romania has aimed at joining the European Union.

In Romania, during the transition period, according to the opinion of the representatives of the National Bank of Romania (NBR), the exchange rate of the leu has been adjusted due to the change of the economy prices (when the currency reserves have been not sufficient). In most cases the exchange rate has aimed at reflecting the evolution of prices, not vice versa. Therefore, according to NBR, the exchange rate has not been and is still not the main driving factor for the prices.

As the exchange rate is determined by the evolution of inflation, the monetary authority should show a lot of discretion when it influences the level of the exchange rate by means consistent with the market economy.

118

Some economists, such as Constantin Ciutacu (2001), consider that until 1994 (when the stabilisation was obvious) the "main cause which generated inflation has been the uninspired monetary policy for the exchange rate which, by the devaluation of the national currency, has led to the strong rise of the prices and wages".[1]

During the period of transition to the market economy in Romania, one may consider that the exchange rate of the leu has been a critical point of the policy of the Romanian monetary authority. The actual dynamics of the exchange rate has reflected the confluence of two doctrine options: as instrument influencing the balance of payments and/or as instrument against inflation. The depreciation of the national currency has aimed at stimulating the exports, but it was taken care not to disturb excessively the internal prices (through the imports).

Under the present conditions, until the adoption of the Euro, the monetary policy and the exchange rate policy can still be used as instruments of the economic policy adapted to the internal realities. After that date, the role of the monetary policy will change significantly and the instrument of the exchange rate will vanish.

In Romania, the evolution of the exchange rate of the leu is also influenced by the extent of the speculative flows of capital drawn by the higher interest rate in Romania and by the internal and international events and political and economical stability, by the statements and the attitude of the rating agencies and of the international financial organisations towards Romania, as well as by the expectations of the population, of the economic agents and of the public institutions.

At the beginning of the transition to the market economy in Romania the real exchange rate was not in equilibrium (the exports didn't equal the imports). Thus, during the early 1990s, according to some calculations, the exchange rate was overestimated. In March-April 1994,

---

[1] *Ciutacu C. (2001) -„Reform and meta-reform" (in Romanian), Expert Press, pp. 212.*

the level of the real exchange rate equilibrated for some months the current account of the balance of payments[2].

According to some authors[3], the years 1997, 1998, 2000 and 2005 displayed an overestimated exchange rate, and only 1999 and 2003 displayed an underestimated exchange rate of the national currency. The improvement of the country rating and the perspective of accession to the European Union in 2007 contributed to the appreciation of the exchange rate starting with November 2004. According to NBR, the appreciation of the leu in 2004-2007 didn't affect the exports. During this period, Romania increased continuously as market share at the European level.

In the years 2008-2010, we consider that it has taken place a natural process of depreciation of the national currency versus the Euro (given the space of manoeuvre of the Government to increase the excises in absolute value; the increase of excises speeds up inflation and so on, behaviour which the market suspects of influencing the exchange rate).

In 2008, compared to 2007, the leu depreciated in average by 9.3%, which created inflationist pressures. The events of October 2008, before the parliamentary elections, put high pressure on the leu, which depreciated. According to NBR, a part of the commercial banks bought very much foreign currency. In the first eight months of 2009 the fluctuation of the leu compared to the value from December 2007 reached and exceeded 15%.

Thus, in Romania, the decision to pass the Governmental Ordinance to increase the wages of teachers by 50% and the tensed international context created a difficult situation which depreciated suddenly the exchange rate of the national currency, leu, from 3.7 in October 2008 to 3.9 lei for one Euro in December 2008. The market was out of cash lei and the interest rates reached a peak. NBR had to introduce

---

[2] *BNR (1993), Raport privind regimul valutar din România şi măsurile necesare pentru stabilizarea cursului leului, Bucureşti, mai. [Report on the currency regimen in Romania and on the measures required to stabilise the exchange rate of the leu], Bucharest, May*

[3] *Dumitru, I. (2006),"The equilibrium exchange rate in Romania ", MPRA Paper 10631, University Library of Munich.*

administrative ceilings for the ROBOR indicator, because its increase is reflected in the cost suported by the customers with credits in lei. This phenomenon was either a speculative attack, or a trend to shift from one level of equilibrium to another, reflecting the situation of the Romanian economy. Thus, NBR sold aggressively foreign currency, spending about one billion Euro in order to temper the increase of the exchange rate.

The trend of leu depreciation which started in late 2008, continued in the early months of 2009. Thus, at the end of January 2009, the Euro reached a historic peak of 4.2775 lei. During this period the exchange rates of the national currencies of all the new member states have also experienced the strongest depreciation. This adverse evolution of the national currencies of the new member states is explained by the economic and financial crisis which started in 2008 in the USA, which has now affected strongly the economies of the new member states as well, particularly in the states operating a flexible exchange rate system. So, we can say that the evolution of the national currency from Romania (leu) followed the regional evolutions. However, this strong depreciation of the leu didn't help the economic growth, not even after the crisis slowed down, as factor which would favour the economic growth. Generally, the depreciation caused the domestic prices to increase due to the imported products and to higher inflation and this caused, many times, higher monetary policy interest rates set by NBR, which affected the investments in Romania.

By the end of January 2010, the leu appreciated in relation with the Euro, reaching 4,122 lei/Euro, but thereafter it maintained the increasing trend, reaching 4.3688 lei/Euro by the end of June 2010. In late 2010, the increase of VAT and of the price of basic raw materials refuelled inflation and this caused tensions and complications for the monetary policy and others. In 2010, according to NBR opinion, the average exchange rate leu/Euro was 4.2099 lei/Euro, which means that the Romanian economy had a rather stable exchange rate.

The appreciation of the leu continued in early 2011, and it may be connected to the sales of foreign currency by the foreign investors, which had bought Romanian state securities and also to NBR's policy meant to

decrease inflation. However, from May to December 2011, the exchange rate depreciated strongly reaching 4.3197 lei/Euro by the end of 2011. This phenomenon occurred within the context of the aggravated crisis of sovereign debts following the abrupt increase of global risk aversion. For instance, in July-September 2011, the leu depreciated by 3.4% in real terms and by 2.2% in nominal terms versus the Euro, as mentioned in NBR's Report on the inflation of November 2011. The reason for the depreciation may be the crisis from the Euro zone, which decreased strongly the values of the national currencies from Central and Eastern Europe. The National Bank of Romania may not want to keep the exchange rate at the level of the past two years (the equilibrium exchange rate has been about 4 lei/Euro), and the depreciated exchange rate of the leu may be fit to a new equilibrium rate compared with the real economy. Thus, in 2011, the exchange rate had an average value of 4.2379 lei/Euro, displaying a trend of continuous depreciation of the national currency in 1999-2011. Only in 2006-2007 the national currency suffered appreciation on the background of the positive signals transmitted by the national economy.

On the other hand, the appreciation of the national currency prevents only temporarily the increase of the consumer prices. Otherwise, all the emerging countries are confronted with inflationist pressures, particularly with imported inflation, which creates problems to the central banks, which oscillate between the target of inflation and that of favouring the increase of economic competitiveness. At the same time, improving the capacity of an economy to stimulate the increase of the economic competitiveness is a much more sustainable goal than the careful pursuing of inflation reduction. Under these circumstances, the exchange rate will be certainly better fitted to the economic realities and will therefore be closer to the equilibrium exchange rate.

An important role in finding an equilibrium exchange rate, as close as possible to the economic fundamentals, plays the flexibility of the exchange rate. It allows the National Bank of Romania to ensure the stability of the internal prices by increasing the effectiveness of the monetary policy. For the improvement of the exchange rate flexibility it is

important that NBR should intervene extremely rare or not at all on the exchange rate market. The National Bank of Romania intervened directly and indirectly, selectively, on the exchange rate market, every time there had been the risk of strong speculative attacks. NBR's interventions on the exchange rate market aimed at preventing major fluctuations in order to maintain the trust in the national currency and the economic stability.

On the other hand, the fluctuations of the exchange rate may generate instability and unsafeness, particularly among the residents paying debts in foreign currency, knowing that the sudden depreciation of the national currency increases the effort of paying back the foreign debt.

4. Some conclusions

The National Bank of Romania spends sizeable amounts of money in order to maintain the stability of the exchange rate and to ensure the temporary competitiveness of the Romanian economy. This should actually be supported by the domestic production of goods and services and just marginally by the favourable evolution of the exchange rate, so that the national bank should intervene only rarely on the currency market.

The flexible exchange rate has not only advantages, but some costs, too. In the absence of instruments and special abilities to fructify these advantages, the question rises about the period of time that the National Bank of Romania can keep the leu/Euro exchange rate stable, and at what costs.

With a still high inflation rate, with large budget deficits and with considerable public debt, one may not expect a proper and credible determination of the equilibrium exchange rate on the medium and long-term. We consider that an economy with many problems, still catching up the developed European economies, can not have a stable exchange rate of the national currency, in other words, the leu/Euro exchange rate can not be better than the economy it represents.

The continuous instability from the Euro zone and from the region has influenced the evolution of the leu/Euro exchange rate, making it more difficult to calculate an equilibrium exchange rate of the national currency.

References

1. Bergstrand J.H. (1992), *Real Exchange Rates, National Price Levels, and the Peace Dividend*, The American Economic Review, Vol. 82, No. 2 (May, 1992), Papers and Proceedings of the Hundred and Fourth Annual Meeting of the American Economic Association pp. 55-61;

2. Ciutacu C. (2001), *Reformă şi metareformă [Reform and metareform]*, Expert, Bucharest;

3. Clark P.B., MacDonald, R. (1998), *Exchange Rates and Economic Fundamentals - A Methodological Comparison of BEERs and FEERs*, IMF Working Papers 98/67, International Monetary Fund, Washington;

4. Dumitru I. (2006), *Estimarea cursului de schimb real de echilibru in România [The equilibrium exchange rate in Romania]* , MPRA Paper 10631, University Library of Munich;

5. Elbadawi I. (1994), *Estimating Long-Run Equilibrium Real Exchange Rates, in Estimating Equilibrium Exchange Rates*, J. Williamson ed., 1994;

6. Faruqee H. (1994), *Long-Run Determinants of the Real Exchange Rate - A Stock-Flow Perspective*, IMF Working Papers 94/90, International Monetary Fund;

7. Fleming J. M. (1962), *Domestic financial policies under fixed and floating exchange rates*. IMF Staff Papers 9: 369–379. Reprinted in Cooper, Richard N., ed. (1969). International Finance. New York: Penguin Books.

8. Isard P. (2007), *Equilibrium Exchange Rates: Assessment Methodologies,* IMF Working Paper, WP/07/296, IMF Institute;

9. MacDonald R. (2000), *Concepts to Calculate Equilibrium Exchange Rates: An Overview*, Discussion Paper 3/00, Economic Research Group of Deutsche Bundesbank;

10. Mundell R.A. (1963), *Capital mobility and stabilization policy under fixed and flexible exchange rates*. Canadian Journal of Economic and Political Science 29 (4): 475–485. Reprinted in Mundell, Robert A. (1968). *International Economics*. New York: Macmillan.

11. Popescu M.N. (2011), *Metode de estimare a cursului valutar de echilibru [Methods for estimating the equilibrium exchange rate]*, http://www.ipe.ro/RePEc/WorkingPapers/cs1112-2.pdf

12. Stein J.C.(1994), *Waves of Creative Destruction: Customer Bases and the Dynamics of Innovation*, NBER Working Papers 4782, National Bureau of Economic Research, Inc.;

13. Stein J.C. (1995), *Prices and Trading Volume in the Housing Market: A Model with Down-Payment Effects*, The Quarterly Journal of Economics, MIT Press, vol. 110(2), pages 379-406, May;

14. Williamson J. (1983), *The Exchange Rate System*, Institute for International Economics, Washington;

15. Williamson J. (1994), *Estimating Equilibrium Exchange Rates,* September 1994;

16. National Bank of Romania (1993), *Raport privind regimul valutar din România şi măsurile necesare pentru stabilizarea cursului leului [Report on the currency regimen in Romania and on the measures required to stabilise the exchange rate of the leu]*, Bucharest, May 1993;

17. National Bank of Romania (1996-2007), *Annual reports*, Bucharest;

18. National Bank of Romania (2010-2012), *Monthly Bulletins*, Bucharest;

19. National Bank of Romania (2010-2012), *Reports on inflation*, Bucharest.