Fixing the Central Parity and the Evolution of the Currency within the Exchange Rate Mechanism II in the Countries that Joined the Euro Zone

Lucian Claudiu ANGHEL

College of Management
National University of Political Studies and Public Administration
6 Povernei St., Sector 1, 010643, Bucharest, Romania
lucian.anghel@facultateademanagement.ro

Florina PÎNZARU

College of Management
National University of Political Studies and Public Administration
6 Povernei St., Sector 1, 010643, Bucharest, Romania
florina.pînzaru@facultateademanagement.ro

Mihaela DINU

College of Management
National University of Political Studies and Public Administration
6 Povernei St., Sector 1, 010643, Bucharest, Romania
mihaela.dinu@facultateademanagement.ro

Laurențiu-Mihai TREAPĂT

College of Management
National University of Political Studies and Public Administration
6 Povernei St., Sector 1, 010643, Bucharest, Romania
laurentiu.treapat@facultateademanagement.ro

Abstract. *The present paper presents the models used by the countries that joined the Euro zone after 2000, in fixing the central parity and the evolution of the local currency towards Euro, when participating in Exchange Rate Mechanism II (ERM II). It synthesizes the main theories for determining the equilibrium exchange rate. It also presents the modality of putting them into practice in the countries that had already become members of the Euro zone. The better we know the other countries' experience in the respect of the joining process to the Euro zone, the better will Romania be able to prepare itself for adopting the unique European currency. Thus, we will be synthesize the main approaches within literature and also in the economic policy deciders' practice concerning the estimation of the equilibrium exchange rate and implicitly, of the central parity. The paper presents the modality of fixing the central parity and the experience of participating in ERM II for a number of member states that joined*

the Euro zone after 2000: Greece, Slovakia, Slovenia, Malta, Cyprus and Estonia. For these states we also analyze the evolution of the currency towards Euro while participating in ERM II. Starting from these examples, we explain the advantages and the disadvantages in fixing the central parity over/at/under the value of the exchange rate on the market at the moment of joining ERM II and we underline the problems that might occur in the case of choosing a central parity that is not compatible with the equilibrium value of the exchange rate.

Keywords: equilibrium exchange rate, exchange rates mechanism II, purchasing power parity, uncovered interest rate parity, behavioral equilibrium exchange rate, uncovered interest rate parity

Methodology, models and methods of estimation. The definition of the equilibrium rate

As we briefly present further on, the used methodology and the models of estimation can be grouped in three big categories: 1. models that suppose the lack of arbitration opportunities on the consumers' goods market or on the financial market – the Purchasing Power Parity (PPP), the Uncovered Interest Rate Parity (UIRP); 2. models that imply both the internal equilibrium and also the lack of arbitration opportunities – out of which, the model for fixing the Behavioral Equilibrium Exchange Rate (BEER) provides a flexible frame for incorporating other interfacing models such as Balassa-Samuelson, the monetary model and the Permanent Equilibrium Exchange Rate (PEER); and 3. models that involve the internal and external equilibrium – out of which the model for fixing the Fundamental Equilibrium Exchange Rate (FEER) also offers a flexible frame for incorporating other models with similar specifications such as Desirable Equilibrium Exchange Rate (DEER), Natural Real Exchange Rates (NATREX), Sustainable Real Exchange Rate (SRER). In addition, we outline which of them were used in practice for fixing the equilibrium exchange rate by the economic policy deciders of the EU member states and by the international financial entities.

The used models can be grouped in three categories (Anghel, Ciurilă & Bojesteanu, 2012) depending of the hypotheses they start from:
– models that require the lack of arbitration opportunities on the consumers' goods market or on the financial market – the Purchasing Power Parity (PPP), respectively, the Uncovered Interest Rate Parity (UIP);
– models that require both the internal equilibrium and the lack of arbitration opportunities – out of which the model of fixing the Behavioral Equilibrium Exchange Rate (BEER) offers a flexible frame for cover-

ing other interfacing models such as Balassa Samuelson, the monetary model and Permanent Equilibrium Exchange Rate (PEER);
– models that require the internal and external equilibrium – out of which the model of fixing the Fundamental Equilibrium Exchange Rate (FEER), also offer a flexible frame for incorporating other models with similar specifications such as Desirable Equilibrium Exchange Rate (DEER), Natural Real Exchange Rates (NATREX), Sustainable Real Exchange Rate (SRER).

From the time frame point of view, in which the equilibrium is accomplished, the models can be grouped in three categories:
– models that aim the short term exchange rate equilibrium – for example, UIP;
– models that aim the midterm exchange rate equilibrium – BEER, PEER;
– models that aim the long term exchange rate equilibrium – the monetary model, PPP, FEER, DEER, NATREX, SRER. For this field, Aggarwal (2013) tried to solve the Uncovered Interest Rate Parity in the Foreign Exchange Market puzzle, bringing his contribution in clarifying the specific terminology and the way the models are put into practice.

The Fundamental Equilibrium Exchange Rate (FEER – see Williamson, 1994) is defined as the exchange rate level for which an economy is in equilibrium, both at internal and external level). The internal equilibrium is defined as the state of economy in which there exists a deficit or an excess of demand, hence the GDP is at potential and the inflation rate is constant (or equal with the inflation target for the economy taken into discussion). In what the external equilibrium concerns, its definition is subject to intense discussions. In large, the external equilibrium is reached when the weight in GDP of the current account balance reaches a target value with certain desirable features. While some authors consider this target value as the level of the current account compatible with the stabilization of the weight of the external debt stock in GDP or as the level of the net external assets weight in GDP, other consider that that level of current account deficit is obtained when the economic policies (mainly the fiscal policy, as the monetary policy cannot influence the economy on long term) are sustainable on long term. This variant of the FEER model is named DEER (Desired Equilibrium Exchange Rate), namely that exchange rate compatible with reaching a desired value, a current account target. Within the same approach, models such as NATREX (Natural Equilibrium Exchange Rate and Macroeconomic Balance (Isard et al., 2001; Isard, 2007; Lee et al., 2008) were also developed.

The comparative evaluation of the methodology used in various EU states. Models used by member states and other entities in charge with quantifying the equilibrium exchange rate

In practice, the economic policy deciders and the international financial entities use several resembling methods for establishing the equilibrium value of the exchange rate (Anghel, Ciurila & Bojesteanu, 2012). The Central Banks of the states that joined the Euro zone estimated the equilibrium value of the exchange rate for the national currencies even in the previous stage, prior to joining ERM II, but, also while participating in ERM II, prior to joining to Euro zone, for evaluating the sustainability of the central parity, respectively, of the value for which the national currency will be fixed towards Euro.

The following table briefly presents what resembling methods for establishing the equilibrium value of the exchange the Central Banks we presented in this paper, used.

Table 1. Methods for establish the equilibrium value of the exchange rate

Central Banks	Used Model or Methodology
Central Bank of Malta	PPP;BEER; Maeso Fernandez et al. (2004) model
Central Bank of Cyprus	FEER model
Central Bank of Estonia	BEER model
Central Bank of Czech Republic	BEER and FEER models
Central Bank of Slovenia	FEER model
Central Bank of Latvia	BEER and FEER models NATREX and SVAR methods

In the following part, we describe in detail the methodology used for establishing the equilibrium value of the exchange rate, as applied by the presented Central Banks.

The central Bank of Malta (2006) estimates the equilibrium exchange rate using the PPP methodology, the BEER methodology and also a methodology proposed by Maeso Fernandez et al. (2004). The BEER model is used for estimating the real exchange rate, effectively built by using the Consumption Price Index. The trigger factors that are considered are: the report between the non-saleable goods prices and the saleable goods prices (approximated by

the report between the Consumption Price Index and the Production Price Index), the weight of the net external assets in GDP, the terms of trade – approximated by the report between the exports deflator and the imports deflator) and the differential of the real interest rates. The model uses the co-integration Engle-Granger, not the co-integration Johansen, due to the reduced series of used annual data. The model proposed by Maeso Fernandez et al. (2004) explains the rate gap – defined as a difference between the effectively accomplished value and the nominal exchange rate as assumed by the PPP model – by using a series of determining factors: the GDP on inhabitant, the commercial openness degree and the weight of the governmental expenses within GDP. The model is estimated by using the Dynamic OLS (DOLS) on panel data, the series also including Malta and The EU 15 Countries.

The Central Bank of Cyprus used the following three terms of the methodology, as described within section 5.4. (Kyriacou & Papageourghiu, 2010), as evaluation models for the FEER equilibrium rate. The real exports and imports are separately modeled on components of goods and services: the goods exports are determined by the global trade and by the real exchange rate, the export of services are determined by the global income and the real exchange rate, while the goods and services imports are determined by the internal income and the real exchange rate. The necessary deflators for calculating the balance of the current account are considered equal to a weighted average of the goods prices, of the internal prices and of the global export prices. The balance of the equilibrium current account is determined by using estimations on panel data. The data series correspond to the main Cyprus's commercial partners, including, as explanatory variables for the current account deficit, the dependency rate, the GDP on inhabitant and the cyclically adjusted budget deficit.

The Central Bank of Estonia evaluated the equilibrium value of the national currency by using the BEER methodology (Hinosaar et al., 2005). The fundamental variables considered by the authors were: the relative productivity differential, the net external assets as weight in GDP, the balance of the current account as weight in GDP, the governmental consumption as weight in GDP, the exchange rate, the external interest rate approximated by Euribor. Eventually, in the respect of the evolution of the real exchange rate - the relative productivity differential, the external net assets as weight in GDP and the exchange rate were significant for statistics reasons.

The Central Bank of Czech Republic uses the BEER and FEER models for the quarterly evaluation of the equilibrium rate, this being an input in the DSGE

projection model (Adam, 2012). The BEER model estimates a co-integration relation between the real exchange rate, built using the Production Prices Index and the explanatory variables: the productivity differential towards the Euro zone, the weight of the external net assets in GDP, the weight of the real investments in GDP, the weight of the net export in GDP. The FEER model is built on the traditional models' structure, including equations for the real exports and imports, while the potential GDP is estimated using the production function methodology. In addition, the Central Bank of The Czech Republic runs a project for building a SRER model (engl. Sustainable Real Exchange Rate). This is a version of the FEER model, that determines the current account norm while having a target for the weight of the external debt within GDP, and estimates the equations based on panel data, by using the data of the New Member States plus a control group formed by Spain, Portugal and Greece (Babecky et al., 2010).

The Central Bank of Slovenia performed analyses regarding the real appreciation of the national currency and the equilibrium value of the exchange rate. As apotential explanatory factor for the trend of real appreciation recorded by the Slovenian Tolar, the effect Balassa Samuelson was evaluated to a reduced value, but with an ascending trend for the last part of the analyzed time interval (Zumer, 2002). The equilibrium values of the exchange rates for the foreign currencies were evaluated within a FEER model (Genorio & Kozarmenik, 2004). Following the spirit of the traditional FEER models, the authors build a model for the variables that define the weight of current account balance within GDP. The volume of exports is explained by the evolution of the real (exchange) rate based on the industrial production prices, by the imports volume for the Slovenia's eight main commercial partners and by the exchange rate. The volume of imports is also explained by the evolution of the real exchange rate based on the industrial production prices, the real GDP adjusted with the Slovenia's degree of commercial exposure and the exchange rate. The export and import prices and the GDP deflator are not modeled, their achieved value was used instead. For the current account norm, namely the equilibrium value on a long term, four different scenarios were selected: a) zero (on a long term, the current account balance is in equilibrium); b) the Hodrick-Prescott trend, by the achieved value of the current account balance; c) a current balance trend that allows to an economy to borrow, within the first years of the transaction (the maximum current account deficit is of 3% out of the total GDP), after that, the current account balance tends, step by step, to zero; d) The current account deficit decreased, step by step, to zero, within the first years of the transactions and afterwards, remains equal with zero. Based on the estimated FEER model, the equilibrium value for the Slovenian

Tolar exchange rate towards the Euro and respectively towards the German Mark until 1999, is determined, under the four hypotheses of current account norm. Also, the authors extend the equilibrium rate estimations until 2011.

The most recent adhesion to the Euro zone, starting with January 1, 2014 belonged to Latvia. According to the studies performed by The Central Bank of Latvia (Ajevskis et al., 2012) the result was that this central bank used the FEER and BEER models for estimating the real equilibrium exchange rate towards Euro. In addition, they used other two methods, NATREX and SVAR (structural vector auto regression). In the NATREX case - the real exchange rate that equates the current account balance consistent with full employment to the difference between desired savings and investment. Behavioral equations of consumption, investment and trade balance are derived by optimizing economic agents' decisions. It is thus supposed to be a structurally sound model of equilibrium real exchange rate estimation. The SVAR methodology aims at decomposing real exchange rate into permanent and transition components by identifying the supply, demand and nominal shocks using a long-run identification scheme, and then assessing the equilibrium exchange rate by assuming that only the supply (or supply and demand) shock affects REER in the long run.

The International Monetary Fund (IMF, 2010) uses in the evaluation of the competitive environment for the analyzed countries, Romania including, three methodologies: a) the real equilibrium exchange rate, b) the macroeconomic balance approach, and c) the external sustainability.

The method a) is similar to the BEER methodology and requires the estimation of an equilibrium relation between the real exchange rate and a set of basic variables: the exchange rate, the relative productivity, the relative governmental consumption, the net external assets, the capital inputs for aids and remittances. The real exchange rate is determined based on the equation estimated by using the values at equilibrium on midterm, for the basic variables.

The method b) is similar to FEER methodology. The current account norm is determined based on an equation estimated between the current account balance and a set of basic values: the relative income, the relative increase of the income, the relative dependence rate, the relative increase of the population, the relative fiscal balance, the energetic power balance sheet, the initial external net assets, the capital transfers and inputs for aids. The necessary adjustment for the real exchange rate represents the necessary modification for equalizing the current account norm with the basic balance of the current account (the one that would be

registered at the internal and external equilibrium) and is determined by using the estimated semi-elasticity of the current account balance at the real exchange rate. For Romania, IMF (2012) estimates a semi-elasticity of -0,14, namely an increase of the real exchange rate with 1% would lead to a decrease of the current account deficit with 0,14%. The method c) is similar with the macroeconomic equilibrium method (method b), just that the current account norm is determined as that value of the current account balance that leads to the stabilization of the weight of the net external assets within the GDP at a certain targeted value.

Salto and Turini (2010) from the European Commission evaluate the different methodologies of measuring the equilibrium exchange rate for the EU member states. They reach to the conclusion that the approaches based on FEER type models (namely the current account norms) offer compatible results with the approaches based on relative prices (BEER and PPP). The BEER methodology makes the empiric estimations by using the co-integration technique based on panel data, the estimation method being DOLS Dynamic Ordinary Least Squares. The explanatory variables taken into consideration for the real exchange rate are the weight of the net external assets in GDP, the relative prices differential (saleable/non-saleable goods), the weight of the non-governmental consumption in GDP. The obtained results are extremely important for the EU member states. For the countries within EU zone, a trend of over-evaluation was detected for the national currencies, after the adhesion to the unique currency. In what the new member states concerns, their currencies were also over-evaluated, but, starting with the international financial and economic crisis debut, they suffered significant adjustments. That, in some cases, led even to under-evaluation for the national currencies.

Thus, we can notice that, the great majority of the Central Banks and the international financial entities use, as a common denominator, the BEER and FEER methodologies for fixing the exchange rate on long term for the local currency towards Euro. Thus, fixing the central parity in Romania as well, at the moment of participation in ERM II should be done at least based on these two families of econometric models.

Fixing the central parity and the evolution within the exchange rates mechanism II

A mandatory preparatory stage within the adhesion process to Euro zone is represented by the participation in the Exchange Rates Mechanism II (ERM II). ERM II represents a framework for running the exchange rate regime

within the Member States that haven't adopted the Euro yet, but intend to do it into the near future and represents a preliminary condition for adhering to the Euro zone, as ruled by The Treaty of Maastricht (Anghel, Ciurilă & Bojesteanu, 2012). The participation within this mechanism is made based on a parity/central exchange rate fixed by negotiations between ECB, the ministries of finance and the national banks within the Euro zone and the ones participating in ERM II, with the advice from the European Commission (ECOFIN). As a definition, the parity/the central exchange rate represents the reference value of the national currency towards Euro, as fixed when the participation in ERM II begins and, towards which the fluctuation interval of the exchange rate on the market is calculated, and also, implicitly, the intervention values.

The Exchange Rate on the Market when entering in ERM II can be different from the reference value. In principle, the exchange rate on the market all along the participation in ERM II period, evolves freely within a fluctuation interval of ± 15% towards the central parity, but it is also possible to fix some shorter time intervals, based on bilateral agreements between The Central Bank of the candidate state and ECB. Reaching, by the currency rate, of the superior or inferior limit within the fluctuation interval, automatically draws the common intervention of ECB and of The Central Bank of the candidate state. The European treaties[1] stipulate the modality of intervention on the market in case of reaching the fluctuation limits.

The central parity can be modified along the participation in ERM II. Readjusting up the value of the national currency does not have any impact upon fulfilling the criteria from Maastricht. On the other hand, the devaluation of the national currency is considered as a non-fulfillment of the Maastricht criteria regarding the currency rate stability for a period of at least two years within ERM II. In this case, the period of participation in ERM II is automatically extended and the candidate state must postpone adopting the Euro for at least two more years.

The central parity is tightly connected with the equilibrium level of the exchange rate. This, because the equilibrium exchange rate is compatible with the accomplishment of the internal and external equilibrium of an economy, and the accomplishment of these equilibriums represents a premise for the long term stability in any country. Yet, fixing the central parity close to the

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[1]   Please, see the UE Agreement on 16 March 2006 – 2006/C 73/08 with its amendment in 2008.

equilibrium value of the exchange rate is problematical, mainly because this equilibrium value may fluctuate in time, especially in the countries that are in the process of nominal and real convergence. Having in view that, during the participation in ERM II, the candidate states for the Euro zone will continue their process of nominal and real adjustment, most probably with effects upon the equilibrium exchange rate and upon the exchange rate on the market, it is possible that the central exchange rate to be fixed when entering the ERM II at a level that is incompatible with the equilibrium value of the exchange rate on a long term. Another problem related to fixing the central parity around the equilibrium value is that, the different types of estimation models and methods for the equilibrium exchange rate may lead to substantially different results.

The parity exchange rate towards Euro, which the candidate state used when adhered to the Monetary Union was determined when entering ERM II and can be modified by regaining the value and devaluating, all along the participation period in ERM II. The exchange rate of the national currency towards Euro, at the moment of entering the Monetary Union may differ from the central parity until the ending of the participation in ERM II. Still, there exists a big probability that, the central parity, as fixed when entering the ERM II, to be identical or very close to the conversion rate of the national currency to Euro.

In conclusion, when entering ERM II, a candidate state can choose from the following available strategies (please, see also the document of the Central Bank of Slovenia, 2003):

– fixing a central parity higher than the exchange rate registered on the market when entering the ERM II – this strategy was adopted by Greece. It is recommended when estimating that the national currency is substantially over-evaluated at the moment of joining ERM II.

The main advantage of this strategy is that it offers a higher flexibility to the monetary policy, along the participation in ERM II. In case there exists a mismatch with the ECB interest rate, the monetary policy interest rate within the candidate state may be gradually reduced, the eventual depreciation of the national currency not necessarily attracting a resetting of the central parity upwards and, implicitly, a prolongation with two more years of the participation in ERM II. In addition, if the over-evaluation of the national currency estimated by the deciders of economic policy is correct, the triggers of the currency rate will action in the sense of the depreciation of the national currency. In this case, fixing the central parity at a higher value than the rate on the market al-

lows the national currency to depreciate, without consequences upon fulfilling the criterion from Maastricht regarding the stability of the exchange rate. The main disadvantage is that, by pointing out an over-evaluation of the national currency when entering in ERM II, the inflation expectations may increase and may contribute to an increase of the inflation rate, with a negative effect upon the nominal convergence criterion concerning the stability of prices.

Greece chose, when entering in ERM II in July 1998, to fix a central parity at 353,109 Drahma/Euro, with approximately 13% over the level registered by the market rate in February 1998. As it can be seen in the figure no.1. an immediate consequence was the depreciation of the national currency with 12.3% when entering in ERM II. Yet, in the following period of time, as the result of the increase of the investors' trust in the evolution of the economy, the rate significantly decreased. The appreciation of the Greek currency and then, placing it for a long period of time on a trend that is significantly under the central parity towards Euro, caused the decision to reduce the reference value of the Drahma towards Euro in January 2000. We can also observe that, when Greece entered the Euro zone, the currency on the market converged towards the central parity.
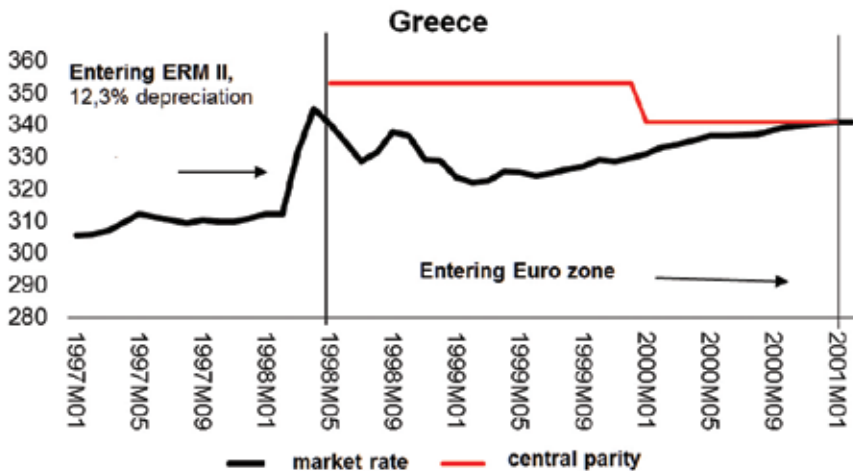

Figure 1. The evolution of the exchange rate for the Greek Drahma towards Euro, along the participation in ERM II. Source: Eurostat, Anghel et al. (2012)

   – fixing a central parity equal with the value of the foreign rate registered on the market when entering in ERM II – this strategy was adopted by

Slovenia, Slovakia, Malta, Cyprus and Estonia. Although they adopted the same strategy, the evolution of the exchange rates of these countries in ERM II was somehow different.

This strategy is recommended when it is estimated that the national currency is close to the equilibrium value in the adhesion moment to ERM II.

The main advantage of this strategy is that it does not impose immediate pressures upon the currency rate on the market. In the probable conditions when this rate remains relatively constant after entering ERM II, the exchange rate may become an inflationary anchor. The main disadvantage is the fact that the monetary policy loses its flexibility in some respects, the modifications related to the monetary policy interest rate being able to generate appreciations and depreciations of the national currency, that move the exchange rate on the market away from the central parity. In addition, if being under the impact of the determinant triggers, the currency rate on the market when entering the ERM II is proven to be a lot under or over the value of equilibrium, the central parity will have to be reconsidered. In the case of devaluation, the candidate country will have to extend its participation in ERM II for two more years.

Three of the countries that adopted this strategy registered constant evolutions of the currency rate in ERM II, indicating the fact that, from the perspective of the determinant factors for the exchange currency, this is around the equilibrium value on midterm.
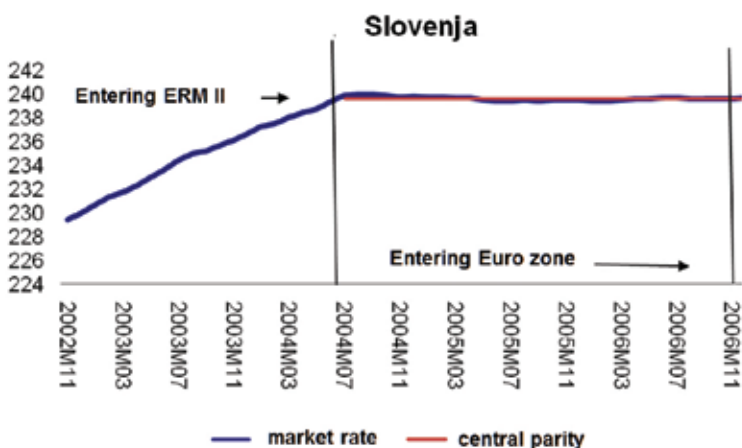

Figure 2. The evolution of the exchange rate for the Slovenian Tolar towards Euro, along the participation in ERM II. Source: Eurostat, Anghel et al. (2012).

As it can be observed within the figures no. 2, 3 and 4, the national currencies of Slovenia, Malta and Estonia remained very close to the central parity. For Estonia's case, the currency remained fixed at the reference value as established when entering ERM II, due to a monetary council that operates within this economy.
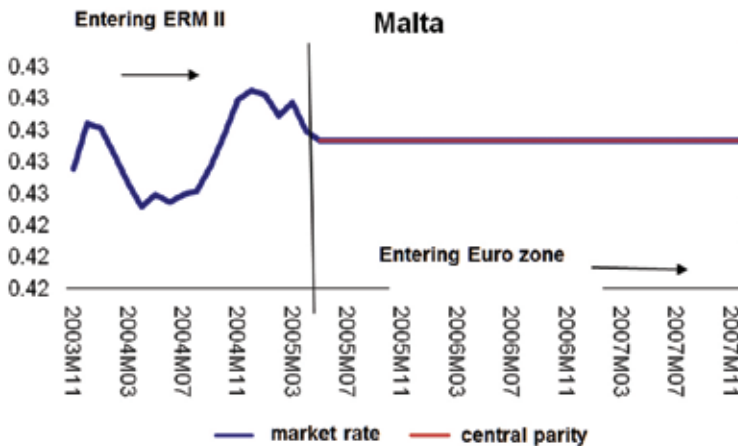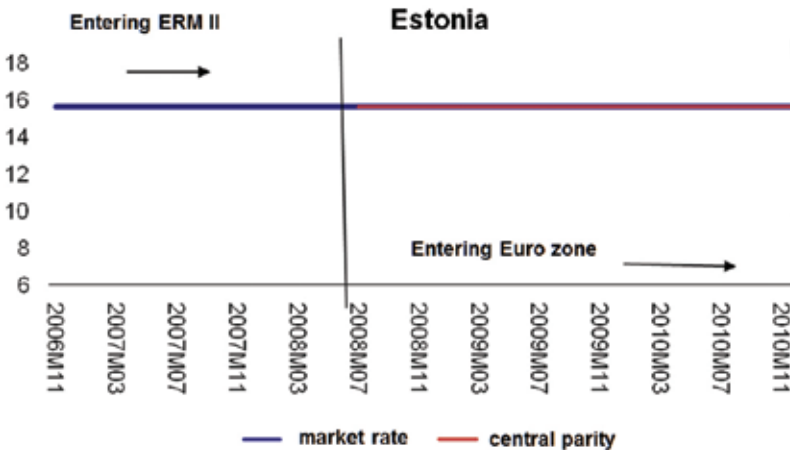

Figure 3. The evolution of the exchange rate for the Maltese Lira towards Euro, along the participation in ERM II. Source: Eurostat, Anghel et al. (2012)

Figure 4. The evolution of the exchange rate for the Estonian Kroon towards Euro, along the participation in ERM II. Source: Eurostat, Anghel et al. (2012).

Estonia was the first Baltic country that accepted to adhere to the Euro zone. One of the real convergence criteria was the GDP per inhabitant (standard

PPP) that had the highest level among the Baltic countries. In 2011, this indicator represented approximately 67% from the UE28 average, while Letonia, in 2014 when it eventually joined, registered around 62% from the UE28 average, after a constant increase of 4 consecutive years for this ratio. Romania is still under the level of 50% out of the average GDP per inhabitant at UE28 level, fact that suggests we still need time to prepare our economy prior to adopt euro (Anghel, 2014).

In what Letonia's adhesion concerns, starting with the 1st of January 2014, for the Euro zone, , this country entered ERM II on 2nd of May, 2005, with the "Lats" pegged to the euro at 1 EUR = 0.702804 LVL (see Bank of Latvia site, 2014). In ERM II, rate moves within the standard ±15% fluctuation margins around the central rate are allowed. However, Latvia made a unilateral commitment to ensure a band of ±1% thus maintaining the existing fluctuation band that was accepted by the financial market. As a result, the graphic indicating the LVL evolution towards Euro would have been identical with the one in the previous figure 4 for Estonia's case, the only difference being the fixed exchange rate towards Euro mentioned before. It is noticed that Latvia was maintained in ERM II for a period of time longer than 8 years, the minimum period being of just 2 years.

The evolution of the Slovakian Kroon and of the Cyprus Pound was different from the evolution of the other currencies previously presented. The Slovakian Kroon was subject to some significant appreciation pressures right in the moment of entering ERM II, result of the input of some substantial capital flows (figure 5.) into a small and open economy as Slovakia's. For maintaining the market exchange rate close to the reference value, the central parity was decreased twice. Eventually, Slovakia joined the Euro zone having a rate with approximately 22% more appreciated towards the reference value as fixed when entering ERM II.
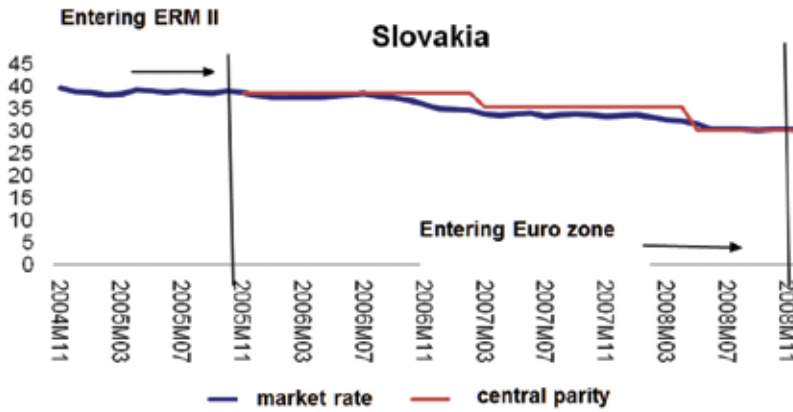
Figure 5. The evolution of the exchange rate for the Slovakian Kroon towards Euro,
along the participation in ERM II. Source: Eurostat, Anghel et al. (2012)

The national currency of Cyprus was also subject to some appreciation pressures, immediately after joining ERM II (figure 6). Apart from the Slovakia's case, the pressures were not so strong; yet, the Cyprus Pound exchange rate on the market was situated under the reference value in ERM II until joining the Euro zone.
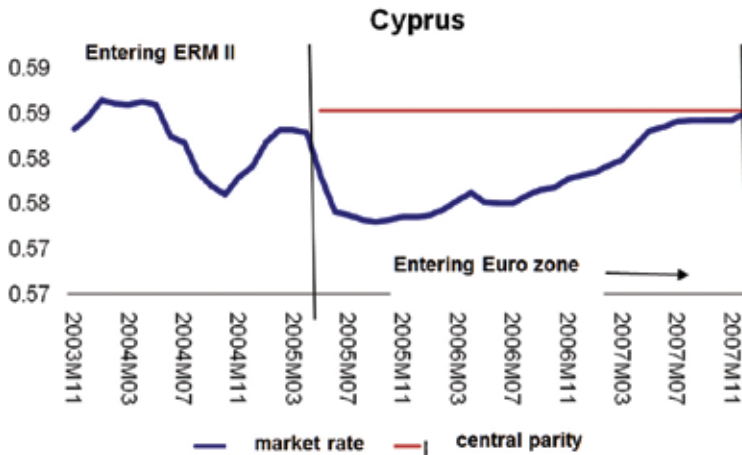

Figure 6. The evolution of the exchange rate for the Cyprus Pound towards Euro,
along the participation in ERM II. Source: Eurostat, Anghel et al. (2012)

– fixing a central parity lower than the exchange rate registered on the market when entering ERM II. This strategy is recommended just when

it is estimated that the national currency is seriously sub evaluated and, for the moment, it was not applied by any other candidate state to the Euro zone.

Conclusions

Numerous models for fixing the central parity exist. The families of models BEER and FEER are among the most frequently used models by the countries that adhered to the Euro zone starting with 2000, and probably should be also used by Romania within its process of adopting the unique European currency. Fixing the central parity as correct as possible is vital for the future of a country that will bond itself through a fixed conversion rate between the local currency and Euro. Fixing the conversion rate, the way it was presented in this paper, may be different towards the exchange rate on the market when entering ERM II. The exchange rate on the market all along the participation in ERM II freely evolves within a fluctuation interval of ± 15% towards the central parity. Reaching, by the currency rate, of the upper of lower limit of the fluctuation interval, automatically attracts the common intervention of the ECB and of the Central Bank of the candidate state.

The central parity can be modified during the participation in ERM II. The revalorization of the national currency has no impact upon fulfilling the Maastricht criterion. On the other hand, the devaluation of the national currency is considered to be a non-fulfillment of the Maastricht criterion concerning the stability of the currency rate for a period of at least two years within ERM II. In this case, the period of participating in ERM II is automatically extended and the candidate state must postpone adopting the Euro for at least two more years. All the countries that joined the Euro zone succeeded in avoiding such a situation. The impact upon their image would have been devastating. The economic repercussions would be very important if the period of remaining in the ante-room of the Euro zone were extended for two more years, namely, the participation in ERM II was almost started from zero.

Greece represents the exception among the countries that fixed a central parity over the exchange rate registered on the market, because the national currency was substantially over evaluated when Greece joined ERM II. Yet, Greece reduced the reference value of the Greek Drahma within ERM II towards the initial level when entering ERM II. Now, we are able to analyze if Greece's decision at that time was an inspired one. This exception comes to

strengthen the rule according to which fixing a central parity is equal with the value of the currency rate registered on the market when entering ERM II. This strategy was adopted by Slovenia, Slovakia, Malta, Cyprus, Estonia and Latvia. Although they adopted the same strategy, the evolution of the currency rate for these countries in ERM II was somehow different.

We can notice that this general rule is possible to be made use of when the countries are ready to adhere to the Euro zone, both from the point of view of fulfilling the nominal requirements but especially, from the point of view of fulfilling the real ones. This is the reason why it is important no state to force the adhesion to the Euro zone prior to the moment it is ready to do it. The economical consequences are major when fixing the exchange rate towards Euro for an undetermined period of time and when giving up on a leverage of rebalancing the economic lacks of balance, by eliminating the currency policy led by the local Central Bank. This conclusion is valid also for the process of adhesion to the Euro zone that Romania will be able to achieve at the time its economy is prepared for.

References

Adam, T. (2012). *Models of Equilibrium Exchange Rates used at the CNB.* Comp Net Workshop, ECB. Retrieved from http://www.ecb.int/home/pdf/research/compnet/Adam-2012_04_02_ECB_general.pdf?d7a97e7167a572b40ae2103b18a4df9b.

Aggarwal, S. (2013). *The Uncovered Interest Rate Parity Puzzle in the Foreign Exchange Market.* Retrieved from http://web-docs.stern.nyu.edu/old_web/economics/docs/workingpapers/2013/Aggarwal_ParityPuzzle_May2013.pdf.

Ajevskis V., Rimgailaite R., Rutkaste U., and Tkačevs O. (2012). *The Assessment of Equilibrium Real Exchange rate of Latvia,* Bank of Latvia, Working Paper 4/2012, ISBN 978-9984-888-11-8.

Alonso-Gamo, P., Fabrizio, S., Kramarenko, V., and Wang, Q. (2002). *Lithuania: History and Future of the Currency Board Arrangement*. IMF Working Paper 02/127.

Altăr, M., Albu, L.L., Dumitru, I., and Necula, C. (2009). *Estimarea cursului real de echilibru și a deviațiilor pentru România*. National Institute of Economic Research, Studii Economice 090706.

Anghel, L.C., Ciurila, N., and Bojesteanu, E. (2012). *Rata de schimb de echilibru și factorii săi. Cazul României.*, Bucharest: Editura Economică.

Anghel, L.C. (2014). *Economia europeană între mișcările FED, reducerea vitezei de croazieră a Chinei și problema datoriilor suverane*. ASEBUSS, 11 ianuarie 2014.

Babecky, J., Bulir, A., and Smidkova, K. (2010). *Sustainable Real Exchange Rates in the New EU Member States: What did the Great Recession Change?* IMF Working Paper 198.

Balassa, B. (1964). The Purchasing Power Parity Doctrine: A Reappraisal. *Journal of Political Economy,* 72 (6), 584–596.

Banka Slovenije, Vlada Republike Slovenije (2003). *Program for ERM II Entry and Adoption of the Euro: Joint Report of the Slovenian government and the Bank of Slovenia.* Retrieved from http://www.bsi.si/en/publications.asp?MapaId=717.

Bank of Latvia, *On Latvia's Participation in the Exchange Rate Mechanism II*, consultat in ianuarie 2014, Retrieved from http://www.bank.lv/en/about-the-bank-of-latvia/on-latvia-s-participation-in-the-exchange-rate-mechanism-ii.

Beguna, A. (2002). *Competitiveness and the Equilibrium Exchange Rate in Latvia*. Euro Faculty Working Paper in Economics 16. August. Riga: University of Latvia and Euro Faculty.

Benkovskis, K., and Wortz, J. (2012). *Evaluation of Non-Price Competitiveness of Exports from Central, Eastern and South-Eastern Countries in the EU market*. Bank of Latvia Working Paper.

Bitans, M. (2002). *Real Exchange Rate in Latvia: 1994–2001*. Latvijas Banka Working Paper.

Bitans, M., and Tillers, I. (2003). *Estimates of Equilibrium Exchange Rate in Latvia*. Latvijas Banka. Analysis of the Real Exchange Rate in Latvia: 1994–2001. Latvijas Banka. Mimeo.

Bojeşteanu, E. (2010). *Relații Monetar-Financiare Internaționale*. Bucharest: ASE Publihing House.

Bojeşteanu, E., Iordache, Ş., Leonte, A., and Manu, A.S. (2012). *Ajustarea dezechilibrului extern în economiile emergente. Este experiența României diferită?* lecture at Colocviile BNR de Politică Monetară: Elemente ale cadrului de analiză și prognoză al politicii monetare.

Buldorini, L., Makrydakis, S., and Thimann, C. (2002). *The effective exchange rates of the euro*. European Central Bank Occasional Paper Series no. 2.

Burgess, R., Fabrizio, S., and Xiao, Y. (2003). *Competitiveness in the Baltics in the Run-Up to EU Accession*. IMF Country Report No. 114.

Central Bank of Malta (2006). *A Study of the Equilibrium Real Exchange Rate of the Maltese Lira*. Retrieved from http://www.centralbankmalta.org/updates/downloads/pdfs/A%20Study%20of%20the%20Equilibrium%20Real%20Exchange.pdf.

Codirlaşu, A., and Chideşciuc, A.N. (2004). *Estimarea efectului Balassa-Samuelson în România*. Reseracg presented at the *Tineri Economişti* Conference (National Bank of Romania, Bucharest).

De Broeck, M., and Sløk, T. (2001). *Interpreting Real Exchange Rate Movements in Transition Countries*. IMF Working Paper No. 56.

Dumitru, I. (2008). *Efectul Balassa-Samuelson în România – rolul prețurilor reglementate.* MPRA Working Paper no. 18611.

Genorio, H., and Kozarmenik, D. (2004). *FEER estimates – the Slovenian case*. Prikazi in analize XII/1, Banka Slovenije.

Hinosaar, M., Kaadu, H., and Uskula, L. (2005). *Estimating the Equilibrium Exchange Rate of the Estonian Kroon*. Working Papers of Eesti Pank, no. 2 2005.

International Monetary Fund, 2010. *Romania – Staff Report for the 2010 Article IV Consultation, Fourth Review Under the Stand-By Arrangement, and Requests for Modification and Waiver of Nonobservance of Performance Criteria.* Retrieved from http://www.imf.org/external/pubs/ft/scr/2010/cr10227.pdf

International Monetary Fund (2012). *Annual Report on exchange arrangements and exchange restrictions*. Retrieved from http://www.imf.org/external/pubs/nft/2012/eaer/ar2012.pdf.

International Monetary Fund (2012). *Romania – Fifth Review Under the Stand-By Arrangement, and Requests for Modification and Waiver of Nonobservance of Performance Criteria.* http://www.imf.org/external/pubs/ft/scr/2012/cr12157.pdfs.

Isărescu, M. (2008). *Probleme ale politicii monetare într-o economie emergentă. Cazul României.* Lecture at the Royal Academy of Economic and Financial Sciences.

Isard, P., Faruquee, H., Kincaid, G.R., and Fetherston, M. (2001). *Methodology for Current Account and Exchange Rate Assessements*, IMF Occasional Paper 209.

Isard, P. (2007). *Equilibrium Exchange Rates: Assessement Methodologies*, IMF Working Papers 07/296, International Monetary Fund.

Lee, J., Milesi-Ferretti, G.M., Ricci, L.A. (2008). *Real Exchange Rates and Fundamentals: A Cross-Country Perspective*, IMF Working Papers 08/13, International Monetary Fund.

Komerek, L., and Melecky, M. (2004). *The Behavioural Equilibrium Exchange Rate of the Czech Koruna.* Czech National Bank Project, no. A2/04.

Kyriacou, G., and Papageourghiu, M. (2010). *Assessing the Equilibrium Exchange Rate of the Cyprus Pound at the time of Euro Adoption*. Central Bank of Cyprus Working Paper 2010-6.

Maeso-Fernandez F., Osbat C., and Schatz, B. (2004). *Towards the estimation of equilibrium exchange rates for CEE acceding countries: methodological issues and a panel cointegration perspective*. ECB Working Paper Series, no. 353.

Oomes, N. (2005). *Maintaing Competitiveness Under Equilibrium Real Appreciation: The Case of Slovakia.* IMF WP/05/65.

Penkova-Pearson, E. (2011). *Trade, Convergence and Exchange Rate Regime: Evidence from Bulgaria and Romania.* National Bank of Bulgaria Discussion Papers, no. 85/2011.

Salto M, and Turrini, A. (European Commission) 2010. Comparing alternative methodologies for real exchange rate assessment. European Economy. Economic Papers. September 2010. Brussels.

Williamson, J. (1994). *Estimating Equilibrium Exchange Rates*. Peterson Institute Press: All Books, Peterson Institute for International Economics, no. 17, April.

Zumer, T. (2002). *Estimation of the Balassa-Samuelson effect in Slovenia.* Prikazi in analize X/1, Banka Slovenije.