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EQUILIBRIUM REAL EXCHANGE RATE MODELLING IN SERBIA – ES APPROACH

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Abstract: As one of essential macroeconomic tools which provides an assessment of a country's competitiveness, equilibrium real exchange rate needs to be estimated. Thus, it can affect the adjustment of the real exchange rate so as to be close to equilibrium trajectory. This paper attempts to analyse equilibrium exchange rate level of Serbian dinar. In that purpose is used external sustainability approach (ES), developed by IMF's Consultative Group on Exchange Rate Issues (CGER). The approach is based on current account misalignment and the level of the exchange rate that will bring the current account back to its estimated norm (equilibrium). The research results are twofold, depending on set of different assumptions related to policy changes.

Keywords: equilibrium real exchange rate, REER, current account norm, misalignment, Serbia

1. INTRODUCTION

As one of crucial macroeconomic variables, equilibrium real exchange rate which indicates competitiveness of an economy, should be estimated. Therefore, it could be seen whether real exchange rate is close to evaluated equilibrium level and what is needed adjustment in the future. The prolonged and significant real exchange rate deviation from the equilibrium path can lead to a deterioration of the main macroeconomic indicators.

Often unsuccessful empirical results of applying traditional concepts force experts in searching of alternative methods as helping tool in exchange rate analysis.

There are different methodologies for the equilibrium exchange rate estimation. Driver and Westaway [4] introduce 14 concepts with their explanation. Among wide set of concepts, there is external sustainability approach (ES), developed by IMF's Consultative Group on Exchange Rate Issues (CGER) which has been founded in mid '90. Particularly, their work has been expanded in 21st century, including emerging countries and developing economies, such as Serbia, with not finished structural reforms, often with data unavailability and finally, high macroeconomic volatility.

This structural concept is based on current account misalignment and the level of the exchange rate that will bring the current account back to its estimated norm (equilibrium), under assumption of sustainable level (so called "benchmark level") of foreign assets/liabilities, as well as taking into account the following fundamental variables: the potential growth rate, inflation, rates of return on external assets and liabilities. In the case of Serbia, due to data unavailability, the assumption about equality of these rates has been introduced. Based on evaluated current account norm, the level of exchange rate which returns current account into its equilibrium point, is calculated. The paper results point to overvaluation of Serbian real exchange rate over medium term, in case of less external debt, and, in opposite side, underestimated REER. Next section describes methodologies and data which are used in order to deliver results of the exchange rate assessment.

2. DATA AND METHODOLOGY

In order to evaluate the misalignment level of real exchange rate needed to shift current account to its estimated sustainable level (equilibrium, "norm"), ES concept was performed.

External sustainability approach consists of three steps [16]. The first one involves calculation the current account that stabilizes the net external assets position (NFA) at a benchmark level. Generally, appropriate NFA level is the last observed value which is available from Lane and Milesi-Ferretti database [14]. Beside this NFA level, according to IMF report for Serbia in 2008 [7], the average between maximum NFA from the set of countries in period 2000-2011, and last observed value for Serbia, was taken to represent the other scenario.

The level of the CA that stabilizes the NFA is then calculated as

$$ca^s = \frac{g + \pi(1+g)}{(1+g)(1+\pi)} b^s \quad (1)$$

where g is the potential growth rate of real GDP, π is annual inflation, b^s is the benchmark NFA/GDP position and ca^s current account norm.

Then, calculated norm should be compared to actual and projected values of current account balance based on WEO projections. Finally, in order to find the exchange rate adjustment needed to bring the actual current account back to its norm, there have been used two scenarios. The first one, the measure of elasticity of the current account to the real exchange rate was calculated, and in the second case was used evaluated elasticity from panel research for developing countries [11]. Data used for calculations are obtained from the IMF's World Economic Outlook database [9]. Net foreign assets as share of GDP are taken from Lane & Milesi-Ferreti (LM) database [14].

3. RESULTS

In order to compute current account norm, medium-term values of fundamentals were used, except for NFA. Therefore, in case of first scenario, the last recorded value taken from Lane and Milesi-Ferretti database (2011), benchmark level of NFA was -74.538% GDP, projected potential growth rate of 4 percent and an inflation rate of 4 percent [9].

According to values in previous paragraph, estimated medium-term equilibrium current account balance is deficit - 5.51% of GDP, while IMF projection for 2019 is - 7.25% share in GDP [9].

Figure 1 shows calculated current account norm for Serbia relative to the actual balance and projected medium-term values (all in percent of GDP): The second scenario, according to IMF report from 2008 [7], takes into account average values between previously given benchmark level, estimated by Lane and Milesi-Ferretti and maximum in region for period 2000-2011, that is Hungarian level in 2009 of -128.3%. In that case,

with the stabilization level of the NFA of -101.43% share in GDP, with the same projections of potential economic growth and inflation expectations, the medium term equilibrium current account deficit would be higher - 7.5%, so it would be necessary less adjustment of real exchange rate than in the case of smaller external debt.

Figure 2 shows results of the 2nd scenario (in percent of GDP):

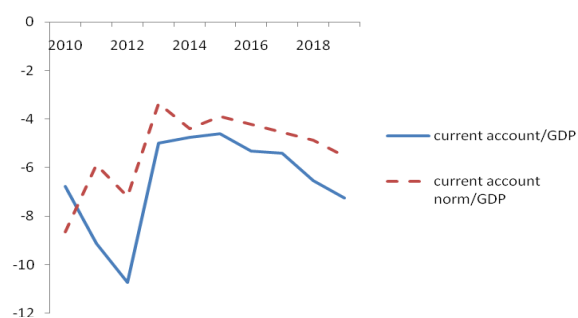


Figure 1. Results from ES approach – estimated and actual current account

Sources: IMF, 2014; authors' calculations, 2014

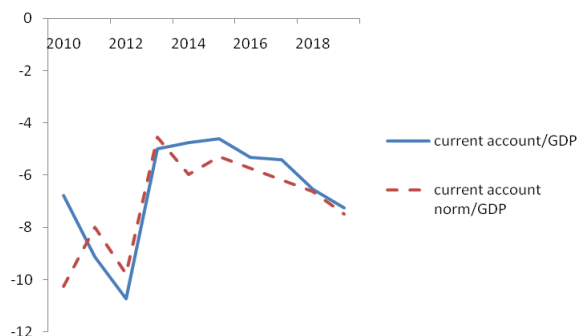


Figure 2. Results from ES approach – estimated and actual current account

Sources: IMF, 2014; authors' calculations, 2014

Further, given the price elasticity of exports (-0.71) and imports (0.92) which has been used by IMF, and the five year average of export/import ratio to GDP – 36% and 54%, respectively, the elasticity of the current account balance ratio to GDP with respect to the REER is calculated to be -0.25.

By comparison, the other elasticity value of -0.14 was taken, as result of research done by Isard and Faruqee (for developing countries, although panel data did not include Serbia) [11].

Summarizing the above assumptions, the following table gives the assessed deviation of the exchange rate which contributes to the difference between the projected and sustainable CA level:

Table 1. ES concept – final results

		NFA – benchmark level			
		-74.5%		-101.4%	
projected current account	(percent of GDP)	-7.25 (WEO (2019))			
current account norm	(percent of GDP)	-5.51		-7.50	
difference	(percent of GDP)	1.73			
elasticity of the CA to the REER		-0.25	-0.14	-0.25	-0.14
REER adjustment	(percent)	-6.94	-12.39	1.02	1.82

Sources: authors' calculations, 2014, based on IMF WEO projection for 2019

Next figure presents final results grafically. On the left side REER deviation is given according to I scenario (NFA level of -74.538%), and the right side REER misalignment corresponds to stabilising NFA position of -101.4%:

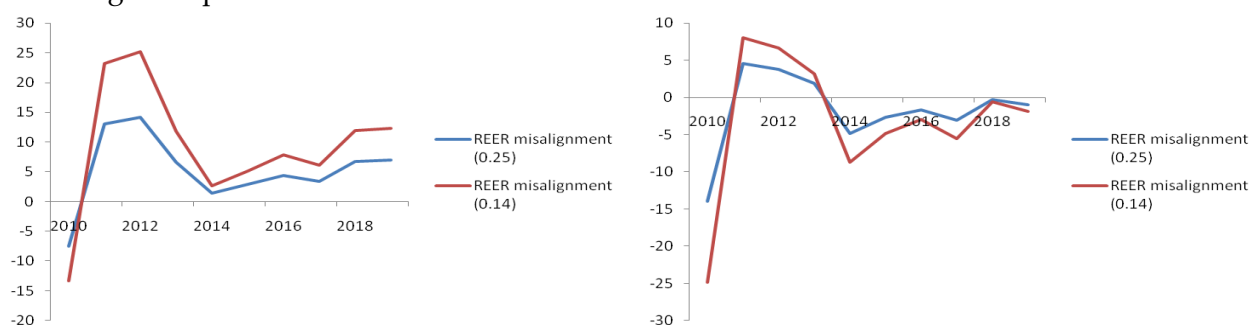


Figure 3. Final results from ES approach – REER misalignment (in percent)

Source: authors' calculations, 2014

4. DISCUSSION

In figure 1 it can be seen that the current account gap is the least in 2014 and 2015, which is to be less than 1%. Therefore, in these two years it should be necessary less REER adjustment needed to bring the projected CA to the level of the norm, in interval 1.5-5% (which is presented in Figure 3, left side). Further, results from Figure 3 show that REER seemed to be permanently overestimated after 2010, and it should depreciate between 7-12% in medium term (Table 1).

On the other side, under assumption of higher external debt (II scenario), the largest difference between projected and norm CA seems to be in 2014 (Figure 2), whereafter the gap reduces and in medium term is close to zero. That leads to about 1-2% REER undervaluation, i.e. real exchange rate should appreciate in medium term, which is grafically presented in Figure 3 (right side).

The IMF in 2008 [7] used two projections of potential growth. The first was its conservative projection of 5.5%, and the other (with a clearer vision of joining the EU) represented a higher percentage growth rates, set at the average level of 15 Eastern European countries in the period 2003-2007 (which was about 6.2%). Also, at the end of 2007, NFA was projected to be -66% of GDP, according to IMF calculations, while the other comparative reference value was taken as the average of the calculated values for Serbia and maximum values of selected countries, which used to be over -80%. In this setting, conclusion was REER overvaluation ranged from 5-13% [7].

Another scenario, which is very fiscal restrictive, IMF has presented in its country report in 2013 [8], so called "Illustrative Medium-Term Adjustment Scenario, 2009–18", with projected values of current account of 4.6% as share of GDP, less inflation and economic growth, 3.5% and 3.7%, respectively, as well as better net foreign asset position of -67%. Under these assumptions, equilibrium current account level would be smaller deficit (4.5%) and real exchange rate is close to

its equilibrium, i.e. should depreciate by 0.5% over medium-term, in order to eliminate the current account gap. This is scenario which assumes significant policy changes in Serbia.

5. CONCLUSION

In this paper external sustainability approach is used in order to calculate real exchange rate deviation from the level which closes the gap between estimated current account norm (that stabilizes the net external position (NFA) at a benchmark level) and projected CA.

Data used for calculations are obtained from the IMF's World Economic Outlook (IMF WEO) database. Net foreign assets as share of GDP are taken from Lane & Milesi-Ferretti (LM) database.

There are used two scenarios of NFA benchmark level, as well as two different elasticities values. Also, the very restricted scenario introduced by IMF in 2013, so called "Illustrative Medium-Term Adjustment Scenario, 2009–18", is briefly analysed.

Results are very sensitive to different assumptions about fundamental variables, such as: potential GDP growth, inflation, sustainable level of net foreign asset position, current account elasticities. Research results indicate that in case with higher external debt, there is less gap between norm and actual current account, which leads to less REER adjustment. Under all assumptions presented in the paper, it can be seen that estimates of misalignment range from an overvaluation of 12 percent to an undervaluation of 2 percent in 2019.

ES concept is one of few which could be applied to any country, even one that doesn't have long enough time series of macroeconomic variables for estimation, such as in case of Serbia, but, on the other side, depends on appropriate predictions and policy changes.

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