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Articles and Statements

Current Account Dynamics of Central European Countries

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Abstract

"Current account" has been considered as an important variable in forecasting an economic crisis. Therefore; specifying the determinants of current account is a substantial topic for policy makers. The aim of this study is to examine the current account dynamics in the scope of Central European countries (Poland, Hungary, Czech Republic, Slovakia Republic and Croatia) during the 1997 – 2015. Panel data analysis was used in the methodology. According to the analysis results, growth of gross domestic product has no significant effect on current account. Real exchange rate, foreign direct investment and importation affect the current account negatively. However, exportation and government expenditure have positive effects on current account in Central European countries.

Keywords: current account, European Countries, balanced panel data.

1. Introduction

Current account represents the situation of macroeconomic policies and the behavior of economic agents. It is considered as an important variable in the international macroeconomics perspective. Current account cannot be considered as a target variable such as unemployment rate and inflation also it cannot be taken as a policy variable such as interest rate and money supply. Mainly, current account has effects on the decision of lenders and borrowers in the global economy. If the current account deficit keeps up in a continuous path, it identifies the inadequate creditworthiness of a country in the global economy context. In this circumstance, the country may face the risk of bankruptcy (Hassan et al., 2015: 190).

In the 1990s financial liberalization expanded in the global level and monetary integration process of Europe was started in 2001 as a currency of euro. After the implementation of the euro in the European countries, it has contributed to the credit expansion and a decrease in private savings, and these factors led to high current account deficits for some European countries (Brissimis et al., 2010). Monetary integration brings different implementations on fiscal policy and units labor costs in Europe and, therefore; current account positions diverge between European

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countries. For instance Germany and some smaller northern European countries' economy policies generate current account surpluses, however western periphery, eastern and most of the southern countries of Europe exhibit current account deficits (Belke, Schnabl, 2013). Before the 2009 global economic crisis, there had been excessive current account deficits in the periphery of Europe. During the pre-crisis period, these deficit problems led to economic shrinking, depredation sovereign creditworthiness, and problems in banking systems in the periphery regions. Also the decline in aggregated demand and losses on foreign asset holdings in the periphery had negative effects on current account surplus in European countries. In this respect, the control of current account imbalances has been seen as a prior policy for European policymakers (Lane, Pels, 2012).

The aim of this study is to examine the current account dynamics for Central European Countries (Poland, Hungary, Czech Republic, Slovakia Republic and Croatia) in the period of 1997-2015. Panel data was used in the analysis process. There are several studies which examine the current account dynamics in the European countries. These studies selected numerous countries in the analysis process. However; this study focuses on a limited number of countries for the specific results for the Central Europe region.

There are five main sections in this study. First section includes literature review, second section represents data and methodology, third section elaborates on the analysis process, fourth section infer analysis results and finally, fifth section is the conclusion of the study.

2. Literature Review

There are numerous studies in the literature in the respect of current account dynamics. Some of these studies examine this subject for OECD countries (Gosse, Serranito, 2014; Cavdar and Aydin, 2015; Bertola and Prete, 2015; Karras, 2016) and some of them analyze different country groups (Erauskin, 2015; Kim, 2015; Martin, 2016; Tan et al. 2015; Moral-Benito and Roehn, 2016). In order to determine the scope of this study, we particularly examine current account dynamics literature for the European countries.

Aristovnik (2006) investigated the current account dynamics for the Eastern Europe and the former Soviet Union countries in the period of 1992-2003 by using dynamic panel data analysis. He concludes that economic growth has a negative effect on current account balance. This result reflects that the economic growth is relevant with increasing of domestic investment instead of domestic saving. Public budget shocks move together with current account breakdown and this circumstance indicates the twin deficit conditions in the region. Rise in value of the real exchange rate and deterioration of the terms of trade also affects the affect the current account balance negatively.

Gehringer (2015) examines current account dynamics for all European countries, except Luxemburg, during the 1995 and 2010 period by using panel data method. He concludes that excessive private and public consumption cause current account deficits. Additionally, credit variable, growth of GDP per capita, real exchange rate and construction sector variables have negative effects on current account balance in European Union economies.

Bollano and Ibrahimaj's (2015) study on the current account dynamics of Central and Eastern European countries in the period of 2015:1 to 2014:4 by using panel data methodology. They find out that GDP growth and fiscal deficit have a negative effect on current account. However, depreciation of the real effective exchange rate affects current account positively.

Zorzi et al. (2009) make a comprehensive survey about current account benchmarks for Central and Eastern European countries. They use external sustainability approach â la Lane and Milesi-Ferretti (LM) and structural current accounts literature (SCA) which is based on panel data methodology. According to LM approach they provide the importance of sensitivity of outcome to the external indebtedness and the consideration to exclude the foreign direct investment subcomponent from the net foreign assets aggregate. In respect to SCA approach they analyze the sensitivity of outcome to various combinations of fundamentals.

Brissimis et al. (2010) examined the determinants of current account for Greece during the 1960 to 2007 by using co-integration analysis in the long and the short run. They conclude that the current account balance could be established when the ratio of private sector financing to GDP counts as an indicator for financial liberalization in the model.

Kang and Shambaugh (2016) also study current account deficits for countries in the Euro area and the Baltics which faced the global financial crisis with significant current account deficits.

Accordingly, large current account balances prior to the crisis is the best predictor of a sharp drop in output during the crisis. They suggest supportive macro policies to moderate the adjustment process and to keep overall euro inflation at or above target level are necessary.

Kollmann et al. (2015) investigate the determinants of German's current account surplus and its effects on Euro Area for the period of 1995 and 2013 in which they find factors like positive shocks to German saving rate, world's demand for German exports, German labor market reforms and other positive German aggregated supply shocks have effect on German current account surplus and negatively affect Euro Area net exports. The research also discusses that exchange rate regime may have a first order effect on current account dynamics.

3. Data and Methodology

We used current account balance as a percentage of GDP (CA) for dependent variable. Independent variables are GDP growth rate (GDP), real effective exchange rate index (RER), exports of goods and services as a percentage of GDP (EXP), imports of goods and services as a percentage of GDP (IMP), foreign direct investment as a percentage of GDP (FDI) and general government final consumption expenditure growth (GOV) respectively. Data was collected from "World Development Indicators" in the World Bank website. This data was collected in the respect of five Central European Countries (Poland, Hungary, Czech Republic, Slovakia Republic and Croatia) in the period of 1997-2015.

According to theoretical perspective, in the emerging markets, growth of the economy leads to an increasing expectation of incomes and, correspondingly, an increasing on workers' consumption. Therefore, it can be expected that GDP growth has a negative effect on current account (Zorzi et al., 2009; Bollano and Ibrahimaj, 2015; Gehringer, 2015). Real exchange rate adjustment is the most effective indicator on current account adjustment than other adjustment instruments such as income, output and expenditure. Relative price movements lead to matching expenditure between domestic goods and foreign goods (Gervais et al., 2016). If an appreciation occurs for the real exchange rate, it leads to an increase in the purchasing power of household with respect to imported goods, as well as an increase the in the value of the property assets of domestic agents. Therefore, all these variables lead to increase on consumption and a decrease on the saving tendency. Hence it is expected that the increasing of real exchange rate has a negative effect on current account (Brissimis et al., 2010). Similar results obtained for European countries (Aristovnik, 2006; Gehringer, 2015; Bollano and Ibrahimaj, 2015). Exports indicate demand for a local product and imports reflect supplies from foreign countries to meet local production requirements. Shortly export can be regarded as a credit to local economy whereas import implies a debit for a local economy. From this point it could be expected that export has a positive and import has a negative effect on current account. In the literature, foreign direct investments have a positive spill-over effects on host countries' current account by means of bringing technology and know-how, contributing to development of companies, integration into the global economy and increasing competition (Mencinger, 2008). Generally, it is suggested that government budget deficits leads to current account deficits via redistributing income from future generations to present generations. In this respect of twin deficit hypothesis, government expenditure could be seen as an important factor for budget deficits (Zorzi et al., 2009). Therefore model has been established in the respect of literature as an equation (1).

$$CA_{it} = \beta_0 - \beta_1 GDP_{it} - \beta_2 RER_{it} + \beta_3 EXP_{it} - \beta_4 IMP_{it} + \beta_5 FDI_{it} - \beta_6 GOV_{it} + u_{it} \quad (1)$$

In this study we used balanced panel data set in the panel data analysis process. Balanced panel data implies that the all year's data has been obtained for each country and there has not any deficient data. Panel data set in includes of 5 horizontal section units. i symbolizes country and t symbolizes time; i=1-5 (5 countries) and t=1997-2015 (19 years). The total number of observations in data set (i×t = 95) is 95.

4. Analysis Process

In the panel data analysis pooled OLS model can be used if all observations are homogenous. When observations include unit and/or time effects, it can be suitable to use fixed effects or random effects models (Yerdelen Tatoğlu, 2012: 163-164). Likelihood ratio (LR) test was used in the model in the respect of to determine whether there are unit and time effects. In LR test, it is

examined whether standard error of unit effects is equal to zero (H_o: σ_μ=0). Otherwise, LR test is used to examine whether standard error of time effects is equal to zero (H_o: σ_λ=0) (Yerdelen Tatoğlu, 2012: 170). Pooled OLS model can be used, if unit and time effects are not determined in LR test. In spite of this condition, if unit and/or time effects are determined in test results, it can be said that the model is one sided or two sided.

Table 1. LR Test

	Unit Effect	**Time Effect**
χ^2	47.26	0.62
prob.	0.0000	0.2151

The results of LR test exhibit that there is an only unit effect in the model. Consequently, the model is one sided. Hausman specification test is used to specify whether unit effect is fixed or random.

Hausman test infers that if there is no correlation between error components (u_i) and explanatory variables (x_{kit}), both fixed effects and random effects estimators are appropriate. In any case, if there is a correlation between error components and explanatory variables, random effects estimator is inappropriate. In Hausman test, null hypothesis implies that there is no correlation between error components and explanatory variables (Hill et al., 2011: 559). It can be said that random effects are appropriate when there is not a correlation between u_i and x_{kit}, and fixed effects are appropriate when there is a correlation between u_i and x_{kit} (Gujarati, 2003: 650).

Table 2. Hausman Test

χ^2	**46.25**
prob.	**0.0000**

Hausman test results show that unit effects are fixed. Therefore, analysis is made in accordance with one sided fixed effects model.

After these findings, model was examined in the scope of variation from basic assumptions. One of these assumptions is constant variance (homoscedasticity) assumption. Constant variance assumption implies that while unit values of explanatory variables change, variance of error term remains fixed. If this assumption does not valid, model includes heteroscedasticity (Wooldridge, 2012: 93). Modified Wald Test was used to examine this assumption.

Table 3. Test for Heteroscedasticity

Modified Wald Test	
x^2	5.01
prob.	0.4152

Heteroscedasticity results imply that there is no heteroscedasticity. Constant variance assumption is valid. Other basic assumption is autocorrelation assumption; there is no correlation between error terms of independent variables (Wooldridge, 2012: 353). If this assumption does not occur, it implies that there is correlation between error terms of independent variables. Durbin-Watson test of Bhargava, Franzini and Narendranthan test and Baltagi-Wu LBI test were used to examine this assumption. In the respect of values obtained for both tests are less than 2, it can be said that there has been auto-correlation in the model of fixed effects.

Table 4. Test for Autocorrelation

Modified Bhargava et al. Durbin-Watson Test	Baltagi-Wu LBI Test
1.1070284	1.2147892

Another assumption is about correlation between units. In studies such as domestic and regional economies, neighborhood effects can show spill-over in themselves. In such cases, correlations have spatial view rather than temporal view (Greene, 2012: 389). This assumption is tested through Friedman's Test. According to the Friedman's test of cross sectional independence test statistics and probability values, there is a correlation between units.

Table 5. Test for Correlation between Units

Friedman's Test of Cross Sectional Independence	
x^2	15.802
prob.	0.0033

According to the results of analysis, there have been autocorrelation and correlation between units problems in the model. In order to solve these problems, standard errors which are resistant to deviations from assumptions were produced by using method of Driscoll-Kraay estimator.

Table 6. Analysis Results

Explanatory Variables	Coef.	t-stat.	p-value
GDP	-0.0670	-1.27	0.274
RER	-0.0631	-4.53	0.011**
EXP	0.9172	14.74	0.000*
IMP	-0.9372	-11.20	0.000*
FDI	-0.0509	-4.46	0.011**
GOV	0.0862	2.41	0.073***
Cons.	4.3684	8.44	0.001*
R^2: 0.8658	**Prob. 0.0000**		

Note: (*) significant at %1 level, (**) significant at %5 level, (***) significant at %10 level.

Analysis results show that the GDP variable effects on CA negatively but it is statistically insignificant. RER effects on CA negatively and this result is statistically significant. In this regard one unit appreciation in RER leads to 0.06 % decrease in CA. Coefficient of EXP has a positive and statistically significant impact on CA. It can be described that one unit increase in EXP gives rise to 0.91 % increase in CA. IMP variable has a negative and statistically significant effect on CA. One unit increase in IMP cause 0.93 % decrease in CA. Coefficient of FDI has a negative and statistically significant effect on CA. It implies that one unit increase in FDI leads to 0.05 % decrease in CA. GOV variable has a positive and statistically significant effect on CA. One unit increase GOV gives rise to 0.08 % increase in CA. Effect of RER, EXP and IMP variables on CA are coherent with the theoretical expectations. However FDI and GOV variables effect on CA are not consistent with the theoretical expectations. Also it can be seen that there have been strong effect of EXP and IMP variables on CA.

5. Conclusion

Current account balance is an important subject in economy literature since it has been an indicator of economic crisis variable in pre-crisis period of countries. With regard to European countries, current account imbalances in periphery regions of Europe leads to declining of aggregate demand and losses on foreign asset holdings in these regions. By this way, European countries with current account surplus are affected negatively from these events. From this point,

the control of current account imbalances has been considered as a primary goal for European countries. In this study we analyze current account dynamics for five Central European countries in the period of 1997-2015 by using panel data methodology.

Real exchange rate has a negative and statistically significant effect on current account in Central European countries. This result is coherent with the theoretical expectations, and it can be said that appropriation in the real exchange rate brings to increase purchasing power of household and rising demand for imported goods. Furthermore, increasing value of the property assets of domestic agents also affect current account negatively. Exportation has a positive effect on current account and this result implies that increasing of foreign demand for local products gives rise to foreign currency access to the economy. Conversely the demands for foreign goods have an impact on current account negatively in Central European countries. This is because that importation stated the debt conditions for countries. The results of exportation and importation are also convenient with theoretical perspective. However foreign direct investment has a negative effect on current account in Central European countries and this result contradicts with the theoretical expectations. But it can be said that in the long run the FDI's positive effects on current account could be turned negative by the way of repatriation of profits to investor country and this negative effect could be extended if the investment funds gain from the host country through credits channel (Moura, Forte, 2010). Government expenditure has positive effects on current account in Central European countries. It can be said that this result is also adverse with theoretical expectations. Theoretically, twin deficit hypothesis implies that if the government expenditure financed by the government incomes, it leads a current account deficit in the economy. However, Finn (1998) asserts that government expenditure on final goods has a positive effect on private sector's investment and domestic output. In this respect, government expenditure could be financed without government income and, government expenditure could be financed by the increasing private investments. Therefore it can be said that government expenditure impacts on current account positively in Central European countries.

Current account balance is sensitive to international trade movements as respect to import and export. Improving of the policies to increase export and decrease import are important agenda for Central European countries. It can be used regulations on foreign investors to limiting the repatriation of profits to host country. The impact of government expenditure on private investments is positive. Therefore government expenditure does not generate current account deficit in Central European countries.

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