# Financial Liberalization and External Imbalances: The Case of CESEE Countries

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***Abstract***
*In this paper we analyze the impact of financial liberalization on external imbalances in CESEE countries. In this study we test the Granger causality relationship between current account and financial account by employing quarterly series over the period 2002-2010 by employing panel causality test of Emirmahmutoglu and Kose (2011) with the panel selection method. Our findings show the current account mostly Granger-causes the financial account however financial account Granger-causes current account for only two countries.*

**Keywords**: Financial Liberalization, Current Account, Financial Account, European Union, Panel Causality Test, Sequential Panel Selection Method.

JEL classifications: C33, F32

## Introduction

Financial liberalization policies implemented by Central, Eastern and South Eastern European (CESEE) countries[1] in the late 1990s, had dramatic impact on their macroeconomic variables. In 2000s current account deficit became the main problem for the same countries. Thus, the impact of financial liberalization on external imbalances has become a hot topic.

Financial liberalization is generally believed to improve financial sector development and enhance economic growth. However, some authors argue that these policies may cause financial crisis, especially on emerging economies. At this point CESEE countries were diversified themself from other emerging countries by being European Union member. The main importance of EU is that it is functioning as an anchor for policy reform in CESEE countries.

CESEE countries' balance of payments had some significant changes in the last ten years. Especially two major subaccounts, current account and capital account effected the most. As it is mentioned before, most of the CESEE countries experienced large current account deficits between 2000-2010. Conventional wisdom says that if the current account deficit is greater than 5 percent of GDP and financed with short term debt or foreign exchange reserves, it can not be sustainable, which, in turn, economic stability can not be achievable (Milesi-Ferretti and Razin, 1996). As it is seen from the Table 1, there were only three countries that had an average current account

[1] The analysis focuses on ten CESEE countries, which are the new members of the European Union: Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia.

deficit under the 5 percent of GDP between 2000-2010: %4.3 Poland, %3.8 Czech Republic, %1.9 Slovenia. At the other extreme, Estonia, Hungary, Bulgaria and Romania had average deficits above 7 percent of GDP over the 10 years period.

**Table 1: External Performance for CESEE Region (2000-2010)**

| Country | Current Account Balance | Direct Investment | Portfolio Investment | Other Investment |
|---|---|---|---|---|
| Bulgaria | -10,3 | 13,7 | -0,2 | 6,1 |
| Czech Republic | -3,8 | 3,9 | 0,5 | 0,5 |
| Estonia | -8,0 | 5,5 | -3,1 | 4,9 |
| Hungary | -9,1 | 2,4 | 1,1 | 4,0 |
| Latvia | -6,5 | 3,6 | -0,4 | 7,5 |
| Lithuania | -6,0 | 2,7 | 1,0 | 2,8 |
| Poland | -4,3 | 2,6 | 1,7 | 2,0 |
| Romania | -7,2 | 5,1 | 0,3 | 4,8 |
| Slovak Republic | -1,9 | 4,0 | 0,2 | 3,0 |
| Slovenia | -6,1 | 0,4 | 0,5 | 2,4 |

Notes: All entries are averages of annual rates in percent of GDP. Investment Figures are net. There is one missing year for Slovak Republic. It is taken only 10 year data for the average values for Slovak Republic calculating the investment ratios.

Source: IMF, International Financial Statistics, 2012.

Integration of emerging market economies into the world financial markets causes a dramatic change in the volume and composition of the capital flows to these economies. Composition of capital flows likely matters, private capital flows consists of three main categories: foreign direct investment is the most stable capital, both portfolio investment and other investment are more volatile. In the late 1990s CESEE countries experienced a radical transformation in the nature of international capital flows. Net foreign capital inflows increased from USD 25,3 billion in 2000 to USD 130,9 billion in 2010. As a result of this huge net capital inflows, the key macroeconomic variables like exchange rates,interet rates, foreign exchange reserves and especially external balances effected dramatically in CESEE countries.

Between 2000-2010 only in Bulgaria, Czech Republic and Slovak Republic, net foreign direct investment substantially exceeded the current account deficits. In contrast, the other states attracted the net capital inflows in the form of portfolio and other investment. It is noteworthy that almost in all countries except Bulgaria, foreign direct investments were either too little or volatile. Other investments (debt flows) played a very important role in that period of time. Increasing volume of short term bank loans, led to the expansion of aggregate demand which resulted as widening current account deficit in most of the CESEE countries between 2000-2010. Accordingly, these developments have stimulated keen interest in understanding the impact of financial liberalization on external imbalances in CESEE countries in the last decade.

The aim of this study is to analyze the impact of financial liberalization on external imbalances in CESEE countries for the period of 2002-2010. For that purpose, the causal relationship between current account and capital account empirically examined.

The main question posed by the study is this: Is there any positive or negative impact of financial liberalization on external imbalances in

CESEE Countries? The subquestions that will help us answer the main question are as follows: Is there any causal relationship between current account and capital account in CESEE countries? CESEE countries new members of European Union, according to this membership, how and with which channels EU effect the financial liberalization policies?

The paper is organized as follows. Section 2 describes the related empirical literature. Section 3 describes econometric framework. Section 4 introduces data and empirical results. Some concluding remarks are offered in Section 5.

## Empirical Literature

The number of empirical studies that analyze the effect of financial liberalization on external imbalances is still quite limited. Therefore, this section will review studies which show the link between financial liberalization and external imbalances by testing the direction of causality within the major subaccounts of balance of payments. At this point, the empirical literature could be divided into two broad categories: a)the studies testing the causal relationship between current account(CA) and capital account(KA). b) the studies testing the relationship between types of capital flows(foreign direct investment, portfolio investment and other investment) and current account.

Faroque and Veloce (1990), found evidence of bidirectional causality between CA and KA for a developed country, Canada. Fry, et al.(1995), examined the causality between current account and capital account imbalances for 46 developing countries over the period 1970-1992. The results indicated that country experiences vary. Nevertheless, they were able to find variables that can affect the direction of causality between these two accounts. They mentioned that high levels of indebtedness reduce the likelihood of causality running from capital account to current account. In contrast, high economic growth rates and private credit to GDP ratios increase the probability of causation running from current to capital account. Wong and Carranza (1999) used a bivariate vector-autoregression model to test casual relations between CA and KA in four emerging economies, Argentina, Mexico, Philippines and Thailand. They showed that high capital mobility could be a major cause of current account instability. Therefore, policy responses to external balance must deal with capital inflows. Ho-don Yan (2007), found that the causal relationship in the current account and financial account differs between the developing and the industrial countries. Thus, he included seven developing countries and G-7 used for the industrial countries. In a previous study of the issue of causality between CA and KA, between 1980-2009 in Korea, Kim and Kim (2011) found that there is a bidirectional causality between these two accounts. Their work reinforces the message that a country with imprudent regulation and lax supervision of its financial system should not abruptly remove its restrictions on capital mobility.

Sarısoy (2006), examined the relationship between net private capital inflows and the current account both in industrial and developing countries. She found evidence of capital inflows cause current account imbalances in developing countries, but do not in industrial countries. According to these results, she mentioned that the behaviour of capital inflows are different in industrial countries compared to developing countries. Siddiqui and Ahmad (2007), found that the causality between FDI and CA is unidirectional in Pakistan. Kaur et al. (2012), on the other hand, tried to investigate the

relationship between foreign direct investment and current account using Toda-Yamamoto granger causality technique for the period 1979-2005 in the context of India. They found that there is only one way causality from FDI to CA. Moreover, they showed the impact of FDI on the major constituents of current account; exports and imports, especially on imports.

All in all, the following conclusions can be drawn from these empirical studies. First, the direction of causality between current account and capital account or the types of capital flows are different industrial countries compared to developing countries. Second, there are some other related macroeconomic variables change the linkage between these accounts. Finally, especially in developing countries, the pace and sequence of financial account liberalization effect the external imbalances and thus financial crises.

## Econometric Methodology

In this study we employ a recently introduced panel causality test by Emirmahmuoglu and Kose (2011) (EK) which depends on the meta analysis of Fisher (1932). The meta analysis employed in a panel context by Maddala and Wu before, with the aim of testing the null of unit root. In their study, Emirmahmuoglu and Kose (2011) extend the causality test of Toda and Yamamoto (TY) for the panel data.

Toda and Yamamoto (1995) introduced a causality test whose asymptotic distribution theory is valid irrespective of the integration or cointegration properties, by augmenting the Vector Autoregressive model which is used for testing Granger-causality with the maximum integration levels of the series. So, we do not need to pretest the integration levels of the series or the dimension of the cointegration space. The only necessary thing is to determine the maximum integration level of the variables.

EK causality test also allows the heterogeneous of causality models. That is, we do not need to estimate the same causality model for all individual cross-sectional units; for example lag orders of the units can be different from each other.

The null of null hypothesis of "Granger no causality from X to Y is tested against the alternative hypothesis that for at least one unit there exists causality relationship in the panel contrary to Holtz-Eakin, et al. (1989) panel causality test which tests same null hypothesis against the alternative of causality for all individuals.
To test the null hypothesis of non-Granger causality, we consider the following augmented vector autoregressive model with the maximum integration level of the interested variables ($d\max$):

$$y_{i,t} = \mu_i + A_{i1}y_{i,t-1} + ... + A_{ik}y_{i,t-k_i} + \sum_{j=k_i+1}^{k_i+d\max_i} A_{ij}y_{i,t-j} + e_{i,t} \qquad i = 1,2,...,N$$

$$t = 1,2,...,T$$

Where $i$ shows the cross-sectional units while $t$ denotes the time periods. $A_{i1}y_{i,t-1},...,A_{ik}y_{i,t-k_i}$ are fixed matrices of parameters, allowed to vary across units. $y_{it}$ is a two dimensional matrix consists of both dependent and independent variables. Optimal lag order ($k_i$) can be determined using information criteria such as Akaike or Scwarz. In this equation we test the parameter restrictions only on the

coefficients of the first $k_i$ VAR coefficients. Extra lags are included to guarantee asymptotic distribution theory as Toda and Yamamoto (1995) suggested.

Let $\alpha_i = vec\left[\mu_i, A_{i1}, ..., A_{ik} y_{i,t-k_i}\right]$ shows the vector of all the VAR coefficients except the extra lags'. So, we can write the null hypothesis of non-causality for the whole panel as following;

$$H_0 : R_i \alpha_i = 0 \qquad \forall i = 1, ..., N$$

Against the alternative of causality for at least one unit:

$$H_1 : R_i \alpha_i = 0 \qquad \forall i = 1, ..., N_1$$
$$R_i \alpha_i \neq 0 \qquad \forall i = N_1 + 1, N_1 + 2, ..., N$$

Where $R_i$ is a $\left(q_i \times p^2 k_i\right)$ matrix with $q_i$ rank for each cross-sectional units. Under the null hypothesis, Wald statistics distributed as $\chi^2$ with $q_i$ degrees of freedom, where $q_i$ is the number of restrictions. EK employ Fisher test statistic by combining the p-values which are corresponding to the Wald statistic for the $i$th cross section:

$$\lambda = -2\sum_{i=1}^{N} \ln\left(p_i\right) \quad \text{for i=1,2,….,N}$$

This test statistic is distributed $\chi^2$ with 2N degrees of freedom.

## Data and Empirical Results

We employ the quarterly series of Current Account, Financial Account, Direct Investment, Portfolio Investment and Other Investment for Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia, and Slovakia for the 2002-2010 period which obtained from International Financial Statistics of International Monetary Fund. Since the only necessary thing is to determine the maximum integration levels for implementing the EK panel causality test, we do not need to test whether or not series are stationary or whether there exists cointegration relationship between the series.

A drawback of the EK causality test underlies in its hypotheses. We test the null of non-causality for all the units against the alternative of existence causality relationship for at least one unit. But the rejection of the null does not answer the question that; for which individuals causality relationship exists. To overcome this drawback, we suggest employing Sequential Panel Selection Method of Chortareas and Kapetanios (2009) which is introduced for panel unit root tests. This method is based on the following steps:

- We first test the null hypothesis for the whole panel. In the case of non-rejection of the null we stop the procedure. So we conclude that there is no X causes Y for the all units. However, if we reject the null, we go to step 2.
- We remove the series of the unit which has the maximum Wald statistic by concluding that there exists causality relationship for the individual.

- We retest the remaining series of panel. If we could not reject the null we stop the procedure, otherwise we return to Step 2.

By following this procedure, we implement the EK panel causality test and present the test results at Table 1. We use bootstrap simulations to obtain critical values and allow the cross sections to have different lag orders[2].

To illustrate the testing strategy, we only describe the method for the causality relationship from financial account to current account. At the first step, we test the null hypothesis for non-causality from financial account to current account for the panel of 10 countries. Since we reject the null hypothesis we go to the next step where we omit the series of Latvia which has the maximum Wald statistic. Then, we test the null of non-causality for the panel of remaining 9 countries. We reject the null again, so we omit the Czech Republic which has the next maximum Wald statistic. After omitting the series of Czech Republic, we test the null hypothesis for the remaining panel. Since we could not reject the null hypothesis, we stop procedure and conclude that we cannot find the causality relationship from financial account to current account for the panel of 8 countries (Bulgaria, Estonia, Lithuania, Hungary, Poland, Romania, Slovenia, and Slovakia).

By following this procedure for the other causality relationships, we obtain the following conclusions:

There exists bidirectional causality for Czech Republic and Latvia for the current account – financial account relationship. There is a unidirectional causality from current account to financial account for Bulgaria, Romania, and Hungary. There is a bidirectional causality for the current account - direct investment relationship for only Bulgaria. On the other hand, we find the evidence for the unidirectional causality from portfolio investment to current account for Bulgaria, Slovenia, and Hungary and reverse relationship exists for Lithuania. Test results also provide evidence of unidirectional causality relationship from other investment to current account for Slovenia, Hungary, and Estonia and from current account to other investment for Romania, and Lithuania.

**Table 2: Panel Causality Test Results**

| Null Hypothesis | Steps | Panel Wald Statistic | Bootstrap Critical Values | | | Maximum Wald Statistic | Country |
|---|---|---|---|---|---|---|---|
| | | | 1% | 5% | 10% | | |
| FA $\not\rightarrow$ CA | 1. Step | 42.517 | 51.477 | 39.938 | 35.396 | 14.512 | Latvia |
| | 2. Step | 32.226 | 46.218 | 36.27 | 31.834 | 10.553 | Czech Rep. |
| | 3. Step | 25.347 | 40.787 | 31.663 | 28.01 | - | - |
| CA $\not\rightarrow$ FA | 1. Step | 76.254 | 50.147 | 39.858 | 35.35 | 21.549 | Bulgaria |
| | 2. Step | 59.637 | 44.2 | 35.094 | 30.881 | 14.399 | Romania |
| | 3. Step | 47.58 | 40.21 | 31.325 | 27.577 | 13.326 | Hungary |
| | 4. Step | 31.084 | 36.836 | 28.539 | 25.074 | 11.763 | Czech Rep. |
| | 5. Step | 23.178 | 31.829 | 24.915 | 21.605 | 8.351 | Latvia |

[2] The maximum integration levels of the series and the optimal lag lengths which chosen by the Schwarz Information Criteria for the VAR models are not presented here to conserve space but they are available upon request.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6. Step | 18.115 | 25.623 | 19.985 | 17.421 | 6.104 | |
| | | 7. Step | 9.503 | 22.578 | 16.868 | 14.5 | - | - |
| DI ↛ CA | | 1. Step | 59.425 | 41.877 | 34.737 | 30.949 | 41.368 | Bulgaria |
| | | 2. Step | 18.057 | 38.207 | 31.391 | 27.927 | - | - |
| CA ↛ DI | | 1. Step | 34.325 | 43.236 | 35.138 | 31.374 | 7.206 | Bulgaria |
| | | 2. Step | 27.119 | 40.218 | 31.717 | 28.101 | - | - |
| PI ↛ CA | | 1. Step | 49.32 | 44.857 | 36.055 | 32.386 | 15.051 | Bulgaria |
| | | 2. Step | 38.555 | 40.394 | 32.349 | 28.927 | 14.541 | Slovenia |
| | | 3. Step | 26.365 | 36.315 | 28.859 | 25.419 | 6.205 | Hungary |
| | | 4. Step | 17.639 | 33.055 | 26 | 22.842 | - | - |
| CA ↛ PI | | 1. Step | 35.437 | 45.563 | 36.635 | 32.515 | 13.06 | Lithuania |
| | | 2. Step | 19.224 | 42.078 | 33.918 | 29.978 | - | - |
| OI ↛ CA | | 1. Step | 57.389 | 46.135 | 36.772 | 32.816 | 16.359 | Slovenia |
| | | 2. Step | 43.486 | 42.451 | 33.419 | 29.75 | 12.474 | Hungary |
| | | 3. Step | 27.9 | 38.912 | 30.626 | 27.097 | 7.603 | Estonia |
| | | 4. Step | 17.61 | 35.834 | 27.631 | 24.139 | - | - |
| CA ↛ OI | | 1. Step | 58.509 | 47.479 | 37.573 | 33.291 | 24.616 | Romania |
| | | 2. Step | 36.721 | 41.618 | 33.095 | 29.279 | 7.787 | Lithuania |
| | | 3. Step | 26.227 | 37.742 | 30.266 | 26.442 | - | - |

## Conclusion

This article analyze the impact of financial liberalization on external imbalances in CESEE countries for the period of 2002-2010. For that purpose, the causal relationship between current account and capital account empirically examined. The results show the current account mostly Granger-causes the financial account however financial account Granger-causes current account for only two countries. These results generally differ from the other studies. The findings of this article imply that CESEE countries did not experience severe financial crises as a consequence of external imbalances in the last decade. Our findings enable us to claim that EU can be expected to function an effective anchor for liberalization reform policies in the new European Union members.

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