

Conference Paper

Determinants and Causality of Current Account Balance and Foreign Direct Investment: Lower Middle Income Countries in ASEAN

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Abstract

This study investigates the determinants and causality between current account balance and foreign direct investment in Association of Southeast Asian Nations (ASEAN) in lower middle income countries. This study uses time series from 2000-2017 and cross section of 6 countries, namely Indonesia, Philippines, Vietnam, Lao, Myanmar and Cambodia, which were analyzed using simultaneous equation model approach. There are three important findings in this study. First, current account balance is positively affected by financial development, government expenditure, real GDP and real exchange rate, while negatively affected by foreign direct investment. Second, foreign direct investment is positively affected by real GDP, real exchange rate, economic openness and current account balance, while negatively affected by inflation. Third, there is a causal relationship between current account balance and foreign direct investment, which the two variables significantly influence each other. Therefore, it is highly recommended for lower middle income countries in ASEAN to intervene in macroeconomic policy variables, so that the deficit conditions for current account balance and foreign direct investment can be reduced in the lower middle income countries in ASEAN.

Keywords: current account balance, foreign direct investment, determinants, causality, lower middle income countries, ASEAN.

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1. Background of the Study

Production in a country is not only distributed in the domestic market but also in the international market because the era of globalization requires every country to carry out international trade activities, one of the associations formed from international integration is the ASEAN (Association of Southeast Asian Nations), which aims to improve regional competitiveness as a whole on the world market and encourage economic growth through export and import activities summarized in the current account balance [1]–[3].

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The condition of the current account balance often fluctuates due to imbalances in exports and imports [4]–[6]. International trade can result in a country more likely to export which results in a surplus or more tend to import resulting in a deficit. Every country is important to maintain the stability of the current account balance, because it is used as an indicator to assess the strength of international trade [7]–[10].

One of the factors that influence the imbalance of current account balance is foreign direct investment because international trade provides freedom for investors to invest in a country. The relationship is that increased foreign direct investment will cause the current account balance to be a deficit because it requires the destination country to pay profits to the country of origin, so this increases capital outflow [11], [12].

The condition of the current account balance also has an influence on foreign direct investment because surpluses and deficits are the cornerstone of the increase and decrease in foreign direct investment. The relationship is that larger exports will cause a surplus, so an increase in export volume will increase output demand, which achieved by expansion of production which will lead to an increase in foreign direct investment.

Based on the classification of countries carried out by the World Bank using indicators of Gross National Income (GNI) per capita in units of US \$ over a period of one year, a country can be classified into four groups, namely lower income ($\leq 1,005$); lower middle income (1,006 - 3,955); upper middle income (3,956 - 12,235); and high income ($> 12,235$). The classification of groups of countries in ASEAN is lower middle income consisting of Indonesia, the Philippines, Vietnam, Lao, Myanmar, and Cambodia; upper middle income consisting of Malaysia and Thailand; and high income consists of Singapore and Brunei Darussalam. Based on the classification, there is still a deficit in the current account balance and an unstable foreign direct investment condition, which is found in the lower middle income countries in ASEAN. While the current account balance and foreign direct investment conditions for upper middle income and high income groups in ASEAN have reached good conditions. The conditions of the current account balance and foreign direct investment experience an imbalance every year in lower middle income in ASEAN, which cannot be separated from the influence of fluctuations in macroeconomic variables (see Figures 1 and 2).

The implications of research in the social field are the current account balance and foreign direct investment are interesting issues to be examined in the study of international monetary economics because they provide information about the health of the economy in a country. The importance of examining the determinants and causality between current account balance and foreign direct investment because it is an indicator of external imbalances that are used as assessors of economic stability

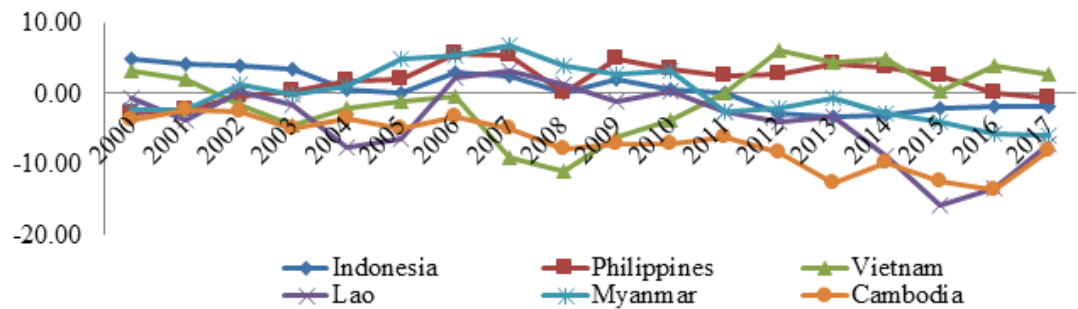


Figure 1: The condition of the current account balance (% of GDP) in lower middle income countries in ASEAN. Source: World Bank.

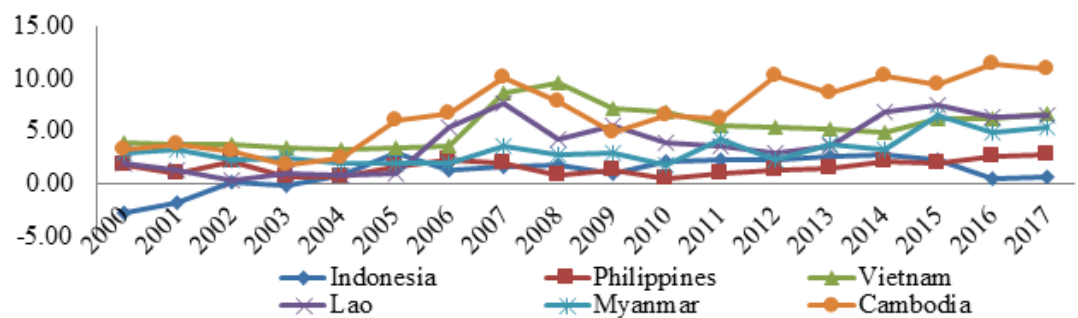


Figure 2: The condition of the foreign direct investment (% of GDP) in lower middle income countries in ASEAN. Source: World Bank.

to evaluate the performance of a country’s economic openness in international trade in utilizing its resources. This research aims to achieve an external balance of international trade activities in the lower middle income countries in ASEAN. The external balance is measured by the relationship between the current account balance and foreign direct investment.

The novelty of this study is to combine the research determinants of the current account balance and foreign direct investment, so that the determinants and causal relations between the current account balance and foreign direct investment in lower middle income countries in ASEAN. The relationship between the current account balance and foreign direct investment is an interesting phenomenon to be examined in economic studies because it provides information about the health of the economy in a country. Based on this explanation, it is important to analyze the relationship of current account balance and foreign direct investment.

2. Literature Review

Investigation of current account deficit in Indonesia using the Error Correction Mechanism approach during 2000:Q1-2015:Q4, the long-term estimation result is current

account deficit is negatively affected by economic growth, while the short-term estimation results are positively affected by economic growth, real exchange rate, economic openness, and negatively affected by inflation [13]. An empirical test of the current account deficit using panel regression model, which selected 16 OECD member countries during 2005–2009, there is significant negative relationship inflation and government expenditure, while economic growth has a positive and significant relationship [14]. Analysis of the factors that influence the dynamics of the current account balance in Australia in the 1970–2009 using the regression method, which economic growth and government expenditure have a positive and significant effect on the current account balance, then foreign direct investment has a negative and significant effect on the current account [15]. The analysis of the sustainability of the transaction balance deficit runs in Turkey from 1989–2014. Technical analysis carried out with regression supported by various data analyzes namely economic growth, financial development, and foreign direct investment. The results of the study are that foreign direct investment has a negative but significant effect on the current account balance, economic growth has a positive but not significant effect on the current account balance, financial development has a negative and significant effect on the current account balance [16]. Research on current account balances in 21 OECD countries from 1990–2013 using panel regression, that the real exchange rate will improve the current account balance, while an increase in foreign direct investment will worsen the current account balance [17]. Investigations of the current account balance using data from five ASEAN countries, namely Indonesia, Malaysia, Philippines, Singapore and Thailand during the period 1981–2008 were analyzed using the regression panel approach, that economic growth had a positive and significant, while investment foreign direct and financial development has a significant negative effect [18]. Analysis of the current account deficit in Turkey using the regression method during the period 2003–2013, that economic growth and the real exchange rate have positive effect, while import has negative effect [19]. Analysis of the current account balance between Germany and Euro zone peripheral countries during the period 1999–2011 using the regression method, that financial development has a negative effect, real exchange rate has a positive effect and exports have a positive but not significant effect [20]. The current account conditions in developing countries in Asia from 1970–2005 using the panel regression method, that economic growth, the real exchange rate, have a positive effect, while foreign direct investment and financial development have a negative effect [21]. Analysis of the relationship between the current account deficit and economic variables using the panel data method for 44 developing countries during the period 1966–1995,

that economic growth and real exchange rate have positive effect, while the terms of trade and domestic savings have a positive effect [22]. The high market size in a host country characterized by GDP, the higher the inflow of foreign direct investment, so that the increased market size is characterized by high GDP growth, thus influencing the increase of foreign direct investment inflows [23]. Trade openness has a negative effect on foreign direct investment, this occurs because of investment orientation for domestic production mostly occurs in countries experiencing trade balance deficits [24]. Foreign direct investment has a causal relationship to money supply and exchange rate appreciation will increase foreign direct investment inflows [25].

3. Research Method

3.1. Types and Data Sources

This study uses secondary data published by the World Bank that cover time series during the period 2000-2017 and cross section 6 countries, including Indonesia, Philippines, Vietnam, Lao, Myanmar and Cambodia. The data used include current account balance (Y_1), foreign direct investment (Y_2), financial development (X_1), government expenditure (X_2), real GDP (X_3), real exchange rate (X_4), inflation (X_5), economic openness (X_6) and money supply (X_7), which all of the data are the variables analyzed in this study (see Table 1).

3.2. Simultaneous Equation Model

Simultaneous equation models have endogenous and exogenous variables, which have a causal relationship between the variables analyzed. This study uses panel data and uses the fixed effect model approach in adjusting completion with the Two Stage Least Square simultaneous equation model (see Figure 3).

Mathematical equations for simultaneous equation models to carry out analysis using the econometric approach (see Equations 1 and 2).

$$Y_{1it} = \alpha_{1.0} + \alpha_{1.1}X_{1it} + \alpha_{1.2}\log(X_{2it}) + \alpha_{1.3}X_{3it} + \alpha_{1.4}\log(X_{4it}) + \alpha_{1.5}X_{5it} + \alpha_{1.6}Y_{2it} + \varepsilon_{1it} \quad (1)$$

$$Y_{2it} = \alpha_{2.0} + \alpha_{2.1}X_{3it} + \alpha_{2.2}\log(X_{4it}) + \alpha_{2.3}X_{5it} + \alpha_{2.4}X_{6it} + \alpha_{2.5}X_{7it} + \alpha_{2.6}Y_{1it} + \varepsilon_{2it} \quad (2)$$

Where:

Y_1 and Y_2 = endogenous variable

X_1 – X_7 = exogenous variable

TABLE 1: Description of variables.

Variable	Description
Current Account Balance	The sum of net exports of goods and services, net primary income, and net secondary income, and is divided by GDP
Foreign Direct Investment	Net inflows which include new investment inflows less disinvestment are from foreign investors, and is divided by GDP
Financial Development	The annual percentage growth rate of broad money
Government Expenditure	The final consumption expenditure based on constant 2010 US\$, and is divided by GDP
Real GDP	The annual percentage growth rate of GDP based on constant 2010
Real Exchange Rate	The annual average is based on monthly averages using the unit size of the local currency relative to the US dollar
Inflation	The annual percentage change in the cost to the average consumer of acquiring a basket of goods and services
Economic Openness	The sum of exports and imports which include goods and services, and is divided by GDP
Money Supply	The sum of currency outside banks, demand deposits other than those of the central government, savings, and foreign currency, and is divided by GDP

Source: Authors on work

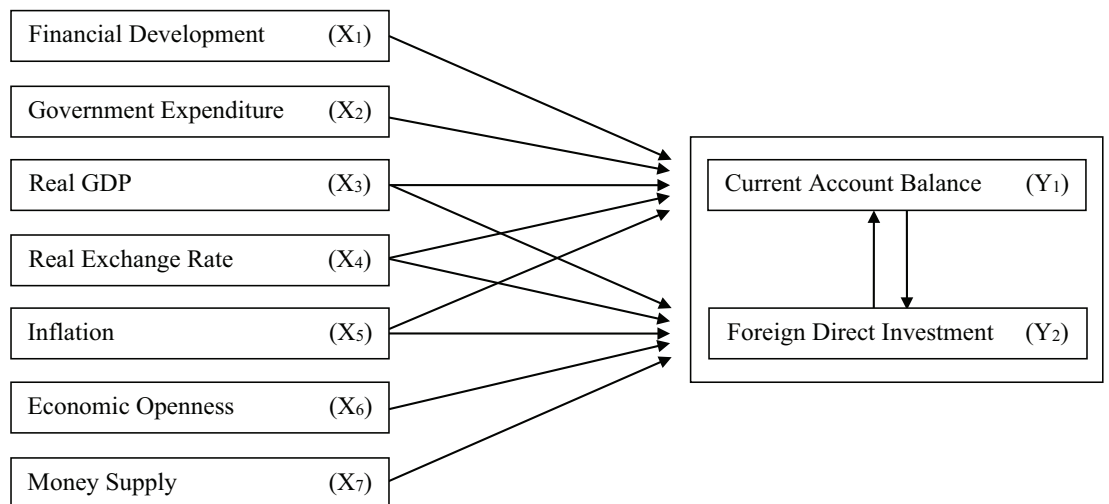


Figure 3: Conceptual framework. Source: Authors on work.

$\alpha_{1,0}$ and $\alpha_{2,0}$ = constants

$\alpha_{1,1}$ – $\alpha_{2,6}$ = coefficient

i = countries (Indonesia, Philippines, Vietnam, Lao, Myanmar, and Cambodia)

t = time series (2000–2017)

ϵ_1 and ϵ_2 = residual

4. Findings and Discussion

4.1. Equation 1 of the Simultaneous Equation Model

The endogenous variable in equation 1 of the simultaneous equation model is current account balance (Y_1), while the exogenous variable is financial development (X_1), government expenditure (X_2), real GDP (X_3), real exchange rate (X_4), inflation (X_5) and foreign direct investment (Y_2). The interpretation described is the coefficient of determination (R^2), F test, and t test (see Table 2).

TABLE 2: Interpretation of equation (1) of the simultaneous equation model.

Variable	Coefficient	t Statistics	Prob.
X_1	0.125667	3.833614	0.0002
$\log(X_2)$	1.177762	2.533609	0.0289
X_3	1.434382	2.679394	0.0089
$\log(X_4)$	1.217597	2.581274	0.0176
X_5	-0.027107	-0.140285	0.8888
Y_2	-3.100173	-0.938657	0.0014
R^2	0.8252		
<i>Prob</i> (F-statistic)	0.0000		

Source: Authors on work.

Based on the estimation results for equation (1) for the simultaneous equation model, which value of R^2 is 0.82524, it means that the fluctuations of endogenous variables can be explained by all exogenous variables in equation (1) of the simultaneous equation model with a contribution of 82.52%, while the remaining 17.48% is explained by other exogenous variables which are not used in equation (1) of the simultaneous equation model. Furthermore, *Prob* (F-statistics) is 0.0000 which means that all exogenous variables in equation (1) of the simultaneous equation model as a whole have significant influence on endogenous variables in middle income groups in ASEAN. Meanwhile, the conclusion for the results of the t test is financial development, government expenditure, real GDP and real exchange rate have positive and significant influence on the current account balance, because t statistics for these variables are greater than t table (1.98397) and the probability for these variables is smaller than probability $\alpha = 0.05$. In addition, foreign direct investment has negative and significant effect on the current account balance because t statistics for these variables are smaller than t table (1.98397) and the probability for these variables is smaller than the probability $\alpha = 0.05$.

Financial development has positive effect on the current account balance because a country has a large of domestic funding without the need to borrow funds from other countries and this is very important to increase production which triggers an increase in exports, which is consistent with research [26]. Government expenditure has a positive effect on the current account balance because funding for economic activities is increasing, so that domestic production will also increase which results in an increase in exports, which is consistent with research [27]. Real GDP has positive effect on the current account balance because there is an increase in the number of goods and services in a country, so that excess domestic production can be exported abroad, which is consistent with research [28]. Real exchange rate has positive effect on the current account balance because the depreciation of the real exchange rate results in an increase in the number of exports, so the price of domestic goods when sold abroad becomes cheap, which is consistent with research [29]. Foreign direct investment has a negative effect on the current account balance because it requires investment destination countries to pay dividends to the country of origin of investment, thus triggering capital flight abroad which results in a deficit, which is consistent with research [30].

4.2. Equation 2 of the Simultaneous Equation Model

The endogenous variable in equation 2 of the simultaneous equation model is foreign direct investment (Y_2), while the exogenous variable is financial development (X_1), government expenditure (X_2), real GDP (X_3), real exchange rate (X_4), inflation (X_5) and current account balance (Y_1). The interpretation described is the coefficient of determination (R^2), F test, and t test (see Table 3).

TABLE 3: Interpretation of equation (2) of the simultaneous equation model.

Variable	Coefficient	t Statistics	Prob.
X_3	0.271249	2.424419	0.0172
$\log(X_4)$	1.285960	1.848813	0.0476
X_5	-0.023644	-2.386211	0.0002
X_6	0.018449	2.843784	0.0422
X_7	0.007308	0.559249	0.5773
Y_1	0.411856	2.004850	0.0000
R^2		0.6477	
Prob (F-statistic)		0.0000	

Source: Authors on work.

Based on the estimation results for equation (2) for the simultaneous equation model, which value of R^2 is 0.6477, it means that the fluctuations of endogenous variables can be explained by all exogenous variables in equation (2) the simultaneous equation model with a contribution of 64.77%, while the remaining 35.23% is explained by other exogenous variables which are not used in equation (2) of the simultaneous equation model. Furthermore, *Prob* (F-statistics) is 0.0000 which means that all exogenous variables in equation (2) of the simultaneous equation model as a whole have significant influence on endogenous variables in middle income groups in ASEAN. Meanwhile, the conclusion for the results of the t test is real GDP, real exchange rate, economic openness and current account balance have positive and significant influence on foreign direct investment, because t statistics for these variables are greater than t table (1.98397) and the probability for these variables is smaller than probability $\alpha = 0.05$. In addition, inflation has negative and significant effect on foreign direct investment because t statistics for these variables are smaller than t table (1.98397) and the probability for these variables is smaller than the probability $\alpha = 0.05$.

Real GDP has positive effect on foreign direct investment because foreign investors will be interested in the condition of high economic growth as a guarantee to invest their capital, which is consistent with research [31]. Real exchange rates have positive effect on foreign direct investment because returns that will be received by foreign investors will increase, which is consistent with research [32]. Economic openness has positive effect on foreign direct investment because barriers in international trade in a country become weak which causes foreign capital to be easy to enter, which is consistent with research [33]. Current account balance has positive effect on foreign direct investment because an increase in export volume will increase demand for output, this can be fulfilled with production expansion resulting in an increase in foreign direct investment, which is consistent with research [34]. Inflation has negative effect on foreign direct investment because the condition of high inflation in a country is a risk for investors to invest their capital in the country concerned, which is consistent with research [35].

5. Conclusion

This study uses simultaneous equation model approach to analyze the causal relationship between the current account balance and foreign direct investment and its determinants in lower middle income countries in ASEAN with various macroeconomic indicators that influence it. The deficit of the current account balance and foreign direct investment cannot be separated from macroeconomic indicators. Based on the results

of the study that the current account balance and foreign direct investment conditions need to be a serious concern for policy makers and the government in lower middle income in ASEAN to overcome the imbalance. The policy that can be taken to maintain the stability of the current account balance is through increasing exports and decreasing imports so that the current account deficit condition is not sustainable. In addition, the government also needs to make proactive policies to maintain economic openness in the lower middle class in ASEAN through policy measures measured by the policies of the Central Bank. If the inflow of foreign direct investment is too high, a policy that can be done is to provide an obstacle in the form of an increase in taxes because the flow of foreign direct investment that is too high is not good for the condition of the current account balance.

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References

- [1] Sabine, H. and Adalbert, W. (2010). Real Convergence, Financial Markets, and the Current Account: Emerging Europe Versus Emerging Asia. *Economic Papers*, vol. 20, no. 5, pp. 123–152.
- [2] Affandi, Y. and Mochtar, F. (2013). Current Account and Real Exchange Rate Dynamics in Indonesia. *Procedia Economics and Finance*, vol. 61, no. 2, pp. 20–29.
- [3] Kumhof, M. and Laxton, D. (2013). Fiscal Deficits and Current Account Deficits. *Journal of Economic Dynamics and Control*, vol. 37, no. 10, pp. 2062–2082.
- [4] Kurniadi, A. P. and Aimon, H. (2018). Determinants of the Current Account Balance in Indonesia, in *Proceedings of International Conferences on Educational, Social Sciences and Technology*. Padang: Global Conferences Index.
- [5] Gossé, J. B. and Serranito, F. (2014). Long-run Determinants of Current Accounts in OECD Countries: Lessons for Intra-European Imbalances. *Economic Modelling*, vol. 38, pp. 451–462.
- [6] Madura, J. (2011). *International Financial Management 9 ed.* USA: Florida Atlantic University.
- [7] Steiner, A. (2016). Current Account Imbalances: The Role of Official Capital Flows. *Global Imbalances, Financ. Crisis Central Bank Policies*, vol. 12, no. 6, pp. 27–69.

- [8] Garg, B. and Prabheesh, K. P. (2017). Do Macroeconomic Fundamentals or External Factors Reflect Current Account Behavior? Evidence from India. *Journal of Asian Economics*.
- [9] Kurniadi, A. P. and Hasdi, A. (2018). The Analysis of Current Account Balance System in Indonesia. *International Journal of Research Science and Management*, vol. 5, no. 6, pp. 22–28.
- [10] Hassan, K., Rao, A. and Hoque, A. (2016). Current Account Sustainability in Middle East and Africa (MEA) Countries: Evidence From Panel Data. *Journal of Development Areas*, vol. 50, no. 6, pp.291–304.
- [11] Cecen, A. and Xiao. (2014). Capital Flows and Current Account Dynamics in Turkey: A Nonlinear Time Series Analysis. *Economic Modelling*, vol. 39, pp. 240–246.
- [12] Benhima, K. and Havrylchyk, O. (2010). When Do Long-term Imbalances Lead to Current Account Reversals?. *The World Economy*, vol. 33, no. 1, pp. 107–128.
- [13] Kurniadi, A. P., Aimon, H. and Sentosa, S. U. (2018). On the Sustainability of Current Account Deficits in Indonesia: Error Correction Mechanism Approach. *International Journal of Scientific and Research Publications*, vol. 8, no. 5, pp. 215–221.
- [14] Cavdar, S. C. and Aydin, A. D. (2015). Understanding The Factors Behind Current Account Deficit Problem: A Panel Logit Approach On 16 OECD Member Countries. *Procedia Economics and Finance*, vol. 30, no. 15, pp. 187–194.
- [15] Erauskin, I. (2015). Savings, the Size of the Net Foreign Asset Position, and the Dynamics of Current Accounts. *International Review Economics & Finance*, vol. 39, no. 18, pp. 353–370.
- [16] Wadud, M. A. and Rahman, S. M. A. (2015). Sustainability of the Current Account in Bangladesh: an Intertemporal and Cointegration Analysis. *The Journal of Developing Areas*, vol. 49, no. 1, pp. 354–364.
- [17] Kayikci, F. (2012). Determinants of the Current Account Balance in Turkey: Vector Auto Regression (VAR) Approach. *African Journal of Business Management*, vol. 6, no. 17, pp. 5725–5736.
- [18] Ban, I. M. and Maftai, A. S. (2014). Determinants of the Current Account Balance in Romania. *Review of Economic Studies and Research Virgil Madgearu*, vol. 6, no. 2, pp. 5–23.
- [19] Murat, S., Hobikoglu, E. H. and Dalyanci, L. (2014). Structure and Sustainability of Current Account Deficit in Turkish Economy. *Procedia Social and Behavioral Sciences*, vol. 150, pp. 977–984.
- [20] Boljanović, S. (2012). A Sustainability Analysis of Serbia's Current Account Deficit. *Annual Review of Economics*, vol. 57, no. 195, pp. 139–171.

- [21] Boateng, A., Hua, X., Nisar, S. and Wu, J. (2015). Examining the Determinants of Inward FDI: Evidence from Norway. *Economic Modelling*, vol. 47, pp. 118–127.
- [22] Prasanna, N. (2010). Direct and Indirect Impact of Foreign Direct Investment (FDI) on Domestic Investment (FDI) in India. *Journal of Economics*, vol. 1, no. 2, pp. 77–83.
- [23] Khan, R. E. A. and Nawaz, M. A. (2010). Economic Determinants of Foreign Direct Investment in Pakistan. *Journal of Economics*, vol. 1, no. 2, pp. 99–104.
- [24] Chinn, M.D., Wei, S.J. (2013). A faith-based initiative meets the evidence: does a flexible exchange rate regime really facilitate current account adjustment?. *Review of Economics and Statistics*, vol. 95, no. 1, pp. 168–184.
- [25] Ahmed, E. M. (2012). Are the FDI Inflow Spillover Effects on Malaysia's Economic Growth Input Driven?. *Economic Modeling*, vol. 29, no. 4, pp. 1498–1504.
- [26] Christopoulos, D.K. and León-Ledesma, M. (2010). Current-account Sustainability in the US: What Do We Really Know About it?. *Journal of International Money and Finance*, vol. 2, no. 9, pp. 442–459.
- [27] Elgin, C. and Kuzubas, T. (2013). Current Account Balances and Output Volatility. *Economic Modelling*, vol. 33, pp. 381–387.
- [28] Nkuna, O. (2013). Sustainability of the Malawian Current Account Deficit: Application of Structural and Solvency Approaches. *Journal of Economics and International and Finance*, vol. 5, no. 5, pp. 187–198.
- [29] Coulibaly, I., Gnimassoun, B. (2013). Optimality of a Monetary Union: New Evidence from Exchange Rate Misalignments in West Africa. *Economic Modelling*, vol. 32, pp. 463–482.
- [30] Vangjeli, E., Gerdhe, S. and Teneqexhi, M. (2012). Current Account Balance in Albania and the Influence of Different Factors on it. *International Journal of Trade Global Markets*, vol. 5, no. 3, pp. 235–245.
- [31] Turan, Z., Berkman, A. N. and Nakiboglu, A. (2016). Sustainability of the Current Account Deficit in Turkey. *International Journal of Economics and Financial Issues*, vol. 6, no. 2, pp. 807–812.
- [32] Romelli, D. and Vasconcelos, E. (2013). Current Account and Real Exchange Rate Changes: the Impact of Trade Openness. *European Economic Review*, pp. 1–25.
- [33] Duncan, R. (2016). Does the US Current Account Show a Symmetric Behavior Over the Business Cycle?. *International Review of Economics & Finance*, vol. 41, no. 18, pp. 202–219.
- [34] Turan, T. (2015). The Causal Relationship between Current Account and Financial Account Balance in Selected CEE Countries. *Ekonomický Časopis*, vol. 63, no. 9, pp. 959–974.

- [35] Uddin, M. and Boateng, A. (2011). Explaining the Trends in the UK Cross-border Mergers & Acquisitions: An Analysis of Macro-economic Factors. *International Business Review*, vol. 20, no. 5, pp. 547–556.