

Foreign borrowing, foreign direct investment inflows and economic growth in European Union transition economies

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Abstract

Globalization gained speed as of 1980s and, in turn, considerable increases in transnational goods, services, and capital flows have been seen. In this context, developing and emerging economies have attracted a significant amount of foreign direct investments and also foreign borrowing has become an important financing source, especially for developing or underdeveloped countries with insufficient savings for investments. The rapidly rising foreign borrowing and foreign direct investments have led scholars and policy-makers to question the economic, institutional, and social effects of foreign borrowing and foreign direct investments. Furthermore, the iron curtain simultaneously collapsed as of the late 1980s together with the accelerating globalization and the member states of the Eastern Bloc have transited from command economy to market economy. The same EU countries in the Eastern Bloc also tend towards EU and have consequently followed the policies to integrate in the EU. Both globalization and EU negotiations caused these countries to take a significant amount of foreign borrowing and foreign direct investments. The study analyses the influence of foreign borrowing and foreign direct investment inflows on economic growth in European Union transition economies for the period of 2004-2016 through panel data analysis. The co-integration and causality analyses revealed that the influence of foreign borrowing and foreign direct investment inflows varied from country to country in EU transition economies.

Keywords: foreign borrowing, foreign direct investment inflows, economic growth, panel data analysis

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Introduction

A vast number of countries have eased the restrictions over inter-country goods, services, and capital's flows together with the accelerating globalization as of 1980s. In this context, international capital flows in terms of foreign portfolio investments, foreign direct investment (FDI) flows, and foreign borrowing (bank loans and bonds) have been raised considerably. Therefore, researchers and policy-makers have concentrated on the economic, institutional, and social effects of international capital flows, including foreign borrowing and FDI inflows.

In this study, we analyse the short and long run impact of foreign borrowing and FDI inflows on economic growth. Both foreign borrowing and FDI inflows have the potential to affect economic growth in theoretical terms. In this regard, foreign borrowing may contribute to the economic growth of the countries (especially developing and underdeveloped countries) with insufficient capital in case the borrowed funds are used for productive investments. But if the borrowed funds are used for financing current consumption or debt discharging, the indebtedness of the country would probably be increased and, in turn, its riskiness and borrowing cost as well. There have been two main theoretical views on foreign debt-economic growth nexus. On the one hand, the debt overhang hypothesis by Sachs (1986) and Krugman (1988) suggests that foreign borrowing may negatively affect economic growth through taxing away the output. On the other hand, the Laffer debt curve suggests that foreign borrowing feeds economic growth to a certain level. But if debt accumulation continues to rise above the threshold level, the effect of foreign borrowing on economic growth becomes negative. So, the interaction between foreign borrowing and economic growth exhibits an inverse U-shaped curve (Sachs, 1986). Consequently, debt overhang begins after the maximum point of the curve. Furthermore, FDI inflows may influence economic growth in the investee countries through major components of economic growth such as savings, human and physical capital, technology, and development of the financial sector. In this regard, FDI inflows can foster economic growth via raising human and physical capital accumulation, enhancing human capital through know-how transfer and learning by doing, technology transfer, and financial sector development (Neuhaus, 2006; Anwar and Nguyen, 2010).

The foreign borrowing and FDI flows have risen considerably with the contribution of globalization and liberalization processes and became important financing instruments for the countries. Foreign borrowing and FDI inflows are relatively more important especially for developing and emerging economies with saving gap, insufficient human and physical capital, and technological infrastructure as opposed to the developed countries.

The EU transition economies have made a transition from central planning to market economies as of late 1980s. During the transition process, legal and institutional reforms were implemented, and the processes of liberalization,

restructuring and privatization, and macroeconomic stabilization were experienced (IMF, 2000). Furthermore, the EU transition economies took steps to integrate with the EU and achieved many institutional and economic reforms in order to meet the EU criteria. The transition process and the accelerated integration in the EU and global economy make these countries an interesting and important sample to investigate the economic effects of foreign borrowing and FDI inflows (Gorynia *et al.*, 2010).

This research investigates the effect of international capital inflows, including foreign debt and FDI inflows on economic growth in the sample through second generation econometrics. The paper makes a contribution to the existing literature on the growth effect of foreign debt in three ways; first, it is one of the early studies (to the best of our knowledge) focused on a sample consisting of 11 EU transition economies. Secondly, unlike in the current literature, it analyzes the long and short run impact of foreign debt together with FDI inflows on economic growth. Lastly, it employs econometric tests yielding relatively robust results under cross-sectional dependence and heterogeneity.

The rest of the article is constructed as follows. The forthcoming part briefly summarizes the relevant literature on the influence of foreign borrowing and FDI inflows on economic growth. The dataset and econometric methods are explained in Section 3 and an empirical analysis is carried out and the results are argued in the following part. Finally, the conclusions are presented in Section 5.

1. Literature review

The considerable expansions in the international capital flows have encouraged researchers to investigate the growth effects of foreign capital inflows in terms of direct investment and debt. The relevant literature summary is presented as a table regarding the extensive literature. But some major studies on the interaction between FDI, foreign debt, and economic growth have been further developed.

The relevant empirical literature on foreign debt-growth nexus has stayed inconclusive, as seen in Table 1, mainly resulting from the differences in institutional, social, and economic factors such as economic development, government size, openness level, indebtedness level. So, there has been no consensus in neither theoretical literature nor empirical literature. In this context, Deshpande (1997) tested the validity of debt overhang hypothesis in 13 highly indebted countries during the 1971-1991 period with two sub-periods and revealed a positive influence of foreign borrowing on investment for the first period, but a negative relationship for the second period. Lin and Sosin (2001) researched the influence of foreign borrowing on economic growth for a sample of 77 countries and revealed a negative relationship for the countries from the African region. On the other side, Were (2001) questioned the foreign borrowing-growth nexus for Kenya for the 1970-

1995 period and discovered that foreign borrowing reduced private investments and, in turn, economic growth.

Abu Bakar and Hassan (2008) explored the foreign borrowing-growth nexus in Malaysia for the period 1970-2005 and discovered that total foreign borrowing positively influenced economic growth. Mahdavi (2004) analyzed the same relationship in 47 developing countries for the period 1972-2001 and revealed that foreign borrowing reduced economic growth. Siddique and Selvanathan (2015) questioned the foreign debt-growth nexus in 40 peripheral countries during 1970-2007 and found that foreign borrowing had a decreasing influence on economic growth. Rifaqat and Usman (2012) researched the external debt-growth nexus in Pakistan over the 1970-2010 period and found that external borrowing negatively influenced growth.

Some scholars have concentrated the nonlinear interaction resting on Laffer curve between foreign borrowing and economic growth. In one of the first studies, Sachs (1986) asserted that the determination of critical external debt affects the economic growth negatively. The negative influence of external borrowing on economic growth was attributed to the decreasing investments in terms of size and productivity in the nonlinear models (e.g. Fosu, 1996; Maghyereh *et al.*, 2002; Ayadi and Ayadi, 2008; Shkolnyk and Koilo, 2018)

Fosu (1996) explored the external borrowing-growth nexus in African states for the 1970-1986 period by nonlinear modelling and determined the debt threshold level as 16%. So, foreign borrowing affects economic growth positively if the ineptness level is below 16%. Otherwise, foreign borrowing affects economic growth negatively. Maghyereh *et al.* (2002) conducted a similar research for Jordan and the indebtedness threshold level was determined as 53%. Ayadi and Ayadi (2008) explored the interaction between foreign borrowing and economic growth in Nigeria and South Africa over the 1980-2007 period with linear and nonlinear econometric methods and revealed a nonlinear relationship only for Nigeria and that foreign borrowing negatively affects economic growth. Reinhart and Rogoff (2010) explored the influence of borrowing on economic growth in 44 countries for a 200-year- period and revealed that growth decreased about 2% when gross foreign debt reached 60% of GDP, while growth decreased about half when gross foreign debt reached 90% of GDP. Shkolnyk and Koilo (2018) questioned the foreign borrowing-growth nexus in emerging market economies for the 2006-2016 period and revealed a nonlinear negative interaction between foreign borrowing and economic growth.

A few studies in the related literature investigated the growth effect of foreign debt in the selected countries from the sample through short run analyses of regression and causality and revealed a negative growth effect of foreign debt (see Ciftcioglu and Begovic, 2008; Çiftçioglu and Sokhanvar, 2018). In this regard, Ciftcioglu and Begovic (2008) researched the impact of various macroeconomic variables on economic growth in 9 CEE countries (Slovakia, Hungary, Czech Republic, Poland, Slovenia, Romania, Bulgaria, Croatia and Macedonia) for the

period 1995-2013 by regression analysis and revealed a negative growth effect of foreign debt. Çiftçioğlu and Sokhanvar (2018) also explored the growth effect of foreign debt in selected CEE countries (Czech Republic, Albania, Hungary, Poland, Romania, Croatia, Bulgaria, Macedonia, Georgia, Ukraine, Belarus and Turkey) for the period 1995-2014 through regression and Granger causality analyses and reached a negative growth effect of foreign debt. Consequently, the study will be one of the early studies investigating the impact of foreign borrowing on economic growth for the EU transition economic sample. Furthermore, the study investigates the long run impact together with short run impact of foreign borrowing and the employed econometric tests in the study gives more robust results under cross-sectional dependence and heterogeneity.

Table 1. Literature summary on Foreign Debt-Growth Nexus

Variable	Its Impact on the Economic Growth	
	Positive	Negative
Foreign borrowing	Cline (1995), Sachs (1986), Krugman (1988), Deshpande (1997), Cohen (1993), Warner (1992), Fosu (1996), Lin and Sosin (2001), Maghyereh <i>et al.</i> , (2002), Easterly (2003), Abu Bakar and Hassan (2008), Ayadi and Ayadi (2008), Reinhart and Rogoff (2010), Brida <i>et al.</i> (2017), Tanna <i>et al.</i> (2018), Yang and Su (2018).	Sachs (1986), Krugman (1988), Deshpande (1997), Cohen (1993), Fosu (1996), Lin and Sosin (2001), Were (2001), Maghyereh <i>et al.</i> , (2002), Mahdavi (2004), Ayadi and Ayadi (2008), Reinhart and Rogoff (2010), Ceylan and Durkaya (2011), Rifaqat and Usman (2012), Siddique and Selvanathan (2015), Brida <i>et al.</i> (2017), Shkolnyk and Koilo (2018).

Source: own representation

FDI inflows are able to foster economic growth through channels of human capital development, technological spillover, know-how, trade policy, and financial sector development. Most empirical studies have revealed a positive effect of FDI inflows on economic growth as seen in Table 2. However, some scholars such as Karikari (1992), Resnick (2001), Choong *et al.* (2005), Meschi (2006), Ang (2009), Alfaro *et al.* (2010), Ahmed (2012), Agbloyor *et al.* (2014), Mazenda (2014), Klobodu and Adams (2016), Simionescu (2016), Alvarado *et al.* (2017) have discovered a negative or insignificant effect of FDI inflows on economic growth.

In the related literature, Borensztein *et al.* (1998) analyzed the FDI-growth nexus in 69 developing countries through panel data analysis and elicited that FDI inflows raised the economy by enhancing technological advancement and development of human capital. Hermes and Lensink (2003) analyzed the same nexus in 67 countries for the period between 1970-1995 and obtained similar findings. Alfaro *et al.* (2004) also reached the same findings in the countries having local financial markets with sufficient depth.

Tu *et al.* (2012) researched the FDI-growth nexus in ASEAN states for the period 1990-2008 with panel regression and found that FDI inflows enhanced economic growth through technological spillovers and human capital. Azman *et al.* (2010) investigated the same interaction in 85 countries for the period between 1976-2004 and reached the same findings but the positive effect relied on the economic freedom level of the countries. However, Okada and Samreth (2014) revealed that the positive influence of FDI inflows on economic growth depended on the corruption level. Tanna *et al.* (2018) researched the same nexus for developing countries with multiple threshold estimation techniques and reached the positive effect of FDI inflows on economic growth depending on the foreign borrowing level.

Relatively more studies have been conducted on the growth effect of FDI inflows in EU transition economies compared to the literature on the growth effect of foreign borrowing. Saglam (2017) researched the growth effect of FDI inflows in 14 EU transition economies (Albania, Bulgaria, Bosnia and Herzegovina, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Macedonia, Slovak Republic, and Slovenia) for the period between 1995-2014 through co-integration and causality analyses and reached mixed findings. Miteski and Janevska-Stefanova (2017) researched the impact of FDI inflows on economic growth in various sectors in 16 Central, Eastern and Southeastern European countries for the period of 1998-2013 through regression analysis and revealed a positive growth effect of FDI inflows. Bayar (2017) also reached the same findings as Miteski and Janevska-Stefanova (2017). Simionescu (2018) researched the determinants of economic growth in selected CEE countries (Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Romania and Slovenia) for the period 2003-2016 and revealed that FDI was the crucial factor in economic growth.

Table 2. Literature summary on FDI-Growth Nexus

Variable	Its Impact on Economic Growth		
	Positive	Negative	No significant Impact
FDI inflows	Balasubramanyam <i>et al.</i> (1996), Bhagwati and Srinivasan (1978), Barro and Sala-i-Martin (1997), Borensztein <i>et al.</i> , (1998), De Mello, (1997), Hermes and Lensink (2003), Alfaro <i>et al.</i> (2004), Azman <i>et al.</i> (2010), Huang <i>et al.</i> , (2012), Tu <i>et al.</i> , (2012), Kim <i>et al.</i> ,	Karikari (1992), Resnick (2001), Choong <i>et al.</i> , (2005), Meschi (2006), Ang (2009), Alfaro <i>et al.</i> , (2010), Ahmed (2012), Agbloyor et al. (2014), Mazenda (2014), Klobodu and Adams (2016),	Karikari (1992), Haddad and Harrison (1993), Resnick (2001), Irandoust (2001), Chakraborty and Basu (2002), Carkovic and Levine (2005), Karim <i>et al.</i> , (2009), Al Nasser (2010), Belloumi (2014), Temiz and

(2013), Okada and Samreth (2014), Calderon, and Nguyen, (2015), Simionescu (2016), Pradhan *et al.* (2017), Alvarado *et al.* (2017), Rahman and Rahman (2018), Cherif and Dreger (2018), Tanna *et al.*, (2018). Simionescu (2016), Alvarado *et al.* (2017). Gökmen (2014), Aga (2014), Elkomy *et al.* (2016), Mohamed *et al.* (2017), Olagbaju and Akinlo (2018).

Source: own representation

2. Data and method

In this paper the influence of foreign borrowing and FDI inflows on economic growth has been analyzed in the sample of 10 EU transition economies by panel data analysis.

2.1. Data

In the econometric analysis, the growth rate of real GDP per capita represented economic growth. On the other side, foreign borrowing and FDI inflows were respectively proxied by net external debt and FDI net inflows. All the data series were annual and the study period was determined as 2004-2016 by taking into consideration data availability. The data description was shown in Table 3. All the analyses were conducted with real GDP growth instead of real GDP per capita growth for the robustness check and the results were not put in the paper due to similar findings. Furthermore, two different causality tests were employed in the study for robustness check.

Table 3. Dataset summary

Variables	Description	Source
GRW	Real GDP per capita growth, %	World Bank ¹
DEBT	Net external debt - annual data, % of GDP	Eurostat (2018)
FDI	Foreign direct investment, net inflows, % of GDP	World Bank ²

Source: own representation

¹ GDP per capita growth (annual %), <http://databank.worldbank.org/data/reports.aspx?source=2&series=NY.GDP.PCAP.KD.ZG&country=> (29.10.2018).

² Foreign direct investment, net inflows (% of GDP), <https://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS> (29.10.2018).

The sample consisted of 10 EU transition economies including Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia. The econometric analyses were carried out by Stata 14.0, and Gauss 10.0 by statistical packages.

2.2. Method

The econometric model of the research investigating the influence of foreign borrowing and FDI inflows on economic growth was formed considering the relevant theoretical and empirical literature as the following:

$$GRW_{it} = \alpha_0 + \beta_1 DEBT_{it} + \beta_2 FDI_{it} + u_{it} \quad (1)$$

The influence of foreign borrowing on economic growth varies depending on how the countries use the borrowed funds as seen in theoretical and empirical literature. But, as seen in the relevant literature, FDI inflows mostly affect economic growth positively.

In the analysis section, cross-sectional dependence was firstly explored with Breusch and Pagan (1980) LM test, LM adj. test of Pesaran and LM CD test of Pesaran (2004) taking in consideration the dataset time and cross-section characteristics. Then, the homogeneity was questioned with adjusted delta tilde test of Pesaran and Yamaga (2008) and integration levels of the panel data were examined with Pesaran (2007) CIPS test considering the presence of cross-sectional dependence. In the next section, the co-integration relation among foreign borrowing, FDI inflows and economic growth was examined with Westerlund and Edgerton (2008) co-integration test with structural breaks due to the presence of the structural break in the study duration, cross-sectional dependence and heterogeneity. The co-integration coefficients were estimated through Eberhardt and Teal's (2010) AMG estimator. Finally, causality interaction among foreign borrowing, FDI inflows and economic growth was examined through Kónya (2006) boos trap panel causality test and Dumitrescu and Hurlin (2012) causality test.

Westerlund and Edgerton (2008) co-integration test takes into consideration both cross-sectional dependence and heterogeneity together with the structural break, heteroscedasticity, and autocorrelation. The statistic of co-integration test is figured out with the following equations:

$$y_{it} = \alpha_i + \psi_i t + \delta_i D_{it} + \beta_i x_{it} + (D_{it} x_{it}) \gamma_i + v_{it} \quad (2)$$

$$x_{it} = x_{it-1} + w_{it} \quad (3)$$

Dumitrescu and Hurlin (2012) causality test is a developed version of Granger causality test for heterogeneous panels and can be used in case of $T > N$ and $N > T$. On the other side, Kónya (2006) panel bootstrap causality test takes notice of both cross-

sectional dependence and heterogeneity and rests on Seemingly Unrelated Regression (SUR) estimators of Zellner (1962). Kónya (2006) causality test produces more robust results because SUR estimators generate more effective results than OLS estimators do in the presence of cross-sectional dependence. The null hypothesis of both tests is that there is no causality between two variables.

3. Empirical analysis

In the empirical analysis, the influence of foreign borrowing and FDI inflows on economic growth in 10 EU transition economies was analysed by panel co-integration and causality analyses.

The cross-sectional dependence and heterogeneity in panel data is important for the determination of further tests' selection process. First, cross-sectional dependence was explored with Breusch and Pagan (1980) LM test, LM adj. test of Pesaran *et al.* (2008), and LM CD test of Pesaran (2004) and the results were displayed in Table 3. The cross-sectional independency's null hypothesis was declined as a consequence of the test results. Therefore, cross-sectional dependency exists in the panel data. Then, the homogeneity was tested with adjusted delta tilde test of Pesaran and Yamaga (2008) and the test results were shown in Table 4. The null hypothesis of homogeneity of co-integrating coefficients was declined as a consequence of the test results. So, the co-integrating coefficients differ among the cross-section units.

Table 4. Cross-sectional dependence and homogeneity pretests' results

Cross-sectional dependence tests		
Test	Test statistic	P value
LM	148.8	0.0000
LM adj*	19.26	0.0000
LM CD*	10.52	0.0000
Homogeneity tests		
Delta tilde	4.789	0.000
Adj. delta tilde	5.592	0.000

Source: own calculations

The questioning of unit root in the panel data was tested with Pesaran (2007) CIPS test and the test findings were displayed in Table 5. The results showed that all the variables were I(1).

Table 5. CIPS test results

Variables	Constant	Constant+Trend
GRW	-0.687 (0.246)	1.350 (0.912)

d(GRW)	-4.631 (0.000)***	-2.942 (0.002)***
DEBT	-0.169 (0.433)	1.570 (0.942)
d(DEBT)	-8.751 (0.000)***	-5.928 (0.000)***
FDI	-0.503 (0.308)	-2.363 (0.009) ***
d(FDI)	-9.814 (0.000)***	-8.066 (0.000)***

Source: own calculations

The co-integration relationship among foreign borrowing, FDI inflows and economic growth was tested by Westerlund and Edgerton (2008) co-integration test with structural breaks and the test results including structural breaks were shown in Table 6. The findings exhibited a significant co-integration relationship among foreign borrowing, FDI inflows and economic growth with or without structural breaks. The dates of structural breaks indicated that both Eurozone sovereign debt crisis and 2008 global financial crisis had a significant impact on the interaction among foreign borrowing, FDI inflows, and economic growth.

Table 6. Results of Westerlund and Edgerton (2008) panel co-integration test with structural breaks

Model	$Z_\varphi(N)$	P value	$Z_\tau(N)$	P value
No shift	-1.651	0.049	-1.857	0.032
Level shift	-8.900	0.000	-11.323	0.000
Regime shift	-3.468	0.000	-2.268	0.012
Country	Structural breaks (level shift)		Structural breaks (regime shift)	
Croatia	2008		2008	
Czechia	2009		2009	
Estonia	2009		2009	
Hungary	2009		2008	
Latvia	2007		2007	
Lithuania	2009		2008	
Poland	2011		2007	
Romania	2008		2008	
Slovakia	2008		2008	
Slovenia	2008		2008	

Source: own calculations

The long-run coefficients were estimated by AMG estimator of Eberhardt and Teal (2010) and shown in Table 7. The co-integration coefficients revealed that foreign borrowing negatively influenced the economic growth in Croatia, the Czech Republic, Estonia, and Latvia, but positively influenced the economic growth only in Lithuania. On the other side, FDI inflows positively influenced the economic

growth in Estonia, Latvia, Poland, Romania, and Slovenia, while FDI inflows negatively influenced the economic growth in Hungary and Lithuania.

Table 7. Estimation of cointegrating coefficients.

Country	DEBT		FDI	
	Coefficients	P value	Coefficients	P value
Croatia	-0.061793	0.072	-0.103227	0.487
Czechia	-0.1788978	0.015	-0.1153184	0.496
Estonia	-0.0903602	0.008	0.3657382	0.020
Hungary	-0.0181717	0.490	-0.0376067	0.093
Latvia	-0.1775938	0.036	1.132672	0.038
Lithuania	0.2686777	0.000	-0.7093978	0.024
Poland	0.0029339	0.950	0.6191604	0.004
Romania	0.0267152	0.853	0.6047898	0.054
Slovakia	-0.0735136	0.314	-0.0842031	0.770
Slovenia	-0.0111793	0.721	0.8177102	0.036
Panel	-0.0313183	0.434	0.2490318	0.154

Source: own calculations

The theoretical literature on the debt-growth nexus indicated that the effect of foreign borrowing on economic growth changes depending on how the countries utilize the borrowed funds. In the sample, Croatia, Latvia, Lithuania, Poland, Romania, Slovenia and Slovakia had a net external debt above 20% GDP in 2017, but that the net external debt had a downward trend. Foreign borrowing had an increasing effect on economic growth only in Lithuania, but a decreasing effect on the economic growth in Croatia, Czechia, Estonia, and Latvia. The empirical findings verified the theoretical views of Sachs (1986) and Krugman (1988) and were also consistent with the results of Ciftcioglu and Begovic (2008) and Çiftçiöğlü and Sokhanvar (2018) who conducted the research for a similar sample. The negative impact of foreign borrowing on economic growth could have resulted in the aforementioned countries from the fact that they may not have used the funds in sufficiently productive investments.

On the other side, FDI inflows positively affected the economic growth in Estonia, Latvia, Poland, Romania and Slovenia in line with the general trend in the relevant theoretical and empirical literature, but FDI inflows negatively influenced the economic growth in Hungary and Lithuania and this may have resulted from the FDI composition (brownfield and greenfield investments).

The causal interaction among foreign debt, FDI inflows and economic growth was analyzed by Dumitrescu and Hurlin (2012) causality and Konya (2006) panel bootstrap causality test. The results of Dumitrescu and Hurlin (2012) causality test were shown in Table 8 and disclosed a one-way causality from foreign debt to the economic growth and a two-way causality between foreign debt and FDI inflows.

Table 8. Results of Dumitrescu and Hurlin (2012) causality test

Null Hypothesis	W-Stat.	Zbar-Stat.	Prob.
DEBT \rightarrow GRW	2.42513	1.71638	0.0861
GRW \rightarrow DEBT	1.12094	-0.18851	0.8505
FDI \rightarrow GRW	1.77400	0.76535	0.4441
GRW \rightarrow FDI	1.20405	-0.06712	0.9465
DEBT \rightarrow FDI	4.22330	4.34278	1.E-05
FDI \rightarrow DEBT	5.44579	6.12835	9.E-10

Source: own calculations

The causal interaction among foreign borrowing, FDI inflows, and economic growth was also investigated by Konya (2006) panel bootstrap Granger causality test by taking into consideration cross-sectional dependence and the results were displayed in Tables 9, 10, 11. The results revealed a one-way causality from foreign borrowing to the economic growth only for Croatia, and one-way causality from economic growth to the foreign borrowing for Czechia, Latvia, Poland, Romania, and Slovenia.

On the other side, the causality analysis between FDI inflows and economic growth revealed a two-way causality for Latvia, a one-way causality from FDI inflows to the economic growth for Czech Republic and a one-way causality from economic growth to FDI inflows for Poland, Slovakia, and Slovenia.

Lastly, the causality analysis between foreign borrowing and FDI inflows revealed a one-way causality from foreign borrowing to the FDI inflows for the Czech Republic, Hungary, and Romania and a one-way causality from FDI inflows to economic growth for Lithuania.

Table 9. Causality analysis between external borrowing and economic growth

Countries	H ₀ : External borrowing is not a cause of economic growth				H ₀ : Economic growth is not a cause of external borrowing			
	Wald Statistic	Bootstrap Critical Values			Wald Statistic	Bootstrap Critical Values		
		1%	5%	10%		1%	5%	10%
Croatia	27.53***	90.354	42.216	26.510	9.81	128.48074	59.261	38.690
Czechia	0.69	101.508	43.779	27.832	52.38***	129.00439	9.637	38.188
Estonia	9.27	73.838	30.975	20.107	4.96	140.77739	67.823	43.748
Hungary	3.84	94.561	41.198	26.225	1.54	171.54649	69.531	41.893
Latvia	3.83	78.017	37.121	23.754	51.97***	158.86383	75.210	49.938
Lithuania	5.41	82.001	38.599	24.939	12.36	105.24270	50.759	33.690
Poland	1.29	118.001	46.764	28.752	27.86***	84.33004	36.565	23.640
Romania	0.65	156.985	65.792	39.630	31.62***	79.48307	36.943	24.330

Countries	H ₀ : External borrowing is not a cause of economic growth				H ₀ : Economic growth is not a cause of external borrowing			
	Wald Statistic	Bootstrap Critical Values			Wald Statistic	Bootstrap Critical Values		
		1%	5%	10%		1%	5%	10%
Slovakia	2.363	66.172	27.909	18.391	23.739	170.609	71.305	44.826
Slovenia	9.821	107.279	48.728	32.01	43.5181***	140.062	65.501	43.029

*, **, and *** indicates that it is respectively significant at 1%, 5%, and 10%

Source: own calculations

Table 10. Causality analysis between foreign borrowing and FDI inflows

Countries	H ₀ : External borrowing is not a cause of FDI				H ₀ : FDI is not a cause of external borrowing			
	Wald Statistic	Bootstrap Critical Values			Wald Statistic	Bootstrap Critical Values		
		1%	5%	10%		1%	5%	10%
Croatia	17.851	66.965	31.8573	20.4175	11.907858	158.8456	62.9549	39.34
Czechia	19.23***	61.815	26.8394	17.5998	11.100470	114.7222	51.9719	33.12
Estonia	18.424	122.46	57.3893	37.4250	10.000734	118.9101	51.0550	32.31
Hungary	39.308***	109.05	42.8051	25.8683	4.9284541	126.2073	51.5903	31.53
Latvia	0.4617	112.94	49.4146	32.3863	13.256523	129.5681	50.5699	1.21
Lithuania	14.265	94.266	46.2386	30.5331	80.03317**	110.8007	52.5063	33.55
Poland	16.935	66.850	29.7332	18.9097	0.61245945	131.2221	48.7873	29.90
Romania	37.00***	86.885	40.7451	27.1325	14.107335	181.0328	79.2475	50.85
Slovakia	1.3730	138.65	55.7824	33.7477	2.3366897	118.9981	47.7562	29.74
Slovenia	0.9545	69.485	29.8873	19.3330	15.7544***	1.12614	76.3871	8.26

*, **, and *** indicates that it is respectively significant at 1%, 5%, and 10%

Source: own calculations

Table 11. Causality analysis between FDI inflows and economic growth

Countries	H ₀ : FDI is not a cause of economic growth				H ₀ : Economic growth is not a cause of FDI			
	Wald Statistic	Bootstrap Critical Values			Wald Statistic	Bootstrap Critical Values		
		1%	5%	10%		1%	5%	10%
Croatia	5.136	62.885	28.464	18.08016	3.1797402	178.23672	69.46365	43.34
Czechia	23.927***	75.730	34.645	22.64936	12.128247	134.01834	59.12753	36.59
Estonia	0.347	95.070	43.68	28.33747	1.7424324	155.11177	66.74505	41.95
Hungary	2.456	83.516	33.51	21.04024	15.766891	183.37418	65.53054	39.03
Latvia	29.897***	98.507	3.589	27.65512	253.62414*	173.73624	76.00272	47.69
Lithuania	0.346	109.013	47.19	29.48822	1.3637131	154.83527	67.17388	43.74
Poland	0.505	109.649	47.444	29.58113	44.553053**	117.80668	47.79521	28.88
Romania	0.1616	116.017	48.413	29.41310	0.40570725	148.15511	53.94009	34.46
Slovakia	1.761	76.158	33.922	22.13232	77.490818**	160.13858	70.94598	45.57
Slovenia	6.198	61.041	26.234	16.66166	54.850305***	202.40759	85.51967	52.81

Source: own calculations

Conclusions

EU transition economies have encouraged a considerable amount of foreign borrowing and FDI inflows with the effect of transition to market economy, EU

membership, and globalization. Therefore, this article questions the influence of foreign borrowing and FDI inflows on the economic growth in 10 EU transition economies by Westerlund and Edgerton (2008) co-integration test with structural breaks and causality tests of both Dumitrescu and Hurlin and Konya (2006) considering the sample's characteristics.

In the long run, the co-integration analysis disclosed that foreign debt negatively influenced the economic growth in Croatia, Czechia, Estonia, Latvia, but positively influenced economic growth only in Lithuania. On the other hand, FDI inflows positively influenced the economic growth in Estonia, Latvia, Poland, Romania, and Slovenia, while FDI inflows negatively influenced the economic growth in Hungary and Lithuania. On the other side, the results of Dumitrescu and Hurlin (2012) causality indicated a one-way causality from foreign debt to economic growth and a two-way causality between foreign debt and FDI inflows. Furthermore, the results of Konya (2006) panel bootstrap Granger causality test revealed a one-way causality from foreign debt to economic growth only for Croatia while one-way causality from economic growth to the foreign debt for Czechia, Latvia, Poland, Romania, and Slovenia. On the other side, the analysis revealed a two-way causality between economic growth and FDI inflows for Latvia, a one-way causality from FDI inflows to economic growth for the Czech Republic and a one-way causality from economic growth to FDI inflows for Poland, Slovakia, and Slovenia. Lastly, the findings revealed a one-way causality from foreign borrowing to the FDI inflows for the Czech Republic, Hungary, and Romania and a one-way causality from FDI inflows to the economic growth for Lithuania.

Consequently, our findings revealed that international capital inflows in terms of FDI inflows and foreign borrowing have become important financing instruments especially for developing and emerging economies. However, the effect of both foreign borrowing and FDI inflows on economic growth varied from country to country depending on how the borrowed funds were used and which type of FDI inflows were involved. In the study, we have found that foreign borrowing generally affected economic growth negatively, while the effects of FDI inflows on economic growth were identified as mixed. The findings revealed that some countries did not use foreign borrowing in productive investments and also that some countries experienced negative growth effects of FDI inflows. In this context, the countries should use the borrowed funds in productive investments with relatively higher returns and also use incentives to attract green-field investments and also be careful to ensure the survival of national firms against foreign firms in the same industry.

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