Does Institutional Quality Matter for the IDP Hypothesis? Evidence from Emerging Europe

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Abstract

The study empirically explores the relationship between OFDI and the home country's institutional quality by employing a panel of 23 European emerging countries between 2000 and 2019. In doing so, the study employs the VECM estimation procedure. The key findings of this research indicate that the rate of adjustment to reach long-run equilibrium in European post-transition countries is lower than in European transition countries. In conclusion, there is evidence, for the period being investigated, of causality between the home country's institutional quality and OFDI in both regions. Also, most of the transition countries are still in the process of building the institutional environment, with many institutional voids and different starting points of their internalization process. In fact, most of the countries, especially European transition countries, are in stage 2 or stage 3 of their investment development path (IDP) development, where IFDI stock still remains higher than OFDI stock.

Keywords: European emerging countries, investment development path (IDP), institutional quality, VECM estimation procedure, Dumitrescu-Hurlin panel causality tests

JEL classification: F21, O38, P52

1 Introduction

Many existing empirical studies place focus on FDI inflows in the host country, whereas FDI outflows (OFDI) from the home country are less studied. Also, OFDI behavior shows some variations across countries depending on their determinants and one cannot be sure whether the findings of such empirical studies might be applicable to the countries in a certain sample. One of the reasons for the rise of interest in institutional quality in economic literature is recent international business and strategy research related to the examination of the link between a country's institutional framework and business strategy (Oliver, 1997; Peng, 2001, 2002). The results indicate that companies' strategies and interactions in the international environment are directly affected by institutional quality.

In their research, Wang, Mao, and Gou (2014) find a certain level of institutional quality to be a development path contributor. Interestingly, the role of the home country's institutional quality in testing of the IDP hypothesis is not well-documented in the literature and such studies are limited in number. Only a few studies include the institutional context of home countries in extending the IDP theory (Peng, 2002; Meyer & Nguyen, 2005; Wright, Filatotchev, Hoskisson, & Peng, 2005; Stoian, 2013). In addition, one of the reasons why the subject remains worthwhile is due to the much varying results of earlier empirical studies (see Table 1) and the critique that a large number of them have been plagued by panel data techniques and have less applied advanced econometric techniques.

Although there is no consensus among studies exploring this link, this study participates in the debate by testing this thesis. The topic has now become the target of research because studies that have evaluated transition countries are limited in number. In doing so, the main objective of this study is to empirically test the causality between OFDI and the home country's institutional quality through the VECM estimation procedure and to examine the existence of a long-run relationship among the regressors. Although emerging European countries' OFDI dates to the 1990s and 2000s, the topic of OFDI remains less popular in transition countries than in China and Russia where there is a more active role of the government and its institutions in promoting OFDI. Also, transition countries began the outward internalization through FDI at different levels with high fluctuations and stagnations (Ginevičius & Tvaronavičiene, 2005). More specifically, this study aims to explore whether institutional quality matters for the IDP hypothesis by exploring causality between the home country's institutional factors and OFDI in 23 emerging European countries.

The research was initiated to investigate the two contrasting views between institutional escapism and government promotion in exploring the IDP theory and OFDI in transition countries. In doing so, the study employs the VECM estimation procedure to explore whether OFDI is a function of the home country's institutional quality. The study proposes a theoretical model used by various institution-based views and OFDI patterns as proposed by Peng, Wang, and Jiang (2008), Kalotay (2006), and Stoian (2013).

In comparison to other scholarly papers on the institutional theory (OFDI literature), this research has some differences and contributes to the field in two ways. First, this research follows the VECM approach, because the characteristics of the data used in model development incorporate the institutional theory in Dunning's IDP framework. Thus, our hypothesis investigates whether the home country's institutional quality causes internalization of local companies and OFDI in the long run and short run. The study is novel as the scope of research compares two European regions, whereas other studies have not taken such an approach into consideration or it is less explored. The study explores whether the home country's institutional quality in emerging European countries varies in their support for OFDI, as well as whether this relationship is different for European transition and European post-transition countries (new EU members). Second, more importantly, the research takes a deeper approach to extending the IDP theory by examining dimensions of the home country's institutional quality in causality of OFDI, while other studies have not considered this mediating role and have only considered the aspects of institutions.

2 Literature Review

There is extensive literature exploring the drivers of OFDI in various economic studies. Caves (1982) investigated the economic determinants of firms to start producing outside their home country. One of the most cited studies is Dunning's (1977) research about the reasons and motives for international production, which are explained in his eclectic paradigm (ownership, location, internalization). Also, Dunning (1993) later included a selection of motives that drive investment (market-seeking, resource-seeking, and efficiency-seeking motives) as an extension of the eclectic paradigm.

One of the studies on FDI development theories has been presented by Dunning (1996) in terms of the investment development path (IDP) theory. The IDP theory explains the development path of a country as the economy of the country develops, taking into account the dynamic relationship between FDI and economic development. According to the IDP theory, there are five evolution stages which may be observed in most countries as the economy of the country develops. For instance, stage 1 described by the theory is related to least developed countries, when the economy is underdeveloped and neither attracts inward FDI (IFDI) nor generates outward FDI (OFDI), while in stage 2 the country is a net recipient of FDI with limited propensity to generate more OFDI. Most of the developing countries are categorized in stage 3 of development, as the country has developed infrastructure and policy to attract foreign investors, where IFDI stock remains higher than OFDI stock. In stage 4, OFDI stock increases due to lower labor costs abroad than in the domestic economy. Most developed countries are in stage 5, when there is a convergence between IFDI and OFDI. In recent decades, scholarly papers have increasingly focused on an institution-based view as a response to the complex and changed business environment in emerging economies (Peng, Wang, & Jiang; 2008; Carney, 2005; Makino, Isobe, & Chan, 2004). In this context, various scholars intensively retraced OFDI and utilized some OFDI-related empirical research to examine the institutional context and OFDI flows. For instance, Khanna and Palepu (1997) find that government acts quite differently in developing countries compared to developed countries, while Peng (2002) and Wright, Filatotchev, Hoskisson, and Peng (2005) see institutional arrangements as important contributors in determining the OFDI of domestic companies. Even more, Scott (2002) explains how the OFDI strategy of emerging companies is an integral part of their home country institutional setting and regulation. There are a few other studies that have explored certain determinants related to institutional quality in the determination of FDI flows. For example, in their research for the Baltic region (Latvia, Lithuania, and Estonia), Zumente and Bistrova (2021) found environmental, social, and governance (ESG) adoption practices and intensity of technology and knowledge transfer (Burinskas, Holmen, Tvaronavičienė, Šimelytė, & Razminienė, 2021) to be good promoters of the investment process. In addition, Shmarlouskaya, Shalupayeva, Danileviča, Betlej, and Aleksejeva (2021) identified trade policy as an increasingly important promoter in attracting and maintaining FDI in EU countries.

Among various other scholars, Narula and Dunning (2000), Barry, Holger, and McDowell (2003), and Galan, Gonzalez-Benito, and Zuñiga-Vincente (2007) have been accepted as the proponents and followers of the IDP theory.

A review of the existing literature on the IDP theory and home country's environment shows two different dominant views related to the impact on companies' OFDI decisions in emerging countries. The first group of studies explores the impact of institutional environments on OFDI in developed countries compared to transition countries (institutional escapism), while the second, smaller group of studies focuses on the examination of government support in promoting OFDI strategies through a mix of formal and informal incentives to operate internationally (governmental promotion).

The first group of studies (Le & Zak, 2006; Boisot & Meyer, 2008; Witt & Lewin, 2007; Luo, Xue, & Han, 2010; Arize, Andreopoulos-Campanelli, Kallianiotis, & Malindretos, 2018; Stoian & Mohr, 2016; Götz & Jankowska, 2016; Barnand & Luiz, 2018) explores the link between OFDI and the poor quality of institutional environment, concluding that it can contribute to long-term capital outflows. Key characteristic of these studies is that they explore the links between institutional constraints, unfriendly business environment, bureaucratic climate, ineffective institutions, and OFDI that lead to internalization as a reaction to the escape from the home market. In addition, some other studies used high economic risk, political instability, policy uncertainty, and underdeveloped institutions in the home country to explain the impact of escape OFDI in developing countries. Cuervo-Cazurra and Genc (2008), Cuervo-Cazurra (2011), and Wu and Chen (2014) can be listed as examples of these studies. Cuervo-Cazurra and Rammurti (2015) extended this discussion and explained that poor governance and higher macroeconomic volatility incur high cost of capital. Ciesielska & Kołtuniak (2017) explored the link between OFDI and the home country's economic growth in Poland, showing that it turned out to be constantly preceded by outward FDI growth. In fact, the findings support the hypothesis on the great importance of pro-FDI economic institutions' development on the path of economic growth and development.

The second group of studies focuses on government's role in promoting OFDI strategies in emerging market firms or the internalization process (Gani, 2007; Luo et al., 2010; Mihailova & Koveshnikov, 2012; Chen, 2015; Torres, Clegg, & Varum, 2016; Chen, Li, & Hambright, 2016), especially in China, other Asian countries, Russia, and transition countries. These studies often cite that governments in emerging countries support local companies through a set of formal and informal incentives to seek international expansion. Table 1 provides a list of selected empirical studies that explore the determinants of OFDI. Gammeltoft, Pradhan, and Goldstein (2010) suggest that emerging countries have different institutional contexts compared to developed countries. All the empirical studies listed in Table 1 are investigating literature related to home country determinants of OFDI flows across regions, one region, or one country (China, Russia). They try to identify the components of the home country's institutional quality that are determinants of OFDI flows.

Table 1: *Review of Selected Empirical Studies*

Author(s)	Time period	Sample	Econometric method	Variables
Globerman & Shapiro (2002)	1995-1997	114 developed and developing countries	OLS (ordinary least squares) method	FDI inflows/outflows, GDP, HDI, Government Effectiveness Index, Voice and Accountability Index, Political (In) stability and Violence Index, Rule of Law Index, Regulatory Burden Index, Environmental Sustainability Index
Globerman, Shapiro, & Tang (2004)	1985-2004	18 Latin American countries	Panel gravity model approach	FDI stock, geographic distance, governance indicators, bureaucratic quality, index of law, democratic accountability, control of corruption
Le & Zak (2006)	1976-1991	45 developing countries	Panel data techniques	Capital flight, political instability, constitutional changes, policy uncertainty, economic risk
Kayam (2009)	2000-2006	65 developing and transition countries	Panel data techniques: fixed effect estimation	OFDI, export, import, government stability, risk investment, bureaucracy, employment
Stoian (2013)	1996-2010	20 post-communist countries	Panel data techniques	OFDI, home country trade and foreign exchange liberalization indicator, GDP per capita, governance and enterprise restructuring indicators, competition policy indicators, overall reforms indicators
Das (2013)	1996-2010	57 developing countries	Panel data techniques	OFDI, GDP per capita, political risk, R&D expenditure, trade openness
Estrin, Meyer, Nielsen, & Nielsen (2015)	2010	40 different countries	Tobit regressions	Foreign assets to total assets, firm size, industry growth, normative control, regulatory control, capital market control, GDP per capita
Stoian & Mohr (2016)	1995-2011	29 emerging countries	Dynamic panel data	OFDI, protectionism, corruption, bureaucracy, GDP, infrastructure, democratic accountability, EU membership

Hraiba, Ganić, & Branković (2019)	2000-2016	12 Mideast and North Africa countries	Panel data techniques: fixed effect estimation	FDI outflows, market size, trade openness, inflation, government efficiency, Arab Spring
Peres, Ameer, & Xu (2018)	2002-2012	110 countries	Panel data techniques	FDI, control of corruption, rule of law, infrastructure, market size, financial crises
Buitrago & Camargo (2020)	2007-2017	48 emerging economies	Factor analysis	OFDI, transparency of government, R&D+I, inequality, education and training, financial market, rules on inward FDI
Ciesielska-Maciągowska & Kołtuniak (2021)	2004-2018	CEE countries	Panel data analysis	Property rights, inefficiency of government spending, administrative burden, government policy transparency, innovative capacity

Source: Author's compilation.

As a result of slow process transition and international economic cooperation, it seems that transition countries lag in internationalization processes and regional integration. For instance, higher inflows of FDI than outflows of FDI were found in some research studies (Zemplinerova, 2001; Jaklič & Svetličić, 2003; Kalotay, 2006; Ganić & Hrnjić, 2019). Thus, the available empirical studies on the home country's determinants of OFDI nexus have mostly focused on panel data models or dynamic panel data, while the causality link is less explored. This study is based on support from various institution-based views and OFDI patterns as proposed by Peng et al. (2008), Kalotay (2006), and Stoian (2013). Therefore, this research is expected to improve the literature on the institutional quality and OFDI relation in a specific European region.

3 Methodology

The study covers 23 European countries divided into two subpanels: European transition countries (Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Moldova, Montenegro, North Macedonia, Russia, Serbia, and Ukraine) and European post-transition countries (countries that joined the EU after 2000: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia) between 2000 and 2019. The research combined country-level annual data on institutional proxies: legal institutions (rule of law – ROL), political institutions (control of corruption – CCOR), economic institutions (regulatory quality – REQ), political stability and absence of violence/terrorism (PLS) from the Worldwide Governance Indicators and FDI covers three essential dimensions of institutional quality: political stability, economic quality, and legal accountability, in line with Kuncic (2012), while net outflows (BOP in current USD) from the UNCTAD databases are a proxy for OFDI.

Political stability and absence of terrorism and violence (PLS) was employed in some recent studies conducted by Globerman and Shapiro (2002), Le and Zak (2006), and Das (2013), amongst others, and might be utilized to measure the political (in)stability. Some studies (Cuervo-Cazurra & Genc, 2008; Stal & Cuervo-Cazurra, 2011) showed that the escape of OFDI is driven by the home country's political instability and political uncertainty. Having in mind that a lower value of PLS index means higher political risk at home, we expect a negative sign. We use rule of law as a proxy for legal institutions and accountability, having in mind that Cuervo-Cazurra and Genz (2008) and Wu and Chen (2014) suggest that ineffective rules and regulations push many MNCs from emerging economies to counteract through OFDI. The variable of regulatory quality (REQ) is employed in several studies conducted by Cuervo-Cazurra and Genc (2008) and Cuervo-Cazurra and Ramamurti (2014) to measure whether institutional voids and poor regulatory quality enhance OFDI (Wu & Chen, 2014). The control of corruption variable (CCOR) is a proxy for measuring the level of corruption developed by Kaufmann, Kraay, and Zoido-Lobaton, (1999). Referring to control of corruption, some authors as Cuervo-Cazurra and Genc (2008) and Kaufmann (1997) suggest that corrupt behavior leads to a higher cost of doing business.

In the context of testing cross-section dependency in panels, Breusch and Pagan (1980) initially propose LM test statistics adapted to test the null of zero cross-equation error correlations. To calculate LM statistics, Breusch and Pagan (1980) propose the following equation:

$$LM = T\sum_{i=1}^{N-1}\sum_{j=1+1}^{N}\hat{\rho}_{ij}^{2} \tag{1}$$

The application of this test corresponds to the conditions when the dimension N is relatively small, while the dimension T is large enough, and within the null hypothesis LM the statistic has c^2 distribution with $N\left(\frac{N-1}{2}\right)$ degrees of freedom. However, a combination of both of the above dimensions is common in empirical research. Pesaran (2004) proposes alternative test statistics to examine the existence of cross-sectional dependence among residuals. The Pesaran (2004) test is based on the average of pairs of correlation coefficients for all observation units and can be applied to different specifications of panel models, from homogeneous to heterogeneous, from stationary to non-stationary. In fact, Pesaran (2004) develops the following scaled version of the LM test:

$$CD_{Pesaran} = \sqrt{\frac{2T}{N(N-1)}}\left(\sum_{i=1}^{N-1}\sum_{j=i+1}^{n}\hat{\rho}_{ij}\right), \tag{2}$$

where:

$\hat{\rho}_{ij}$ presents the cross-sectional correlations among residuals expressed as follows:

$$\hat{\rho}_{ij} = \frac{\sum_{t=1}^{T} u_{it}\, u_{jt}}{\left(\sum_{t=1}^{T} u_{it}^{2}\right)^{\frac{1}{2}}\left(\sum_{t=1}^{T} u_{jt}^{2}\right)^{\frac{1}{2}}}, \tag{3}$$

where u_{it} presents residues from the estimated regression.

By testing the stationarity of a process, we can examine whether the time series is characterized by a tendency to return to the mean value, and whether a certain process can be stationary by differentiating it.

For the examination of the cross-sectional dependence in our models, we follow CADF and CIPS tests developed by Pesaran (2007). In fact, Pesaran (2007) proposes to calculate the ADF test for each time series in the panel and then based on the cross-sectional augmented ADF statistics or test statistics are formed. Based on the calculated $CADF_i$ test statistics, Pesaran (2007) suggests the application of the modified IPS *t*-bar test procedure. In fact, the CIPS test is based on the sample averages of the observed individual cross-section CADF statistics as follows:

$$CIPS = \frac{1}{N}\sum_{i=1}^{N} CADF_i \tag{4}$$

CIPS panel statistics give more accurate results than $CADF_i$, since $CADF_i$ only applies to individual unit root tests. Testing of the stationary panel is based on the critical values determined by Pesaran (2007) for the model without constant, with constant, and for the model with constant and trend.

To examine the cointegration of variables, Westerlund (2007) developed two group mean statistics (G_a and G_t) and two panel statistics (P_a and P_t), normally distributed and based on structural rather than residual dynamics. Also, they do not include any limitation of common factors, and the tests are robust enough in relation to the heterogeneity and dependence of the observation units. The Westerlund (2007) cointegration test performs very well in small samples and has the ability to make accurate predictions. Accordingly, we examine whether cointegration among OFDI, CCOR, REQ, ROL, and PLS exists. In the case when the null hypothesis of non-existence of cointegration is rejected, then cointegration is present. A necessary condition for conducting this analysis is that the variables of interest are integrated I (1).

After determining the correlation between the observed variables, the next process is done by using the VECM to interpret long-term and short-term equations, and to examine the existence of a long-term correlation between the observed variables. The interdependence between institutional quality and OFDI tends to be expressed through the VECM (vector error-correction) model, which assumes the existence of a cointegration (long-term) relationship between the observed variables.

According to Engle and Granger (1987), it might be said that the elements of the vector of random variables $z_t = (z_{1t}, z_{2t},\ldots z_{Kt})'$ are cointegrated of order d, b. Further, it might be expressed as $z_t \sim CI\ (d, b)$ if: there are all elements of the vector z_t integrated of order d, and if there is a vector $\beta = (\beta_1, \beta_2,\ldots \beta_K)$` such that it is a linear combination of $\beta' z_t = \beta_1 z_{1,t} + \beta_2 z_{2,t} + \beta_K z_{K,t}$ for $\beta \neq 0$ integrated of order (d, b), where $\beta > 0$.

For instance, if all elements of the vector z_t I (1) are processed, and the linear combination $\beta` z_t$ is stationary, i.e. $I(=0)$ process, then there is a cointegration link $z_t \sim CI\ (1,1)$. The vector b is called the cointegration vector. If the variables are cointegrated, then they imply to be tied up by a long-run equilibrium relationship.

The characteristic of cointegrated variables is that their short-term trajectories are affected by the long-term equilibrium represented by cointegration vectors. Then, the vector error correction model (VECM) can be specified as follows:

$$\Delta z_t = v + \Pi z_{t-1} + \Gamma_1 \Delta z_{t-1} + \ldots + \Gamma_{\rho-1} \Delta z_{t-p+1} + u_t, \qquad (5)$$

where $\prod = \alpha\beta`$, $\beta`$ is a cointegration matrix or a matrix of cointegration vectors, while α is a loading matrix whose parameters show the rate of adjustment of variables in the model according to the long-run equilibrium represented by the cointegration vector.

In case the rank of the matrix (number of independent variables of the vector: rows or columns in the matrix) $\prod$ is equal to zero (zero matrix), i.e., rank $(\prod) = 0$, the VECM model is converted to a regular VAR model in the first difference. It implies that variables can be differentiated separately and included in a simple reduced VAR model. On the other hand, if the rank of the matrix is $\prod = 0$, where K denotes the number of variables in the model, it is a stable VAR I(0) process in the level. In case the rank of the matrix $\prod$ is between 0 and K $(0 < \prod < 0)$. It is assumed that there is a cointegration (long-term) relationship between the variables.

After this clarification, now the model can be constructed using a panel VECM model specified as follows:

$$\Delta OFDI_{it} = \alpha_{1i} + \sum_{i=1}^{o}\beta_{1i}\Delta OFDI_{it-1} + \sum_{i=1}^{p}\beta_{1i}\Delta CCOR_{it-1} + \sum_{i=1}^{q}\beta_{1i}\Delta REQ_{it-1} + \sum_{i=1}^{r}\beta_{1i}\Delta PLS_{it-1} + \sum_{i=1}^{s}\beta_{1i}\Delta ROL_{it-1} + \lambda_1 ect_{t-1} + \mu_{1it} \quad (6)$$

$$\Delta CCOR_{it} = \alpha_{2i} + \sum_{i=1}^{o}\beta_{1i}\Delta OFDI_{it-1} + \sum_{i=1}^{p}\beta_{1i}\Delta CCOR_{it-1} + \sum_{i=1}^{q}\beta_{1i}\Delta REQ_{it-1} + \sum_{i=1}^{r}\beta_{1i}\Delta PLS_{it-1} + \sum_{i=1}^{s}\beta_{1i}\Delta ROL_{it-1} + \lambda_2 ect_{t-1} + \mu_{2it} \quad (7)$$

$$\Delta REQ_{it} = \alpha_{3i} + \sum_{i=1}^{o}\beta_{1i}\Delta OFDI_{it-1} + \sum_{i=1}^{p}\beta_{1i}\Delta CCOR_{it-1} + \sum_{i=1}^{q}\beta_{1i}\Delta REQ_{it-1} + \sum_{i=1}^{r}\beta_{1i}\Delta PLS_{it-1} + \sum_{i=1}^{s}\beta_{1i}\Delta ROL_{it-1} + \lambda_3 ect_{t-1} + \mu_{3it} \quad (8)$$

$$\Delta PLS_{it} = \alpha_{4i} + \sum_{i=1}^{o}\beta_{1i}\Delta OFDI_{it-1} + \sum_{i=1}^{p}\beta_{1i}\Delta CCOR_{it-1} + \sum_{i=1}^{q}\beta_{1i}\Delta REQ_{it-1} + \sum_{i=1}^{r}\beta_{1i}\Delta PLS_{it-1} + \sum_{i=1}^{s}\beta_{1i}\Delta ROL_{it-1} + \lambda_4 ect_{t-1} + \mu_{4it} \quad (9)$$

$$\Delta ROL_{it} = \alpha_{5i} + \sum_{i=1}^{o}\beta_{1i}\Delta OFDI_{it-1} + \sum_{i=1}^{p}\beta_{1i}\Delta CCOR_{it-1} + \sum_{i=1}^{q}\beta_{1i}\Delta REQ_{it-1} + \sum_{i=1}^{r}\beta_{1i}\Delta PLS_{it-1} + \sum_{i=1}^{s}\beta_{1i}\Delta ROL_{it-1} + \lambda_5 ect_{t-1} + \mu_{5it} \quad (10)$$

where ECT is defined as follows:

$$ECT_{it} = \Delta OFDI_{it} - \beta_0 - \beta_1\Delta CCOR_{it} - \beta_2\Delta REQ_{it} - \beta\Delta PLS_{it} - \beta_4\Delta ROL_{it} \quad (11).$$

The result of relationships presented in eq.6 – eq.11 is that either $\Delta OFDI_{it}$, $\Delta CCOR_{it}$, ΔREQ_{it}, ΔPLS_{it}, ΔROL_{it} or a combination of any of them are caused by ect_{t-1}. To run causality testing, the study employs a procedure developed by Dumitrescu and Hurlin (2012) for examining the "homogeneous non-causality" versus the "heterogeneous non-causality" in panel datasets. It aims to explore the nature of feedback effect that exists between the home country's institutional quality variables and OFDI considering two dimensions of heterogeneity in the panel set and coefficients that are different across sections.

4 Findings and Discussion

In order to test cross-sectional dependence or independence between variables, the study follows the approaches developed by (i) Breusch-Pagan LM test (1980), (ii) Pesaran (2004) LM test, (iii) and Pesaran, Ullah and Yamagata (2008) bias-adjusted CD test. As shown in Table 2, the null hypothesis of cross-section independence is rejected at 1 percent level of significance. In addition, the output in Table 2 shows that cointegration coefficients are heterogeneous, whereas the null hypothesis of homogeneity of the cointegration coefficients is rejected at 1 percent level of significance.

Table 2: *Results of Cross-Sectional Dependency and Homogeneity Tests*

Cross-sectional dependency tests (H0: Cov(uit,ujt) = 0 for all t and i!=j)		
Test	**Statistic**	***p*-value**
LM (Breusch & Pagan, 1980)	441.1	0.0000
Bias-adjusted CD (Pesaran et al. 2008)	12.31	0.0000
LM (Pesaran, 2004)	6.997	0.0000
Slope homogeneity tests (Pesaran & Yamagata, 2008)		
Test	**Statistic**	***p*-value**
$\hat{\Delta}$ test	12.222	0.000
$\hat{\Delta}_{adj}$	14.831	0.000

Source: Author's calculations.

Although there exists cross-sectional dependence among observation units, when examining panel stationarity, the study uses recently developed second generation of CIPS and CADF panel unit root tests (Pesaran, 2007). The estimated results of the stationarity analysis are shown in Table 3. Although some variables (CCOR, REQ, PLS) were found to be non-stationary at level, both Pesaran's test statistics for CADF and CIPS suggest that all variables are stationary at the same level of integration I (1) after first differences. It reveals that test results from CIPS and CADF panel unit root tests can be used for the purpose of investigating the long-run relationships between OFDI and the home country's institutional quality.

Table 3: *CIPS and CADF Panel Unit Root Tests*

Variables	CIPS test		CADF test	
	Constant	*Constant & trend*	*Constant*	*Constant & trend*
LNOFDI	-2.936***	-2.936***	-3.158***	-2.631*
d(LNOFDI)	-4.381***	-4.383***	-3.761***	-3.758***
LNCCOR	-2.157**	-2.223	-1.966	-1.953
d(LNCCOR)	-4.667***	-4.854***	-2.855***	-3.218***
LNREQ	-2.461***	-2.461***	-1.833	-2.314
d(LNREQ)	-4.676***	-3.010***	-3.381***	-3.626***
LNPLS	-3.523***	-3.743***	-2.369	-2.523
d(LNPLS)	-5.061***	-5.128 ***	-3.626***	-3.715***
LNROL	-3.106***	-3.202***	-2.923***	-2.911***
d(LNROL)	-4.564***	-4.454***	-3.645***	-3.643***

Note: *, ** and *** denote significance at 10%, 5% and 1%, respectively.
Source: Author's calculations.

Except for CCOR variable at level, the null hypothesis is rejected for all remaining variables at their first differences in the CIPS statistics. In the case of CADF statistics, the null hypothesis is accepted for CCOR, REQ and PLS variables at their levels, but it is rejected at their first differences.

As the next step, cointegration relationship is examined because all variables have the same order of integration I (1). It is then possible to examine the null hypothesis of no cointegration by using Westerlund (2007) ECM (Error Correction Model) panel cointegration tests (Table 4). Westerlund (2007) ECM panel cointegration tests explored individual and common cointegration tests. The findings obtained from the model for both types of tests suggest that three out of four statistics (except P_t) confirm validity of using the VECM.

Table 4: *Westerlund (2007) ECM Panel Cointegration Tests*

	Statistics (H0: no cointegration)	***Z*-value**	**Robust *p*-value**
Individual cointegration process			
Group mean test, G_t	-2.605	-2.857	0.020
Group mean test, G_α	-3.529	4.188	0.000
Common cointegration process			
Panel test, P_t	-6.945	0.504	0.490
Panel test, P_α	-4.406	1.096	0.030

Source: Author's calculations.

Findings in Table 4 indicate that there is cointegration among the variables in our model. In fact, it can be used as evidence of cointegration for the panel as a whole and/or at least for one of the countries in these panels. Furthermore, in the long-run estimation of Panel A, three selected variables (CCOR, REQ and ROL) have a long-term relationship with OFDI at 1 percent level of significance and PLS at 10 percent level of significance (Table 5). Estimation results in Panel A show that, in the long run, one percent increase in CCOR and PLS will cause an OFDI increase by 8.57 percent and 2.7 percent respectively, and one percent increase in REQ and ROL will cause an OFDI decrease by 4.11 and 8.5 percent, respectively. In Panel C, only variables CCOR at one percent and REQ at five percent have significant long-term influence on OFDI. In Panel B, only a variable of CCOR exerts negative and statistically significant long-run influence on OFDI at one percent, whereas a variable of ROL has positive and statistically significant long-run influence at five percent level of significance.

Table 5: Long-Run Cointegration Equation

Variables	Coefficient	St. error	*t*-statistic
Panel A: The whole sample: Specification of long-run equation: 2.39+8.57-4.11+2.7--8.5			
OFDI (-1)	1.000000		
CCOR (-1)	8.573759	(0.95784)	[-8.95115]***
REQ (-1)	-4.113628	(0.97050)	[-4.23866]***
PLS (-1)	2.705638	(1.46076)	[1.85221] *
ROL (-1)	-8.504103	(1.86272)	[-4.56543] ***
C	2.395217		
Panel B: European post-transition countries estimates: Specification of long-run equation: 15.54-7.07-2.57-4.88+5.88			
	1.000000		
CCOR (-1)	-7.075842	(2.61297)	[-2.70797]***
REQ (-1)	-2.576246	(1.59299)	[-1.61723]
PLS (-1)	-4.880307	(3.90009)	[-1.25133]
ROL (-1)	5.889792	(2.74959)	[2.14206] **
C	15.54602		
Panel C: European transition countries estimates: Specification of long-run equation: -0.62+11.66--6.19-0.026-4.22			
OFDI (-1)	1.000000		
CCOR (-1)	11.66548	(2.28134)	[5.11344]***
REQ (-1)	-6.194993	(2.50957)	[-2.46855]**
PLS (-1)	-0.026559	(3.46830)	[-0.00766]
ROL (-1)	-4.223540	(4.57916)	[-0.92234]
C	-0.623232		

Source: Author's calculations.

Note: *, ** and *** denote significance at 10%, 5% and 1%, respectively.

Moreover, the expected negative sign of the ECT coefficients was found, in all three panels (Table 6). As expected, this confirms the existence of a long-run impact of the variables: CCOR, ROL, REQ and PLS on OFDI in Panel A and Panel B at one percent level of significance. The data reveal a strong convergence from short dynamics towards a long-run equilibrium level in Panel A (6 percentage points) and Panel B (9.7 percentage points). Although in Panel C there is a 1.3 percentage points adjustment towards the long-run period, it is not very stable over the period.

Table 6: *The Short-Run Results (Error Correction Model)*

Variables	Coefficient	St. error	*t*-statistic
Panel A: The whole sample			
ECT	-0.066937	0.008934	-7.492580***
OFDI(-1)	0.021222	0.044805	0.473650
OFDI(-2)	-0.112740	0.028047	-4.019673***
LN_CCOR(-1)	-0.008192	0.179946	-0.045523
LN_CCOR(-2)	-0.183788	0.169968	-1.081313
LNREQ(-1)	0.118326	0.165190	0.716301
LNREQ(-2)	-0.630025	0.150582	-4.183934***
LNROL(-1)	0.025599	0.250004	0.102395
LNROL(-2)	0.296624	0.234051	1.267347
LNPLS(-1)	0.523935	0.251515	2.083119**
LNPLS(-2)	0.583136	0.182680	3.192116***
R-squared 0.25; *F*-statistic 24.62; Prob(*F*-statistic) 0.000001; Sum sq. resids 17.54			
Panel B: European post-transition countries estimates			
ETC	-0.097797	0.018817	-5.197423***
OFDI(-1)	0.112592	0.070156	1.604872
OFDI(-2)	-0.036486	0.068124	-0.535588
LN_CCOR(-1)	-1.342810	0.573877	-2.339890**
LN_CCOR(-2)	0.386751	0.552704	0.699743
LNREQ(-1)	0.062768	0.328561	0.191040
LNREQ(-2)	0.095207	0.284447	0.334710
LNROL(-1)	1.006553	0.578181	1.740895*
LNROL(-2)	-0.193301	0.555229	-0.348147
LNPLS(-1)	-0.768409	0.670635	-1.145793
LNPLS(-2)	0.177597	0.571827	0.310578
R-squared 0.58; *F*-statistic 3.94; Prob(*F*-statistic) 0.0000; Sum sq. resids 2.70			
Panel C: European transition countries estimates			
ETC	-0.013261	0.008295	-1.598606
OFDI(-1)	0.039367	0.057286	0.687200
OFDI(-2)	0.043390	0.054759	0.792382
LN_CCOR(-1)	-0.125017	0.204898	-0.610143
LN_CCOR(-2)	-0.385205	0.192906	-1.996856**
LNREQ(-1)	-0.054309	0.192333	-0.282367
LNREQ(-2)	-0.041520	0.176270	-0.235550
LNROL(-1)	0.353009	0.277182	1.273567
LNROL(-2)	-0.042896	0.266780	-0.160790
LNPLS(-1)	0.351744	0.289437	1.215270
LNPLS(-2)	-0.449313	0.207800	-2.162236**
R-squared 0.09; *F*-statistic 1.73; Prob(*F*-statistic) 0.049; Sum sq. resids 11.02			

Source: Author's calculations.

Note: *, ** and *** denote significance at 10%, 5% and 1%, respectively.

Table 6 shows the estimation of error correction model for European transition countries, where error correction model is significant, explaining OFDI in terms of error from long-run cointegration and dependent variables (second order lag of CCOR and second order lag of PLS) at the current level in the short run. They have an inverse relationship with OFDI, while other lagged dependent variables are found to be insignificant in explaining OFDI in EU transition countries. For CCOR (second order lag), a percentage change in CCOR is associated with a 38.5 percent of adjustment and in PLS with a 44.93 percent of adjustment needed in a year. It is found that CCOR needs about 2.6 years and PLS about 2.2 years to reach a long-run equilibrium from the estimated results. In the short-run scenario, the VECM estimation output from the cointegration equation indicates that, in European post-transition countries, the CCOR variable exerts negative and ROL positive statistically significant long-run influence on OFDI at five percent and at ten percent level of significance, respectively. Thus, for European post-transition countries, it might be concluded that increases of OFDI outflows tend to be followed by improved control of corruption and improved contract enforcement. In fact, in the equation for European post-transition countries, second order lag of OFDI is associated with a 11.27 percent of adjustment, second order lag of REQ with a 63 percent of adjustment, first lag of PLS with a 52.4 and second order lag of PLS with a 58 percent of adjustment. The estimated results indicate that second lag of OFDI needs about 8.9 years, REQ about 1.58 years, first lag of PLS about 1.9 years and second lag of PLS 1.72 years to reach long-run equilibrium. The research reveals that the rate of adjustment in European post-transition countries is lower than in European transition countries and can be explained with insufficient control of corruption and with higher political instability in European transition countries (Table 6). This is in line with some early studies and institution-based approach proposed by Peng, Wang, and Jiang (2008), Luo, Xue, and Han (2010), Arize, Andreopoulos-Campanelli, Kallianiotis, and Malindretos (2018), Stoian and Mohr (2016), Götz and Jankowska (2016), and Barnard and Luiz (2018).

Next, directions of causal relationship among the variables for Granger causality is examined by Dumitrescu-Hurlin (2012) panel causality tests (Table 7). A series of panel findings by Dumitrescu-Hurlin (2012) panel causality tests among variables such as OFDI, CCOR, REQ, ROL and PLS for European post-transition and European transition countries is shown in Table 7. In the sample of European post-transition countries, the findings show that OFDI causes rule of law and regulatory quality, whereas control of corruption causes rule of law and political stability at a five percent level of significance. We could not find any bidirectional causality among the variables for the region sample. In addition, the study could not find any causal relationship between OFDI and CCOR, and among rule of law, regulatory quality, political stability, and control of corruption. Moreover, the study indicates that presence of Granger causality is not homogenous across the group countries. This might be explained with the fact that institution-building and improvement of institutional environment is still ongoing in most transition countries, with many institutional voids and different starting points for their internalization process. In addition, some of the considered countries, especially European transition countries, are in stage two or stage three of their IDP development. These findings are in line with similar studies by Jaklič and Svetličić (2003), Kalotay, (2006), and Zemplinerova (2001).

Table 7: *Results of Pairwise Dumitrescu-Hurlin Panel Causality Tests*

Null Hypothesis:	**European post-transition countries**		**European transition countries**	
	Zbar-Stat.	***Decision***	***Zbar-Stat.***	***Decision***
LN_CCOR does not homogeneously cause LN_OFDI	1.08728	No causality	0.74326	Unidirectional causality
LN_OFDI does not homogeneously cause LN_CCOR	5.26837		2.8448**	
LNREQ does not homogeneously cause LN_OFDI	0.15427	Unidirectional causality	4.00905	Unidirectional causality
LN_OFDI does not homogeneously cause LNREQ	2.2348**		2.85415**	
LNROL does not homogeneously cause LN_OFDI	0.39197	Unidirectional causality	3.02405**	Unidirectional causality
LN_OFDI does not homogeneously cause LNROL	1.70637*		-0.14707	

LNPLS does not homogeneously cause LN_OFDI	-0.1285	Unidirectional causality	2.84442**	Bidirectional causality
LN_OFDI does not homogeneously cause LNPLS	1.89208*		2.25029**	
LNREQ does not homogeneously cause LN_CCOR	0.22048	No causality	2.68395**	Unidirectional causality
LN_CCOR does not homogeneously cause LNREQ	5.61641		1.01434	
LNROL does not homogeneously cause LN_CCOR	-1.1017	Unidirectional causality	2.70675**	Bidirectional causality
LN_CCOR does not homogeneously cause LNROL	2.4631**		1.84316*	
LNPLS does not homogeneously cause LN_CCOR	0.65040	Unidirectional causality	1.48237	No causality
LN_CCOR does not homogeneously cause LNPLS	2.4330**		1.24872	
LNROL does not homogeneously cause LNREQ	0.18869	No causality	1.92537*	Bidirectional causality
LNREQ does not homogeneously cause LNROL	4.07748		2.15556**	
LNPLS does not homogeneously cause LNREQ	0.68686	No causality	0.81320	Unidirectional causality
LNREQ does not homogeneously cause LNPLS	-0.39789		2.27975**	
LNPLS does not homogeneously cause ROL	4.73501	No causality	2.34069**	Bidirectional causality
LNROL does not homogeneously cause LNPLS	0.80085		2.68535**	

Source: Author's calculations.

Note: *, ** and *** denote significance at 10%, 5% and 1%, respectively.

As opposed to that, in the sample of European transition countries, we found bidirectional causality between OFDI and political stability, political stability and rule of law, as well as rule of law and control of corruption at a five percent level of significance. In this case, the null hypothesis of no causality is rejected. In addition, there is unidirectional causality running from OFDI to control of corruption; OFDI to regulatory quality; OFDI to rule of law; OFDI to political stability; regulatory quality to rule of law; regulatory quality to political stability; and rule of law to political stability. Furthermore, after VECM estimation was conducted, some post-estimate tests were employed to examine whether the number of cointegration equations was miscalculated. Root tests of residual stability are less than 1 (Figure 1 and Figure 2) for both regions proving stability of the VECM model.

Figure 1: *Inverse Roots of AR for the European post-transition countries*

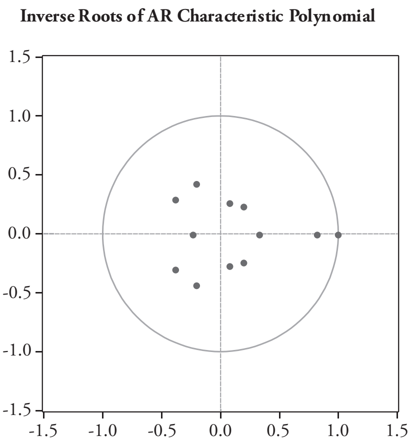
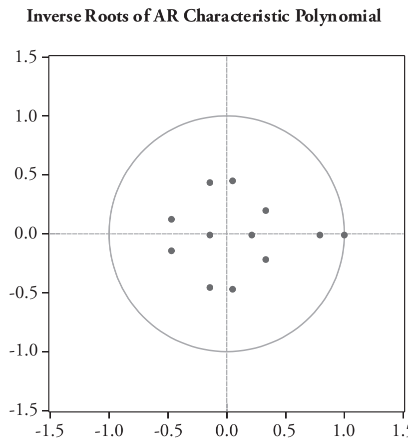


Figure 2: *Inverse Roots of AR for European transition countries*



Source: Author's calculations.

In fact, this implies that prediction of the number of cointegration equations is stationary, while the VECM model has favorable effects and meets the stability condition.

5 Conclusion

Key findings of this research indicate that not all countries' institutional indicators had an equal impact on OFDI. This study found there were differences between OFDI and institutional quality in European transition countries and European post-transition countries. For instance, in European post-transition countries, there was no bidirectional causality among the variables, while in European transition countries four cases were discovered. However, in European transition countries, OFDI showed bidirectional causal relationship with political stability. On the contrary, in European post-transition countries, there was a unidirectional relationship between political stability and OFDI. This implies that political stability in the long term has positive effects on OFDI in both regions.

Moreover, findings from the Dumitrescu-Hurlin panel causality tests revealed that there existed no causal relationship between the observed indicators of home country's institutional quality and OFDI in European post-transition countries apart from political stability. The same findings for European transition countries are mixed because two variables, rule of law and political stability, have causal relationship with OFDI, whereas control of corruption and regulatory quality have no causal relationship with OFDI. In conclusion, there is evidence, for the period being investigated, of causality between the home country's institutional quality and OFDI in both regions.

The current framework of the home country's institutional environment in the majority of observed transition countries fails to adequately promote OFDI. The study identified key directions for possible future improvements in institutional quality of the national governments by increasing the expansion of local companies in foreign markets and encouraging the OFDI regime. For instance, the results of this study provide some useful information for policymakers in both regions. In European post-transition countries, there is serious hesitation about the effects of the home country's institutional environment on OFDI. In fact, it is obvious that the level of internalization still has a low priority in the companies' and national strategy. One of the possible explanations is that the current home country's institutional environment, which includes the OFDI regime, creates constraints for foreign expansion of local companies. In European transition countries, some home country's variables, such as a lack of control of corruption and low quality of regulation, cause some difficulties in the internalization of local companies and deter OFDI. The current national policy framework for OFDI seems to suffer due to low quality of institutions in their home market. Accordingly, this study recommends that the further improvement of control of corruption, enhanced quality standard of regulation and contract enforcement should be a part of the new policy of actively promoting OFDI. This might help increase the potential of local companies from both regions to go to foreign markets.

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