Uniwersytet Ekonomiczny w Katowicach

Studia Ekonomiczne. Zeszyty Naukowe
Uniwersytetu Ekonomicznego w Katowicach
ISSN 2083-8611 Nr 382 · 2019

Aneta Bobenič Hintošová

University of Economics in Bratislava
Faculty of Business Economics with seat in Košice
Department of Management
aneta.bobenic-hintosova@euke.sk

ANALYSIS OF INWARD AND OUTWARD FOREIGN DIRECT INVESTMENTS IN SLOVAKIA

Summary: Foreign direct investment is a widely discussed topic within economic literature. However, especially in conditions of transition economies significant disparities between inward and outward foreign direct investment, from their volume as well as from their nature point of view, are obvious. The objective of the present paper is to provide overview of the volume of inward as well as outward foreign direct investments in Slovakia and subsequently to analyse relationships among different types of foreign direct investments. The analysis is conducted for the period of 2003-2016 using correlation and regression analysis. The results show that foreign direct investment inflows are driven primarily by greenfield projects located in Slovakia, and similarly foreign direct investment outflows are driven by greenfield projects realised by Slovak companies abroad.

Keywords: inward, outward foreign direct investments, greenfield projects, mergers and acquisitions.

JEL Classification: F21, M16, P33.

Introduction

The significant role within economic growth and development of the country is attributed to foreign direct investment (FDI) flows. What are the main motivating factors that are attracting FDI inflows on one hand, why firms prefer to invest abroad in form of FDI outflows and how entries to the foreign countries are made on the other hand, are usual questions that are going to be answered by foreign direct investment theories and empirical findings. One of the best known theories that usefully classifies stage of development of the country according to its propensity to be outward or inward direct investor is the investment develop-

ment path developed by Dunning [1981]. During the first stage, the location advantages of a country are insufficient to attract inward direct investment, with the exception of those due to the possession of natural assets. At the same time domestic firms from the country do not have the necessary advantages to engage in outward direct investment. In the second stage, inward direct investment starts to rise, while outward investment remains low or negligible. Countries in the third stage are marked by a gradual decrease in the rate of growth of inward direct investment, and an increase in the rate of growth of outward direct investment that results in increasing net outward investment. Stage four is reached when a country's outward direct investment flows exceeds or equals the inward investment flows from foreign-owned firms, and the rate of growth of outward direct investment is still rising faster than that of inward direct investment. In the fifth stage net outward investment begins to fall back as outward and inward investment become more balanced.

It is generally believed that Central and Eastern European countries (CEECs) at large are in transition from the second to the third stage of the investment development path, i.e. despite there are growing ownership advantages for domestic firms, they are still net recipients of FDI due to locational advantages in the CEECs [Kalotay, 2004; Goh, Wong, 2014].

The objective of the present paper is to provide general overview of inward and outward FDI specifically in the conditions of the Slovak republic and subsequently to analyse relationships among different types of foreign direct investments. The rest of the paper is organized as follows: section 1 presents the literature review on the topic connected with FDI inflows and outflows, specifically in the conditions of Central and Eastern European countries, section 2 introduces the dataset and explains the methodology, section 3 brings own empirical results and their discussion followed by the concluding remarks.

1. Literature review

Foreign direct investment is a widely discussed topic within economic literature. It is generally believed that the advantages that FDI brings to the standard of living and prospects for economic growth of the host country, largely outweigh its disadvantages [Janicki, Wunnava, 2004]. As Gauselmann, Knell and Stephan [2011] state, the Central and Eastern European countries were regarded as unattractive locations for foreign direct investment (FDI) after the collapse of the communism. Once the transition recession was overcome and the economies started on the process of catching up with Western European levels of GDP per

capita, the CEECs became prime targets for FDI. There is a large number of existing researches focusing on FDI, and their determinants also in conditions of CEE transition economies, especially the Visegrad countries. Galego, Vieira and Vieira [2004] claim that the Visegrad countries dominates in absolute terms in FDI inflows to the region. Regarding the topics, plenty of the empirical works are focusing on analysing of determinants of foreign direct investment inflows and their promotion [e.g. Bevan, Estrin, 2000; Drahokoupil, 2008; Galego, Vieira, Vieira, 2004; Gauselmann, Knell, Stephan, 2011; Ginevičius, Šimelyté, 2011; Gorbunova, Infante, Smirnova, 2012; Janicki, Wunnava, 2004; Riedl, 2010; Wach, Wojciechowski, 2016]. There can be found also some works dealing separately with outflow of foreign direct investments from Central European countries [e.g. Ferenčíková, Ferenčíková, 2012; Radlo, Sass, 2012; Wei, Zhu, 2007], however these are more sporadic.

This is even more true for empirical works analysing FDI inflows and outflows simultaneously. Jain, Gopalaswamy and Acharya [2014] examined the long-run relationship between FDI inflows, FDI outflows and gross fixed capital formation in a dynamic panel of 22 Asian, Latin American and other emerging market economies and found a mixed picture of these relationships across the three sub-samples. Similarly, Goh and Wong [2014] in conditions of Malaysia found that there is a long-run equilibrium relationship involving four variables, i.e. between domestic investment and its determinants such as FDI outflows, FDI inflows and domestic savings. The empirical study by Tan, Goh and Wong [2016] conducted in conditions of ASEAN countries revealed that both inward FDI and outward FDI, to some extent, are complementary to the gross domestic investment. In particular, FDI inflows as significant determinant of FDI outflows should be pointed out, because it suggests that the foreign multinationals operating in the country/ region are the driving force behind outward FDI growth [Tan, Wong, Goh, 2018; Yao et al., 2016]. Thus, bidirectional relationship between FDI inflow-outflow should be studied in more details. However, similar researches conducted in conditions of CEECs are rather scarce. Thus, the present paper deals in more details with FDI inflows-outflows relationship within conditions of Slovakia.

2. Data and methodology

As a source of the data, the FDI/TNC database of UNCTAD is used. The data are reported on a country level from 2003 to 2016. UNCTAD regularly collects published and unpublished national official FDI data directly from cen-

tral banks, statistical offices or national authorities on an aggregated and disaggregated basis for its FDI/TNC database. Data on FDI flows are constructed on a net basis (capital transactions' credits less debits between direct investors and their foreign affiliates). FDI flows with a negative sign indicate that at least one of the three components of FDI (equity capital, reinvested earnings or intracompany loans) is negative and not offset by positive amounts of the remaining components. Separately are analysed different types of foreign direct investments, namely mergers and acquisitions (M&A) and greenfield investments.

Relationships among different types of FDI are analysed through correlation analysis, using Pearson and Spearman correlation coefficients. Subsequently, the relationships are analysed more deeply by regression analysis using OLS technique. Two linear regression models are constructed. In the model (1) the dependent variable – volume of inward FDI is supposed to be influenced by value of cross-border M&A by economy of seller, i.e. Slovakia and by value of announced greenfield projects allocated in Slovakia. In the model (2) the dependent variable – volume outward FDI is supposed to be influenced by value of cross-border M&A by economy of purchaser, i.e. Slovakia and by value of announced greenfield projects allocated by Slovakian companies abroad.

3. Results and discussion

Following Fig. 1 shows overview of inward and outward FDI in the conditions of the Slovak republic. The input data are derived from the *World Investment Report* [2017] focusing on trends in foreign direct investment worldwide, at the regional and country levels. From the Fig. 1 it is obvious that the volume of inward foreign direct investments in the observed period was significantly higher in comparison to the volume of outward foreign direct investments. This can indicate that from the development path point of view the Slovak economy in the majority of observed period was in the second stage with prevalence of foreign direct investment inflows. The situation changed in 2009 when foreign direct investment outflows dominated. This change however, can be attributed to the consequences of financial crisis, rather than to structural changes within the economy. Similarly, Goh and Wong [2014] concluded that the Central European region is vulnerable to global economic shock. The trend started obviously to change in 2013 that can indicate gradual transition to the third stage of investment development path.

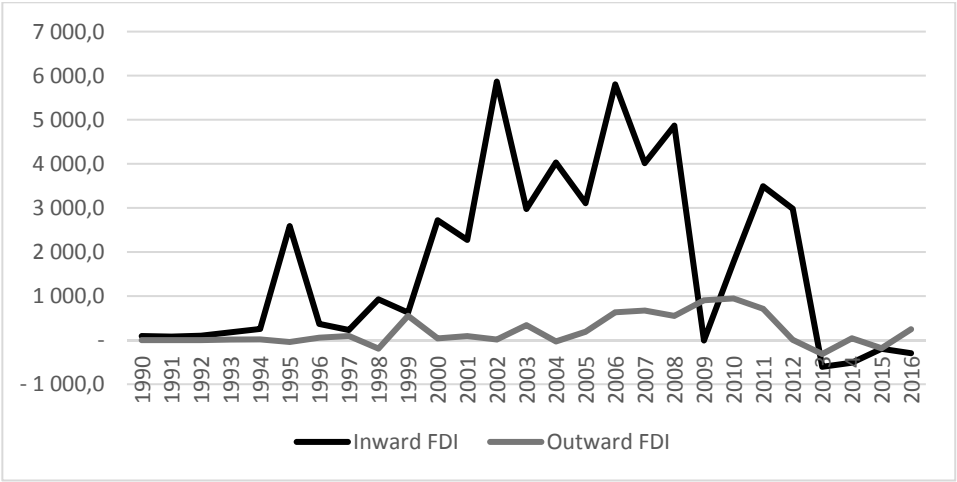

Fig. 1. Inward and outward FDI in conditions of the Slovak republic in millions of dollars

Source: Own processing according to data from *World Investment Report* [2017] .

The following Fig. 2 presents in more details development of main types of foreign direct investment inflows, namely mergers and acquisitions and greenfield investments. Volume of cross-border mergers and acquisitions (M&A) is calculated on a net basis as follows: sales of companies in the host economy to foreign TNCs (-) sales of foreign affiliates in the host economy. The data cover only those deals that involved an acquisition of an equity stake of more than 10%. Data refer to the net sales by the economy of the immediate acquired company, i.e. the Slovak economy. Data on greenfield investments refer to estimated amounts of capital investment in millions of dollars.

It is obvious that the volume of cross-border M&As, namely sales of companies incorporated in the Slovak republic developed constantly in the observed period. The total volume of inward foreign direct investments was most significantly influenced by greenfield projects located to the Slovak republic.

The following Fig. 3 presents in more details development of main types of foreign direct investment outflows, namely mergers and acquisitions and greenfield investments. Volume of cross-border M&A purchases are calculated on a net basis as follows: purchases of companies abroad by home-based TNCs (-) sales of foreign affiliates of home-based TNCs. The data cover only those deals that involved an acquisition of an equity stake of more than 10%. Data refer to the net purchases by the economy of the ultimate acquiring company, i.e. the Slovak economy. Data on greenfield investments refer to estimated amounts of capital investment in millions of dollars.

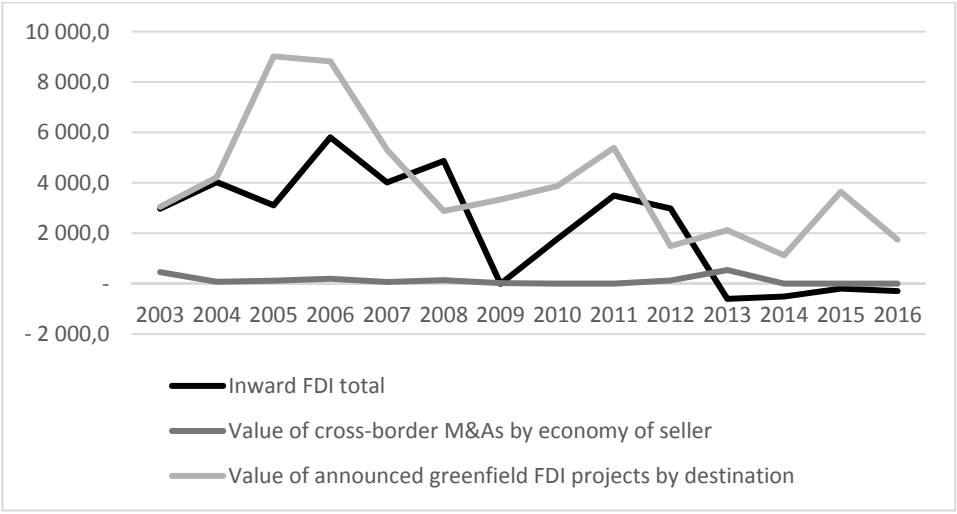

Fig. 2. Types of inward FDI in conditions of the Slovak republic in millions of dollars
Source: Own processing according to data from *World Investment Report* [2017].

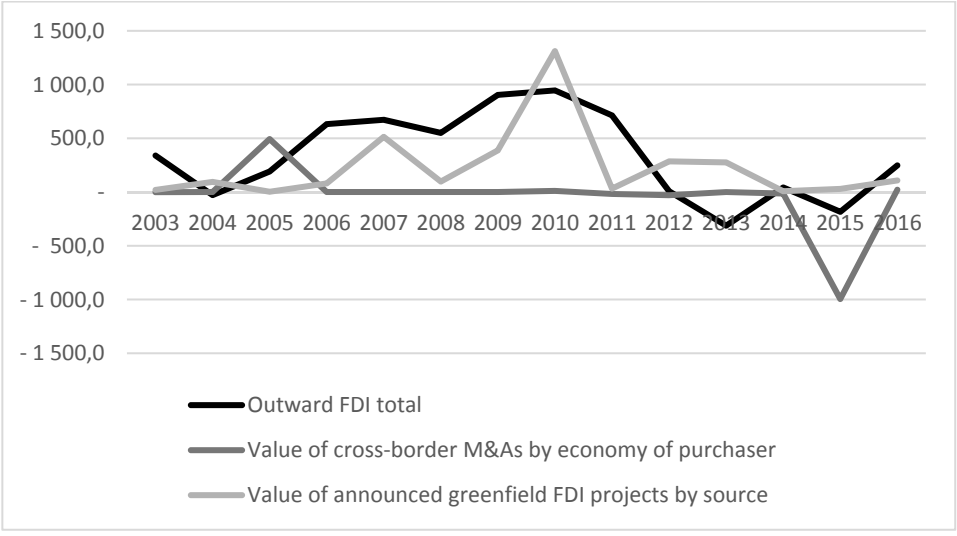

Fig. 3. Types of outward FDI in conditions of the Slovak republic in millions of dollars
Source: Own processing according to data from *World Investment Report* [2017].

Similarly, as in case of inward FDI the volume of cross-border M&As developed more constantly in the observed period. It seems that the total volume of outward foreign direct investments was most significantly influenced by greenfield projects realized by Slovak companies abroad.

Further, correlation analysis of relationships among various types of inward and outward foreign direct investments in the period of 2003-2016 was conducted. Simple statistics as well as Pearson and Spearman correlation coefficients are presented in the tables below.

Table 1. Simple statistics regarding types of inward and outward FDI

Variable	Mean	Std Dev	Median	Minimum	Maximum
Inward FDI_total	2245	2196	2979	–604.08	5803
M&A_seller	157.14	180.64	115.13	–1.49	541.24
Greenfield_destination	4003	2450	3491	1125	9019
Outward FDI_total	337.48	404.80	293.79	–312.90	946.13
M&A_purchaser	2021	5950	–7.53	–995.49	16711
Greenfield_source	9491	18282	280.22	29.25	43288

Source: Own processing.

Table 2. Pearson and Spearman correlation coefficients between types of inward and outward FDI

	I_FDI_total	M&A_sell	Greenf_dest	O_FDI_total	M&A_pur	Greenf_sour
I_FDI_total	1	–0.15862	0.59943**	0.36779	0.05860	–0.09819
M&A_sell	0.06364	1	–0.15396	–0.45282	–0.04403	0.11874
Greenf_dest	0.61758**	–0.06364	1	0.32236	0.05590	0.08558
O_FDI_total	0.34066	–0.39091	0.37582	1	0.72971**	–0.18758
M&A_pur	–0.02381	0.10000	0.33333	0.66667*	1	–0.24141
Greenf_sour	–0.31429	–0.12727	–0.25275	0.14725	0.47619	1

Note: The asterisks denote the statistical significance of coefficients on a level of 10% (*), 5% (**), and 1% (***), based on *p*-values. The Spearman's rank correlation coefficients are below the diagonal, while the Pearson's correlation coefficients are above the diagonal.

Source: Own processing.

Results of analysed pairs of types of FDI show that strong statistically significant relations were detected only in two cases, namely between total volume of inward FDI and greenfield investments situated in the destination of Slovakia and between total volume of outward FDI and purchases of companies abroad that was proved by Pearson as well as by Spearman correlation coefficient. Conversely, the analysis did not proved existence of statistically significant correlation between total volume of inward and outward FDI as e.g. in case of the study by Jain, Gopalaswamy and Acharya [2014] or Tan, Wong and Goh [2018].

In order to analyse more deeply factors determining the volume of inward and outward FDI regression analysis is conducted. Both volume of inward and outward FDI as dependent variables are supposed to be influenced by value of cross-border M&A and by value of announced greenfield projects. The results are shown in the Tables 3 and 4.

Table 3. Results of regression analysis for the model (1) Dependent variable: Inward FDI

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	−51,8183	1087,67	−0,04764	0,9629	
MA_seller	1,05232	3,06969	0,3428	0,7382	
Greenfield_destination	0,541411	0,215480	2,513	0,0289	**

Mean dependent var	2245,149	S.D. dependent var	2195,513
Sum squared resid	39723238	S.E. of regression	1900,317
R-squared	0,366087	Adjusted R-squared	0,250831
F(2, 11)	3,176274	P-value(F)	0,081501
Log-likelihood	−123,8739	Akaike criterion	253,7477
Schwarz criterion	255,6649	Hannan-Quinn	253,5703
rho	−0,008139	Durbin-Watson	1,960025

*, **, *** indicate statistical significance of coefficients at 10%, 5%, and 1% significance level, respectively.

Source: Own processing.

The testing statistics do not indicate heteroscedasticity problem (LM = 6,06033 with p-value = 0,300393), autocorrelation problem (LMF = 0,000722921 with p-value = 0,979079), error is normally distributed (Chi-square = 0,915607 with p-value = 0,632672) and specification is adequate (F(2, 9) = 0,34899 with p-value = 0,71453). Like the correlation analysis, the results of regression analysis confirmed that greenfield projects developed in Slovakia by foreign investors are significant drivers of foreign direct investment inflows. The variable value of cross-border M&A by economy of seller, i.e. Slovakia seems not statistically significant determinants of FDI inflow in this model.

Further Table 4 shows results of the regression analysis for the model (2). The testing statistics do not indicate heteroscedasticity problem (LM = 3,38071 with p-value = 0,6415), autocorrelation problem (LMF = 1,32372 with p-value = = 0,276695), error is normally distributed (Chi-square = 0,390303 with p-value = = 0,82271) and specification is adequate (F(2, 9) = 0,0697322 with p-value = = 0,933142). Similarly, as in the previous case, the greenfield projects realised by Slovakian companies abroad are significant determinants of foreign capital outflows. The variable value of cross-border M&A by economy of purchaser, i.e. Slovakia seems not statistically significant determinants of FDI outflow in this model.

Table 4. Results of regression analysis for the model (2) Dependent variable: Outward FDI

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	220,912	120,143	1,839	0,0931	*
MA_purchaser	0,329549	0,332612	0,9908	0,3431	
Greenfield_source	0,556568	0,292075	1,906	0,0832	*

Table 4 cont.

Mean dependent var	337,4818	S.D. dependent var	404,7966
Sum squared resid	1471819	S.E. of regression	365,7892
R-squared	0,309065	Adjusted R-squared	0,183440
F(2, 11)	2,460225	P-value(F)	0,130890
Log-likelihood	−100,8058	Akaike criterion	207,6116
Schwarz criterion	209,5288	Hannan-Quinn	207,4341
rho	0,271531	Durbin-Watson	1,448545

*, **, *** indicate statistical significance of coefficients at 10%, 5%, and 1% significance level, respectively.

Source: Own processing.

It can be concluded that foreign direct investment inflows are driven primarily by greenfield projects located in Slovakia, as well as foreign direct investment outflows are driven be greenfield projects realised by Slovak companies abroad.

Conclusion

The objective of the present paper was to analyse trends in inward and outward FDI in Slovakia generelly, as well as from different types of FDI point of view. Regarding relationship between FDI inflows and outflows, the slight predominance in the volume of FDI outflows is obvious in the recent years that indicates transition to the third stage of investment development path. However, contrary to other studies, no relatioship between inward and outward FDI was proved in conditions of Slovakia. Deeper and broader analysis of this relationship, also in conditions of other CEECs can form agenda of future research.

Further analysis of different types of FDI flows showed that the volume of inward FDI is most influenced by volume of greenfield projects located in Slovakia. Similarly, the volume of outward FDI is statistically significantly determined by greenfield projects realised by local Slovakian companies abroad. This finding can have important implications for investment promotion policy setting in the way of forming more attractive conditions for building new facilities and/or enlarging the existing ones.

Acknowledgement

The paper presents partial results of the research project VEGA No. 1/0842/17 “The causality links between foreign direct investments and firms’ performance” in the frame of the granting program of the Scientific Grant Agen-

cy of Ministry of Education, Science, Research and Sport of the Slovak Republic and Slovak Academy of Sciences.

Literature

Bevan A., Estrin S. (2000), *The Determinants of Foreign Direct Investment in Transition Economies*, Centre for New and Emerging Markets, London Business School, London.

Drahokoupil J. (2008), *The Investment-promotion Machines: The Politics of Foreign Direct Investment Promotion in Central and Eastern Europe*, "Europe-Asia Studies", Vol. 60(2), pp. 197-225.

Dunning J. (1981), *International Production and the Multinational Enterprise*, Allen & Unwin, London.

Ferenčíková S., Ferenčíková S. (2012), *Outward Investment Flows and the Development Path: The Case of Slovakia*, "Eastern European Economics", Vol. 50(2), pp. 85-111.

Galego A., Vieira C., Vieira I. (2004), *The CEEC as FDI Attractors. A Menace to the EU Periphery?* "Emerging Markets Finance and Trade", Vol. 40(5), pp. 74-91.

Gauselmann A., Knell M., Stephan J. (2011), *What Drives FDI in Central – Eastern Europe? Evidence from the IWH – FDI – Micro Database*, "Post-Communist Economies", Vol. 23(3), pp. 343-357.

Ginevičius R., Šimelyté A. (2011), *Government Incentives Directed towards Foreign Direct Investment: A Case of Central and Eastern Europe*, "Journal of Business Economics and Management", Vol. 12(3), pp. 435-450.

Goh S.K., Wong K.N. (2014), *Could Inward FDI Offset the Substitution Effect of Outward FDI on Domestic Investment? Evidence from Malaysia*, "Prague Economic Papers", Vol. 23(4), pp. 413-425.

Gorbunova Y., Infante D., Smirnova J. (2012), *New Evidence on FDI Determinants: An Appraisal over the Transition Period*, "Prague Economic Papers", Vol. 21(2), pp. 129-149.

Jain V., Gopalaswamy A.K., Acharya D. (2014), *Dynamic Linkages between Foreign Direct Investment and Domestic Investment: Evidence from Emerging Market Economies*, "International Journal of Economics and Business Research", Vol. 8(1), pp. 1-20.

Janicki A., Wunnava P.V. (2004), *Determinants of Foreign Direct Investment: Empirical Evidence from EU Accession Candidates*, "Applied Economics", Vol. 36(5), pp. 505-509.

Kalotay K. (2004), *Outward FDI from Central and Eastern European Countries,* "Economics of Planning", Vol. 37(2), pp. 141-172.

Radlo M.J., Sass, M. (2012), *Outward Foreign Direct Investments and Emerging Multinational Companies from Central and Eastern Europe*, "Eastern European Economics", Vol. 50(2), pp. 5-21.

Riedl A. (2010), *Location Factors of FDI and the Growing Services Economy,* "Economics of Transition", Vol. 18(4), pp. 741-761.

Tan B.W., Goh S.K., Wong K.N. (2016), *The Effects of Inward and Outward FDI on Domestic Investment: Evidence Using Panel Data of ASEAN – 8 Countries*, "Journal of Business Economics and Management", Vol. 17(5), pp. 717-733.

Tan B.W., Wong K.N., Goh S.K. (2018), *The Surge in intra-Asean Outward Foreign Direct Investment and Its Key Determinants: Evidence Using Pooled Mean Group Approach*, "International Journal of Business and Society", Vol. 19(2), pp. 347-362.

Wach K., Wojciechowski L. (2016), *Determinants of Inward FDI into Visegrad Countries: Empirical Evidence Based on Panel Data for the Years 2000-2012*, "Economics and Business Review", Vol. 2(1), pp. 34-52.

Wei S.Z.C., Zhu Z. (2007), *A Revisit to the Outward FDI Determinants: Further Evidence from Count Panel Data Models with Fixed Effects*, "Applied Economics Letters", Vol. 14(11), pp. 809-812.

World Investment Report 2017. United Nations, New York and Geneva, https://unctad.org/en/PublicationsLibrary/wir2017_en.pdf (accessed: 3.05.2018).

Yao S., Wang P., Zhang J., Ou J. (2016), *Dynamic Relationship between China's Inward and Outward Foreign Direct Investments*, "China Economic Review", Vol. 40, pp. 54-70.

ANALIZA BEZPOŚREDNICH INWESTYCJI ZAGRANICZNYCH – PRZYPADEK SŁOWACJI

Streszczenie: Problematyka bezpośrednich inwestycji zagranicznych jest szeroko dyskutowana w literaturze przedmiotu. Wśród dostrzeżonych zależności można wskazać m.in. istotne zróżnicowanie, zarówno w odniesieniu do rozmiarów, jak i charakteru, napływających i wypływających bezpośrednich inwestycji zagranicznych w przypadku gospodarek doświadczających transformacji ustrojowej. Celem niniejszego artykułu jest analiza wolumenu bezpośrednich inwestycji zagranicznych w przypadku Słowacji oraz zbadanie relacji pomiędzy różnymi ich rodzajami. W artykule wykorzystano metody analizy korelacyjnej w odniesieniu do danych z lat 2003-2016. Przeprowadzone badania pozwalają stwierdzić, że napływ bezpośrednich inwestycji zagranicznych do Słowacji jest spowodowany przede wszystkim inwestycjami typu *greenfield*, natomiast słowackie bezpośrednie inwestycje za granicą mają głównie charakter fuzji i przejęć.

Słowa kluczowe: bezpośrednie inwestycje zagraniczne, projekty *greenfield*, fuzje i przejęcia.