

Serhiy Zabolotnyy

Warsaw University of Life Sciences, Poland

POLISH DIRECT INVESTMENTS ABROAD AS AN INSTRUMENT OF VALUE CREATION FOR INVESTORS

POLSKIE INWESTYCJE BEZPOŚREDNIE ZA GRANICĄ JAKO INSTRUMENT KREOWANIA WARTOŚCI DLA INWESTORÓW

Key words: foreign direct investments, value, return on investment

Słowa kluczowe: bezpośrednie inwestycje zagraniczne, wartość, rentowność inwestycji

Abstract. The research presented a financial approach to an issue of estimation of efficiency of the Polish foreign direct investments abroad (FDIA) as an instrument of value creation for investors. Besides the volume and distribution of Polish FDIA according to economic activity and geographical zone were analyzed. The volume of Polish FDIA outward position constantly grew due to an increase of equity capital, reinvested earnings and other capital in 2000-2012. The period after financial crisis (2010-2012) was characterized by a higher activity of Polish investors while the fluctuation of income from FDIA was mainly caused by a significant level of their concentration. Government bond yields were higher than return on FDIA that gave an evidence of relatively lower efficiency of FDIA.

Introduction

Investments are supposed to be one of the main factors influencing an economic situation of a country. Processes of globalization and increasing competition as well as rapid development of technologies and financial markets gave a broader opportunity for investing in foreign economies by expansion of cross-border financial flows. Foreign direct investments (FDI) should be viewed from the perspectives of two parties: the recipient (“host”) and the investing (“home”) economies [*OECD Benchmark...* 2008]. According to a traditional view FDI bring a number of positive externalities (spillovers) for a host economy [Globerman 1979]. For the recipient a foreign investment is considered as a transaction that increases the financial capital, productivity, strengthens the experience of the management and technical knowledge and supports the entrepreneurship [Sobolewski 2011]. Growth of financial capital boosts the production, brings additional tax flows and helps reduce an unemployment rate. Besides acquiring new experience and learning advanced technologies (“know-how”) by local companies leads to an increase of their competitiveness and market value. However, FDI can have a negative effect on economic growth of a host country, especially in sectors which have a weak linkage with foreign economies or other sectors of national economy. For example, products from such sector as mining and agriculture can be transferred to other economies without any significant impact on the growth of national economy as a whole [Hirschman 1958]. This argues that FDI in primary sector tend to be less efficient than foreign investments in manufacturing or services [Alfaro 2003]. On the other hand, for the investor (“home”) locating capital in foreign economy means a possibility to achieve a relatively higher rate of return than in the home country [Kłysik-Uryszek 2013]. Other important motives for investing abroad are getting access to local markets and resource, cost reduction and seeking for new assets [Dunning 1993]. Moreover, a special attention is drawn to tax optimization reasons as an important determinant of investing abroad [*OECD Tax...* 2007]. These arguments for foreign direct investing correspond to the fundamental goal of the investor stating maximization of his wealth by creating the additional value for the investing company [Wędzki 2003].

Material and methods of the research

The goal of the research is to determine the efficiency of Polish direct investments abroad (FDIA) as an instrument of value creation for investors. In the article a foreign direct investor is defined as an entity (an institutional unit) resident in one economy that has acquired, either directly or indirectly, at least 10% of the voting power of a corporation (enterprise), or equivalent for an unincorporated enterprise, resident in another economy [OECD Benchmark... 2008]. To determine the efficiency of Polish direct investments abroad the return on investment ratio was used:

$$RI = \frac{I}{R}$$

where: RI – return on FDIA in current year, I – income from FDIA in current year, R – Outward position of FDIA in the end of the year (receivables from foreign recipients of FDIA).

Besides the scale and geographic distribution of FDIA by economic activity are presented. The hypothesis tested in the article claimed that an average rate of return on FDIA was higher than an average rate of return on low-risk financial instruments. The material for the research was gathered from the reports of National Bank of Poland and the Committee of Statistical Information of Poland. The research period was 2010-2012.

Results

Direct Investments in foreign countries became a significant source of income for Polish residents in the past decade. The volume of Polish FDIA grew from 1095 mln euro in 2000 to 43492 mln euro in 2012 (Fig. 1). At the same period equity capital and reinvested earnings rose from 936 mln euro to 23 262 mln euro, while other capital (including debt instruments) from 159 mln euro to 20 230 mln euro. A significant gain in total outward position of FDIA in 2010 by 63.6% comparing to 2009 demonstrated the higher activity of Polish investor after the period of financial crisis. It should be mentioned that in last years a share of capital in transition grew in FDIA [Polskie inwestycje... 2014]. This form of capital represented financial flows that were only transferred by international corporations through Polish subsidiaries to third countries and added no value to Polish economy. Besides the volume and flows of FDIA was characterized by high volatility, mainly on transactions on equity capital and use of debt instruments. Such a volatility was a result of a high level of concentration of FDIA because more than 50% of receivables from these investments belonged to about 30 investors [Polskie inwestycje... 2014]. That is why

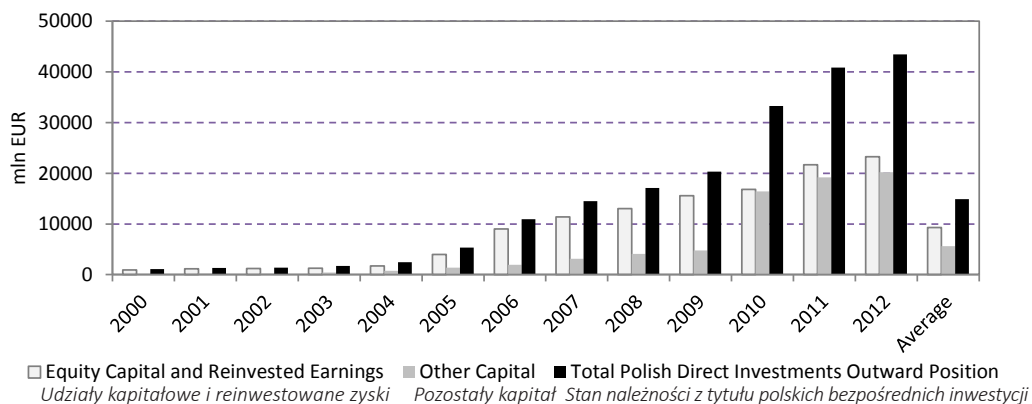


Figure 1. Outward Position (receivables from the recipients) of FDIA

Rysunek 1. Stan należności z tytułu polskich inwestycji bezpośrednich za granicą

Source: own study based on Polish National Bank data [Polskie inwestycje... 2014]

Źródło: opracowanie własne na podstawie danych NBP [Polskie inwestycje... 2014]

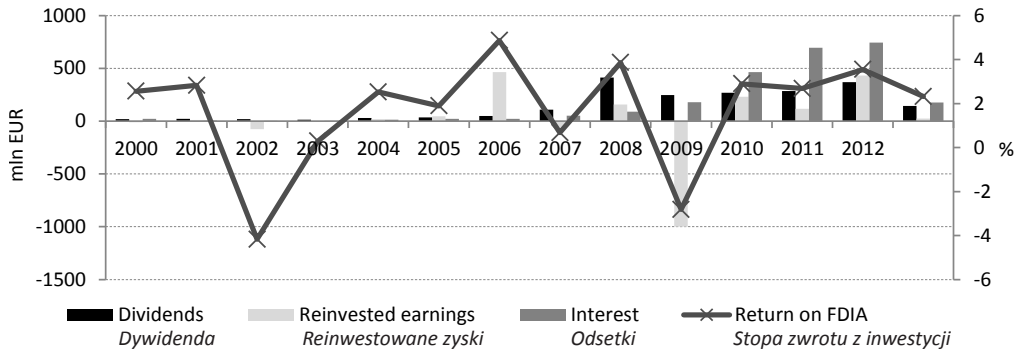


Figure 2. The volume of income versus return from FDIA in 2000-2012

Rysunek 2. Dochód a stopa zwrotu z polskich inwestycji bezpośrednich za granicą w latach 2000-2012

Source: see fig. 1

Źródło: jak na rys. 1

particular transactions of these investors influenced the aggregate volume of the investments. This also shaped the level of income and return on FDIA that also fluctuated. In 2000-2012 the volume of income from FDIA gradually increased (Fig. 2).

The total income from FDIA rose from 28 mln euro in 2000 to 1544 mln euro in 2012, amounting to 345,9 mln euro per year on average. A rapid increase in FDIA flows after financial crisis resulted in rise of income by 133.6% in 2012 comparing to 2008. In 2000-2009 the major part of income was generated in the form of dividends (except of 2006). In 2012 dividends from FDIA came to 368 mln euro that gave a gain by 28.7% comparing to a previous year. In 2010-2012 an interest (income on debt) became the most important source of income for investors due to a general expansion of debt instruments. Transferring income in the form of interest from subsidiaries to investing entities in home countries could be explained by tax reasons. An interest was qualified as a cost in the balance sheets of foreign subsidiaries and was due to taxation only in the home country of investor. The volume of interest received from FDIA by Polish entities grew from 464 mln euro in 2010 to 744 mln euro in 2012. Reinvested earnings were the least considerable source of income amounting to 432 mln euro in 2012. This position was highly volatile and depended on the global market situation. In the years of financial crisis this position demonstrated financial losses of -61 mln euro in 2007 and -998 mln euro in 2009.

The return on FDIA was also volatile reaching its lowest point (-4.17%) in 2002 and gradually increasing till 2006 (4.87%). Following the financial crisis the return on FDIA fell to 0.68% in 2007, and (-2.81%) in 2009. In further years the return on investment rose to 2.90% in 2010 and 3.55% in 2012. It should be noticed that the rate of return on FDIA was highly dependent on the volume of reinvested earnings while dividends and interest showed less correlation with this rate. The volume of income and return on FDIA varied depending on the sector of economic activity (Tab. 1).

The major part of FDIA was in the companies from the services sector. The volume of income from these companies in average was 894,6 mln euro in 2010-2012 that was 74.5% in total income from investments. The main activities of investing in services were financial services, administration and consulting. In this sector a significant part of FDIA was in the form of capital in transition. Another substantial part of income in services was trade. The highest income from services was 1189,1 mln euro in 2012 and was higher by 887,4 mln euro than in manufacturing that was the second largest beneficiary of Polish direct investments. Such activities as Mining and Quarrying and Water Supply and Waste Management resulted in financial losses. Agricultural sector generated the least income due to its small part in the whole volume of investments. Nevertheless this branch demonstrated the highest growth (833.3%) comparing to other sectors of economic activity.

Polish FDIA were distributed in different geographical zones (Tab. 2). The structure of income from FDIA by geographical zone was determined by the volume of investments in particular

Table 1. Income from FDIA by economic activity of the resident direct investor

Tabela 1. Dochód z tytułu polskich inwestycji bezpośrednich za granicą w podziale na rodzaje działalności gospodarczej podmiotów bezpośredniego inwestowania

Activity/Działalność	Income [mln EUR]/ Dochód [mln euro]				Growth/ Wzrost 2012/2010 [%]
	2010	2011	2012	average/ średnia	
Agriculture, Forestry and Fishing/ <i>Rolnictwo, leśnictwo i rybactwo</i>	0,3	1,1	2,8	1,4	833.3
Mining and Quarrying/ <i>Górnictwo i wydobywanie</i>	14,6	-48,7	-58,5	-30,9	-
Manufacturing/ <i>Przetwórstwo przemysłowe</i>	162,1	172,3	301,7	212,0	86.1
Electricity, Gas, Steam and Air Conditioning Supply/ <i>Wytwarzanie i zaopatrywanie w energię elektryczną, gaz, parę wodną i powietrze do układów klimatyzacyjnych</i>	55,1	43,9	35,3	44,8	-35.9
Water supply; sewerage, Waste Management and Remediation Activities/ <i>Dostawa wody; gospodarowanie ściekami i odpadami oraz działalność związana z rekultywacją</i>	0,6	-0,4	-0,8	-0,2	-
Construction/ <i>Budownictwo</i>	34,3	119,7	67,8	73,9	97.7
Total Services/ <i>Usługi łącznie</i>	690,0	804,7	1189,1	894,6	72.3
Not allocated/ <i>Niesklasyfikowane</i>	6,4	4,0	7,3	5,9	14.1
Total/ <i>Ogółem</i>	963,4	1096,6	1544,7	1201,6	60.3

Source: see fig. 1

Źródło: jak na rys. 1

countries. Generally an increase in the income from FDIA was noticed in all of the most important regions of investing.

The majority of income from FDIA was generated in the countries of the European Union. The average volume of income from the companies in this region in the analyzed period was 881,2 mln euro with its highest value of 1001,1 mln euro in 2012. The growth for this region in 2012 comparing to 2010 was 23.87% that was 36.5 p.p. lower than for the whole world. The highest income from Polish FDIA in Europe generated companies from Luxemburg (average 407 mln euro) and Cyprus (average 138 mln euro), mainly representing financial sector. The majority of FDIA in these countries were made by special purpose Polish entities created by global investors for the reasons of tax optimization and global reinvesting [*Polskie inwestycje...* 2012]. The volume of income in Luxemburg companies fell by 197,1 mln euro in 2012 comparing to 2011, while in Cyprus by 35,9 mln euro in the same period. In 2012 Polish FDIA brought income in Great Britain (78,3 mln euro) and Netherlands (57,9 mln euro) and Belgium (81,6 mln euro), mostly from financial services. Comparing to previous year an income from these countries rose: in Great Britain by 29 mln euro, Belgium 38,4 mln euro, Netherlands 315,7 mln euro. This was an evidence of Polish investors' shifting from traditional financial centers seeking for new investment opportunities in the European Union countries. German recipients of Polish FDI brought 85,2 mln euro of income in 2012 that was by 55.5% lower than in the previous year. North America and Other European Countries gave almost equal income from FDI on average. A substantial part of FDIA income from the USA companies was from financial services and insurance sector. It should be mentioned that an income from investments in the countries of North America increased by 233,3 mln euro in 2012 comparing to 2011, mainly because of use of capital in transition. In this region Polish companies were investing on behalf of their mother corporations generally with the aim of legal tax optimization and transferring capital to third countries. Another reason was investing in USA stock market that demonstrated high returns in recent years. This region also showed the highest growth in FDIA that was 1460% in 2012 comparing to 2010. In the region of

Table 2. Income from FDIA by geographical zone

Tabela 2. Dochód z tytułu polskich inwestycji bezpośrednich za granicą w podziale na strefy geograficzne

Geographical zones/ <i>Strefa geograficzna</i>	Income [mln EUR]/ <i>Dochód [mln euro]</i>				Growth/ <i>Wzrost</i> 2012/2010 [%]
	2010	2011	2012	average/ <i>średnia</i>	
European Union/ <i>Unia Europejska</i>	808,2	834,2	1001,1	881,2	23.87
EFTA	88,3	33,4	65,6	62,4	-25.7
Other European Countries/ <i>Pozostałe kraje europejskie</i>	45,2	155,9	172	124,4	280.5
Africa/ <i>Afryka</i>	-1	8,1	-11,3	-1,4	-
North America/ <i>Ameryka Północna</i>	18,9	61,6	294,9	125,1	1460.3
Central America/ <i>Ameryka Centralna</i>	0,3	-3	0,8	-0,6	166.7
South America/ <i>Ameryka Południowa</i>	1,5	0	1,2	0,9	-20.0
Asia/ <i>Azja</i>	-1	2,4	20,7	7,4	-
Oceania and Polar Regions/ <i>Oceania i Regiony Polarne</i>	0,5	3,8	-0,5	1,3	-
World not allocated/ <i>Niesklasyfikowane</i>	2,5	0,3	0	0,2	-100.0
Total world/ <i>Wszystkie kraje</i>	963,4	1096,6	1544,7	1201,6	60.3

Source: see fig. 1

Źródło: jak na rys. 1

Other European Countries Polish FDIA represented mainly manufacturing, construction and trade sectors, including investments in Russia giving 111,9 mln euro of income in 2012. The decrease in income from EFTA countries was caused by the losses and withdrawal of capital from Norwegian investments that was -43 mln euro in 2014.

In the analyzed period the average rate of return from FDIA was 3.0% with its highest value reaching 3.6% in 2012 (Tab. 3). The growth of the rate of return was 0.7 p.p. in 2012 comparing to 2010. The highest average rate of return was noticed in Agriculture (12.3%) while the lowest

Table 3. Return on FDIA by economic activity of the resident direct investor

Tabela 3. Stopa zwrotu z polskich inwestycji bezpośrednich za granicą w podziale na rodzaj działalności gospodarczej podmiotu bezpośredniego inwestowania

Activity/ <i>Działalność</i>	Return on FDIA/ <i>Stopa zwrotu [%]</i>				Growth/ <i>Wzrost</i> 2012/2010 [p.p.]
	2010	2011	2012	average/ <i>średnia</i>	
Agriculture, forestry and fishing/ <i>Rolnictwo, leśnictwo i rybactwo</i>	21.4	6.7	8.9	12.3	-12.6
Mining and quarrying/ <i>Górnictwo i wydobywanie</i>	3.0	-6.5	-7.4	-3.6	-10.4
Manufacturing/ <i>Przetwórstwo przemysłowe</i>	1.3	1.4	2.4	1.7	1.1
Electricity, gas, steam and air conditioning Supply/ <i>Wytwarzanie i zaopatrywanie w energię elektryczną, gaz, parę wodną i powietrze do układów klimatyzacyjnych</i>	7.2	6.2	7.5	7.0	0.3
Water supply, sewerage, waste management and remediation activities/ <i>Dostawa wody; gospodarowanie ściekami i odpadami oraz działalność związana z rekultywacją</i>	-1.9	1.3	-13.3	-4.6	-11.4
Construction/ <i>Budownictwo</i>	3.2	7.7	4.4	5.1	1.3
Total services/ <i>Usługi łącznie</i>	4.2	3.1	4.2	3.8	0.1
Total/ <i>Ogółem</i>	2.9	2.7	3.6	3.0	0.7

Source: see fig. 1

Źródło: jak na rys. 1

Table 4. Return on FDIA by geographical zone

Tabela 4. Stopa zwrotu z polskich inwestycji bezpośrednich za granicą w podziale na strefy geograficzne

Geographical Zone/ <i>Strefa Geograficzna</i>	Return on FDIA/ <i>Stopa zwrotu [%]</i>				Growth/ <i>Wzrost</i> 2012/2010 [p.p.]
	2010	2011	2012	average/ <i>średnia</i>	
European Union/ <i>Unia Europejska</i>	3.2	2.7	3.0	3.0	-0.2
EFTA	2.7	0.7	1.5	1.5	-1.2
Other European Countries/ <i>Pozostałe kraje Europejskie</i>	2.1	6.8	7.0	5.4	4.9
Africa/ <i>Afryka</i>	-0.7	5.2	-6.6	-0.9	-5.9
North America/ <i>Ameryka Północna</i>	1.3	3.8	18.8	8.0	17.5
Central America/ <i>Ameryka Centralna</i>	0.4	-2.0	0.6	-0.6	0.2
South America/ <i>Ameryka Południowa</i>	5.6	0.0	2.0	2.1	-3.5
Asia/ <i>Azja</i>	-0.1	0.3	2.2	0.8	2.3
Oceania and Polar Regions/ <i>Oceania i Regiony Polarne</i>	1.9	15.5	-2.0	5.1	-3.9
Total/ <i>Wszystkie kraje</i>	2.9	2.7	3.6	3.1	0.7

Source: see fig. 1

Źródło: jak na rys. 1

– in Water Supply and Waste Management (-4.6%). In Agriculture the return from investments decreased from 21.4% in 2010 to 8.9% in 2012. In such activities as Mining and Quarrying and Water Supply and Waste Management a great volatility in particular years was noticed. This could be an effect of rapid changes in income flows that characterized the risk in these industries. Total services with its largest volume of income demonstrated moderate return reaching its highest value of 4.2% in 2012.

Analyzing return on FDIA by geographical zone it should be mentioned that the highest returns were noticed in the countries of North America, where this ration rose to 18.8% in 2012 (Tab. 4). Other European Countries including Russia demonstrated an average return on FDIA on the level of 5.4% that was by 2.3 p.p. higher than in average for the whole world. This region also showed a rapid growth in return from investments from 2.1% in 2010 to 7.0% in 2012. A great volatility in Other European Countries could be an evidence of higher risk of doing business in this region. EFTA countries demonstrated below average rates of return. European Union showed a decrease in the rate of return from 3.2% in 2010 to 3.0% in 2012 with its average value of 3.0%. Generally in European countries an average rate of return on FDIA was lower than in the whole world (in EFTA by 1.6 p.p. and in EU 0.1 p.p.). To estimate the relative efficiency of FDIA a return on another investment opportunity in form of a return on Polish government bonds was presented (Tab. 5).

In the analyzed period Polish government bonds demonstrated an average value of 5.57% decreasing from 5.80% in 2010 to 4.94% in 2012. Return on FDIA rose from 2.90% in 2010 to 3.55% in 2012 reaching 3.04% in average. Generally returns on FDIA and yields of government bonds were inversely correlated. The drop in yields of government bonds and an increase of return

Table 5. Return on FDIA versus long-term Polish Government Bond Yields (10 year)

Tabela 5. Stopa zwrotu z polskich inwestycji bezpośrednich za granicą a rentowność 10-letnich obligacji skarbowych

Description/ <i>Wyszczególnienie</i>	Return on FDIA/ <i>Stopa zwrotu [%]</i>				Growth/ <i>Wzrost</i> 2012/2010 [p.p.]
	2010	2011	2012	average/ <i>średnia</i>	
Return on FDIA/ <i>Stopa zwrotu z inwestycji</i>	2.90	2.68	3.55	3.04	0.65
Bond Yields/ <i>Rentowność obligacji</i>	5.80	5.98	4.94	5.57	-0.23

Source: own study based on [10-Year... 2014]

Źródło: opracowanie własne na podstawie [10-Year... 2014]

on FDIA in 2012 could be an evidence of a capital flow into Polish economy. This capital was located both in government bonds decreasing the yields and in foreign markets giving additional income and return to the investors. Nevertheless bond yields were higher than return on FDIA by 1.39 p.p. in 2012 and by 2.53 p.p. in average. This gave an evidence of relatively lower efficiency of FDIA than investing in government bonds. More so FDIA were characterized by much higher risk than investing in government financial instruments that contradicted the risk-return concept [Wasilewski, Zabolotnyy 2013]. It should be mentioned that a high level of differentiation of particular investment projects depending on a kind of economic activity and geographical zone could be the reason for lower average values. For example FDIA in agricultural, electricity and gas supply sectors gave higher returns than investing in government bonds. At the same time projects in Mining and Quarrying and Water and Waste Management brought financial losses. FDIA in North America and Other European Countries zones generated were definitively more attractive than investments in Africa or Central America.

Conclusions

The research presented a financial approach to an issue of estimation of efficiency of the Polish foreign direct investments abroad (FDIA) as an instrument of value creation for investors. Besides the volume and distribution of Polish FDIA according to economic activity and geographical zone were analyzed. On the base of the results of the research the following conclusions were formulated:

The volume of Polish FDIA outward position constantly rose due to an increase of equity capital, reinvested earnings and other capital in past years. The period after financial crisis (2010-2012) was characterized by a high activity of Polish investors while the fluctuation of FDIA was mainly caused by a significant level of concentration. A rapid increase in other capital in form of various debt instruments in 2010-2012 could be explained by an expansion of capital in transition and more aggressive tax optimization policy of Polish investors.

A growth of income from Polish FDIA was to a great extent connected with an increase of financial flows to host countries. Dividends were the major source of income in 2000-2009 but in further years interest (income on debt) became prevalent. This was caused by a significant gain of other capital in FDIA outward position. Reinvested earnings were the least considerable source of income for Polish investors demonstrating the shortening of real economy incomes in favor of financial sector transactions and earnings. Besides reinvested earnings were volatile because of the changeable economic conditions in past years.

The return on FDIA was highly volatile due to a period of financial crisis and further reviving of the global economy. The volume of income and return on FDIA were greatly dependent on the sector of economic activity and geographical zone. Polish FDIA were to great extent concentrated in the services sector including financial sector, administration and consulting. North America and Other European Countries including Russia generated almost equal income from FDI in average. It should be mentioned that in the USA the main source of income were the companies from financial and insurance sector while in Eastern and Central Europe investments in trade, construction and manufacturing dominated.

Generally returns on FDIA and yields of government bonds were inversely correlated in 2010-2012. Bond yields were higher than return on FDIA that gave an evidence of relatively lower efficiency of FDIA. A hypothesis claiming that an average rate of return on FDIA was higher than an average rate of return on low-risk financial instruments was verified negatively.

Bibliography

- 10-Year Poland Bond Yield*. 2014: www.stooq.pl.
- Alfaro L. 2003: *Foreign direct Investment and growth: Does the sector matter?* Available: <http://www.grips.ac.jp/teacher/oono/hp/docu01/paper14.pdf>.
- Globerman S., 1979: *Foreign Direct Investment and Spillover Efficiency Benefits in Canadian Manufacturing Industries*, Canadian Journal of Economics, 12, 42-56.
- Dunning, J.H., 1993: *Multinational Enterprises and the Global Economy*: Harlow, Addison-Wesley.
- Hirschman A. 1958: *The Strategy of Economic Development*. New Haven: Yale University Press.
- Kłysik-Urzesek A. 2013: *Zagraniczna ekspansja kapitałowa polskich przedsiębiorstw*, [w:] *Zarządzanie i Finanse*, nr 2/2, Gdańsk, 161-173.
- OECD Benchmark Definition of Foreign Direct Investment*. 2008: The Organisation for Economic Co-operation and Development, *Fourth Edition*, 20-35.
- OECD Tax Effects on Foreign Direct Investment*, no. 17 2007: The Organisation for Economic Co-operation and Development.
- Polskie inwestycje bezpośrednie za granicą w 2012 r.* 2014: Narodowy Bank Polski, Warszawa, 1-43.
- Sobolewski H. 2011: *Analiza relacji napływu inwestycji zagranicznych i tempa przemian własnościowych*, [w:] *Zarządzanie finansami*, Zesz. Nauk. US, Szczecin, nr 640, 165-175.
- Wasilewski M., Zabolotnyy S. 2013: *The dependence between volatility of share prices and shareholder return of the companies from WIG-Ukraine Index of Warsaw Stock Exchange*, Accounting and Finance, no. 2, 54-63.
- Wędzki D. 2003: *Strategie płynności finansowej przedsiębiorstwa*, Kraków, 17-20.

Streszczenie

Dokonano oceny efektywności polskich inwestycji bezpośrednich za granicą (BIZ) jako narzędzia tworzenia wartości dla inwestorów. Przedstawiono poziom i rozmieszczenie polskich BIZ według rodzaju działalności gospodarczej oraz strefy geograficznej. Stan należności z tytułu BIZ systematycznie wzrastał na skutek zwiększenia się pozycji udziałów kapitałowych, reinwestowanych zysków i pozostałych instrumentów kapitałowych w latach 2000-2012. Okres po wygaśnięciu kryzysu finansowego (lata 2010-2012) charakteryzował się wzmożoną aktywnością polskich inwestorów, natomiast wahania dochodu z tytułu BIZ były spowodowane przeważnie znaczącym stopniem ich koncentracji. W latach 2010-2012 rentowność obligacji skarbowych była wyższa niż rentowność BIZ, co potwierdziło niższą efektywność BIZ.

Correspondence address
Dr Serhiy Zabolotnyy
Warsaw University of Life Sciences
Department of Economics and Organization of Enterprises
Nowoursynowska St. 166
02-787 Warsaw, Poland
phone: +48 693 74 79 72
e-mail: serhiy_zabolotnyy@sggw.pl