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Innovation Sources of Economies in Eastern Asia



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Innovation Sources of Economies in Eastern Asia

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THE DETERMINANTS OF CHINESE OUTWARD FOREIGN DIRECT INVESTMENT TO DEVELOPING COUNTRIES

Summary: The outward foreign direct investment (OFDI) from China has increased significantly in recent years. This article examines the determinants of Chinese OFDI to developing countries. The data from 2003 to 2010 has been collected from 20 developing countries – the biggest receivers of Chinese investments from the developing world. The analysis is based on the results of the polled ordinary least square model. The model variables have been chosen on the basis of the general FDI theories and included host country GDP, openness to trade, bilateral trade with China, natural resource richness, strategic assets, host country political risk and distance from China. The empirical research shows that GDP, openness to trade and resource-richness are positively related to Chinese OFDI, whereas other variables are negatively related.

Keywords: foreign direct investment, China, developing countries.

1. Introduction

During last 30 years China has transformed from an underdeveloped agricultural country to one of the largest and most important economies in the world. A significant role in the transformation process of China's economy as well as in strengthening its position in the international economic system has been played by foreign direct investment – mainly by inward foreign investments. However, the investments undertaken by Chinese enterprises outside the home country also have a more and more significant impact on China's development and on the global economy at present.

China is no longer only a popular destination for FDI, but also an active investor itself. Nevertheless, the OFDI from China in fact did not exist before economic reforms begun in 1978. Even though Chinese companies started to invest abroad after 1978, it was not until early 2000s that Chinese OFDI really rose. According to the UNCTAD World Investment Report 2011, the value China's OFDI flow soared by more than 1500 times from 44 million USD in 1982 to 68 billion USD in 2010. As a late-comer to the globalised economy, China accounted for 5.14% of all the

outward foreign direct investment made in 2010, ranking thus in the 5th place among all countries. With a strong and stable economic growth and more capital available, China is expected to have a notable increase in its OFDI in the coming years.

The recent growth in China's outward FDI has caught the attention of the world. Developing countries as FDI investors are rather a new occurrence and the mainstream FDI theories have been accomplished mainly from the perspective of developed countries. Therefore, the determinants of Chinese outward investments have been questioned. Some recent research has been devoted to the question of what determines the countries in which China invests. In these studies main emphasis was to investigate whether Chinese OFDI has some unique features. For instance, Buckley et al. found that China's OFDI is attracted to countries with a high political risk,¹ while Cheung and Qian found the effect of institutions insignificant.² Both studies find that Chinese outward FDI are primarily pulled by natural resources. Morck, Yeung and Zhoa paid attention to the national factors: China's savings rate, corporate ownership structures and bank-dominated capital allocation as significant determinants of China's OFDI flows.3 Boateng, Qian and Tianle found that Chinese OFDI (undertaken in the form of mergers and acquisitions) is mainly determined by such needs as market development and diversification, advanced technology (and other resources) obtainment and value creation.⁴ On the other hand, Yang proposed a network model of Chinese OFDI by applying business organisation network models.5

While the aforementioned studies examine the sets of various factors structuring Chinese outward FDI, the present research mainly focuses on the determinants distinctive to the host countries. What is more, the present research includes only developing countries as Chinese OFDI location. This is due to the fact that the author believes that the relations between developing countries (especially between China and the developing world) present a significant aspect of the changes occurring in the global economy. In addition, the time period analysed in this paper is 2003–2010, which is the time of a high growth of Chinese outward FDI.

The main aim of this article is to examine Chinese foreign direct investment to developing countries. Particularly, the research purpose is to investigate which

¹P.J. Buckley et al., The determinants of Chinese outward foreign investment, *Journal of International Business Studies* 2007, Vol. 38, pp. 499–518.

²Y.W. Cheung, X. Qian, The empirics of China's outward direct investment, *Cesifo Working Paper* 2009, No. 2621, pp. 1–39.

³ R. Morck, B. Yeung, M. Zhoa, Perspectives on China's outward foreign direct investment, *Journal of International Business Studies* 2008, Vol. 39, No. 3, pp. 337–350.

⁴ A. Boateng, W. Qian, Y. Tianle, Cross-border M&As by Chinese firms: An analysis of strategic motives and performance, *Thunderbird International Business Review* 2008, Vol. 50, No. 4, pp. 259–270.

⁵ D. Yang, *China's Offshore Investments: A Network Approach*, Edward Elgar, Cheltenham, U.K./ Northampton, Massachusetts 2005, pp. 185ff.

factors (mostly host countries' "pulling" factors) attract Chinese FDI to the group of less-developed countries. It aims to contribute to the current discussion on China's intentions in the FDI field by providing empirical research on the motives of Chinese outward FDI. The paper is organised as follows. Section 1 is an introduction that presents the purpose of the paper. Section 2 presents a description of Chinese outward FDI in general and to developing countries: its magnitude, composition and target locations. In Section 3 the main issue is a general discussion on the FDI theories and theoretical FDI determinants. Section 4 provides hypotheses on Chinese outward FDI to developing countries. Section 5 contains data description and the specification of the empirical model used in this study. Section 6 presents the results. Finally, the discussion and conclusions of the research are included in Section 7.

2. Overview of Chinese outward FDI

Chinese OFDI flow has been rising since the economic reforms' start in 1978. Its growth has remarkably accelerated with the so-called "go global policy", implemented at the beginning of the 2000s. Chinese outward FDI reached the value of 68 billion of USD in 2010. In last decade its value increased almost thirty times. Moreover, the dynamics of China's outward FDI growth indicate that Chinese companies will invest abroad more and more intensively in the nearest future. As already mentioned, in 2010 China accounted for 5.14% of all the global OFDI undertaken in 2010. This makes China one of the largest investors around the world. China's share in outward investments made by developing countries has a similar trend. China accounted for 18.4% of the total outward FDI from developing countries in 2000. Its share has risen significantly from the beginning of the 2000s, which makes China the second largest developing country in terms of OFDI (after Hong Kong).⁶

The geographic distribution of Chinese foreign direct investments in 2010 was as follows: Asia – 65% of total FDI outflow, Latin America – 15%, Europe – 10%, North America – 4%, Africa – 3%, Australia and Oceania – 3%. The data shows that Asia is a prime destination of Chinese investments, whereas the business relations between China and the developed countries from Europe and North America are not at a high level. Chinese outward foreign direct investment to these developed regions accounts for 25% of all Chinese OFDI. In 2010 Chinese companies undertook investments mainly in the following countries: Hong Kong (56% of all China's FDI outflows), the British Virgin Islands (8.9%), the Cayman Islands (5.1%), Luxembourg (4.7%), Australia (2.5%) and Sweden (2%), while in terms of OFDI stock: Hong Kong (62.8% of all China's OFDI stock), the British Virgin Islands (7.3%), the Cayman Islands (5.4%) and Australia (2.5%) (mostly so-called tax havens). The largest China's OFDI receivers (in terms of OFDI stock in

⁶ Data from: 2010 Statistical Bulletin of China's Outward Foreign Direct Investment, www.mofcom.com.cn (accessed: 18.04.2012); World Investment Report 2011, UNCTAD, New York/Geneva 2011.

2010) from the group of developing countries are Singapore (1.9% of all Chinese OFDI stock), South Africa (1.3%), Myanmar (0.6%), Pakistan (0.6%) and Mongolia (0.5%). Most Chinese outward FDI comes from primary and tertiary industries, while secondary production, like the manufacturing of goods, determines a small portion only. In 2010 Chinese companies invested mostly in the following sectors: business services (44% of all Chinese OFDI flows), finances (12.5%), trade (9.8%), mining industry (8.3%) and transport (8.2%).⁷ Currently available data do not allow a cross-classification by industry and country, making it difficult to be more detailed about sector composition of OFDI in individual countries, regions and groups of countries.

In spite of the dynamic development of China, its OFDI is still not very big, especially when we consider it in relation to the value of GDP. In comparison with developed and even some developing countries, the size of Chinese FDI outflow and OFDI accumulated value is slight. The Chinese capital is invested mainly in neighbouring countries and in rich in raw materials and other natural resources regions of the world. Mergers and acquisitions remain a dominant form of undertaken investments. This shows that many Chinese companies remain at the initial stage of business internationalisation. However, the dynamics of Chinese outward FDI indicate a meaningful growth in the nearest future – not only in the value of OFDI flows, but also in the range of industries and organisational forms of investments.

3. Theoretical framework

It is essential to review general FDI theories for the purpose of setting up a theoretical framework for the analysis of China's OFDI. Taking into consideration the fact that the mainstream FDI theories have been formed mainly on the basis of developed countries experience, it is also significant to discuss whether and to what extent general FDI theories can be applicable in the case of developing economies like China. However, because of limited space, all the mainstream FDI theories cannot be considered in this paper. Thus, only selected theories are further discussed: the internalisation theory and the Dunning's eclectic paradigm.

The internalisation theory explains the growth of transnational companies and the reasons for undertaking investments abroad in the form of FDI. The theory was conceptualised by Buckley and Casson in 1976 and is rooted in the transaction costs idea initiated by Coase in 1937. The central issue of the internalisation theory is that market imperfections restrain efficient trade and investments between countries so that the multinational enterprises try to overcome these market imperfections by internalising foreign markets through foreign direct investment. Market failures may be caused by government activities, such as legal restrictions and interventions in the

⁷ Data from: 2010 Statistical Bulletin..., op. cit.; China Statistical Yearbook 2011, National Bureau of Statistics of China, www.stats.gov.cn (accessed: 19.04.2012).

economic system, or by other market imperfections like asymmetric dissemination of information. The internalisation theory explains the multinationals functioning in terms of their interactions with the external environment. Buckley and Casson demonstrate that the transnational enterprises organise their internal activities so as to develop and exploit specific advantages. As a result, these companies choose locations with particular benefits, for instance, locations with low tax rates. In more general terms, the theory indicates that any type of market imperfection and failures, across both goods and factor markets, can become a reason for the internalisation process.⁸

The eclectic paradigm, also known as the so-called "OLI model", was published by Dunning in 1980 and has been to date the most widely received framework of foreign direct investment. The OLI model is a further development of the theory of internalisation. The general idea behind the eclectic model is to synthesise some separate theories of FDI (both form macro- and micro-level) into one analytical approach. The central thesis of the paradigm is that the decisions about undertaking investments in the form of FDI are conditioned by the framework of three sets of advantages: ownership advantages (O), location advantages (L) and internalisation advantages (I). The ownership-specific advantages refer to company's competitive advantages, that is, material and immaterial assets that an enterprise owns, for instance, trademark, production techniques, organisational advantages, entrepreneurial skills, returns to scale, human capital and reputation. The greater ownership advantages are, the greater likelihood of engagement in FDI by a company. The location-specific advantages refer to the specific features of countries and regions, such as existence of raw materials, market size, low wages, special taxes or tariffs, that is, economic, political and social advantages. They are the key factors to determining which countries will be chosen for the activities of the companies engaging in FDI. The more immobile and created resources (present in a foreign location), which enterprises need to use, the more companies will choose to exploit their O-advantages by engaging in FDI. The internalisation advantages refer to the multinational company ability to transfer and exploit its O-specific advantages across national borders within its own organisation. The I-specific advantages arise when its own foreign production is more efficient than producing through a partnership arrangement, such as licensing, franchising or a joint venture. In general, the eclectic theory is about both the importance of each individual advantage and the configuration of them. The paradigm suggests that, in the case of the existence of all three types of advantages, the greater they are, the more foreign direct investment will be undertaken.⁹

⁸ P.J. Buckley, M. Casson, The future of the multinational enterprise in retrospect and in prospect, *Journal of International Business Studies* 2003, Vol. 34, No. 2, pp. 219–222.

⁹ J.H. Dunning, Toward an eclectic theory of international production: Some empirical tests, *Journal of International Business Studies* 1980, Vol. 11 No.1, pp. 9–31; J.H. Dunning, The eclectic paradigm of international production: A restatement and some possible extensions, *Journal of International Business Studies* 1988, Vol. 19, No. 1, pp. 1–31.

4. Hypotheses

Based on the FDI theories (especially the Dunning's eclectic paradigm) and empirical research studies already presented, hypotheses will be formed about the determinants of Chinese OFDI. This study is limited to include only developing countries and it focuses mainly on host countries factors that attract Chinese FDI. These circumstances are included in the following hypotheses.

The location aspect of the eclectic theory shows that better access to host countries' markets is one of the dominant reasons for FDI. It is considered that market size reflects potential demand for goods and services as well as the space for the economies of scale. The larger the host country market is, the bigger potential demand for products.

Hypothesis 1: China's OFDI is positively related to a host market size.

A number of researchers (for example, Buckley et al., Cheung and Qian) suggest that China invests in countries that are rich in natural resources to secure stable supplies of raw materials, particularly minerals and oil. Moreover, it is observed that China's economic growth has increased its demand for natural resources. A positive correlation between Chinese OFDI and natural resources is also expected according to the Dunning's paradigm and its L-specific advantages of the host country.

Hypothesis 2: China's OFDI is positively related to the accessibility of natural resources in a host country.

The eclectic paradigm suggests that not only natural resources, but also strategic assets, such as market knowledge, technological know-how, management skills or established brands, can attract FDI. Thus, it is considered that the locations with more high-quality strategic assets are more attractive for foreign investors.

Hypothesis 3: China's OFDI is positively related to the quantity and quality of strategic assets in a host country.

The openness to trade, which means a sum of exports and imports of a country, measures how open a country is towards the international market. A country that is characterised by a high openness to trade is argued to be more accessible to trade with and invest in. This suggests, at the same time, that more FDI will flow to such a country.

Hypothesis 4: China's OFDI is positively related to the openness to the trade of a host country.

The relationship between bilateral trade and FDI flows can be considered from two points of view: substitutive or complementary. The first one argues that the higher trade barriers and transportation costs, the more FDI flows; and *vice versa* – the lower trade barriers, the more the export activities. The second approach argues that more bilateral trade stands for a better integration between both trading countries. This means that bilateral trade and FDI move in the same direction. In the case of

China the complementary approach seems to be more accurate, because the majority of Chinese exports accounts for manufactured goods, whereas most Chinese OFDI come from primary and tertiary industries. Thus, China's exports and OFDI rather cannot be substitutive.

Hypothesis 5: China's OFDI is positively related to the level of bilateral trade.

Political risk is another important L-specific advantage in the eclectic paradigm. When the political system of a host country is hostile towards foreign investors, this prevents them from undertaking investments in such a country.

Hypothesis 6: China's OFDI is negatively related to the level of host country political risk.

Distance is also argued to be negatively correlated with FDI outflows. A longer distance causes higher transportation costs, but it also induces greater cultural differences, which are considered as a significant business barrier.

Hypothesis 7: China's OFDI is negatively related to the distance from a host country.

5. Model specification

The analysis is conducted on 20 developing countries – the biggest receivers of Chinese OFDI in terms of FDI stock in 2010 (Table 1 presents the list of these countries). The time period for the analysis is 2003–2010. The year 2003 is chosen as a starting point for two reasons. Firstly, since 2003 data on OFDI published by the Chinese government has been consistent with data collection standards provided by IMF and OECD.¹⁰ Secondly, after 2003 China has become an aggressive investor as it became legal for private companies to invest abroad.¹¹ In this research the data on Chinese OFDI is collected from *Statistical Bulletin of China's Outward Foreign Direct Investment* published annually by the Chinese Ministry of Commerce (MOFCOM) since 2003.

Table 1	. The biggest receiver	s of Chinese OFDI	(from the group	of developing	countries)	in terms
of FDI :	stock in 2010					

Algeria	Iran (the Islamic Republic of)	Myanmar	South Africa
Brazil	Korea, the Republic of	Nigeria	Thailand
Cambodia	Lao PDR	Pakistan	The United Arab Emirates
Congo DR	Malaysia	Peru	Vietnam
Indonesia	Mongolia	Singapore	Zambia

Source: 2010 Statistical Bulletin of China's Outward Foreign Direct Investment, www.mofcom.com. cn (accessed: 18.04.2012).

¹⁰Y.W. Cheung, X. Qian, op. cit.

¹¹ P.J. Buckley et al., op. cit.

Variable	Description	Theoretical	Source
OFDI	OFDI flow from China	Dependent va-	MOCEOM Statistical
01 D1	in natural log value	riable	Bulletin of China's OFDI ^A
GDP	Host country GDP,	Market seeking	World Bank, World
	in natural log value		Development Indicators ^B
OPEN	The sum of exports and imports	Openness	World Bank, World
	divided by host country GDP,	towards the inter-	Development Indicators ^C
	in natural log value	national market	-
TRADE	Host country total trade with China,	Complementarity	National Bureau of Statistics
	in natural log value	with the OFDI	of China, China Statistical
		level	Yearbooks ^D
DIST	Distance from China to host country,	Transport cost	CEPII ^E
	in natural log value		
RESOURCE	Fuel, ores and metal exports divided	Natural resources	World Bank, World
	by total host country merchandise	seeking	Development Indicators ^F
	exports		
EDU	Host country percentage of popula-	Strategic asset	Barro-Lee Data set
	tion (aged at 15 and over) that com-	seeking	of Educational Attainment ^G
	pleted tertiary education, in natural		
	log value		
RISK	Host country political risk rating	Transaction cost	World Bank, Worldwide
	calculated by taking average for six		Governance Indicators ^H
	indexes		

Table 2. Summary of variables

^A 2008 Statistical Bulletin of China's Outward Foreign Direct Investment, www.mofcom.com.cn (accessed: 18.04.2012); 2010 Statistical Bulletin of China's Outward Foreign Direct Investment, www. mofcom.com.cn (accessed: 18.04.2012); ^B World Bank, World Development Indicators, data.worldbank.org (accessed: 18.04.2012); ^C World Bank, World Development Indicators, data.worldbank.org (accessed: 18.04.2012); ^D China Statistical Yearbook 2005, National Bureau of Statistics of China, www.stats.gov.cn (accessed: 19.04.2012); China Statistical Yearbook 2007, National Bureau of Statistics of China, www.stats.gov.cn (accessed: 19.04.2012); China Statistical Yearbook 2009, National Bureau of Statistics of China, www.stats.gov.cn (accessed: 19.04.2012); China Statistical Yearbook 2009, National Bureau of Statistics of China, www.stats.gov.cn (accessed: 19.04.2012); China Statistical Yearbook 2009, National Bureau of Statistics of China, www.stats.gov.cn (accessed: 19.04.2012); China Statistical Yearbook 2007, National Bureau of Statistics of China, www.stats.gov.cn (accessed: 19.04.2012); F World Bank, World Development Indicators, data.worldbank.org (accessed: 17.04.2012); ^F World Bank, World Development Indicators, data.worldbank.org (accessed: 18.04.2012); ^G R. Barro, L. Jong-Wha, A New Data Set of Educational Attainment in the World, 1950–2010, NBER Working Paper No. 15902, April 2010; ^H World Bank, Worldwide Governance Indicators, data.worldbank.org (accessed: 18.04.2012).

Source: author's own overview of the sources noted in the table.

The available data allows applying panel models. Several statistical models can be used to evaluate and estimate panel data such as fixed effects models, random effects models, seemingly unrelated regressions models and pooled ordinary least square models. Because of a relatively short sample period and data incompleteness, the author prefers to use simple methods to avoid requiring strong presumptions in the models. The purpose of this research is to establish whether there is a relation between the level of Chinese OFDI and other variables. The following equation was applied to measure this relation:

$$OFDI_{it} = \alpha_t + \beta_1 GDP_{it} + \beta_2 OPEN_{it} + \beta_3 TRADE_{it} + \beta_4 DIST_i + \beta_5 RESOURCE_{it} + \beta_6 EDU_{it} + \beta_7 RISK_{it} + \varepsilon_{it},$$

where is a constant parameter for a particular year and is assumed to be a random error.

Table 2 presents descriptions of the variables as well as the information on data sources. The hypotheses included in Section 4 suggests positive coefficients for the accessibility of natural resources, GDP, bilateral trade, openness to trade, political risk¹² and education. A negative coefficient is expected for distance. Table 3 presents the correlation between each variable. The correlation coefficients do not indicate any critical problems of collinearity.

	OFDI	GDP	OPEN	TRADE	DIST	RESOURCE	EDU	RISK
OFDI	1.00							
GDP	0.19	1.00						
OPEN	0.05	0.09	1.00					
TRADE	0.37	0.87	0.20	1.00				
DIST	-0.19	0.23	-0.08	-0.13	1.00			
RESOURCE	-0.01	-0.20	-0.22	-0.41	0.45	1.00		
EDU	0.03	0.43	0.02	0.52	-0.28	0.00	1.00	
RISK	0.14	0.48	0.55	0.62	-0.12	-0.36	0.37	1.00

Table 3. Correlation matrix of variables

Source: author's own work.

The Wald and the Breusch-Pagan tests were performed to determine whether the pooled ordinary least square model is better than the fixed effect model (the Wald test) and the random effect model (the Breusch-Pagan test). In both cases the pooled ordinary least square model turned out to be more suitable for the collected data. The *p*-value equals 0.06 for Wald's test and 0.5 for the Breusch-Pagan test. This shows that the pooled ordinary least square model is preferred to the other considered tests at 5% level of significance. As suggested by the presented tests results, the pooled ordinary least square model will be applied for the Chinese OFDI analysis.

6. Results

In the regression all the independent variables included in the model appear significant at the 10% level. The regression estimates for model specifications are presented in

¹² This RISK index varies between–2.5 and 2.5 with a higher value standing for lower political risk. Thus, the RISK coefficient sign is expected to be positive.

Table 4. The coefficient of determination (R^2) equals 0.666. However, the adjusted R^2 , which accounts for the degrees of freedom, is 0.617 meaning that over 60% of the variation in Chinese OFDI can be explained by the independent variables included in the model.

Variable	Coefficient estimate	Variable	Coefficient estimate	
GDP	0.8681***	Constant α_{2003}	17.4960***	
OPEN	0.4922*	Constant α_{2004}	17.8989***	
TRADE	-0.6675**	Constant α_{2005}	18.3553***	
DIST	-1.2214***	Constant α_{2006}	18.9315***	
RESOURCE	0.0105**	Constant α_{2007}	20.1681***	
EDU	-0.4814***	Constant α_{2008}	20.4634***	
RISK	0.7304***	Constant α_{2009}	20.5762***	
		Constant α_{2010}	21.6678***	

Table 4. Empirical results

Note: ***, ** and * indicate that the coefficient is significant at 1%, 5% and 10% levels, respectively.

Source: author's own work.

The coefficient estimate for a host market's size (GDP) is significantly positive at 1% level for FDI outflow. This presents a very strong evidence for market seeking motivation and a support for Hypothesis 1 that host market size is positively related to OFDI. The accessibility of natural resources in a host country is positively correlated with Chinese OFDI as the coefficient estimate is 0.0105. The coefficient is significant at 5% level. This confirms Hypothesis 2 of the positive correlation between Chinese OFDI and resource-richness of host countries. The coefficient estimate for openness to trade is also positive, which implies that Chinese companies rather invest in the countries integrated into the world economy than in those which are less open towards the international market. This supports Hypothesis 4. As for political risk, the coefficient estimate is positive as hypothesised. This means that China invests more in politically stable countries. The significance is at 1% level; therefore, Hypothesis 6 is confirmed. The sign of coefficient for distance is negative as expected, which shows that Chinese companies are more eager to invest in geographically close countries. This is at the same time a strong support for Hypothesis 7. For the impact of strategic assets on Chinese capital outflow, the EDU variable is found to have a negative sign, which shows that China rather invests in the countries with lower percentage of population completed tertiary education. Therefore, Hypothesis 3 is not supported. A negative relation is also found between Chinese OFDI flow and bilateral trade with host countries. This is not in line with Hypothesis 5, which means that the relationship between bilateral trade and FDI outflow should be characterised as substitutive rather than as complementary. Table 5 presents the summary of estimation results.

Hypothesis	H1	H2	Н3	H4	Н5	H6	H7
Verification	yes	yes	no	yes	no	yes	yes

Table 5. Summary of hypotheses verification

Note: "Yes" indicates that the estimate sign is the same as expected and significant at 10% level or lower. Otherwise, there is no support for the hypothesis.

Source: author's own work.

7. Conclusions

The main purpose of this study was to examine which factors attract Chinese FDI to developing countries. By investigating theoretical determinants of FDI flows, several conclusions were drawn. The positive correlation, as it was expected, was observed between Chinese OFDI and the following factors: host market size, natural resources richness and openness to trade. In addition, the distance between China and a host country as well as the level of host country's political risk were found to be negatively correlated with FDI outflow, as hypothesised. Two findings surprised the author. Firstly, the EDU variable turned out to be negatively correlated with Chinese OFDI, which shows little support for strategic assets¹³ seeking motivation. This means that Chinese companies can use other ways of acquiring foreign strategic assets. Furthermore, the coefficient estimate for bilateral trade was also found to be negative. This means that China's OFDI and its exports are substitutive in nature rather than complementary.

Based on this research, the author believes that there are several directions for a future study, which can examine China's outward foreign direct investment more deeply, especially Chinese OFDI to the developing world.

References

- 2008 Statistical Bulletin of China's Outward Foreign Direct Investment, www.mofcom.com.cn (accessed: 18.04.2012).
- 2010 Statistical Bulletin of China's Outward Foreign Direct Investment, www.mofcom.com.cn (accessed: 18.04.2012).
- Barro R., Jong-Wha L., A New Data Set of Educational Attainment in the World, 1950–2010, NBER Working Paper No. 15902, April 2010.
- Boateng A., Qian W., Tianle Y., Cross-border M&As by Chinese firms: An analysis of strategic motives and performance, *Thunderbird International Business Review* 2008, Vol. 50, No. 4, pp. 259–270.
- Buckley P.J., Casson M., The future of the multinational enterprise in retrospect and in prospect, *Journal* of International Business Studies 2003, Vol. 34, No. 2, pp. 219–222.

¹³Undetstood as percentage of the population that completed tertiary education.

- Buckley P.J., Clegg L.J., Cross A.R., Liu X., Voss H., Zheng P., The determinants of Chinese outward foreign investment, *Journal of International Business Studies* 2007, Vol. 38, pp. 499–518.
- Centre d'Etudes Prospectives et d'Informations Internationales (CEPII). Distance dataset, www.cepii. fr (accessed: 17.04.2012).
- Cheung Y.W., Qian X., The empirics of China's outward direct investment, *Cesifo Working Paper* 2009, No. 2621, pp. 1–39, www.ideas.repec.org (accessed: 12.04.2012).
- *China Statistical Yearbook 2005*, National Bureau of Statistics of China, www.stats.gov.cn (accessed: 19.04.2012).
- *China Statistical Yearbook 2007*, National Bureau of Statistics of China, www.stats.gov.cn (accessed: 19.04.2012).
- *China Statistical Yearbook 2009*, National Bureau of Statistics of China, www.stats.gov.cn (accessed: 19.04.2012).
- *China Statistical Yearbook 2011*, National Bureau of Statistics of China, www.stats.gov.cn (accessed: 19.04.2012).
- Dunning J.H., The eclectic paradigm of international production: A restatement and some possible extensions, *Journal of International Business Studies* 1988, Vol. 19, No. 1, pp. 1–31.
- Dunning J.H., Toward an eclectic theory of international production: Some empirical tests, *Journal of International Business Studies* 1980, Vol.11 No.1, pp. 9–31.
- Morck R., Yeung B., Zhoa M., Perspectives on China's outward foreign direct investment, *Journal of International Business Studies* 2008, Vol. 39, No. 3, pp. 337–350.
- Yang D., China's Offshore Investments: A Network Approach, Edward Elgar, Cheltenham, U.K./ Northampton, Massachusetts 2005.
- World Bank, World Development Indicators, data.worldbank.org (accessed: 18.04.2012).
- World Bank, Worldwide Governance Indicators, data.worldbank.org (accessed: 18.04.2012).
- World Investment Report 2011, UNCTAD, New York/Geneva 2011 (accessed: 17.04.2012).

MOTYWY BEZPOŚREDNICH INWESTYCJI ZAGRANICZNYCH CHIN W KRAJACH ROZWIJAJĄCYCH SIĘ

Streszczenie: Niniejszy artykuł bada motywy bezpośrednich inwestycji zagranicznych (BIZ) z Chin w krajach rozwijających się. Analiza obejmuje dane z okresu 2003–2010 dla 20 krajów będących największymi odbiorcami chińskich BIZ w grupie krajów rozwijających się. Zmienne objaśniające wybrane zostały na podstawie ogólnych teorii BIZ i obejmują: PKB kraju goszczącego, otwartość na handel, handel z Chinami, bogactwo zasobów naturalnych i strategicznych aktywów, ryzyko polityczne i odległość od Chin. Estymacja danych panelowych dokonana została w oparciu o klasyczną metodę najmniejszych kwadratów. Badania empiryczne pokazują, że PKB, otwartość na handel i bogactwo zasobów naturalnych są dodatnio skorelowane z chińskim BIZ, podczas gdy pozostałe zmienne wykazują ujemną korelację.

Slowa kluczowe: bezpośrednie inwestycje zagraniczne, Chiny, kraje rozwijające się.