

# **The Relation between Innovative Ability, Competitiveness and Net Outward Investment Position. European Union Case**

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## **Abstract**

*Starting from the theories in the field of foreign investments and competitive advantages, this study presents an analysis of the relation between innovative ability, competitiveness and net outward investment position. The results of the analysis carried out for the 27 Member States of the European Union demonstrate that, regardless of the changes which have occurred in the timeframe 2005-2011, the European countries, strongly competitive due to the high levels of innovation are outward investors, while countries characterized by a low level of innovation and competitiveness show negative values of net outward investment position. Therefore, the main source of competitiveness at global level stems from the ability of local firms to support innovation in the technological, managerial and organizational field, the level of innovation index reflecting more accurately the net outward investment position, to the extent to which the sources of innovation and competitiveness are specific to companies.*

**Keywords:** *foreign direct investment, European Union, net outward investment position, competitiveness, innovation*

**JEL Classification:** *F21, F23, O52*

## **Introduction**

The theorists in the field of foreign investments emphasize, more or less explicitly, that firms carry out international investment in order to capitalize in a more cost-effective manner their own "advantages" which Dunning calls ownership (O) advantages and defined as resources that have the potential to generate future income.<sup>1</sup>

Possession of O-advantages, that can be both tangible assets (capital, labour) and intangible (information, technology, managerial knowledge, organizational knowledge, credibility and creditworthiness of the firm, political contacts), involves a certain level of productivity that allows local firms to realize substantial exports or generate significant flows of foreign direct investments.

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<sup>1</sup> Iacovoiu, V. B., *Foreign direct investments between theory and economic practice. Comparative analysis*, ASE Publishing House, Bucharest, 2009, p.39

M. Porter (1992) and J. Dunning (1992) showed that developed economies competitive advantages are based on the ability of local companies to support innovation in the organizational, managerial and technological field and to coordinate the resources available in a regional or global manner, while developing economies competitive advantages derive mainly from the endowment with factors of production, such as natural resources, labour force or capabilities at lower costs. Also, foreign direct investments (FDI) interact with the existing competitive advantage of the host country and, at the same time, influence the future competitive advantage, their main contribution being embodied in increasing the productivity and competitiveness of resources, assets and capabilities, with positive impact at economic and social level.<sup>2</sup>

## Theoretical Aspects

Analysing the interactions between foreign direct investment flows and the competitive advantages of the countries, J. Dunning (1992) has demonstrated the influence exercised by FDI inflows on the four facets of Michel Porter's diamond as well as on the governmental actions and on the mentality of the enterprising individuals within the host economy, distinguished 4 stages of the competitive advantages. In the first stage, namely *the stage of competitive advantage based on production factor instrumentation*, FDI inflows are generally oriented towards intensive activities within the poorly qualified working force which provides the internal or external market with consumer goods characterized by a low processing degree (primary products). In this phase, the generated production factors (capabilities) have a minor economic role as they are placed on a very low level. It is important to state the fact that by identifying a competitive branch due to the instrumentation with production factors and to the stimulation of economic activities placed both upwards and downwards to it, one can initiate the process of creation of the economic clusters. In the second stage, of *the competitive advantage generated by the volume and quality of investments*, competitive advantage is created through investments aimed at improving the quality of existing production factors, such as investments in technology, in the development of infrastructure and in increasing the quality of labour. At *the stage of competitive advantage arising from innovation*, the third stage, the competitive advantages of an economy are mainly generated by the ability of local firms to support innovation in the organizational, managerial and technological field. During this stage, the activities based on traditional factors are mainly relocated abroad. The fourth stage, *the information stage*, is considered by Dunning to be the most advanced stage of economic development, being characterized by unprecedented intensification of relations between companies, supported by the development of informational processes.<sup>3</sup>

Trying to explain the change in the level and structure of FDI received and generated by a country, depending on the level of economic development, John Dunning (1993) has launched the concept of the Investment Development Path (IDP) based on the assumption that, alongside with the economic development a country changes its net outward investment position (NOI) calculated as the difference between outward FDI stock and inward FDI stock.<sup>4</sup> According to this theory, *the investment development path varies from country to country, depending on the level of economic development*, the dynamic interaction between the ownership advantages of

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<sup>2</sup> Ivan, M.V., Iacovoiu, V., Innovation and Research and Development Important Factors Related to The Nations Competitiveness. The Case of European Economies, *Communications of the IBIMA*, Volume 10, Number 14, 2009, p.110-118

<sup>3</sup> Dunning, J.H., The competitive advantage of countries and the activities of transnational corporations, *Transnational Corporations*, Vol. 1, No. 1, 1992, p.135-168; Porter, M., *The Competitive Advantage of Nations*, The Mac Millan Press.Ltd., London, 1992, p.69-131

<sup>4</sup> Buckley, P.J., Castro, F.B., The investment development path: the case of Portugal, *Transnational Corporations*, vol. 7, no. 1, 1998, p.1-15

domestic and foreign firms and the location advantages of countries being categorized in five stages.<sup>5</sup> Thus, in stage one, specifically most to the least developed countries, both inward and outward FDI are very small, while in stage two, FDI inflows, directed mainly to industries based on resources or on a low/medium level of knowledge, grow significantly. However, in both stages the NOI position is negative as the FDI outflows are insignificant because the ownership advantages of local firms are weak. In stage three, even if outward FDI (OFDI) may surpass inward FDI (IFDI) flows, as domestic companies become more competitive, the IFDI stock remains higher and hence the NOI position remains negative. In stage four, characteristic of developed countries, the NOI position turns to positive, as OFDI stock becomes higher based on increasingly FDI outflows, while the foreign direct investment received moves into the industry intensive in high-technology and knowledge. At stage five, specific of the most developed countries, the NOI position is “an unstable equilibrium around zero” (negative values alternate with positive ones, depending on the evolution of exchange rates and the business cycle phases) and the competitiveness is no longer accurately reflected by the absolute GDP value, but by the net outward investment position.<sup>6</sup>

Consolidating the main issues highlighted above, we distinguish the following features of the investment development stages (tab. no.1):

**Table. 1** Investment development stages – the main features

Stages	NOI position	Foreign direct investment flows (IFDI and OFDI)	Competitive advantages
Stage 1	Negative values	The inflows and outflows of foreign direct investments are almost absent (IFDI flows are generally oriented towards intensive activities within the poorly qualified working force which provides primary products).	Competitive advantages based on the endowment with factors of production, mainly natural resources (the generated production factors, capabilities, have a minor economic role as they are placed on a very low level).
Stage 2	Negative values	FDI inflows grow significantly, while OFDI remains very small (IFDI flows are especially oriented towards traditional branches of the processing industry and intensive branches in terms of labour force, as well as constructions, distribution and commerce).	Competitive advantages based on the endowment with factors of production, including those created (it is initiated the process of creation of the „economic clusters“).
Stage 3	Negative values	OFDI may surpass IFDI flows, but IFDI stock remains higher (the ownership advantages of the local economic agents become more specific to the company and less specific to the country).	The competitive advantage is generated by means of investments regarding the improvement of the quality of the existing production factors (investments in technology, in the development of infrastructure, and in increasing working force training).
Stage 4	Positive values	OFDI stock becomes higher based on increasingly FDI outflows (the activities based on traditional factors are mainly relocated abroad).	Competitive advantage arising from the capacity of the local companies to sustain technological, managerial and organizational innovation.
Stage 5	Alternate values	The outward and inward foreign direct investment stocks are very high, and the competitiveness is accurately reflected by the net outward investment position (a much too accentuated increase of the IFDI stock should constitute the sign of the competitiveness in decline).	Competitive advantage based on the innovation and development of informational processes (the success depends on the ability of the multinational companies to coordinate resources placed within a regional or global environment).

<sup>5</sup> Durán, J., Ubeda, F., The investment development path: a new empirical approach, *Transnational Corporations*, Vol. 10, No. 2, 2001, p. 1-34

<sup>6</sup> Narula, R., Dunning, J.H., Multinational enterprises, development and globalisation: Some clarifications and a research agenda, *Oxford Development Studies*, Vol. 38, No. 3, 2010, p. 263-287

Therefore, in advanced stages of investment development path characteristic of developed countries (stages 4 and 5), the high level of competitiveness is based on innovation and development of informational processes. Consequently, in order to analyse the relation between foreign direct investments and development “measuring the *quality* of FDI is just as important as measuring its *quantity*” because “increased FDI does not necessarily imply progression in the IDP through a proportional increase in economic development.”<sup>7</sup>

The results of an empirical study that has addressed “in an explicit manner the relation between innovation and competitiveness”, using a panel of representative data regarding the innovation activities, research and development (R&D) expenditure and the competitiveness of nations, set for European countries, including the member states, showed that “innovative capabilities and R&D activities sustained mostly by the business enterprise sector are very important factors influencing the nations competitiveness”. The main conclusion of the study was that “the more advanced the country’s national innovation system, the greater the likelihood of positive effects on the economy, in terms of competitiveness”.<sup>8</sup>

## Empirical Evidence for the EU-27

We analysed NOI/capita in relation with Global Competitiveness Index (GCI)<sup>9</sup> and Global Innovation Index (GII)<sup>10</sup>, for the 27 EU Member States in 2005 and 2011 (tab.no.2).

**Table .2.** NOI/capita, GCI and GII for EU-27 member states, 2005 and 2011

Country	2005			2011		
	NOI/capita (USD)	GCI	GII	NOI/capita (USD)	GCI	GII
Bulgaria	-1179	3.83	2.12	-224	4.13	2.69
Romania	-1115	3.67	2.44	-123	4.16	2.58
Latvia	-1969	4.29	2.67	-662	4.14	2.79
Lithuania	-1692	4.3	2.71	-329	4.38	2.69
Poland	-2327	4	2.53	-243	4.51	2.66
Hungary	-5440	4.38	2.88	-17	4.33	3.37
Estonia	-7749	4.95	3.12	-1280	4.61	3.44
Cyprus	-5907	4.54	2.73	1389	4.5	3.25
Slovak Republic	-2748	4.31	2.97	-304	4.25	2.73
Portugal	-1903	4.91	2.86	216	4.38	2.97
Czech Republic	-5408	4.42	3.10	-403	4.57	3.31
Greece	-1408	4.26	2.69	-3	3.99	2.39

<sup>7</sup> Narula, R., Guimón, J. (2010), The investment development path in a globalised world: implications for Eastern Europe, *Eastern Journal of European Studies*, Volume 1, Issue 2, p.10

<sup>8</sup> Ivan, M.V., Iacovoiu, V., Innovation and Research and Development Important Factors Related to The Nations Competitiveness. The Case of European Economies, *Communications of the IBIMA*, Volume 10, Number 14, 2009, p.110-118

<sup>9</sup> Global Competitiveness Index (GCI) is calculated by the World Economic Forum based on a set of parameters that are considered essential for the competitiveness of an economy. These parameters are grouped into nine categories, namely: institutions; infrastructure; macroeconomics; health and primary education; secondary education and continuous training; the efficiency of markets; technological preparation; the degree of sophistication in business; the ability of innovation.

<sup>10</sup> Global Innovation index (GII) is calculated as the simple arithmetic average of the three variables, namely: the power of research and development; the number of patents registered with the USPTO (United States Patent and Trademark Office); the number of scientific articles.

Table 2 (cont.)

Malta	-8553	4.54	2.82	-1235	4.34	-
Slovenia	-2274	4.59	2.81	-432	4.42	3.15
Spain	315	4.8	3.38	168	4.49	3.07
Italy	1281	4.21	3.48	299	4.37	2.85
France	4155	4.78	4.32	752	5.13	3.45
United Kingdom	6980	5.11	4.81	848	5.25	3.92
Finland	4089	5.94	3.85	996	5.37	4.03
Belgium	-431	4.63	3.77	-1675	5.07	3.43
Germany	5630	5.1	4.89	171	5.39	3.84
Denmark	3040	5.65	3.95	1551	5.32	3.99
Sweden	3435	5.65	3.90	1561	5.56	4.35
Ireland	-22751	4.86	3.66	-3399	4.74	3.79
Austria	719	4.95	3.64	1939	5.09	3.55
Netherlands	10811	5.21	3.99	883	5.33	3.94
Luxembourg	-46437	4.9	3.72	-11198	5.05	3.69

Source:

NOI/capita<sub>2005</sub>: Iacovoiu, V.B., Foreign Direct Investments between Theory and Economic Practice. Comparative Analysis, ASE Publishing House, Bucharest, p.48-49

NOI/capita<sub>2011</sub>: own calculations based on statistical data from UNCTAD, [www.unctad.org](http://www.unctad.org) and World Bank, [www.worldbank.org](http://www.worldbank.org)

GCI<sub>2005</sub>: [https://members.weforum.org/pdf/Global\\_Competitiveness\\_Reports/Reports/GCR\\_05\\_06/GCI\\_Rankings\\_pdf.pdf](https://members.weforum.org/pdf/Global_Competitiveness_Reports/Reports/GCR_05_06/GCI_Rankings_pdf.pdf)

GII<sub>2006-2007</sub>: <http://www.globalinnovationindex.org/gii/main/previous/GII%202007.pdf>

GCI<sub>2011</sub>: [http://www3.weforum.org/docs/WEF\\_GlobalCompetitivenessReport\\_2010-11.pdf](http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2010-11.pdf)

GII<sub>2011</sub>: [http://www.globalinnovationindex.org/gii/main/previous/2010-11/FullReport\\_10-11.pdf](http://www.globalinnovationindex.org/gii/main/previous/2010-11/FullReport_10-11.pdf)

From the above theories (tab. no.1), according to which in the upper stages of the development, stage 4 and 5 respectively, competitive advantages derive mainly from the ability of local companies to sustain innovation, we will group the EU Member States depending on the level of GII, considering the following ranges: values greater than 3.8; values ranging between 3.3 and 3.8; values in the range 2.8 and 3.3; values ranging between 2.6 and 2.8 and values lower than 2.6. The level of GCI and the net outward investment position, positive or negative values, will be established according to the distribution of countries analysed by GII values (tab.no.3).

Table 3. EU countries grouped by GII, GCI and NOI/capita, 2005 and 2011

Crt. No.	2005		2011	
	Indicator Values	Countries	Indicator Values	Countries
1.	GII > 3.8 GCI > 4.7 NOI/capita positive	Finland, Germany, Denmark, Sweden, Netherlands, France United Kingdom	GII > 3.8 GCI > 5.2 NOI/capita positive	Finland, Germany, Denmark, Sweden, Netherlands, United Kingdom
2.	GII (3.3 - 3.8) GCI > 4.2 NOI/capita alternant	Austria , Spain, Italy, <i>Luxembourg*</i> <i>Belgium*</i> , <i>Ireland*</i> <i>* NOI/capita negative</i>	GII (3.3 - 3.8) GCI > 4.7 NOI/capita alternant	France, Austria, <i>Belgium*</i> , <i>Ireland*</i> , <i>Luxembourg*</i> <i>* NOI/capita negative</i>
3.	GII (2.8 - 3.3) GCI > 4.2 NOI/capita alternant	Hungary, Estonia, Slovakia, Portugal, Czech Republic, Malta, Slovenia	GII (2.8 - 3.3) GCI > 4.3 NOI/capita alternant	<i>Italy*</i> , <i>Spain*</i> , <i>Portugal*</i> , <i>Cyprus*</i> Hungary, Estonia, Czech Republic, Slovenia <i>*NOI/capita positive</i>

Table 3 (cont.)

4.	<b>GII (2.6 - 2.8)</b> GCI > 4.2 NOI/capita negative	Latvia, Lithuania, Cyprus, Greece	<b>GII (2.6 - 2.8)</b> GCI > 4.1 NOI/capita negative	Slovakia, Latvia, Lithuania, Poland, Bulgaria
5.	<b>GII &lt; 2.6</b> GCI < 4.2 NOI/capita negative	Poland, Bulgaria, Romania	<b>GII &lt; 2.6</b> GCI < 4.1 NOI/capita negative	Greece, Romania

Source: data in table no.2

Grouping EU Member States having as the main criterion the GII (tab.no.3) shows some changes in terms of innovative capacity, both in a positive sense, in the case of Cyprus, Poland and Bulgaria, but mostly negative, if we look at France, Spain, Italy, Slovakia and Greece. On the whole, it is worth mentioning that in the analysed period, 2005-2011, the increase of European economies competitiveness (in 2011, 10 states recorded a level of GCI greater than 4.7 instead of only 7 countries in 2005) has been achieved in terms of decreasing their innovative capacity (only 10 of the 12 states that benefited in 2005 from a high level of innovation with GII values higher than 3.3, can be found in 2011).

Also, we note that the NOI position reflects the competitiveness of economies analysed in close relation with the level of GII (Table 4), in the sense that:

- I. When the *GII is greater than 3.8*, the country's level of competitiveness is very high and the *net outward investment position is positive* (Group 1 countries);
- II. For *GII values contained in the range 2.8-3.8*, the competitiveness level of the economy is comparatively lower and the *net outward investment position varies from one country to another* (countries in groups 2 and 3). In our opinion, the country's investment position, inward or outward investor, is closely relate with the specificity of the innovation and competitiveness sources and the ability of local firms to coordinate geographically dispersed resources. In this way, the case of Belgium, Luxembourg and Ireland stands out, constantly showing negative values for NOI/capita, although it benefits in 2011 of higher levels of innovation and competitiveness, compared to Italy, Spain, Portugal and Cyprus, which record positive NOI values. These data suggest that, in the three situations mentioned, the sources of innovation and competitiveness are not specific to local firms, in consequence, these companies do not engage in internationalization of production, which leads to a lower dynamic of outward FDI flows. For a rigorous justification of this conclusion a more detailed analysis of the sources of innovation and competitiveness in the case of Belgium, Luxembourg and Ireland is necessary;
- III. When the *GII is less than 2.8*, the competitiveness level of the economy is relatively low and the *net outward investment position is negative* (the countries in groups 4 and 5).

**Table 4.** Relation between GII, GCI and NOI/capita for EU countries

<b>GII Values</b>	<b>GCI Values</b>	<b>NOI/capita</b>
GII > 3.8	GCI > 4.7 (2005) GCI > 5.2 (2011)	Positive values
GII (2.8 - 3.8)	GCI > 4.2 (2005) GCI > 4.3 (2011)	Alternant values
GII < 2.8	GCI < 4.5 (2005) GCI < 4.6 (2011)	Negative values

Source: data in tables' no.2 and no.3

These results demonstrate that, regardless of the changes which have occurred in the timeframe 2005-2011, European States, strongly competitive due to the high levels of innovation (I), are outward investors (NOI/capita positive), while countries characterized by a low level of

innovation and competitiveness (III) show negative values of net outward investment position (inward investors).

Therefore, *the level of country's innovation capacities seems to be one of the main forces that determine the turning points of its NOI position.* Thus, in 2005, 10 of the 13 EU states (77%) that recorded a level of GII higher than 3.3 were outward investors, registering positive values of NOI/capita (Finland, Germany, Denmark, Sweden, Netherlands, France, United Kingdom, Austria, Spain and Italy). A comparable percentage (73%) is registered in 2011, when 8 of the 11 EU countries with levels of GII higher than 3.3 were outward investors (the same countries as in 2005 with the exception of Spain and Italy that have been strongly affected by the economic crisis). Also, during 2005-2011, there are two states, Cyprus and Portugal, which have evolved from the position of inward to outward investor based on increasingly innovation levels, from 2.73 to 3.25 (Cyprus) and from 2.86 to 2.97 (Portugal).

## **Conclusions**

Starting from the theories of Investment Development Path and competitive advantages, we analysed NOI/capita in correlation with global competitiveness index and global innovation index, for the 27 EU Member States in 2005 and 2011. The results of the analyses carried out suggest that the level of country's innovation capacities is one of the main forces that determine the turning points of its NOI position, as European States strongly competitive due to the high levels of innovation (GII is more than 3.8) are outward investors (positive values of net outward investment per capita), while countries characterized by a low level of innovation (GII is less than 2.8) and competitiveness show negative values of net outward investment position (as for example Latvia, Lithuania, Greece, Poland, Bulgaria and Romania).

Therefore, the ability of local firms to support technological innovation in the organizational and managerial field represents the main source of competitiveness at the regional level (European Union), the innovation index faithfully reflecting the net outward investment position, to the extent to which sources of innovation and competitiveness are specific to firms. Of course, this statement, valid in EU member countries, according to the presented analyses, could be better outlined by a similar, but extensive study, to include a larger number of states characterized by geographical diversity.

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