



## EMNCS – LESSONS ON THE WAY TO AN INNOVATION-BASED DEVELOPMENT. EMPIRICAL FINDINGS

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### **Abstract:**

*The main focus of (the two parts of) this article is on the emerging countries and their development paths. Particularly, it emphasizes on the role and contribution of innovation (of all kinds, in all its forms) for multinational companies from emerging economies (EMNC); the entire research endeavor is placed under the auspices of the knowledge-based society – the one that makes knowledge the ultimate source of power, enabling entities to use and potentially multiply it at the same time at global scale. Analyzing the situation of some emerging economies (starting from their best ranked multinationals), the article draws some empirical and theoretical conclusions on the ways knowledge and innovation could become determinants of progress beyond national boundaries.*

**Key words:** EMNC, Competitiveness, FDI, Innovation, NICI

### **1. Introduction**

This (second part of the) article analyses how emerging market multinationals (EMNCs) from specific countries can drive their economies towards a higher stage of development. In order to identify the stage of development for each country, as they are described by Narula and Dunning (2009), we used 100 BCG Global Challengers in correlation with NICI (National Intellectual Capital Index) and IFDI (Inward Foreign Direct Investment), OFDI (Outward Foreign Direct Investment), GDP per capita, NOI (Net Outward Investment).

The main conclusion is that, no matter the countries and the MNCs raised and developed within (and from) them, innovation – by any of its determinants and in all of its forms – is the fuel that energizes and stimulates development and competitiveness around the globe, while knowledge is its basic source and essential result at the same time, within a never ending spiral of progress. Each country and company (including EMNCs) should understand it in order to succeed and to optimally engage and put together, within a unique strategy, all the knowledge-based available resources; this is

the most important lesson that (successful) EMNCs have learned and applied on their paths towards a knowledge and innovation driven development.

## **2. Evidences from specific successful countries and their EMNCs**

Keeping its seven years tradition, BCG has identified the 100 multinational companies of 2013 that can represent new challengers for the world economy (BCG, 2013). These MNCs (Table 1) are originated in emerging economies as follows: Brazil (13), China (30), India (20), Russia (6), Mexico (7), South Africa (5) and other emerging economies like: Argentina, Chile, Malaysia, Indonesia, Saudi Arabia, Thailand and Turkey (19).

**Table 1 BCG – Global Challengers 100**

<b>Countries (No. of EMNS)</b>	<b>Companies</b>
Brazil (13)	Brasil Foods; Camargo Correa Group; Embraer; Gerdau; Iochpe-Maxion; JBS; Marcopolo; Natura; Odebrecht Group; Petrobras; Tigre; Votorantim Group; WEG
China (30)	Alibaba Group; Aviation industry Corporation of China; China Communications Construction Company; China International Marine Containers Group; China Minmetals; China National Chemical Corporation; China National Offshore Oil Corporation; China Shipbuilding Industry Corporation; China UnionPay; Citic Group; Geely International; Goldwind; Haier; Huawei Technologies; Johnson Electric; Lenovo Group; Li & Fung; Mindray; PetroChina; Sany Group; Shanghai Electric Group; Sinochem; Sinohydro; Sinoma International Engineering; Sinopec; Trina Solar; Wanxiang Group; Yanzhou Coal Mining Company; Zoomlion; ZTE
India (20)	Bajaj Auto; Bharat Forge; ; Bharti Airtel; Crompton Greaves; Dr. Reddy's Laboratories; Godrej Consumer Products; Hindalco Industries Infosys; Larsen & Toubro; Lupin Pharmaceutical; Mahindra & Mahindra Motherson Sumi System; Reliance Industries; Sun Pharmaceutical Industries; Tata Chemicals; Tata Consultancy Services; Tata Motors; Tata Steel; Vedanta Resources; Wipro
Russia (6)	Gazprom; Lukoil; Norilsk Nickel; Severstal; United Company Rusal; VimpelCom
Mexico (7)	Alfa; America Movil; Femsa; Gruma; Grupo Bimbo; Mabe; Mexichem
South Africa (5)	Aspen Pharmacare; Bidvest Group; MTN Group; Naspers; Sasol
Other (19)	Tenaris (Argentina); Falabella, Latam Airlines Group (Chile); Grupo Empresarial Antioqueno (Colombia); El Sewedy Electric (Egypt); Golder Agri-Resources, Indofood Sukses Makmur (Indonesia); AirAsia, Petronas (Malaysia); Qatar Airways (Qatar); Saudi Basic Industries Corporation (Saudi Arabia); Charoen Pokphand Group, Indorama Ventures, PTT, Thai Union Frozen Products (Thailand); Koc holding, Sabanci Holding, Turkish Airlines (Turkey); Etihad Airways (UAE).

(Source: BCG, 2013)

As regards the industries within these multinational companies operates, they may be classified (Table 2) in two major categories: (1) industries with innovative products – such as pharmaceuticals, telecommunication, airlines, construction and engineering, engineered products, automotive equipment, chemicals, industrial conglomerates and (2) industries with innovative process, methods and techniques – such as food and beverages, fossil fuels, mining and metals, steel.

**Table 2. 2013 BCG Global Challengers by industry**

<b>Industries</b>	<b>Number of companies</b>
Food and beverages	8
Pharmaceuticals	4
Fossil fuels	9
Mining and metals	6
Steel	4
Telecommunication	5
Airlines	5
Construction and engineering	5
Engineered products	9
Automotive equipment	9
Chemicals	7
Industrial conglomerates	5
Others	24

(Source: BCG, 2013)

According to BCG, “Global challengers increasingly see the need to become more innovative and are rapidly increasing their research spending. Many of the innovations are aimed at creating new business models rather than tangible products” (Bhattacharya, A. et al., 2013). In this context, the article tries to analyse how EMNC from specific countries can drive their economies in order to achieve a higher stage/level of development.

Because from all the 100 Global Challengers – EMNC proposed by BCG 81 companies are originate in 6 countries, the analyse will be referred to the following economies: Brazil, China, India, Russia, Mexico and South Africa.

Lin and Edvinson (2010) have calculated National Intellectual Capital Index (NICI) by taking into consideration the period 1995-2008 for each of the 6 countries that are analysed in this article (Table 3). Russia has the higher score for Human capital index (5.30) and for Renewal capital index (2.87), China has the higher score for Market capital index (5.27), South Africa has the higher score for Process capital index (4.02), and Mexico has the higher score for Financial capital index (8.75). In order to achieve a higher score for NICI Russia must improve their MCI and PCI scores, Mexico Brazil, South Africa must improve their RCI score, China must increase her FCI and India must improve their HCI, RCI and FCI.

**Table 3. The variables of NICI**

	<b>Human capital index</b>	<b>Market capital index</b>	<b>Process capital index</b>	<b>Renewal capital index</b>	<b>Financial capital index</b>	<b>NICI</b>
Brazil	4.43	4.81	3.11	1.63	8.43	<b>22.41</b>
China	4.18	5.27	3.49	2.12	7.49	<b>22.55</b>
India	3.79	4.91	3.22	1.78	6.96	<b>20.67</b>
Russia	5.30	4.07	2.85	2.87	8.57	<b>23.65</b>
Mexico	4.75	4.95	3.19	1.24	8.75	<b>22.88</b>
South Africa	4.71	4.84	4.02	1.84	8.37	<b>23.79</b>

(Source: Lin and Edvinsson, 2010)

*In order to identify the stage of development for each country, as they are described by Narula and Dunning (2009) we used 100 BCG Global Challengers in correlation with NICI and IFDI (inward foreign direct investment), OFDI (outward foreign direct investment), GDP per capita, and NOI (net outward investment).*

In 2011 **Russia** had the highest level of GDP per capita (12933 USD) among the analysed countries, being in the transition from the efficiency-driven economy to innovation-driven economy. OFDI have recorded a higher growth rate in 2011 comparative to 2010 of 28% against 22% the growth rate of IFDI. Even in absolute values the OFDI have surpassed the IFDI in case of Russia. Also, Russia has a high score for NICI of 23.65, score based on Human capital index, Renewal capital index and Financial capital index.

Correlating these highlights, **Russia can be considered to be in stage III of development – based on innovation** as long as: OFDI increase more rapidly than IFDI, MNC investment are seeking efficiency and assets, exist products and process innovation.

According to Havlik P et all (2009) *“the main challenge for the Russian economy in the medium and long run is whether it will succeed in replacing energy exports as the key growth driver by the development of other sectors (diversification towards manufacturing, high-tech branches, services, etc.), and how it will cope with the acute demographic crisis (the population is projected to decline by nearly 10 million in the coming decade)”*.

**Brazil** is also in transition from the efficiency-driven economy to innovation-driven economy, having a GDP per capita of 12789 UDS in 2011. Even if IFDI have increased in 2011 comparative to 2010 with 37%, OFDI have registered a higher decrease in 2011 comparative to 2010 (from 11588 mil USD to minus 1029 mil USD).

The Brazil score`s for NICI is a medium on of 22.41 based more on Human capital index, Market capital index and Financial capital index and not on Process Capital index or Renewal capital index.

**Brazil** is positioned only in **stage II of development – based on investment** forasmuch the growth rate of IFDI is more higher than growth rate of OFDI, OFDI that are seeking resources and markets in other developing countries, innovation is not based on process or renewal, and MNC have ability to produce low-cost and standardized products.

Nevertheless, Brazil will have the chance to pass in a very short time in stage III of development because *“Brazilian MNCs performing reverse innovation (despite being supported by factors similar to other multinationals, such as R&D and entrepreneurial orientation and integration) and in this context, must remodel their management strategy, as managerial characteristics must be implemented and executed much more rapidly”* (Borini et al., 2012)

Even if is a great economy (the second economy in the world by GDP), **China** is an efficiency-driven economy with a GDP per capita of 5414 USD in 2011. In case of China, IFDI have a higher volume than OFDI, but they have about the same growth rate.

Regarding NICI for China, this is 22.55, that places it before Brazil but after Russia, South Africa and Mexico.

As long as IFDI surpassed OFDI, **China** is included in **stage II of development – based on investment**. But, it can be emphasized that China has strong domestic industries, the MNCs are able to produce low-cost products based on resources of home country, but some of them with a high level of innovation (Zeng et al., 2010). Also, the MNCs from China have the tendency to prefer more equity ownership to protect proprietary of knowledge and to control market. Today, *Chinese products meet world specifications and quality requirements by raising their level of technology through the acquisition of foreign skills, exploitation of own advantages on market abroad, and strong government support* (Rios-Morales and Brennan 2010). As a result, *“Chinese goods have become more technically sophisticated and have increasingly been accepted in Western markets”* (Adams, Gangnes, Schachmurove, 2006).

**India** is a factor-driven economy with a very low level of GDP per capita (1389 USD in 2011). Both IFDI and OFDI fluctuate from year to year but it is a certainty that OFDI are negligible in comparison to IFDI even if in BCG Global Challengers, 20 of the MNCs are from India. Among the analysed economies India has the lower score for NICI with a value of 20.67 determined by Market capital index and Process capital index.

Under these circumstances, the place of **India** is in **stage I of development - based on natural resource**. *Nevertheless in recent years it has experienced relatively rapid economic growth and become an attractive destination for foreign investment in the developing world on one hand. On the other hand, Indian multinationals have accumulated sufficient technologies and other capabilities to allow them to expand at least into other emerging economies based on their global challengers* (De Beule and Duanmu, 2012).

Although **Mexico** is an economy in transition from the efficiency driven stage to the innovation driven one – with a GDP per capita of 10153 USD in 2011, OFDI have decreased in 2011 with 34% comparative to 2010. The level of innovation is not high; Renewal capital index has the lowest value both from NICI and by comparison with the other countries.

The low levels of OFDI, of renewal capital, of MNC as global challengers, would place **Mexico in stage II of development – based on investment**. *Currently, Mexico faces a competitive challenge from China and other emerging countries – especially in manufacturing sector, being more and more attractive for market-seeking and resource-seeking investments* (Brennan and Rios-Morales, 2007).

With a GDP per capita of 8066 USD in 2011, **South Africa** is an efficiency-driven economy that has become more attractive in the recent years. OFDI from South Africa have decreased from year to year having negative values. In the next period, the 5 global challengers from South Africa will represent enhancers for OFDI increase. Surprising for South Africa is the score for NICI (23.79) that has the highest value from all six analysed countries.

**South Africa** would be an economy in **stage I of development – based on natural resource** as long as OFDI are negligible, IFDI (at a low level) are seeking resources and markets, and the MNC acts on imperfect and peripheral markets.

But, South Africa will catch up the other emerging economies in a very short time because: *“(1) the history of apartheid created a historically unique economic structure in which deep poverty and highly advanced industry existed side by side; (2) some South African companies have traditionally maintained strong international connections; (3) South African MNEs have traditionally invested in other Commonwealth countries, including some high-income ones, much more than in fellow developing countries; (4) somewhat paradoxically, the latter feature has not prevented South Africa from becoming a major source of international capital for many African countries”* (Goldstein, 2009).

In conclusion, the expansion of EMNC has increased on all continents in the last years. The phenomenon is still recent, of a modest magnitude, but will generate in the near future a real surge of OFDI taking into consideration its huge population, its size and its resources (Milelli, Hay and Shi, 2010). *“To compete internationally against MNCs that have abundant technological and business experiences, an EMNC not only needs to leverage inter-organizational relationships to acquire external knowledge, but also needs to focus on developing its realized absorptive capacity to enhance its new product market performance”* (Kotabe, 2011). But, more significant, *“the current increase in outward investment from emerging and developing economies may constitute a third ‘wave’, distinct from the two previous waves depicted in the literature”* (Gammeltoft, 2008).

Table 4. The IFDI and OFDI level

Country	IFDI mil. USD			OFDI mil. USD		
	2009	2010	2011	2009	2010	2011
Brazil	25949	48506	66660	-10084	11588	-1029
China	95000	114734	123985	56530	68811	65117
India	35596	24159	31554	15927	13151	14752
Russia	36500	43288	52878	43665	52523	67283
Mexico	16119	20709	19554	7019	13570	8946
South Africa	5365	1228	5807	1151	-76	-635

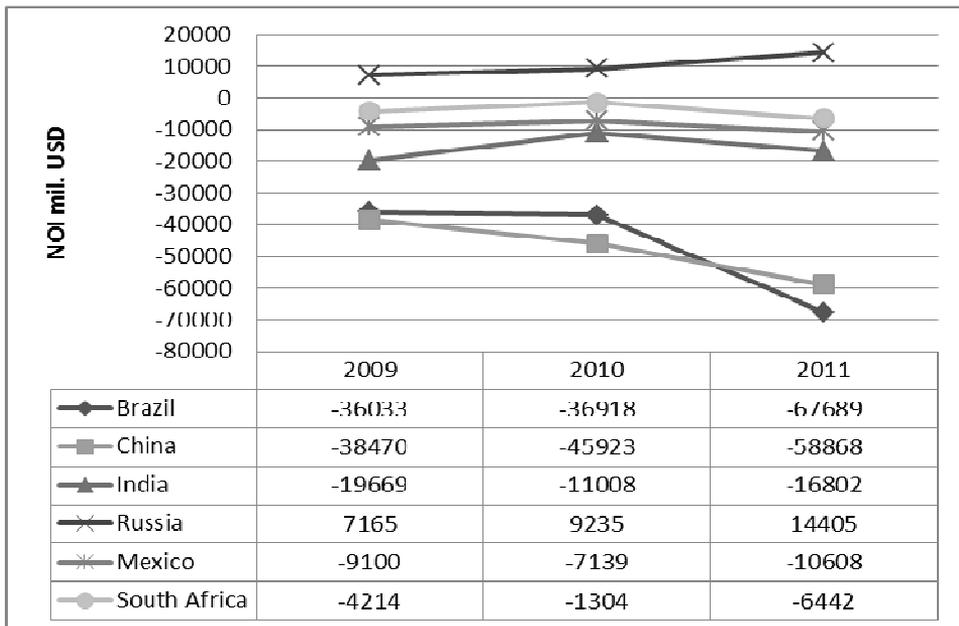
(Source: UNCTAD, WIR 2012)

Table 5. GDP per capita USD

Country	2009	2010	2011
Brazil	8220	10816	12789
China	3678	4382	5414
India	1031	1265	1389
Russia	8694	10437	12993
Mexico	8135	9566	10153
South Africa	5824	7158	8066

(Source: UNCTAD, WIR 2012)

Figure 1. Comparison of NOI level



### 3. Conclusions

In conclusion, even if, considering the different countries (at their specific levels of competitiveness and development) and the MNCs raised and developed within (and from) them, the realities reflect a lot of particularities (as shown), it must be emphasized that **innovation** – by any of its determinants and in all of its forms – is the fuel that energize and stimulate development and competitiveness around the globe, while **knowledge** is its basic source and essential result at the same time, within a never ending spiral of progress. Each country and firm/company (including EMNCs) must understand it in order to succeed and to optimally engage and put together, within a unique strategy, all the knowledge-based available resources; this is the most important lesson that the multinationals from emerging countries have learned and applied on their way towards a knowledge and innovation driven development.

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