DOI 10.2478/sbe-2019-0026
SBE no. 14(2) 2019

INSIDE THE WORLD – CLASS MULTINATIONALS: A SECTORAL FRAME

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Abstract:

Background. A firm, as it develops, tends to overcome local, regional, and national business environment boundaries by expanding into global economic space. The intense dynamics of internationalization, the expansion of multinational companies from emerging economies, the presence of multinational companies owned by the state are just a few of the specificities that shape the global business environment today. In the literature, these trends have become challenging topics, both open to criticism and appreciation.

Aims and approach. In this study we aim to map the expansion of business in the international environment from a sectoral perspective. In this respect, using the data synthesized by UNCTAD in the World's Top 100 non-financial MNEs and Top 100 non-financial MNEs from developing and transition economies, we aggregated, for each sector, the main performance indicators (assets, sales and employment) which reflects the magnitude of the expansion of the activity of the companies included in these ranks outside the economic area of origin. Also, based on the algorithm for calculating the Transnationality Index, we have calculated an aggregate Sectoral Transnationality Index for each of the two tops.

Conclusions. The analysis carried out leads to a series of conclusions regarding the dynamics and configuration of the universe of the world's most prominent multinational companies. Although this is mainly an exploratory research, we appreciate that this sectoral approach leads to a deeper level of analysis, expanding the area of knowledge in the field and, at the same time, creating a framework for new investigative perspectives.

Key words: *internalization*, *foreign direct investment, sectoral transnationalization*, *emerging multinationals, state owned multinationals*

1. Introduction

In the nowadays business environment, global competitiveness has become an imperative for all companies whether they are producing or selling on a local or regional market. As Drucker postulates (2004, p. 25), "today there is only one economy and one market". A firm, as it develops, tends to overcome local, regional, and national business environment boundaries by *expanding into global economic area*.

Multinational corporations, and especially top-class companies, have become a prominent presence in the global economy, a presence that fuels the internationalization of production and services. The emergence and expansion of these companies lead to a phenomenon that shapes significantly the global economy design, namely the *internalisation of markets* (Burciu, Kicsi, Cibotariu, & Hurjui, 2010). In a considerable amount of literature, this ongoing expansion of companies beyond national borders business area has become a prerequisite for interpretations from various perspectives and, at the same time, is subject to ideological controversy. Starting with Hymer's thesis, the issue of multinational companies (MNCs) has become one of the most challenging subjects that has captured the attention and interest of specialists not only from academia but also from international organizations.

Most studies seek to explain the development and expansion of MNCs from the point of view of the influences felt in the economic and social development spectrum, both in the countries of origin, but especially in the host countries, and also from the perspective of the factors that shape the decision and tendency of internationalization. On the other hand, the studies and reports of international organizations, in particular those developed under UNCTAD's auspices, provide an overview of the corporate universe, especially through information/evidence synthesized in the *World's top 100 non-financial TNCs/MNEs, ranked by foreign assets* and *the Top 100 non-financial TNCs/MNEs from developing and transition economies, ranked by foreign assets.* In our study, we aim to address the MNCs issue from a sectoral perspective, namely the dynamics and reconfiguration reflected by the two UNCTAD's tops.

2. A brief theoretical outline

Most authors assign to Stephen Hymer the first attempt to build a systematic explanation of the expansion of firms beyond national borders (Dunning, 2001; Ietto-Gillies, 2005; Ietto-Gillies, 2014). Credited as a seminal work in this field, Hymer's thesis (1976) reflects the interest in explaining the circumstances in which firms expand their activities outside their national area and concentrate their activities in certain sectors. The thesis brings to the center of theoretical reflection the motivations that determine the international operations of the companies and seeks to argue the connection between the pattern of international trade and the pattern of international operations of companies (Hymer, 1976, pg. 79-85). Hymer also emphasizes the idea that international operations will occur in industries where some firms have some advantages over other firms in producing goods (e.g. patents, monopoly position).

Before Hymer, the theories were either cantonized within the boundary of Marxist conceptions, or limited to explaining issues related to the cross-border movement of capital (Ietto-Gillies, 2005; Ietto-Gillies, 2014).

In the wake of Hymer's developments, the areas of interest in the activity of companies across national borders have diversified, theories trying to explain the motivations of internationalization, the development strategies, the reasons why some countries become hosts or "mothers" (or both) for companies etc. In this respect, a number of notable contributions by Raymond Vernon, Alan Rugman, P. Buckley & M. Casson, Grazia Ietto-Gillies and, last but not least, John Dunning are worthy of note.

In a work that has become a reference (*International Investment and International Trade in the Product Cycle),* Vernon (1966) explains the location of production across national borders as the result of the actions of a complex of factors but mainly a consequence of products' maturation in the home market. However, Vernon admits that the hypotheses he advances have a limited explanatory force due to the complexity and imperfections that characterize the international business environment, but also to the different ways in which industries respond to the influence of factors regarding the location of production. Subsequently, Vernon (1977, pg. 1-6) describes the emergence of multinational companies as a result of the narrowing of the international business area, in part as a response to the opportunities provided by technological forces. The narrowing of the international business area, stemming from the advance in transport and telecommunications, affects all types of businesses and shapes their business behavior. According to Vernon (1977, p. 21), concentration of MNCs occurs in industries where there are barriers that prevent competitors from entering; such industries are the aeronautical industry and computers (referring to the companies' ability to design, produce, assemble and sell), the oil, non-ferrous and automotive industries (regarding to the technical advantages that major manufacturers and distributors have over the smaller ones), pharmaceutical industries and banking services (where barriers can be due not only to the benefits gained by large companies that have consumer-recognized brands, but also to government licenses or patent grants). Competition is therefore an important factor influencing the location of firms in certain industrial or service sectors. As a rule, as Vernon (1998) argues, there are industries where the major players are large companies that have developed multinational structures (e.g. chemical industry, automotive industry). Multinationals are also present in industries where product differentiation is a powerful competitive tool, such as the pharmaceutical industry, or in industries where scale is a critical factor for success (example: computer chips).

Buckley & Casson (1976), Buckley & Casson (2002) link the emergence of MNCs to the internalization of markets (understood as a concentration of specific market activities under a joint control) as a consequence of the difficulties in organizing an efficient external market for intermediate products and, especially in the post-war period, for knowledge. Among the factors that influence the decision to internalize, industry-specific ones generate strong incentives for the internalization of markets both for intermediate products and for knowledge. Based on the studies they conducted on companies in the US, Britain, Canada, France, Germany and other countries, Buckley & Casson (1976) concluded that certain regularities in the concentration of MNCs by industry can be identified. Thus, they have pointed out that the penetration rate of US companies (but not only) is considerably higher in high-technology industries, where R & D activity, sophisticated equipment as well as managerial skills and highly skilled workforce plays a key role in boosting efficiency and increasing labor productivity; such industries identified by them are chemical industry, rubber, electrical and non-electric machinery, transport equipment and tools. In addition, their studies led to the conclusion that the presence of MNCs is predominant those industries where production is concentrated in a relatively small number of producers, such as food, paper, textiles, printing and publishing, etc.

In the 70s and the following decades a growing body of literature has completed and developed the idea of internalization of the market. Dunning (1988, 2001) has a meaningful contribution through the so-called *eclectic paradigm* (*OLI-Ownership, Location, Internalisation),* which explains the operations of firms across national boundaries. Studying labor productivity, Dunning found major differences between the US and the United Kingdom manufacturing. Trying to explain this gap, he has advanced the hypothesis that the productivity gap relates to some transferable intangible assets held by the parent-company (named *proprietary-specific effect)*. If US affiliates in the United Kingdom registered lower performances than their local competitors and the parent company, this could be due to the *location-specific effect* of the US economy. In order to understand the pattern and extent of business expansion outside the national economic area, Dunning analyzed the benefits of *internalization-specific effect*, comparing the motivations that companies may have to generate and exploit in their internal environment the specific benefits O (*ownership*) with the ones they may have to acquire or sell these benefits.

Ietto-Gillies (1992), Ietto-Gillies (2005) notice the existence of a vertical division of production processes, the location of different links being made according to the technological content and the labor force requirements. Therefore, labor intensive components have been located in developing economies, which is mainly explained by labor costs, while high-skill and high-tech components have been implanted in developed economies.

A large volume of published studies have been circumscribed almost exclusively to MNCs from developed economies; developing economies have been the subject of analysis only from the perspective of their role as host economies. The last decades of the 20th century have been crushed by reconfigurations in the international business environment, one of which being the expansion of multinational companies from emerging economies. In the post-war decades, many developing countries have developed policies for import substitution with the ambitious goal of protecting domestic producers and stimulating economic growth (Malik, Aggarwal, & Professor, 2012; Kicsi, 2013). This orientation in economic policy was viewed with reluctance by many economists who were susceptible to its real virtues and the ability of these producers to survive in a different business environment than in the protected one. However, in many cases, as Goldstein points out (2007), some of the firms grown in such protected markets (some of which are even created and owned by governments) have turned into new MNCs. Today, the term *Third World Multinationals* that during the 70s and 80s described MNCs from emerging economies (Goldstein, 2007) has lost its consistency; in today's global economy, these companies manage to change their status from ”niche players” with which they begin in major competitors, especially in some industries, albeit they are still smaller than MNCs from developed economies. For example, in some sectors such as construction and steel, multinational companies from emerging economies gain important positions in world ranks and operate on certain forms of competitive advantage (Goldstein, 2007). Some authors even insists that MNCs from emerging economies (such as China, for example) can no longer be seen as "apprentices" in the international arena, but rather as a new group of "emerging catch-uppers"(Marinov & Marinova, 2013), able to develop/reinforce their competitive advantage through innovation (Herciu, 2015) by accessing new resources and knowledge or to exploit more effectively their advantages by accessing the international business environment (Williamson, Ramamurti, Fleury, & Fleury, 2013).

The multinational companies of the 80s and following decades, described by Dunning (1988) as *the new style multinationals,* have first of all a *global vision of the market and competition*. Global "*new style multinationals" are* looking to respond to the challenges of globalization of markets through three major strategic options, namely *global networking, global switching and global focusing* (Howells & Wood, 1993, pg. 139-145). *Global networking* describes the way in which companies connect their operations and inter-firm relationships around the world. The *business networks* concept, developed by Hakanson & Snehota (1995), reconfigures the perspective of organizing and managing corporations to abandon rigid, hierarchical and centralized structures in favor of a *heterarchy* based on flexible co-ordination that favors the autonomy of local affiliates. In other words, in order to maintain or improve their competitiveness and to adapt to long-term changes, companies that expand largely beyond the borders of their economy of origin need flexible organizational structures that ensure a high degree of autonomy. *Global switching* is based on the ability of a company to integrate and coordinate on a global scale its various functional operations (R&D, production, marketing, sales, administration, etc.). For companies that are developing globally, the problem of the geographic location of R&D activities and technical capabilities is becoming more and more irrelevant. *Global focusing* is an alternative preferred by companies with extensive global activities, but with space-focused operations in some locations around the world for specific products or technologies. In other words, it is a spatial concentration of R&D, production and other key enabling features for a particular product or product group (or associated technology) in a single location or in several locations in certain areas of the world, among which connections establish.

3. A world of big players or dynamic players?

The universe of multinational companies has experienced a significant expansion in the post-war decades that has reconfigured the international business environment. In addition to increasing the number of companies that expand their operations abroad, the transition to a "pluralist" system (Gilpin, 2004; Micklethwait & Wooldridge, 2005) is worthy of note. Thus, if during the 60s and 70s internationalization was mainly an appanage of US companies, from the early 80s European and Asian companies have become important players in the international business environment. Moreover, alongside with companies having their origins in developed economies, in the world arena began to be felt, though initially with some "shyness," the presence of companies from developing economies. Empirical evidence of the evolution of outward FDI flows (Figure 2) and inward FDI flows (Figure 3) as well as the distribution of parent companies and MNC affiliates (Table 1) reflect this trend.

Table 1. Distribution of parent companies and affiliates of MNCs * by country group

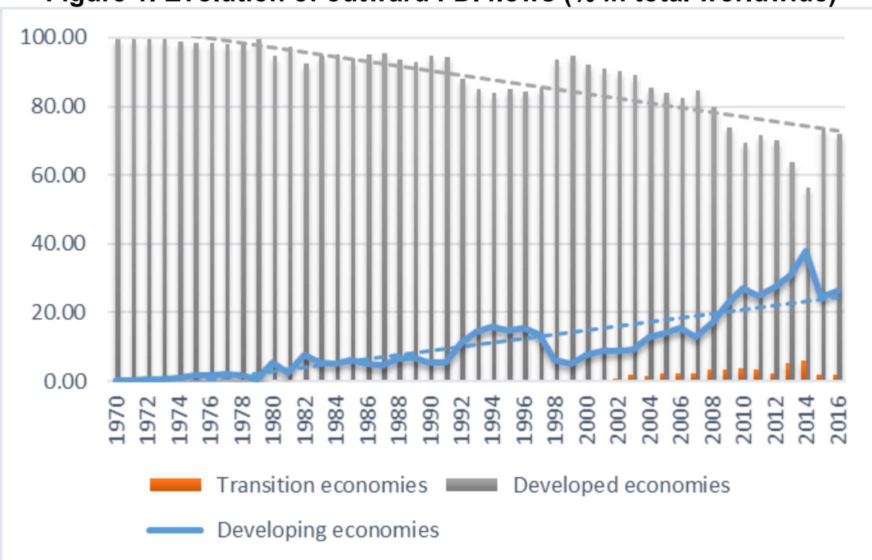
	Parent corporations (located in)			Foreign affiliates (located in)		
Year	**1989**	**2010**	**Index of dynamics**	**1989**	**2010**	**Index of dynamics**
Developed economies	30900	73 144	236.71%	73400	373 612	509.01%
Developing economies	3800	30209	794.97%	62 900	512 531	814.83%
World total	35000	103 786	296.53%	147 200	892 114	606.06%

Source: Processed after (UNCTAD, 1992), (UNCTAD, 2011)

* Note: The evidences synthetized in the table have some limitations derived mainly from discrepancies that occur among countries in data reporting and collection (for example: some countries do not communicate data on MNCs and affiliates operating on their territory, others only report data on affiliates whose sales and number of employees exceed certain limits, etc.) (UNCTAD, 1992).

As can be seen from the data depicted in the above table, there is a stronger trend towards expanding business abroad for companies from developing economies. The index of dynamics reflects that the number of companies from developing economies that have expanded their businesses across their country's borders has increased about 8 times, far exceeding the global average but also the performance of companies from developed economies. The same trend is also highlighted by the relative position of developing economies in world FDI flows (outward), especially after 2000, as shown in Figure 1.

Figure 1. Evolution of outward FDI flows (% in total worldwide)

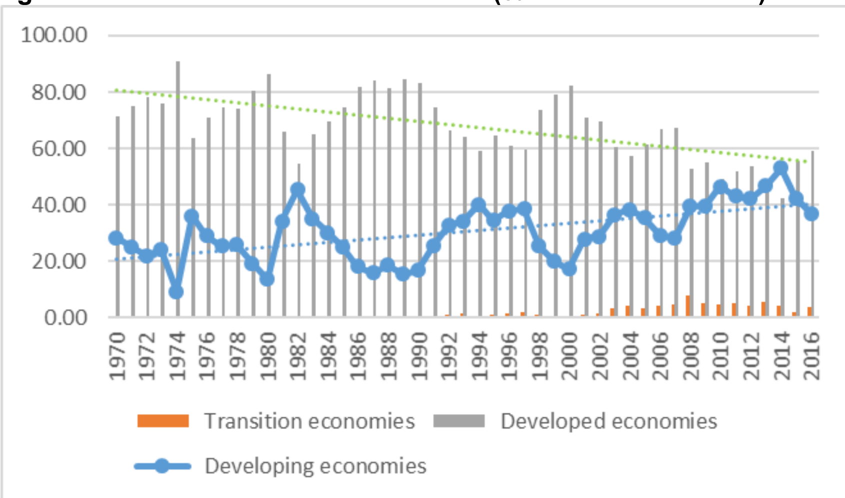


Source: Processed after UNCTADstat, http://unctadstat.unctad.org

Moreover, if in 1989 developed economies were the most preferred location for the implantation of MNCs, the 2010 situation reflects the shift in favor of developing economies that appear to have become more attractive. Empirical evidences on global FDI flows show that in 1970 the value of outward FDI was about 14 billion USD and reach about 1452 billion USD in 2016; there was also a significant increase in FDI inflows from about 13 billion USD in 1970 to about 1746 billion USD in 2016 (UNCTADstat).

The number of MNCs affiliates is about 1.3 times higher in developing economies than in developed economies (Table 1), while the relative position of developing economies as beneficiaries of FDI has been steadily improving, as outlined by the trends in the diagram below.

Figure 2. Evolution of inward FDI flows (% in total worldwide)



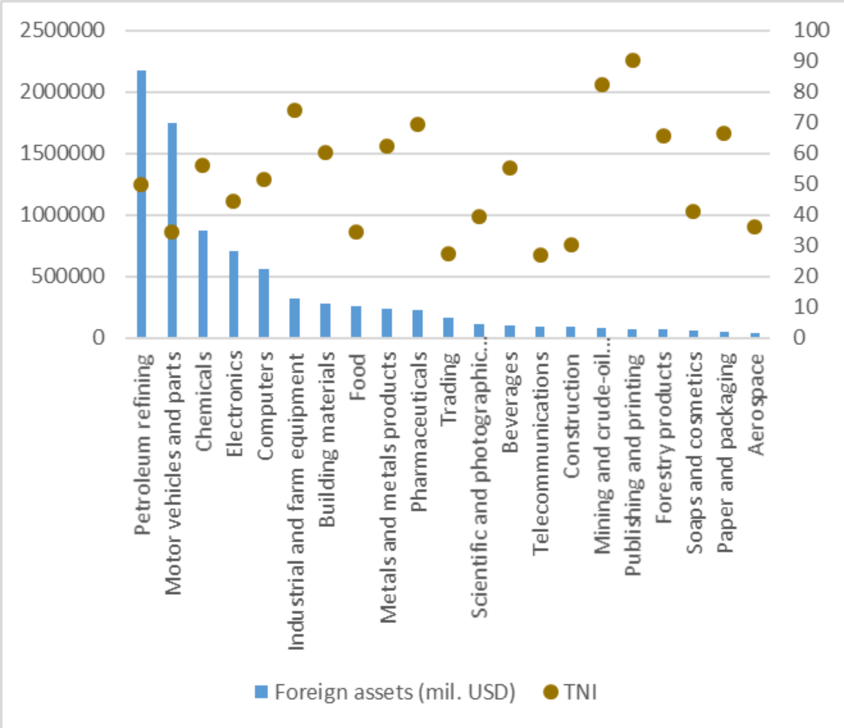
Source: Processed after UNCTADstat, http://unctadstat.unctad.org

Reconfigurations visible over time in the ranking of the major 100 MNCs, depicted in UNCTAD *The world's top 100 non-financial TNCs/MNEs,* essentially reflect the way in which the global universe of TNCs evolved and reshaped (Ogrean & Herciu, 2016).

In order to frame a sectoral perspective, based on the information provided by *the World's top 100 non-financial TNCs / MNEs* (1990 and 2016) and *Top 100 non-financial MNEs from developing and transition economies* (2016), we calculated the sectoral concentration of foreign assets and a *Sectoral Transnationality Index*. It is worth emphasizing that in 1990 the *World's top 100 non-financial TNCs* were an "exclusive club" of companies from developed economies. 1995 is the year when the first companies from emerging economies entered the top 100 non-financial TNCs, namely Daewoo and Petroleos de Venezuela (UNCTAD, 2007).

Over the past two decades and a half (since the 1990s, when the Cold War ended), there have been major or even spectacular changes in the evolution of MNCs from both developed economies and emerging economies. In other words, Drucker's view of the existence of a single global market for both the industrial and service sectors is confirmed. For example, over the past two decades, companies such as Wal-Mart in the US have reached about 2.5 million employees of which over 1 million abroad (with an internationalization degree of about 40%) and companies like China National Petroleum Corp exceeds 1.5 million employees today (but have a degree of internationalization of only about 3%). As it is known, by the 90's a company with over 1 million employees was almost unimaginable. How do we explain the new realities and trends in the international business environment?

Figure 3. Concentration of foreign assets of the top 100 non-financial MNCs (millions of dollars) and TNI by industry in 1990*



Source: Processed after UNCTAD (1992)

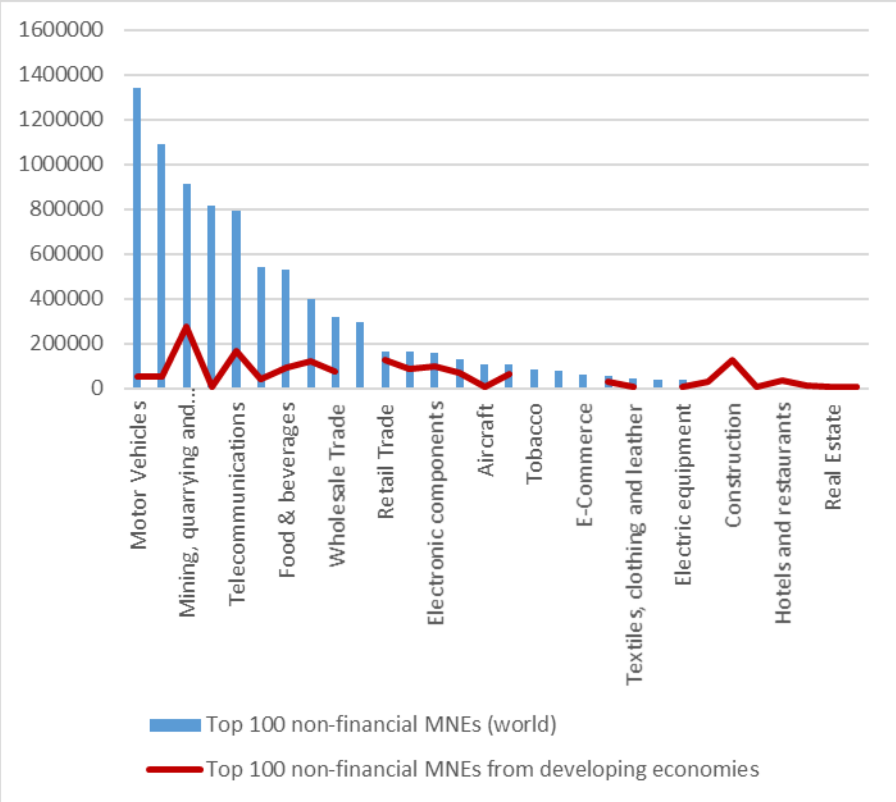
* Note: The results are limited by the fact that for some MNCs included ranked in the top the information is incomplete; these companies were eliminated from the calculation algorithm.

The emergence and manifestation of the 2008 global crisis has further complicated investment flows, acquisitions and mergers of MNCs from both developed economies and emerging economies which, we believe, support Kotler & Caslione's (2009) point of view on the permanent changing of the international business environment.

However, global competition remains fully open to what we call *new comers* or *late comers* because the vision and strategy developed by any MNC (regardless of country of origin) will be the ones that will make the difference between success and failure in the global market.

Since 1990, as can be seen in Figure 3, the sectoral structure of the top has been reconfigured; so in 2016 we can see sectors with a high level of internationalization (business services; e-commerce; stone, clay, glass and concrete products; tobacco), which did not appear in the 1990s. We also notice that the service sector is increasingly internationalized; in 2016, around 25% of foreign assets were concentrated in the services sector, and the average TNI was about 63%.

Figure 4. Concentration of foreign assets of the top 100 non-financial MNCs by industry in 2016 (millions of dollars)



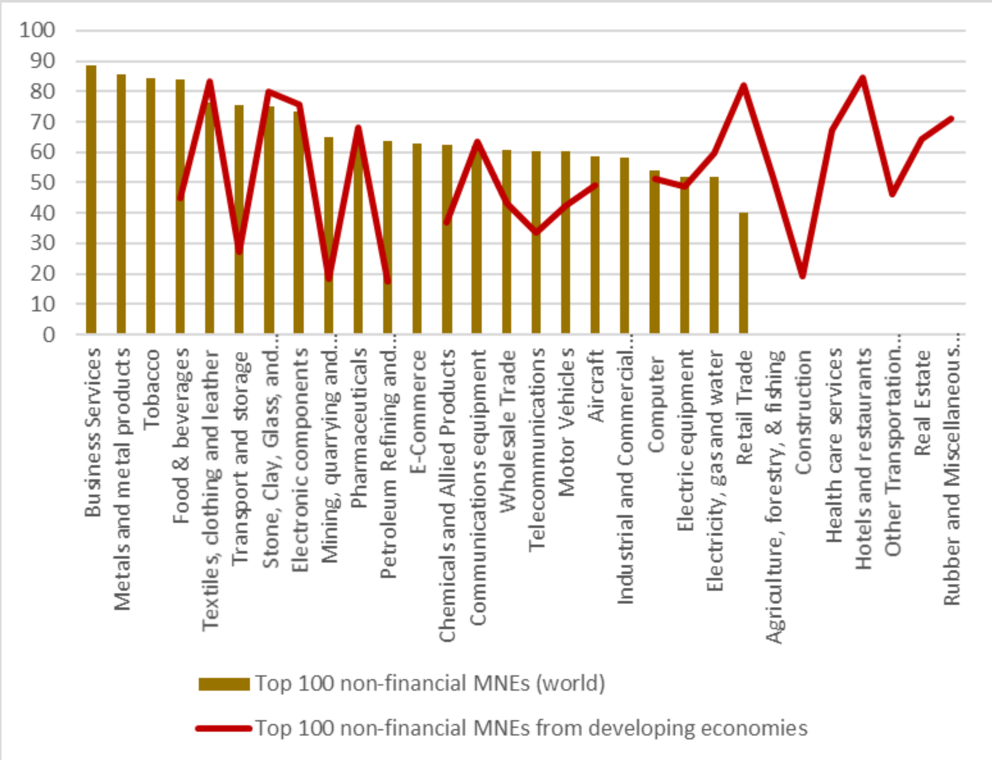
Source: Calculated by authors using data from (UNCTAD, 2016; UNCTAD, 2017)

Analyzing the dynamics of foreign assets and the level of internationalization can leads to the conclusion that the trend of internationalization at the sectoral level is neither constant nor uniform. Thus there are sectors where the value of foreign assets has declined but TNI has grown (chemicals, computers, electronics, metals and petroleum products, motor vehicles). In some sectors (e.g. aerospace/aircraft, food and beverages) both the value of foreign assets and the TNI have increased. At the same time, in other sectors such as pharmaceuticals the value of foreign assets has increased but the TNI has fallen.

Multinational companies from emerging economies (EMNCs) penetrate into sectors that have traditionally been dominated by companies from industrialized economies, although their performances are still modest in terms of the value of their foreign assets. In many cases, they tend to retain much of their operations in their home economy, especially in low-tech industries (UNCTAD, 2017).

The aggregate level of internationalization expressed by TNI (Figure 4) illustrate that there are more internationalized sectors in the *top 100 non-financial MNEs from developing and transition economies* than in the global ranking (e.g. electricity, gas and water; textiles, clothing and leather). At the same time, some sectors have become an area of affirmation primarily for companies from developing economies (e.g. agriculture, forestry and fishing; construction; healthcare; hotels and restaurants; other transport equipment; real estate; rubber and miscellaneous plastic products). However, in 2016, the total foreign assets of EMNCs were almost five times lower than those of the MNCs, and the average transnationalization index was comparable to that of companies from developed economies in 1990.

Figure 4. TNI by industry 2016 (%)



Source: Calculated by authors using data from (UNCTAD, 2016; UNCTAD, 2017)

Another visible trend in the corporate business environment is the presence of multinational companies in which governments hold different rates of participation; UNCTAD (2017) estimates the existence of about 1,500 such multinational companies that hold more than 86,000 affiliates abroad, accounting for about 1.5% of the total MNCs and 10% of affiliates at the global level. A notable feature is that although the locations of such parent companies are globally dispersed, they are located mostly in developing economies; China is the most important parent economy of such companies.

If we resume the analysis only to the top 100 companies ranked by UNCTAD (2017), we notice that 15 state-owned multinational companies (SO-MNCs) are ranked in *the World's top 100 non-financial MNEs*, out of which 11 are located in developed economies, especially Europe, and 4 are located in developing economies (China, Brazil and Malaysia). In the *Top 100 non-financial MNEs from developing and transition economies* the presence of state-owned multinational companies (SO-EMNCs) is broader, their number exceeding 20. However, the scale at which SO-EMNCs have expanded their businesses abroad is lower than the one at which SO-MNCs operate. Moreover, in SO-EMNCs governments' participation is much higher, with Chinese companies reaching up to

100% (UNCTAD, 2017), while in SO-MNCs the state's involvement is limited to golden share or goes up to about 30%.

From a sectoral perspective, there are differences between companies in developed economies and those in developing economies too. The data in Annex 2 conclude that SO-MNCs are predominantly present in service sectors (e.g. electricity, gas and water, telecommunications), but also in industry (e.g. aircraft, petroleum refining and related industries). On the contrary, SO-EMNCs have a massive presence in extractive industries (e.g. mining, quarrying and petroleum), construction, telecommunications and so on.

4. Conclusions

The analysis carried out on the basis of information provided by UNCTAD for 1990 and 2016 depicts a series of reconfigurations in the universe of multinational corporations. Thus, although the dynamics of average TNI shows a growing interest in expanding businesses outside the home economies, in a sectoral frame the trend of internationalization is reflected in a non-uniform dynamics. Moreover, in 2016 in the *World's top 100 non-financial MNEs* we can see internationalized sectors that did not appear in the 1990s; also, during the last years there has been a strong tendency towards internationalization in the tertiary sector.

It is worthy of remark the presence of multinational companies from emerging economies in some sectors traditionally dominated by companies from developed economies. In this respect, we emphasize that although their performances are more modest in terms of the foreign assets, when we analyze the aggregated level of internationalization expressed by TNI we can conclude that there are sectors in the *Top 100 non-financial MNEs from developing and transition economies* more internationalized than in the global ranking, which provide them the status of dynamic players in the international business environment. Moreover, it seems that some sectors are primarily a space for companies from developing economies.

Last but not least, we highlight the presence of state-owned multinational companies; still there are evident differences regarding the scale at which such companies from emerging economies have expanded their businesses abroad compared to the international operating scale of companies from developed economies, but also regarding the sectors in which they operate.

The findings drawn from our analysis may be subject to some limitations. Firstly, although they include what we call *world-class multinationals* the two UNCTAD tops illustrate only a sequence of the corporate universe, and therefore any generalization requires caution. Secondly, the Transnationalization Index does not provide further information on the geographical expansion of companies or the number of affiliates they have abroad, hence the question: *Are the top-class multinationals truly global players*? Although it is mainly an exploratory research we appreciate that this sectoral approach leads to a deeper level of analysis expanding the area of knowledge in the field and, at the same time, creating a framework for new investigative perspectives.

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Annex 1. Concentration of foreign assets of the top 100 non-financial MNCs (millions of dollars) and TNI by industry in 1990 and 2016

1990			2016					
			Top 100 non-financial MNEs			Top 100 non-financial MNEs from developing and emerging economies		
Industry	**Foreign assets (mil. USD)**	**TNI**	**Industry**	**Foreign assets (mil. USD)**	**TNI**	**Industry**	**Foreign (assets) mil. USD**	**TNI**
Aerospace	44000	**36**	Aircraft	108963	**59**	**Agriculture, forestry, & fishing**	28314	**52**
Beverages	99000	**55**	Business Services	37765	**88**	Aircraft	5497	**49**
Building materials	279000	**60**	Chemicals and Allied Products	165243	**62**	Chemicals and Allied Products	84556	**37**
Chemicals	872000	**56**	Communications equipment	108378	**62**	Communications equipment	62294	**63**
Computers	560000	**52**	Computer	396216	**54**	Computer	122377	**51**
Construction	90000	**30**	E-Commerce	61177	**63**	**Construction**	127245	**19**
Electronics	703000	**44**	Electric equipment	37650	**52**	Electric equipment	6429	**49**
Food	259000	**34**	Electricity, gas and water	540740	**52**	Electricity, gas and water	40243	**60**
Forestry products	73000	**66**	Electronic components	158602	**73**	Electronic components	100335	**76**
Industrial and farm equipment	318000	**74**	Food & beverages	530053	**84**	Food & beverages	93317	**45**
Metals and metals products	242000	**62**	Industrial and Commercial Machinery	293776	**58**	**Health care services**	8290	**67**
Mining and crude-oil production	84000	**83**	Metals and metal products	75142	**86**	**Hotels and restaurants**	37151	**85**
Motor vehicles and parts	1744000	**34**	Mining, quarrying and petroleum	913701	**65**	Metals and metal products	119939	**35**
Paper and packaging	48000	**67**	Motor Vehicles	1341790	**60**	Mining, quarrying and petroleum	273027	**18**
Petroleum refining	2172000	**50**	Petroleum Refining and Related Industries	1088035	**64**	Motor Vehicles	54039	**42**
Pharmaceuticals	224000	**70**	Pharmaceuticals	817439	**65**	**Other Transportatio**	9935	**46**

						n Equipment		
Publishing and printing	74000	**90**	Retail Trade	165249	**40**	Petroleum Refining and Related Industries	51178	**17**
Scientific and photographic equipment	111000	**39**	Stone, Clay, Glass, and Concrete Products	54886	**75**	Pharmaceutica ls	6712	**68**
Soaps and cosmetics	65000	**41**	Telecommunica tions	794370	**60**	**Real Estate**	6440	**64**
Telecommunic ations	95000	**27**	Textiles, clothing and leather	45489	**76**	Retail Trade	124835	**82**
Trading	168000	**27**	Tobacco	86252	**84**	**Rubber and Miscellaneou s Plastic Products**	5772	**71**
			Transport and storage	131178	**75**	Stone, Clay, Glass, and Concrete Products	26830	**80**
			Wholesale Trade	317559	**61**	Telecommunic ations	169137	**33**
						Textiles, clothing and leather	8442	**83**
						Transport and storage	68475	**27**
						Wholesale Trade	74782	**43**
TOTAL/ AVERAGE	**8324000**	**52**	**TOTAL/ AVERAGE**	**8269652**	**66**	**TOTAL/ AVERAGE**	**1715592**	**53**

Sursa: Calculated by authors using data from (UNCTAD, 1992; UNCTAD, 2017)

Annex 2. The presence of SO-MNCs and SO-EMNCs and their level of internationalization by industry (2016)

	Company	Home country	Industry	TNI
SO-MNCs	Airbus Group NV	France	Aircraft	62,9
SO-EMNCs	Sabic - Saudi Basic Industries Corp.	Saudi Arabia	Chemicals and Allied Products	51,9
SO-EMNCs	Legend Holdings Corporation	China	Computer Equipment	52,7
SO-EMNCs	CapitaLand Ltd	Singapor e	Construction	60,9
SO-EMNCs	China State Construction Engineering Corp Ltd (CSCEC)	China	Construction	12,6
SO-EMNCs	China Communications Construction Company Ltd	China	Construction	10,4
SO-EMNCs	Abu Dhabi National Energy Co PJSC (TAQA)	United Arab Emirates	Electricity, gas and water	69,8
SO-MNCs	Enel SpA	Italy	Electricity, gas and water	55,3
SO-	Engie	France	Electricity, gas and water	53,9

MNCs				
SO-MNCs	EDF SA	France	Electricity, gas and water	22,5
SO-EMNCs	Cofco Corp	China	Food & beverages	20,7
SO-EMNCs	China Minmetals Corp	China	Metals and metal products	20,9
SO-EMNCs	Vale SA	Brazil	Mining, quarrying and petroleum	48,6
SO-EMNCs	Petronas - Petroliam Nasional Bhd	Malaysia	Mining, quarrying and petroleum	42,5
SO-EMNCs	Sinochem Group	China	Mining, quarrying and petroleum	39,9
SO-EMNCs	Oil and Natural Gas Corp Ltd	India	Mining, quarrying and petroleum	32,8
SO-EMNCs	Sonatrach [e]	Algeria	Mining, quarrying and petroleum	28,6
SO-EMNCs	Gazprom JSC	Russian Federation	Mining, quarrying and petroleum	26,6
SO-EMNCs	China National Offshore Oil Corp (CNOOC)	China	Mining, quarrying and petroleum	23,8
SO-EMNCs	China National Petroleum Corp (CNPC)	China	Mining, quarrying and petroleum	3,4
SO-MNCs	Renault SA	France	Motor Vehicles	67,7
SO-MNCs	Volkswagen Group	Germany	Motor Vehicles	60,3
SO-MNCs	Eni SpA	Italy	Petroleum Refining and Related Industries	58,8
SO-MNCs	Statoil ASA	Norway	Petroleum Refining and Related Industries	30,3
SO-EMNCs	Sinopec - China Petrochemical Corporation [e]	China	Petroleum Refining and Related Industries	12,9
SO-EMNCs	Axiata Group Bhd	Malaysia	Telecommunications	76,7
SO-MNCs	Deutsche Telekom AG	Germany	Telecommunications	60,2
SO-MNCs	Orange SA	France	Telecommunications	51,3
SO-MNCs	Nippon Telegraph & Telephone Corporation	Japan	Telecommunications	26,0
SO-EMNCs	China Mobile Limited	China	Telecommunications	3,3
SO-EMNCs	China COSCO Shipping Corp Ltd	China	Transport and storage	49,8
SO-EMNCs	Sime Darby Bhd	Malaysia	Wholesale Trade	48,9

Sursa: Processed after (UNCTAD, 2016) (UNCTAD, 2017)