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irrational expectations**

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**Emerging country MNEs and the role of home countries: separating fact from
irrational expectations**

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Emerging country MNEs and the role of home countries: separating fact from irrational expectations

Abstract: This paper takes a look at the research on Emerging country multinational enterprises (EMNEs) over the last 25 years, and argues that growth in EMNE activity over the last 10 years continues to be dominated by Asian Newly Industrialised Countries (NICs), and to a lesser extent by Brazil, Russia, India and China (the BRICS). Instead of focusing on the success stories, we ask: Why have so many emerging home countries failed to fulfil their potential as significant outward investors, and converged (at least) with the NICs? Many of the EMNEs from the non-NICs continue to reflect limited O advantages, and unless they are able to upgrade their firm-specific assets, this trend is likely to continue. We propose that – in line with extant IB theory - *the extent and intensity of EMNE activity is a function of their O advantages, which in turn are largely a function of their home country L advantages*. We also call into question the soundness of the idea that EMNEs are able to utilise asset-seeking foreign direct investment (FDI) to build up their O advantages. Such asset-augmentation presumes that the firms have *non-location-bound firm-specific assets that have the potential to be upgraded and augmented*.

Key words: FDI, MNEs, eclectic paradigm, asset-seeking, knowledge flows, emerging markets.

JEL codes: F23, L52, O14, O19

Introduction

Academic research – like all human endeavour – demonstrates a waxing and waning of interest in particular subjects. The emerging country MNE (EMNE) enjoyed a sporadic popularity as a subject for serious research from the late 1970s till the early 1990s, before returning to obscurity. Expectations at the time were high of this ‘new’ form of activity. To quote a UN report (1993: 1) on the potential impact of EMNEs:

“To host developing countries, the emergence of a new source of capital, technology and skills is a welcome development...to host developed countries, the rise of developing country TNCs carries mixed implications. Increased competition and the search for new technology in developed countries may be perceived as costs; the inflow of capital and skills and the prospects for expanded cooperation in third countries may be seen as benefits”.

Renewed interest has again been sparked since the dawn of the new millennium, and similar hopes and aspirations are once again placed on the emergence of the EMNE. Many discussions in these early studies were concentrated on EMNE activity from the Asian NICs (Korea, Singapore, Taiwan, Hong Kong) as well as India, China, Brazil and a few others. Moving 20 years ahead, the discussion still centres around these same home countries (‘...the

TNCs in the developing world are highly concentrated in a handful of the more industrialized, relatively better-off countries..' *ibid*) with many of the same firms, and with similar questions about their 'unique' motivations and characteristics. True, the scale and scope of the EMNE activity may have changed along with the socio-political and economic milieu in which they operate. However, as this paper will argue, the differences between this incarnation and the previous one should not be overestimated.

There is always a danger in social science research to generalise from outliers and anecdotes and to offer new theoretical insight from such evidence. This paper takes a look at the evidence and argues that the 'spurt' in EMNE activity continues to be dominated by the Asian NICs, and to a lesser extent by the BRICS. Indeed, it is curious that the NICs continue to be regarded as emerging economies, having moved – on almost any indicator of development and competitiveness – to convergence with the developed world. Likewise their MNEs are increasingly indistinguishable in their strategic behaviour and economic organisation from 'conventional' MNEs.

Herein lies the basic principle upon this paper is based: the upgrading of NICs' home economies (including associated location advantages) helps create competitive firms which start to internationalise their operations due to both push and pull factors. The means and pattern by which these EMNEs sought to utilise and upgrade their firm-specific advantages lies at the heart of all firms' global expansion. In short, the MNEs from the NICs have fulfilled the expectations suggested by the UN report quoted above.

Others have not. It is equally germane to ask – of the other important home countries identified in the 1980s/1990s – why have so few failed to fulfil their potential, and converged (at least) with the NICs? Why have other countries not joined this august and select group? The opportunities for leapfrogging and rapid expansion for EMNEs that the NICs were able to utilise were equally available to firms from other countries, yet not all have been able to utilise them efficiently.

This paper does two things. First, we revisit theoretical insights from the received literature on the causes of firms' internationalisation activities, paying special interest to the sources of firms' ownership advantages. In particular, we revisit the principle – espoused in the IB literature from at least the time of Vernon's (1966) product life cycle thesis, and possibly earlier – that the O advantages of firms are a function of the location (L) advantages of their home countries, especially at the earlier stages of their internationalisation. Such concepts

have been built into and integrated into later theoretical work, including the eclectic paradigm and the Uppsala model, as well as the investment development path, among others. The literature on these new MNEs dates back to the late 1970s, and we also revisit how they were understood and explained by the mainstream IB literature. We argue here that these patterns of FDI from developing countries – at both firm level and country levels – continue to reflect these extant conceptual and theoretical models and principles, insofar as they are understood and properly applied.

Second, we examine some of the evidence on EMNE activity. We illustrate that the levels of MNE activity from emerging economies countries reflects their economic structure, absorptive capacity, and business and innovation systems. We also call into question the soundness of the idea that EMNEs are able to utilise asset-seeking FDI to build up their O advantages. Such asset-augmentation presumes that the firms have *non-location-bound* firm-specific assets *that have the potential to be upgraded and augmented*, and which therefore allow them to engage in (and control) long-term value-adding activities in foreign locations that are commercially viable.

The emergence of the EMNE: a tale of two waves

Beginning with Lecraw (1977), the phenomenon of outward FDI by EMNEs was the subject of considerable research in the late 1970s and early 1980s (see contributions to Lall (ed) (1983), Kumar and McLeod (eds) (1981), Khan (ed) (1986)). Much of this research sketched a description of a ‘new’ kind of MNE which – so it was argued – differed considerably from that of ‘conventional’ industrialised country MNEs and was more suited to the special conditions of developing host economies. This ‘first wave’ literature pointed out certain characteristics of EMNEs which are summarised in the first column of table 1. Much of this empirical work indicated a strong and marked trend for EMNEs to focus their investments in neighbouring and other countries which were at a similar or an earlier stage of development. This preference was a direct result of their lack of international experience – these locations had offered resource endowments for markets which were broadly similar to those of their home countries. Lall (1983), Dunning (1981, 1988) and Wells (1983) offered a theoretical justification for these characteristics. The use of lower, mature technologies reflected not a better understanding of the developing country host market conditions, but simply that their O advantages were outdated, and organisational abilities limited. As such, they were only

able to generate revenues in similar markets to the host country by leveraging their experience in operating in developing markets with similar institutions which were of marginal interests to conventional MNEs. These O advantages were enhanced by the prevalence of import-substituting, inward looking policy regimes amongst most developing countries which encouraged small scale production, typical of that suited to these EMNEs. Import substitution was associated with privileged access to domestic markets for nationally owned firms compared to foreign-owned MNEs. The O advantages of these firms were primarily country-specific, determined by the market distortions introduced by the home country policies, and only sustainable at home while these distortions were in place, and were only really useful in foreign markets where similar distortions existed (and privileged access was granted). Dunning (1981, 1988) argued that when countries which engaged in outward FDI, this reflected the L advantages of the home country, and consequently its economic development.

Table 1 about here

While some asset-augmenting¹ investment in industrialised countries was undertaken², it was relatively minor. Many large investments in industrialised countries represented flight capital, as entrepreneurs utilised overseas subsidiaries to circumvent home country restrictions on outbound international capital movements. In other cases, there was significant 'round-trip' investment. The case of Hong Kong outward FDI to China is an example of this. The PRC accounted for almost half of Hong Kong total outward FDI stock in 1993, and 66% of total inward stock in China. Chen (1983) estimated that just over 50% of outward FDI from Hong Kong was by affiliates of conventional MNEs in 1981. Later, a large share of this round-tripping came from Taiwan (van Hoesel 1999). The use of overseas subsidiaries as a means to channel foreign capital was not limited to conventional MNEs. Harrold and Lall (1993) point out that up to 25% of China's inflows represented re-investment of capital by Chinese MNEs based in Hong Kong (and are therefore recorded as outflows from Hong Kong).

The first wave EMNEs were concentrated from 15 countries, which accounted for 81% of all outward FDI from developing countries in 1980. The most prominent home countries were Brazil and Argentina with 13.4% and 20.4% respectively of outward FDI stock from these countries, followed by the Asian NICs (Korea, Singapore, Taiwan, Hong Kong) which

¹ We will use the term 'asset-augmentation' in preference to 'asset-seeking' throughout this paper.

² See Table 9.11 and Table 10.14 in Tolentino (1993) for a description of several such investments.

together accounted for almost 22% of all EMNE activity³, with other significant players being Malaysia, Brazil, Argentina, India and China (Dunning et al 1998). In 1980, China, Mexico and Brazil invested more than 50% of their stock in the developed countries, with the rest concentrating their activities in developing countries. As of the mid 1980s, this ‘first wave’ MNE was clearly distinct from the ‘conventional’ MNE.

Towards the end of the 1980s, several researchers (e.g., Tolentino 1993, UN 1993) began to observe a change in the investment activity. There was increasing evidence that there had been a fundamental shift in both the character and motivation of much outward FDI from certain developing countries, which we label in table 1 as the “second wave” (Dunning et al 1998). This second wave of EMNE activity showed a growing tendency to simultaneously invest in industrialised countries in marketing-seeking, asset-exploiting activities and a limited amount of asset-augmenting activities, as well as in developing countries to acquire natural assets as in the first wave. Not all countries that were prominent investors in the first wave proceeded into the second wave. Prominent first-wave home countries such as India, Philippines, Argentina and Colombia did not show any significant increase in either the level of the total outward FDI between the early 1980’s and 1990’s, nor a significant shift towards developed country hosts, while firms from Korea, Taiwan, China, Singapore and Hong Kong began to act as second wave (Dunning et al 1998). Table 2 lists the 20 largest outward investors in 1993. The Asian NICs led this process, reflecting the dynamism of their home economies and the competitiveness of their firms. Indeed, the Asian NICs as a share of all developing country outward FDI stock increased from 21% to 66% by 1993.

Table 1 about here

It seems reasonable to ask: why did the second wave come about? What led to what seemed to be a fundamental change in MNE activity? We posit that the circumstances behind this shift are due to a gradual and incremental evolution of these MNEs, as explained by received IB literature in the mechanism by which the O advantages EMNEs interact with the L advantages of their home countries to determine the process of internationalisation. Nonetheless, important exogenous developments due to globalisation have also acted as important catalysts in this process.

³ With Singapore being the single largest outward investor from this group in 1980.

The dynamics of O advantages: how home countries shape MNE internationalisation.

Much of extant IB theory builds around evolutionary ideas and principles, from the Uppsala model to the technological and knowledge accumulation of MNEs and the investment development path⁴, and all subscribe to the tendency for firms and countries to evolve both their competitive assets and the geographical distribution and intensity of their foreign-based activities – for the most part – incrementally. The concepts behind the first wave/second wave/conventional MNE (or indeed the infant/adolescent/mature MNE process) are essentially evolutionary and indicate a similar propensity for firms to respond to opportunities and challenges incrementally.

The early IB literature was built around the specific question of explaining why certain firms internationalise their operations. At the risk of oversimplification, the root cause of internationalisation lies in the possession of ownership advantages as originally proposed by Hymer (1966) and his description of ownership advantages as a net cost advantage of foreign-owned over indigenous firms in the relevant local market (Cantwell and Narula 2001). However, this view of O advantages reflects a pre-globalisation world where MNEs played a much more marginal role in individual economies. Increasingly, O advantages are seen in relation to the international competition mainly from other MNEs rather than relative to domestic companies in a particular host country. Even though certain critics have proposed that these may not be necessary where firms engage in asset-augmenting activity (e.g., Mathews 2006), firms still require some kinds of O advantages with which to engage in such activities. MNEs that are not world leaders or do not hold an overall absolute cost advantage over most indigenous firms in the countries in which they invest still need to have ownership advantages especially in operating in certain differentiated kinds of environment; some of them have been able to upgrade these advantages more rapidly than in the past, encouraging and facilitating a faster internationalisation (Cantwell and Narula 2001).

Asset-augmentation requires a complementarity between the initial O advantages of the firm and its ability to later consolidate and extend these advantages through its network of subsidiaries. MNEs with greater initial ownership advantages also have a greater absorptive capacity needed to benefit from the potential for new innovation to be found in foreign locations. This begs the question – when examining the case of firms that initially seek to internationalise their activities – where do these initial ownership advantages arise from?

⁴ See variously Johanson and Vahlne (1977, 2009), Cantwell (1989), Narula (1996), Narula and Dunning (2010)

It is worth stating that O advantages derive from two types of firm-specific assets:

1. Those associated with technological assets in the traditional sense of technological/engineering, such as machinery and equipment, and in the personnel who operate and maintain them. These are asset-type ownership (Oa) advantages.
2. The second type of firm-specific assets are those associated with conducting transactions efficiently, that derive from being able to generate rent by virtue of superior use of intra-firm hierarchies, both within and across national borders. In addition there are those that derive by virtue of the multinationality of the firms and can be termed 'advantages of common governance'. These are transaction-type ownership (Ot) advantages (see Dunning 1993, Cantwell and Narula 2001).

It is important to note that firms can exist in the absence of Oa advantages, generating rent simply from its superior knowledge of markets and hierarchies, inter alia through the astute use of arbitrage. Indeed, entrepreneurial ability is a primary firm-specific Ot advantage (Yiu et al 2007). But entrepreneurship advantages are not only about identifying new opportunity for rent generation, and the ability to bear the associated risk, but also the capacity to coordinate activities associated with such opportunities. However, they can be seen as a complementary set of assets, rather than a substitute for Oa advantages (Cantwell and Narula 2001).

O advantages most commonly derive in the first instance from internalising or gaining privileged access to assets that are location-specific, typically defined as location advantages. These are also often country-specific, and at any given point t, these L advantages influence the kind of O advantages firms possess. Take the case of a less developed economy. Two types of initial O advantages may arise. The first type are location-bound O advantages which may allow the firm be able to generate profits from these assets but only in a specific location. This may be due to government-induced incentives, such as privileged access to specific natural resources, to capital, or specific infrastructure. In other cases, market entry may be restricted providing the firm with a monopoly or a pseudo-monopoly, and consequent opportunities to generate rent (e.g., telecoms licenses, petroleum drilling rights).

Location-bound O advantages may also derive from specific (non-government) L advantages which the firm is able to access only in the given location, the use of which requires physical presence in that specific location. Many EMNEs are amongst the largest in their home

markets, and are themselves part of large industrial groups (sometimes with cross-holdings and common ownership) with interests in several industries, and also derive location-bound O advantages from privileged access to intra-group transactions and intermediate goods within the same family of firms, but these advantages are not necessarily available when they move abroad⁵. These may also derive from knowledge of institutions, and by being an ‘insider’. By virtue of their size and importance in the home economy, they may have close relationships with state-owned organisations, ministries and policy makers, and are able to influence domestic policy, as well as the associated technology and science infrastructure to their own needs, and in many cases, these have evolved around and with their own domestic activities, often over a long period of time. Such linkages confer the basis to generate economic rent for incumbents, and are a cost to new entrants or those less entrenched in the domestic milieu. These advantages are not transferable to foreign markets, and establishing ‘membership’ in business and innovation networks in new locations is not costless⁶ (Narula 2002). Location-bound O advantages tend to provide limited opportunities to internationalise, except through exports. Most of ten early stage, infant EMNEs engage in resource-seeking activity, driven by the need to acquire important scarce inputs abroad that are not as cheaply available through the market. Given that their home economies are often largely dependent upon the primary sector, their FDI is also similarly focused. Such resource-seeking activity is often undertaken by large state-owned firms.

The second type of O advantages are firm-specific (and therefore non location-bound) and derive from skills, technology or other knowledge which the firm possesses to the exclusion of other economic actors operating in the same location. Such O advantages also tend to be a function of the home country. Firms typically build their original resource endowments in their home country and this original resource endowment drives their international growth (Tan and Meyer, 2010)

As such, infant/first wave EMNEs undertake very little market-seeking activity. Where firms possess firm-specific O advantages to do so, these are relatively basic, because they are a function of the home country conditions, and tend to reflect its technological and absorptive capacity (which in itself is reflected in its stage of development) (Criscuolo and Narula

⁵ However, where other members of the same domestic networks (even in the absence of formal ties) have international operations, their knowledge and competences of foreign activities positively influence internationalisation (Yiu *et al* 2007, Elango and Pattnaik 2007).

⁶ At the same time, not all DC MNEs have privileged access to these networks, particularly those that are smaller, and/or start-ups. For such firms, outward FDI may also be a means to exit institutional constraints at home (Witt and Lewin 2007)

2008). In general, such Oa advantages are modest, and do not reflect significant Ot advantages either. As such, internationalisation tends to remain modest. The O advantages of these firms remain country-specific, and only sustainable where similar conditions exist, or where similar L advantages permit their survival. As we have discussed in the last section, first wave EMNEs directed a majority of the outward FDI towards other developing countries, most often neighbouring countries. Such ‘infant MNEs’, consistent with the predictions of the Uppsala model (Johansson and Vahlne 2009), and tend to locate where cultural, political and social conditions are most similar to their home countries, and where competitors with superior O advantages are unlikely to venture. For EMNEs, this has meant other emerging economies (Panapan and Zaitaml, 1998). In summary, emerging home countries whose L advantages are modest tend to sprout EMNEs whose O advantages are equally modest. A large literature has shown that the firms of each country tend to embark on a path of technological accumulation that has certain unique characteristics and that sustains a distinct profile of national technological specialisation (Cantwell 1989).

Infant EMNEs may undertake some asset-augmenting investment but in order to do so they must have well-developed Ot advantages. It is possible that the lack of Oa advantages can partly be offset by superior Ot advantages, and used to develop and acquire technological assets. There are two challenges that arise. First, superior Ot advantages are difficult to acquire rapidly, are tacit and not readily transferable, and are dependent upon experience and learning-by-doing. Acquiring these abroad and transferring them for use elsewhere in the MNE is a reverse knowledge flow that itself requires very specific organisational skills which few firms possess, even among the most advanced MNEs (Criscuolo et al 2005, Tallman and Chacar, 2011). In general, building up O advantages requires complex linkages, both of networks internal to the firm, and those between external networks and internal networks, and require complex coordination if they are to provide optimal benefits (Narula and Zanfei 2005). Such networks are not only difficult to manage, but also require considerable resources (both managerial and financial). Nonetheless, the use of non-equity and equity partnerships and networks is by no means a ‘new’ and unique feature of the EMNE: the early literature on Japanese MNEs emphasised the advantages they derived from the *keiretsu*. Indeed, the global production network may be said to be a natural evolution of the *keiretsu* model.

It is important to highlight the importance of home country networks. Embeddedness in a location provides membership to a ‘club’ of complex relationships with suppliers, customers

and knowledge infrastructure through formal and informal institutions that have taken years to evolve a stock of knowledge that is only available to members by virtue of their constant interaction. There are 'goods' associated with these networks that are only available to those that are collocated, because they have evolved under the same informal institutions. Thus they are semi-public goods, for which firms located there have invested in to acquire knowledge of these institutions. Such home country networks may include other domestic EMNEs, as well as some of the (embedded) foreign MNEs located there whose own experience in foreign markets and networks abroad may be accessible to new EMNEs venturing into international markets (e.g., Elango and Pattnaik 2007, Yiu et al 2007). Both Luo and Tung (2007) and Mathews (2006) focus on the linkages, opportunities and market knowledge potentially available by being part of a global value chain that can be leveraged to expand abroad. This is indeed a potentially useful and important source of Oa advantages, but ultimately depends upon the extent to which the domestic firm is integrated with the foreign firms, and the foreign firm's strategy. Besides, this provides a temporary and ultimately unsustainable Oa advantage unless developed. Besides, such linkages can make firms 'lazy': Hemrit's (2011) study found that Thai business groups with strong ties to foreign MNEs at home tend to make less effort to develop firm-specific advantages to exploit abroad. Nonetheless, participating in alliances and networks with large MNE does provide opportunities to upgrade Oa advantages. As Athreye and Cantwell (2007) note, subcontractors or subsidiaries in emerging economies can upgrade their value creation by moving from assembly closer towards R&D and discovery or product design and branding. Through knowledge spillovers in the international network, by repositioning their activities they can intensify the knowledge-based interactions associated with innovation. But this is a phenomenon more closely associated with firms with strong existing Oa advantages, and therefore second wave EMNEs. The popular explanation – that certain countries are more entrepreneurial than others – discounts the fact that there are important differences between individual entrepreneurship and corporate entrepreneurship.

Reverse knowledge flows are often discussed in the context of asset-augmentation. Although asset-augmentation is a challenging task and EMNEs are rarely equipped with the capacity to undertake these efficiently at the infant MNE stage, nevertheless, some infant EMNE asset-seeking activity may take place out of necessity, e.g., where strategic reasons make direct ownership of foreign assets is essential. This is especially so in the service based industries, where firms a physical foreign presence is essential. It is worth noting that FDI in services is

a relatively new phenomenon, and has largely been made possible by a variety of agreements associated with the WTO that have come into force since the beginning of the 21st century. Some of these investments are 'strategic' in the sense that banks and insurance companies need to maintain overseas operations in financial centers such as New York and London, and be capitalized or at least be registered as having a legal presence in those locations. Yet others require a physical presence to be in proximity to clients. The extent to which such asset-seeking investments benefit home-country operations depends upon the extent to which the MNE has the absorptive capacity and O advantages to do so, and whether it seeks to evolve into a global integrated enterprise, or maintain its foreign operations as *de facto* free-standing enterprises with weak links to the parent company (Meyer et al 2011).

Such infant or first wave MNEs are not exclusively a phenomenon of emerging economies. Such patterns of early internationalisation are independent of nationality, or development stage of the home country, and similar behaviour has been noted of firms from almost all home countries. That is, limited O advantages and a preference to locate in markets which are broadly similar to the home country. On the other hand, in the case the O advantages of infant MNEs from developed markets are likely to reflect the much higher L advantages of these countries. Indeed, what we have referred to as 'conventional' MNEs often began in much the same way.

Second wave – or to use Ramamurti's terminology – 'adolescent' MNEs, indicate better developed O advantages, of both types. That is, the scale and scope of their O and O advantages is greater. This reflects improvements that derive from greater experience and learning by virtue of ongoing foreign operations, their own internal firm-specific investments in R&D, the L advantages of the home country, and (to a lesser extent, depending upon the scope and competence of their foreign operations and the extent of their foreign embeddedness) the L advantages of the host country(ies) (Meyer et al 2011). The home country remains – even for the most advanced MNEs – the primary location for R&D activities. Thus, where the L advantages do not provide the necessary knowledge and advanced infrastructure to support asset-upgrading, these firms are unlikely to evolve into second wave/adolescent MNEs. The complexity of managing internationally dispersed R&D acts as a centripetal force on firms' O advantage upgrading efforts, and accounts for a tendency of firms to locate the most strategically significant aspects of their activities closer to home. Therefore, O advantages of most MNEs – and particularly for MNEs at an early stage of internationalisation such as EMNEs - continue to be determined to a very large

extent by the innovation system of the home country. Furthermore, where the home country does not possess a minimum threshold of scientific and technological capability, MNEs from these locations are likely to remain first wave/infant MNEs with Oa and Ot assets that concentrate in natural resource-intensive, primary sector activities and only minimally in market-seeking knowledge intensive manufacturing and services, primarily in less developed countries. More recently, Aulakh (2007) and Cuervo-Cazurra and Genc (2008) has alluded to the advantages derived from operating in similar institutional conditions which are predominated by complex, informal institutions which create greater uncertainty, or as Khanna and Palepu (2006) put it, institutional 'voids'. That is, emerging country MNEs – such as those from China, India and South Africa - are able to discount the greater risk of operating in such environments because they have more experience – either at home or in other similar countries – which provides them a location-specific O advantages not necessarily available to investors from developed countries. Del Sol and Kogan (2007) point to the ownership advantages that Chilean MNEs have in 'liberalisation know-how'. Chile underwent liberalisation much earlier than other Latin American countries, and firms were able to leverage this knowledge in other regional markets.

The point that we are making here is this: *The extent and intensity of EMNE activity is a function of their O advantages, which in turn are largely a function of their home country L advantages.*

Greater O advantages as EMNEs enter the second wave imply a greater breadth of activities. Such firms engage in more market-seeking, asset-exploiting activities in host countries, where not coincidentally, competition is greater, and that implies a geographic shift in the emphasis of their activities.

It is important to stress that asset-seeking activities increase as EMNEs evolve, along with a growing use of non-equity linkages with innovation systems and firms abroad. However the extent (and the success) of such activity depends greatly on the possession of considerable Oa and Ot advantages. A certain threshold of O advantages is required to efficiently internalise these activities. Such collaborative activity also presumes that EMNEs possess assets which they can augment, and which other firms wish to acquire, because collaboration by its very nature implies a two-way flow of knowledge. The concept of asset-augmentation implies that firms have existing assets which they wish to augment. The foreign location is assumed to provide access to L advantages that are not as easily available in the home location. In many

cases the location advantages sought are associated with the presence of other firms. If the EMNEs do not have some superior ownership advantage it is unlikely that they will be allowed to participate in innovation networks and alliances to acquire complementary resources from industry leaders if they have nothing to offer in return (Narula 2006). It is important to note that asset-augmentation abroad requires a long-term view, because the benefits are rarely obvious in the short and medium run. Establishing links with suppliers, customers and potential collaborators takes years to create. They are thus, by definition, expensive activities.

This leads us to an obvious question: is there evidence to indicate that this incremental path of upgrading sketched here no longer applies? Has globalisation created a 'new' type of EMNE that do not broadly follow the principles described here? Gammeltoft (2008) and Andreff (2003) have argued that MNEs from the BRICs countries represent a 'third wave'. We have argued and will demonstrate later that this simply represents an advanced version of the second wave. As EMNEs evolve and acquire greater experience of international operations, competing directly with conventional MNEs, and managing cross-border activities, they naturally move closer to the structure and patterns of the conventional ('adult') MNEs, displaying similar ownership advantages, managerial skills, organisational structures and so forth. Most importantly, they will have moved away from a dependence on location-bound advantages.

Globalisation as an important driver of the second wave MNEs

It is essential to acknowledge that the growth of EMNE activity since the 1990s also reflects important exogenous and systemic changes in the organisation of economic activity. Specifically, the growth in EMNE activity relate to the process of liberalisation, the consequent increase in cross-border competition and the effect this has had on the structure of most emerging economies. Liberalisation has had a pervasive effect through an increasing outward orientation in most emerging economies due to domestic policy changes, as well as the trend towards economic integration through supranational agreements and treaties. This led to greater opportunities for conventional MNEs to penetrate hitherto smaller markets through exports and FDI that were previously unattractive or unavailable to them.

Greater competition as a result of liberalisation meant that firms from these countries needed to upgrade their ownership advantages if they were to survive even in their home countries. This led to pressure to seek assets abroad to augment their existing assets. Those that were successful in such upgrading began simultaneously to seek markets abroad. Globalisation and its pursuant liberalisation have meant that firms in all countries (whether developing or developed) now had potential access to larger markets. This has been aided by the growing complexity of products and services (in that most now require a broader range of competences from different sectors), raising the costs of innovation, design and production (Narula and Dunning 2000). Providing similar products across larger *de facto* markets has also become essential to defray the costs and risks of such sunk costs, and firms need to have large economies of scale and a higher minimum efficient scale. This has meant that firms in such industrial sectors need to expand internationally to justify the higher costs of innovation. In other words, firms increasingly need to have competitive advantages that are globally viable, rather than domestically or regionally so, and this has been further enhanced by the innovation of space-shrinking technologies, falling trade barriers, and transportation costs (Narula and Dunning 2000). Growing competition at home has meant that the privilege of slow and gradual building-up of ownership advantages through licensing and joint ventures is rarely an option. Nor were they able to continue to depend primarily on obsolete production and process technologies (for which markets may still exist in countries at lower stages), but needed to simultaneously also seek to emulate best practice.

Many developing economies had also nurtured state-owned enterprises and national champions as part of their economic and industrial policies. They often also provided protection against competition, and subsidised their outward expansion (and this still remains the case in certain countries like China). Various agreements within the WTO (combined with economic liberalisation) have led to the dissolution – or at least a weakening of – such state support. This has paradoxically helped some to improve their ownership advantages by providing them with the initial impetus to internationalise. Others have responded to the challenge by expanding abroad rapidly, and in a more aggressive way. Greater competition has prompted other firms to upgrade their assets by partnering with foreign MNEs, while others have sought to improve their firm-specific assets through greater investment in R&D, whether at home or abroad. Firms that have survived have tended to do so by following the same ‘game plan’ as ‘conventional’, MNEs in the use of (and integration into) global production networks and supply chains. As Cuervo-Cazurra and Stal (2010) note, pro-market

reforms have acted as an important push factor for the upgrading of the O advantages, going hand-in-hand with accelerated internationalisation. Pananond (2007) highlights the changing dynamics of Thai MNEs after the Asian financial crisis 1997. While the pre-crisis, international expansion relied more on networking capabilities rather than industry-specific technological capabilities, the post crisis adjustments of Thai MNEs displayed a different strategies which placed much more emphasis and commitment to development of industry-specific technological capabilities as well as transforming their personalized, relationship based networks to more transparent and formal ties.

Indeed, as several case studies have shown (e.g., Bonaglia *et al* 2006., Goldstein 2008) accelerated internationalisation by EMNEs is certainly a primary feature of globalization, and as we are unlikely to return to protected and isolated markets, something that needs to be acknowledged. Nonetheless, it is worth cautioning that not all such accelerated activity is likely to be successful in the long run, and the success depends largely upon the extent to which such internationalisation reflects upgraded capabilities, rather than hubris. It is easy for firms to overestimate their O advantages and underestimate the liability of foreignness and the costs of establishing a presence abroad. Indeed, this is reflected in the number of the 'early' EMNEs in the first wave that later withdrew or pared down their presence in developed markets. This is particularly so for those firms that relied on rents from protected home markets to subsidise their international expansion. As competition at home increased post-liberalisation, there was considerable restructuring of their foreign operations, some withdrawing from foreign markets others by paring down their foreign assets.

Greater competition primarily from foreign entrants in the home market has had several consequences for firms that have hitherto operated in closed markets. Some of the more successful domestic firms were acquired (whether voluntarily or otherwise) by foreign investors (Humphrey *et al* 1998) while others have sought to upgrade their O advantages to compete more effectively, although the extent to which firms have been aggressive about upgrading their technological capabilities, products and services has varied considerably (Giuliani *et al* 2005, Morris and Barnes 2008).

It is also worth noting that the beginning of the ‘second wave’ in the early 1990s coincided also with rising fears of protectionism in both Europe and the US⁷. This led to a large number of investments by non-US and non-European firms to establish facilities in these regions. The impression at the time was that both the US and Europe would discriminate against imported goods, with tariff and non-tariff restrictions on MNEs who were not engaged in value adding activity locally. These fears led to a much more rapid internationalisation of Korean, Chinese, Taiwanese and other second wave investors than might ordinarily have been the case.

Nonetheless, as a considerable literature on the Asian NICs has demonstrated (Amsden 1989, Wade 1990, Lall 1996), the growth of the outward MNE activity mainly reflects the astute use of industrial policy by their national governments upgrade their L advantages, along with quite considerable investments by firms to upgrade their firm-specific advantages. As we will discuss in the rest of the paper, with the possible exception of China, few of the emerging economies have consistently sought to do so.

EMNE activity post-1993: a third wave or a continuation of the second wave?

Although FDI data has several limitations, it gives a reasonable basis for cross-country comparison and how changes have occurred over time (Zhan 2006). Emerging market outward FDI stocks as a percentage of total stock increased from 9.8 percent to 14.7 percent between 1993 and 2007 (see table 2). When the Asian NICs are excluded, however, we see a sudden drop in the outward FDI stock as a share of total world FDI stock, such that there seems little or no change in the trend over the period from 6.4 percent to 6.97 percent over the same period, indicating that the majority of outward FDI from developing countries originated from the Asian NICs. In other words, these 4 countries accounted for more than 50% of all EMNE activity in 2007. Although the significance of the BRICS (Brazil, Russia, India, China and South Africa) increased from about 15% to approximately 20%, this increase is rather marginal. As the data are nominal, this implies a decline in real terms once we eliminate the NICs and BRICS (in other words, 9 countries) for the rest of the developing countries between 1993 and 2007 (table 3). Indeed, once we also exclude outward FDI stock from the Middle East oil exporting economies and tax havens such as Virgin Islands, Cayman and Panama, outward FDI stocks from emerging markets fell from 2.05 percent to 0.44 percent of the total between 1993 and 2007. This data suggests that EMNE

⁷ Many European countries introduced not-tariff barriers, and the concept of ‘Fortress Europe’ seemed a significant possibility. In the US, the government imposed voluntary export restrictions on foreign firms if a certain threshold level of production was not undertaken in the US (Dunning 1993).

activity not a broad based phenomenon, but limited to a small group of countries. Indeed, the continued inclusion of the Asian NICs in the classification of developing countries seem somewhat problematic, given that the GDP level on a per capita basis (whether on a PPP or nominal basis) had by the end of the 1990s, had clearly converged with the developed world.

Table 3 here

Table 2 gives details of the outward FDI stock of the 20 largest home countries among the emerging market for 3 periods 1993, 2000 and 2007. There are no new countries in the list of the top 20 home countries (which excludes the Middle East oil exporting economies and tax havens). These 20 countries accounted for 8.58 percent of total outward FDI in 1993, and in 2007 these same countries accounted for 14.12 percent. As a percentage of outward FDI from the emerging markets as a whole, this figure is 87.85 percent and 96.31 percent for the years 1993 and 2007 respectively.

Table 2 also lists the level of outward FDI stock on a per capita basis. Despite the considerable focus on the growth of outward FDI from India, its outward FDI stock on a per capita basis remains the lowest of the 20 countries in all three periods, having increased from just US\$0.3 to US\$25.1 over the 14 year period, and even in 2007 was less than countries such as the Philippines and Indonesia, and a third that of China, and is even lower than Nigeria and Columbia. The data for the BRICS countries in general indicate that Brazil and South Africa were already major outward investors in 1993, and indeed may have declined in relative terms over time. It would seem, therefore, that the case of China and Russia were the only significant new entrants over this period. Consider also that Russia presents a special case, having moved from being a political superpower, with a strong military industrial complex to an “emerging economy”. Indeed, several indicators of technology and science in the 1980s and 1990s make it difficult to argue the case that Russia’s development can usefully be compared with other so-called emerging economies, and continues to possess elements of a knowledge infrastructure which is very much “world class” (Narula and Jormanainen, 2008), but have not fully made an effective transition which allow these assets to be efficiently exploited within a capitalist framework.

The data in Table 3 indicates that the analyses conducted in Dunning et al (1998) of the outward FDI activity from emerging economies continues to be relevant: it shows that growth in outward FDI activity has primarily been with a very small group of countries, that majority of whom which are at a level of development consistent with a certain threshold level of L

advantages (Dunning, 1981; Dunning and Narula, 1996; Narula and Dunning, 2000, 2010). These are countries which are ordinarily associated with competitive advantages of domestic firms of the levels that could support sustainable growth of outward FDI (Narula, 2010).

The data examined in table 2 and 3 indicate that – once we exclude the NICs – the story of ‘new’ outward investors from the emerging economies is more a case of anecdote than concrete evidence. On a firm-level analysis, 40% of the top 100 non-financial EMNEs published by UNCTAD (2010) were from the Asian NICs. Table 4 shows the industrial specialisation of these firms. Although the data provided on the industrial specialisation of the 59 non-NICs EMNEs is somewhat general, about half can be described as first wave MNEs, engaged in natural resource-intensive/extensive sectors or in sectors which require access to such natural resources (such as metals and metal products, wood and paper products, petroleum, mining). As table 4 shows, of the 28 largest BRICS MNEs, 57% are in primary-based sectors. This contrasts with the NICs MNEs, where the majority are engaged in the manufacturing sector.

Table 4 here

What does seem rather clear from table 4 is that the industrial structure of outward activity by the NICs MNEs is clearly different from the BRICS countries. By and large, the NICs MNEs reflect the industrial structure of their home countries, which tends to be in the manufacturing sector, and more specifically, in the more innovation-driven, Schumpeterian sectors of the economy. As one might expect from their shift in the late 1980s away from first wave, infant MNE behaviour, they have continued to move away from primary-based industries and towards high-value adding activity. No similar shift can be observed in the BRICS countries.

A large percentage of these BRICS firms across all sectors and countries are state-owned or state-controlled (almost all the Chinese MNEs in this list, Petrobras, Gazprom, ONGC Videsh), or have significant ties to national governments as national champions. Indeed, state support for outward FDI activities is a significant issue that deserves to be more clearly highlighted. Firms that enjoy state-support, whether due to state ownership or as a result of prior or current national champion status tend to benefit from lower cost of capital and state guarantees, and are considered to be ‘too big to fail’ (Buckley et al, 2007, Huang, 2008).

They are therefore able to sustain poorly performing foreign operations for a longer period, unlike most privately owned firms, and also benefit from a range of supportive government policies to promote their internationalisation (Giroud et al., 2009, Fortainer and van Tulder 2009, Kumar and Chadha, 2009). Similar claims are also made for family business groups, which do not have to justify underperforming investments to shareholders (Hemrit 2011).

It is worth noting that not all EMNE activity represents de facto FDI, in the sense that it is not always undertaken with intention of exploiting the benefits of common ownership. Motivations can also represent a situation where the foreign investment is de facto a portfolio engagement seeking a higher rate of return. One of the reasons many developing countries discouraged outward FDI prior to liberalisation was that outward activity represented an excuse for capital flight. This motivation cannot be discounted. Morck *et al* (2008) note that this remains an important reason for some percentage of Chinese outward investment. Indeed, the role of round-tripping remains a significant phenomenon for Chinese outward FDI (Sutherland et al 2010). In the case of Russia, high levels of political and economic uncertainty as well as considerable regulatory constraints after the collapse of the Soviet Union resulted in considerable capital flight (Kalotay 2002). Child and Rodriguez (2005) have noted that Chinese firms may pursue outward FDI as a means to minimise disadvantages of having a purely domestic footprint. Witt and Lewin (2007) similarly suggest outward FDI may also be a means to exit institutional constraints at home. Lastly, cash-rich firms from emerging economies (and this includes the oil-rich economies of the Middle East) have a propensity to acquire companies that provide some prestige can best be described as 'trophy FDI' for which the objective is largely non-commercial (Globerman and Shapiro 2009). While enhancing the investor's reputation, they make little economic sense. Child and Rodrigues (2005) argue that a considerable share of Chinese outward FDI is driven by the government's mandate to enhance China's economic and political power in the world and expand China's international trade relations, rather than the goal of economic returns.

Even where the intention is not to engage in foreign ownership as a hands-off portfolio of companies, this does not mean that EMNEs always possess the capacity to integrate and manage them successfully, and reap the benefit of the economies of common governance. Tata's acquisition of both Tetley's and Jaguar Land Rover have both been loosely integrated

(if at all) with the Tata's other operations either at home or elsewhere⁸. Where such firms have sought to integrate more deeply, the lack of experience in managing cross-border activities is reflected in their failure to reap scale economies. Acquisitions rather than greenfield activities have the advantage of rapidity, but require greater ownership advantages to maintain. On the other hand, acquired assets are easier to divest since they continue to have a resale value, should they have a change in strategic direction (Athreye and Kapur 2009).

The role of L advantages in creating successful EMNEs

Let us turn to examine some data that reveal the nature of the L advantages of home countries. Table 5 lists the outward FDI position of a variety of different countries, listed by their GDP per capita. For each group of countries, and for a number of variables that give us a good idea of their basic and advanced infrastructure. Below each group, we take an average of the group of countries and indicate its relative level compared with the notional frontier – that of a group of industrialised economies. The intention here is to gauge how close these developing countries are relative to the lead group, whose MNEs are dominant players and are at the frontier in terms of O advantages.

For instance, in terms of outward FDI, emerging countries (China, India, Brazil, Argentina, Malaysia, Chile) are at 7% of the stock level of the industrialised countries listed in Table 5, while the 3 NICs countries listed are roughly double that. Indeed, these variables indicate that both in terms of basic infrastructure (electricity consumption) and knowledge infrastructure, on almost every measure, (except the number of scientific journal articles), the emerging country group are at about half the level (or less) of the Asian NICs, which are themselves considerably lower than the industrialised country group.

Table 5 here

The last three columns in table 5 examine the ICT sector imports and exports of these countries, and by taking a ratio of these numbers, provides us with a measure of the comparative advantage of these countries in the ICT sector. This data is taken here as an indicator of the structure of the economy. Broadly speaking, most emerging countries have

⁸ The failure of Tata to create sufficient firm-specific advantages, or upgrade their domestic capacity despite this large takeover is telling. Tata Nano – much vaunted as a success story of upgrading - has proven to be a flop even in the Indian market due to its technical shortcomings. The Financial Times reports that Tata Nano was selling rather fewer cars than Mercedes in India by the end of 2010 (FT December 7 2010)

targeted the ICT sector as a means to leapfrog and move towards more high tech, high value adding activity. Thus, a comparative advantage in ICT is a good indication of a country's long-term competitiveness, and also indicates the propensity of its firms to possess significant location advantages. This data indicates that very few emerging or developing countries – with the exception of China and Malaysia - are competitive in ICT sectors.

These results indicate a very low level of advanced infrastructure in China and India, and a wide disparity between the two countries. China has 10 times as many researchers per million than India, but China is itself four times less than that of Korea (which on this indicator is marginally lower than Japan, but higher than most EU countries).

Table 6 here

Table 6 provides another set of indicators for a smaller set of countries (Due to data limitations). The first two columns set out data on patenting. Column 2 gives US patents granted by country Indian and Chinese firms increased their patenting activity since 1990, but India has half the patenting level of China, 15 times less than Korea and 20 times less than Taiwan in 2002. Column 3 gives the share of high-tech value added of each economy. The data indicates that India is half that of Malaysia, which is less than 10% that of China. China's high tech value added is twice that of Korea, and four times that of Singapore or Taiwan (which are admittedly much smaller economies).

Location advantages are also the primary determinant of inward FDI, and the extent and nature of a country's inward FDI stock is indicative of the quality of the location advantages. Using data for US MNEs in various countries in Table 6, the relatively strong position of the NICs compared to the emerging countries is again underlined.

Conclusions and implications

This paper has sifted through the literature and empirical evidence on EMNEs, arguing that this is not necessarily new. In deed, firms from emerging countries have been internationalising since at least the Second World War (UNCTAD 1993), others earlier – Tata & Co

had offices in Hong Kong as early as the 1880s to facilitate their trading activities in China⁹. The early literature had shown that there were in fact two types of EMNEs: those that were infant ‘first wave’ MNEs that were engaged in relatively low value-adding activity that was primarily trade-supportive or resource-seeking in other developing countries, reflecting the L advantages and competitiveness of their home countries. A second set, defined as ‘second wave’ or adolescent MNEs – most often the same companies that had upgraded their capabilities – were seen to move towards market-seeking FDI in developed countries, again reflecting the evolving comparative and competitive advantages of their home countries. We have made the point that these ‘waves’ exist simultaneously, and are not exclusive. That is, as firms garner greater international experience and improving stock of ownership advantages (both transaction – and asset-type), it is natural for them to move towards second wave behaviour, and eventually will become indistinguishable from conventional or mature MNEs.

By and large, evidence from the last decade shows the same continuing trends. The industrial specialisation of EMNEs continues to reflect the industrial structure and comparative and competitive advantage of their home countries. For instance, it is clear that the specialisation of MNEs from the NICs differs from the BRICS, and the relative levels of FDI activity reflect the differences in their home country L advantages. It is also clear that the definition of emerging economy is excessively broad – the majority of EMNE activity is associated with the Asian NICs and the BRICS, the former technically no longer ‘emerging’. If countries such as India and China are some distance away from catching up with the Asian NICs in terms of L advantages, it is also not surprising to see that their MNEs are also some way off in terms of internationalisation of firm-specific advantages, and that so few significant home countries exist outside the BRICS.

It is important to acknowledge that there are important structural changes associated with globalisation and a consequent growth in the rapidity with which firms seek to internationalise. EMNEs were exposed to greater competition with liberalisation, and this has meant that surviving in the longer run they have needed be more aggressive about the upgrading of their firm-specific assets and *one* means to do so is by internationalisation. However, we can also expect that a number of these EMNEs will not prove able to survive in a globalised world where they must compete with ‘conventional’ MNEs which have greater experience and managerial know-how of managing across borders and achieving economies

⁹ <http://www.legco.gov.hk/1886-87/h870325.pdf>

of common governance. It is highly improbable to expect a country with limited location advantages to spawn a large number of internationally competitive firms, which then have the managerial, entrepreneurial and organisational capacity to engage in complex organisational modes in foreign markets.

As to the idea that O advantages can be acquired through astute use of reverse knowledge transfer through alliances, networks and production networks this goes against the well-known principle that ‘there is no such thing as a free lunch’. More advanced firms do not share assets unless there is a clear basis for exchange. Even where EMNEs possess the relevant O advantages with which to trade assets with more advanced MNEs, they must possess the necessary O advantages (absorptive capabilities) to internalise the acquired assets. Once internalised, they need to possess the appropriate organisational and managerial skills to transfer them intra-firm to other subsidiaries at home or abroad (Narula 2010). Such an extensive laundry list of O advantages is not assimilated overnight. There is also an important adage that is not as well-known, but applies equally well here: ‘just because you can buy a car, does not mean you can drive it’. Indeed, the fact that few of the second wave MNEs outside the NICs have managed to move towards innovation-driven activities indicates how difficult this is.

Leapfrogging through outward FDI requires firm-specific assets in innovation-driven sectors, and these derive from the home country’s L advantages. There are no exceptions to this rule. Competitive industries – and by this we mean more than an occasional exception – are associated with home countries which are themselves competitive. Japan, Korea, Taiwan have all built up globally competitive firms by the astute use of industrial policy and investment in public goods. Malaysia, India China and Brazil have done so as well, although perhaps not equally well. As the data examined here has shown, China’s L and O advantages are much more advanced than India’s, and these weaknesses reflect themselves also in the success of their MNEs. To be sure, globalisation – and specifically agreements associated with the WTO – has opened up new industries to international competition, particularly in the services and tertiary sector. India’s international competitive position in software and business process outsourcing owes much to liberalisation. However, these sectors are also dependent on location-bound O advantages – particularly access to skilled (but low paid) English speaking workers.

It is not clear that EMNEs present a new and alternative channel for capital flows and knowledge flows for host developing countries. First wave MNEs may prefer to invest in less developed countries in low value added manufacturing or natural resource extracting sectors. However, these activities do not provide opportunities for significant knowledge transfers and on the whole cannot be expected to provide significant spillovers and linkages.

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Table 1: Characteristics of three types of emerging market MNEs

	“First wave”	“Second wave”	“Second wave+” (2000s)	“Conventional MNEs”
Ramamurti terminology	“Infant MNEs”	“Adolescent MNEs”		“Mature MNEs”
Destination	Regional FDI: neighbouring countries and other developing countries	Majority still regional, but expanding to a global basis		Global basis
Motivation	Resource seeking, market seeking in developing countries	In developing countries: resource and market seeking In industrialized countries: asset seeking and market seeking		Efficiency seeking: MNE motivation aimed at optimizing use of each country’s comparative and competitive advantages
Type of outward FDI	In developing countries: natural asset intensive, small scale production in light industries (Heckscher-Ohlin, moving towards undifferentiated Smithian industries)	In developing countries: natural asset intensive sectors as in first wave In industrialized countries: (a) assembly type, market seeking FDI primarily in Smithian industries (b) asset seeking investment in Schumpeterian industries	In between second wave and conventional MNEs	Capital and knowledge intensive (Schumpeterian) sectors capital/labour ratio dependent on natural/created asset of host countries
Ownership advantages	Primarily country-of-specific. Fundamental Oa advantages, few Ot advantages	Both firm and country specific. Improving Oa advantages, Ot advantages still basic		Mainly firms specific Advanced Oa and Ot advantages
Examples of ownership advantages	Conglomerate group ownership Technology (most adapted) Management adapted to emerging country conditions Low cost inputs (including managerial and technical personnel) “Ethnic” advantages	Conglomerate group ownership Management adapted to emerging country conditions Low cost inputs (including managerial and technical personnel) “Ethnic” advantages Some product differentiation Limited marketing skills Vertical control over factor/ product markets Subsidized capital		Large size – economies of scale Access to capital markets Technology Product differentiation Marketing know how Cross country management skills Globally efficient intra-firm activities Vertical control over factor/ product markets

Table 2: Emerging market outward FDI (as a percentage of world outward FDI stock)

	1993	2000	2007
All developing countries (DC)	9.77	14.02	14.66
All DCs less BRICs	7.18	12.36	11.39
All DCs. less NICs	6.42	6.61	6.97
All DCs. Less BRICs and NICs	3.02	3.60	2.42
All DCs. Less BRICs, NICs & GCCs	2.65	3.43	1.89
All DCs less BRICs, NICs, GCCs, Virgin Islands, Cayman Islands & Panama	2.05	1.83	0.44

Sources: UNCTAD, World Investment Report, 1993, 2000, 2007.

Table 3: Outward FDI of 20 largest emerging markets (excluding GCC countries and tax havens)

Home country	1993				2000				2007			
	OFDI stock		OFDI stock per capita		OFDI stock		OFDI stock per capita		OFDI stock		OFDI stock per capita	
	US\$ Million	Rank	US\$ Million	Rank	US\$ Million	Rank	US\$ Million	Rank	US\$ Million	Rank	US\$ Million	Rank
Brazil	42,688	1	277.2	5	51,946	4	303.0	10	129,840	5	685.8	9
Hong Kong	3,911	2	6,521.2	1	388,380	1	57,863.0	1	1,026,587	1	147,646.6	1
Taiwan	36,989	3	1,761.8	3	66,655	2	2,992.1	3	15,836	3	6,897.9	3
South Africa	17,952	4	456.3	4	32,333	5	726.2	5	54,562	9	1,140.3	7
China	13,768	5	11.6	18	27,768	6	21.9	19	95,799	6	72.5	17
Singapore	13,209	6	3,984.6	2	56,766	3	14,093.0	2	149,526	4	32,583.5	2
Argentina	8,085	7	238.4	6	21,141	8	574.7	7	26,873	13	682.8	10
Korea	5,441	8	123.1	7	26,833	7	570.8	8	66,220	7	1,366.6	8
Mexico	3,386	9	38.5	11	8,273	12	84.5	11	44,703	10	424.7	12
Venezuela	2,447	10	117.0	8	7,676	13	317.5	9	13,814	15	502.3	11
Nigeria	2,411	11	24.5	12	4,132	15	34.7	15	5,514	20	38.3	19
Russia	2,300	12	15.5	16	20,141	9	137.1	12	255,211	2	1,794.7	6
Malaysia	1,437	13	73.5	10	15,878	10	675.8	6	58,175	8	21,674.0	4
Indonesia	1,294	14	6.8	19	6,940	14	33.8	17	21,426	14	95.3	16
Turkey	1,263	15	22.7	13	3,668	16	58.4	14	12,210	16	177.2	14
Chile	1,111	16	80.7	9	11,154	11	733.3	4	32,469	11	1,957.9	5
Thailand	960	17	16.5	14	2,203	18	35.3	16	7,025	18	106.9	15
Philippines	908	18	13.8	17	2,044	19	26.8	18	5,573	19	62.9	18
Columbia	591	19	15.9	15	2,989	17	70.6	13	10,383	17	218.5	13
India	294	20	0.3	20	1,859	20	1.8	20	29,412	12	25.1	20
Sum of 20 DCs' OFDI			1993 160,445.0				2000 760,779.0				2007 2,063,165	
Share of all DCs's OFDI			87.85				88.04				96.31	
Share of world's OFDI			8.58				12.34				14.12	

Sources:

1. UNCTAD major FDI indicators (World Investment Report, 2008).
<http://stats.unctad.org/fdi/ReportFolders/ReportFolders.aspx>
2. World Economic Outlook Database, April 2009 Edition. IMF World Economic and Financial Surveys.

Table 4: industrial distribution of top 100 non-financial TNCs from emerging economies, 2008

Industries	NICs	BRICS	Other emerging
Manufacturing			
Electrical and electronic equipments	13	1	
Food, beverages and tobacco, other consumer goods	5		2
Other equipment goods	4		
Chemicals	1		1
Motor vehicles	1	1	
Other consumer goods		1	5
Pharmaceuticals			1
Wood and paper products			1
<i>Subtotal</i>	<i>24</i>	<i>3</i>	<i>10</i>
Primary-based			
Metals and metal products	2	9	2
Petroleum expl./ref./distr.	1	6	3
Mining & quarrying		1	
Non-metallic mineral products			1
<i>Subtotal</i>	<i>3</i>	<i>16</i>	<i>6</i>
Services			
Investment holding (diversified)	6	3	3
Transport and storage	3	1	
Wholesale trade	2	1	
Construction; construction and real estate		3	2
Business services	1		
Telecommunications	1	1	8
Utilities (Electricity, gas and water)	1		2
<i>Subtotal</i>	<i>14</i>	<i>9</i>	<i>15</i>
Total	41	28	31
Source: Adapted from The top 100 list non-financial MNEs from developing and transition economies, World Investment Report, UNCTAD, 2010			

Table 5: indicators of L advantages

	outward FDI stock 2009	Electric power consumption (Kwh per capita)	School enrolment tertiary (% gross)	Researchers in R&D (per million pop)	Scientific and technical journal articles	Internet users (per 100 people)	ICT goods import (\$ million)	ICT goods export (\$ million)	ICT comparative advantage Export/Import
DEVELOPING COUNTRIES									
Peru	1880	961	35		153	25		22	
Venezuela	17670	3,077			497.2	26	5231	40	0.01
Nigeria	6438	137			427	16	2872	2	0.00
Pakistan	2201	474	5		741	11	2476	95	0.04
Vietnam	0	728			283	24	5751	3439	0.60
Average	5,638	1,075	20		420	20	4114	1767	0.43
As % of developed countries	0.5%	10%	28%		2%	25%	8%	3%	
EMERGING COUNTRIES									
China	229660	2,332	22	1,071	56,806	23	306156	430728	1.41
India	77207	542	14	137	18,194	5	15901	2375	0.15
Malaysia	75618	3,667	32		808	56	39479	52060	1.32
Brazil	157667	2,171	30		11,885	38	20525	3601	0.18
Argentina	29428	2,659	68	980	3,362	28	5586	335	0.06
Chile	41203	3,318	52		1,740	33	3842	111	0.03
Average	87,255	2,448	36	547	15,466	30	65248	81535	1.25
As % of developed countries	7%	22%	52%	13%	61%	38%	122%	156%	
NEWLY INDUSTRIALIZED COUNTRIES									
Korea, Rep	115620	8,502.0	96.1	4,627.20	18,467.20	75.8	58,614	115,625	1.97
Singapore	213110	8,513.7		6,087.90	3,792.30	69.6	90,279	122,991	1.36
Hong Kong	834039	5,899.2	34.3			67	164,686	158,672	0.96
Average	188,665	7,638.30	65.20	5,357.55	11,129.75	72.70	104,526.33	132,429.33	1.27
As % of developed countries	16%	68%	93%	123%	44%	90%	196%	253%	
DEVELOPED COUNTRIES									
United States	4302851	13,638	82		209,695	75.8	287469	174865	0.61
Japan	740930	8,474	58	5,573	52,896	75.2	84206	115239	1.37
Denmark	216176	6,670	80	5,431	5,236	83.3	9631	6067	0.63
Germany	1378480	7,184		3,453	44,408	75.5	113190	111704	0.99
Netherlands	850554	7,097	60	2,680	14,210	87.0	70996	73858	1.04
Norway	164693	24,980	76	5,247	4,079	82.5	8047	3341	0.42
Sweden	367358	15,238	75	5,215	9,914	87.7	18377	18630	1.01
United Kingdom	1651727	6,123	59	2,881	47,121	76	69457	37806	0.54
Average	1,209,096	11,176	70	4,354	25,409	80.4	53415	52378	0.98

b. Scientific and technical journal articles, World Development Indicators, World Bank, <http://data.worldbank.org/indicator>

Human development indicator, United nations Development Programme (UNDP), http://hdr.undp.org/en/media/HDR_20072008_EN_Indicator_tables.pdf

c. Internet users (per 100 people), 2007. World Development Indicators, World Bank, <http://data.worldbank.org/indicator>

d. Time to prepare and pay tax (hours), 2007. World Development Indicators, World Bank, <http://data.worldbank.org/indicator>

Table 6: Indicators L and O advantages

	US patents granted			Hi-tech industry value added			R&D by US MNEs			Value added by US MNEs			Science, engineering doctorate	
	1990	2002	% change	1990	2002	% change	2007	2008	% change	2007	2008	% change	All S&E	Engineering
ECONOMIES														
China	99	522	36%	9,224	86,770	70%	1,173	1,517	29%	21,438	27,296	27%	12,238	6,573
India	23	249	82%	1,401	4,076	16%	382	582	52%	7,375	9,363	27%	6,318	779
Malaysia	3	55	144%	2,025	10,795	36%	390	360	-8%	7,826	10,886	39%		
Average	42	275		4,217	33,880		523	667		11,964	17,927		9,278	3,676
As % of developed countries	0.10%	0.36%		2.85%	10.97%		4.49%	5.41%		4.20%	6.12%		36.43%	53.93%
NEWLY INDUSTRIALIZED COUNTRIES														
Korea, Republic of	225	3,786	132%	10,959	41,652	23%	928	966	4%	12,153	10,472	-14%	3,192	1,868
Singapore	12	410	276%	8,150	19,524	12%	549	621	13%	19,476	20,125	3%		
Taiwan	732	5,431	53%	9,418	24,524	13%	97	102	5%	6,566	6,985	6%	1,167	656
Average	323	3,209		9,509	28,567		417	448		12,717	12,360		2,180	1,262
As % of developed countries	0.76%	4.20%		6.44%	9.25%		3.58%	3.63%		4.46%	4.22%		8.56%	18.51%
COUNTRIES														
United States	90,365	167,334	7%	147,061	482,836	19%							26,891	5,265
Japan	19,525	34,859	7%	148,350	134,610	-1%	1,919	1,872	-2%	39,771	44,094	11%	7,581	3,921
Europe	17,640	26,960	4%				21,365	22,803	7%	530,490	541,528	2%	41,939	11,263
Average	42,510	76,384		147,706	308,723		11,642	12,338		285,131	292,811		25,470	6,816
As % of developed countries	100%	100%		100%	100%		100%	100%		100%	100%		100%	100%

Sources

a. Triad patent families: Organization for Economic and Development (OECD), World Intellectual Property Organization, <http://www.wipo.int>

Notes: A triad patent family is formed when patent applications for same invention is filed in Europe, Japan and United States.

b. US patents granted: US, PTO, Office of Electronic Information Products, Patent Technology Monitoring Division, special tabulations

c. Hi-tech industry value added: Global Insight, Inc., World Industry Service Database (2005). Historical data from United Nations (UN) Industrial Development Organization; UN Statistics Division, S

d. R&D by US MNEs: US Department of Commerce, Bureau of Economic Analysis, US Direct Investment Abroad: Financial and Operating Data for US MNEs (annual series)

e. Value added by US MNEs: US Department of Commerce, Bureau of Economic Analysis, US Direct Investment Abroad: Financial and Operating Data for US MNEs (annual series)

f. Science and engineering doctorate production, ard, Science and Engineering Indicators 2006, Volume 2, NSB 06-01A (2006), appendix tables 2-42 and 2-43; OECD Education database

g,h,i Fixed telephone lines, mobile subscribers, internet users (per 100 people): Information Economy Report 2010: ICT, Enterprises and Poverty Alleviation, United Nations, 2010

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