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Outward Foreign Direct Investment (OFDI) and Knowledge Flow in the Context of Emerging MNEs: Cases from China, India and South Africa

Angathevar Baskaran* , Ju Liu** , Hui Yan*** & Mammo Muchie****

Abstract

The paper explores the factors driving OFDI by EMNEs and the patterns of knowledge transfer, as there are still some gaps in the understanding of these two aspects, by examining six cases of MNEs from three of the BRICS' economies (India, China, and South Africa). It mainly employs descriptive data for a period of about ten years in each case which were gathered from secondary sources including EMNEs' annual financial reports, press releases, websites, and other sources. It found that there are complex aspects of OFDI by EMNEs which cannot be explained by existing FDI theories. A theoretical model that integrates both 'latecomer strategies for catch up' and the 'traditional FDI' models is necessary to fully understand these aspects. The contribution of this paper is three fold: (i) it attempts to identify and distinguish the factors driving OFDI and patterns of knowledge transfer of OFDI from EMNEs and shows how they differ from DMNEs; (ii) it highlights some aspects of OFDI by EMNEs such as expansion into other Southern countries outside their respective region and the North, non-infrastructure/natural resources sectors, different patterns of technology and knowledge transfer in the South and North respectively, which adds to the existing OFDI literature; (iii) by applying grounded and appreciative approaches, it draws some lessons on how best to undertake further research on the difference of OFDI between EMNEs and DMNEs.

Key words: Developing economies; DMNE; Emerging economies; EMNE; OFDI; Outward Foreign Direct Investment; Latecomer strategy.

JEL Code: O11, F36, O53, O55

1. Introduction

Until year 2000, there were only a small number of studies (e.g. Lall, 1983; Agarwal, 1985; Tolentino, 1993; Cai, 1999) that focused on the outward FDI from developing economies. Since mid1990s, OFDI from these countries has grown significantly (UNCTAD, 2006; The Financial Times, 2013) due to increases in foreign exchange reserves and growth of MNEs which are capable of investing overseas and changes in the global economy. OFDI figures for 2013 across the world confirm this trend (see Table 1 and Table 2). As traditional FDI theories are based on MNEs from the developed countries, a number of studies have examined whether the OFDI by the EMNEs are same or different from that of DMNEs: namely a) in terms of motivating factors, technology and knowledge flows (e.g. Fleury and Fleury, 2011; Witt and Lewin, 2007; Mani, 2013; Jeenanunta et al., 2013; Aminullah et al., 2013; Norasingh, 2013); b) whether existing theoretical concepts can be applied similarly for

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these firms or there is a need to develop new conceptual and analytical tools (e.g. Liu et al., 2005; Luo and Tung, 2007; Matthews, 2006).

Ramamurthy (2012, p. 41) suggested that there are two extreme views: one arguing that EMNEs can be understood only with new theory (e.g. Mathews, 2002) and the other asserting that existing theory is quite adequate to explain EMNEs (e.g. Narula, 2006): “truth is somewhere in between and that real challenge is to discover which aspects of existing theory are universally valid, which aspects are not, and what to do about the later”. An overview of literature shows that there is a majority view that the traditional FDI theories do not fully help explain various aspects of OFDI from EMNEs. However, there is no consensus on a new dominant theoretical framework, which can help explain all aspects OFDI from EMNEs including the factors driving OFDI by EMNEs and the patterns of knowledge transfer (see e.g. Kim and Rhe, 2009; Li, 2007; Mathews, 2006; Yamakawa et al., 2008; Ramamurthy, 2012).

The paper explores the factors driving OFDI by EMNEs and the patterns of knowledge transfer, as there are still some gaps in the understanding of these two aspects by examining six cases of MNEs from three BRICS’ economies (Brazil, Russia, India, China, and South Africa). It mainly employs descriptive data for a period of about ten years in each case which were gathered from secondary sources including EMNEs’ annual financial reports, press releases, websites, and other sources. Relying on secondary data does not affect the robustness of findings and results from the case studies as the analysis of developments in each case covers the whole ten year period. This is quite a long enough period to bring out the in-depth developments and trace how things evolved over different years during the period in each case and also distinguish differences among the cases. Furthermore, a good number of interviews and comments from senior managers of selected EMNEs (except one South African case) which are specific to this research were included in the secondary sources.

The contribution of this paper is threefold: (i) based on the empirical evidence from six detailed case studies of EMNEs, it attempts to identify and distinguish the factors driving OFDI and patterns of knowledge transfer of OFDI from EMNEs and show how they differ from DMNEs; (ii) it also highlights some aspects of OFDI by EMNEs such as expansion into other Southern countries outside their regions and the North, non-infrastructure/natural resources sectors, different patterns of technology and knowledge transfer in the South and North respectively, which are different from the existing OFDI literature; (iii) by applying grounded and appreciative approaches to the six case studies of EMNEs from three important emerging economies, it draws some lessons on how best to undertake further research on the difference of OFDI between EMNEs and DMNEs.

2. Literature Review & Conceptual Framework

The literature on OFDI can be categorised as region specific, country specific, and comparative studies across countries and regions. Studies that focus on OFDI from particular country such as China, India, Brazil, Malaysia, and South Africa have been growing in recent years. For example, there have been increasing number of studies focused on China (e.g. Zhang, 2009; Kiggundu, 2008); India (e.g. Rajan, 2009; Athukorala, 2009); South Africa (e.g. UNCTAD, 2005; Draper et al., 2010); and other developing and newly industrialised countries such as Singapore, Thailand and Malaysia (Ellingsen et al., 2006; Wee, 2007). However, there are still a number of areas of OFDI where we need to gain clear understanding. These include: motivating factors; the differences in the EMNEs operations in

developing and developed host countries; and the process of intra- and inter-firm knowledge transfer across borders and within host countries. This study attempts to contribute to this gap in OFDI literature by analysing six cases, two of each from China, India and South Africa. Furthermore, we contribute to comparative studies in this area as there are few such studies (e.g. Kumar and Chadha, 2009).

Traditional FDI theories have been developed from the experience of developed countries' MNEs. Table 3 shows some of the major traditional FDI theories and models including the classification of FDI by UNCTAD. As traditional FDI theories are based on the behaviour and experience of DMNEs, attempts have been made over the years to apply or justify the application of traditional FDI theories to developing countries' MNEs. With more and more empirical studies on EMNEs over the years, now majority has agreed that not all aspects of EMNEs can be captured and explained by the traditional FDI theories. Yet, there is no agreed unified new theory or model which can be applicable to both DMNEs and EMNEs, or to EMNEs.

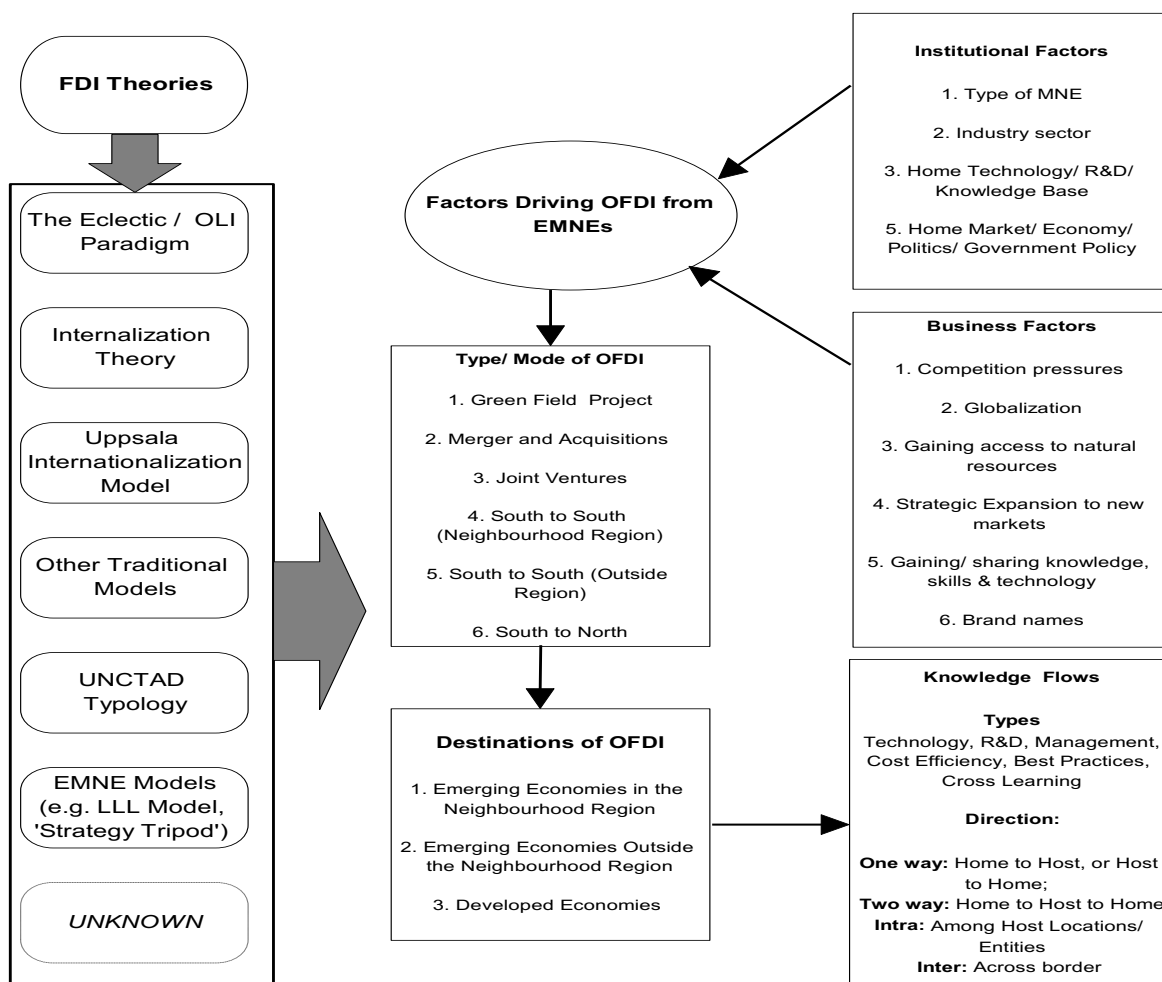
Lecraw (1993, p. 589) studied the OFDI by Indonesian MNEs and found that they 'have gone abroad not only to exploit their ownership advantages but also to access and develop ownership advantages they did not previously possess'. Dunning et al. (1996) attempted to explain the OFDI from the developing countries using data Taiwan and Korea. They called these OFDIs the second wave third world multinational (TWMNE) activities (aided by government policies) which represented an intermediate stage between first wave TWMNE activities and 'conventional' industrialised country MNE activity, thereby implying the OFDI from emerging economies are different from the FDI by DMNEs. Mathews (2006) proposed a new 'linkage, leverage and learning' (LLL) model which argues that OFDI from ENMEs aims to achieve competitive advantages via external linkage, leverage and learning rather than exploiting existing internal advantages through internal control. Li (2007, p. 300) argued that neither OLI nor LLL model alone is sufficient (but they are complementary) and attempted to integrate them "into a holistic, dynamic and dialectical framework" to make it applicable to all types of MNEs in future.

Yamakawa et al. (2008) have developed 'strategy tripod' framework which integrates resource-based, industry-based, and institution-based views to analyse OFDI from EMNEs. Extending and using this framework, Lu et.al. (2010) studied OFDI by Chinese private MNEs and found that high technology and R&D base tends to motivate strategic asset seeking OFDI and export experience and high domestic competition tend to induce market seeking OFDI, and also supportive government policies motivates both types of OFDIs. Kim and Rhe (2009) examined the trends and determinants of South Korean OFDI and found that dynamic effects of economic development have influenced the changing character of OFDI. They also concluded: "the behaviour of South Korean firms does not completely comply with the traditional theories of FDI. Thus, we may argue that this applies not only to South Korean firms but also firms from other economically evolving countries" (Kim and Rhe, 2009, p. 132).

It is clear there is no agreement on a single theory or model that can satisfactorily explain the complex nature of OFDI from EMNEs. Taking this into account, Figure 1 presents a conceptual framework of OFDI from EMNEs, which integrates different FDI models to understand and explain the factors driving the OFDI (institutional and business), mode of OFDI flow, destination of OFDI and knowledge flow between the EMNEs and host economies. As this is a qualitative study, it uses broad indicators for institutional and business

factors and knowledge flows (see Figure 1). It also recognizes that there are certain aspects of EMNEs which cannot be explained by the traditional FDI theories and various EMNE models proposed in recent years.

Figure 1: OFDI from Emerging Economy MNEs (EMNEs) - Drivers & Knowledge Flows



3. Research Methodology

We employ mainly interpretative research approach, case study method and qualitative secondary data. Case study is more suitable when we are not clear about certain phenomenon or new research areas (Eisenhardt, 1989; Eisenhardt and Graebner, 2007). As we have highlighted in Figure 1, there are certain aspects of EMNEs which cannot be explained by the traditional FDI theories and models therefore case study method is likely to help to explore these aspects more in depth. It is argued that even single case study can help to undertake thorough analysis (McAdam and Marlow, 2007), by answering questions such as 'what' and 'why' (Yin, 1990). However, it is also recognized that multiple cases studies provide more external validity compared to single case study. Therefore, we use multiple case studies. The data were gathered mainly from secondary sources such as company annual reports, news/press releases, company websites and other published sources including interviews of senior executives of the case companies (except one South African case). Relying on

secondary data does not affect the robustness of findings and results as the analysis of developments in each case covers the whole ten year period. This is quite a long enough period to bring out all developments in-depth and trace how things evolved over the years in each case and also distinguish differences among the cases.

Using the conceptual framework presented in Figure 1, we have drawn an analytical framework to map and analyse data for the case EMNEs with respect to four aspects: (i) factors driving the OFDI (institutional and business; (ii) type/mode of OFDI; (iii) destination; and (iv) knowledge flow (see Tables 6 and 7).

4. Case Studies

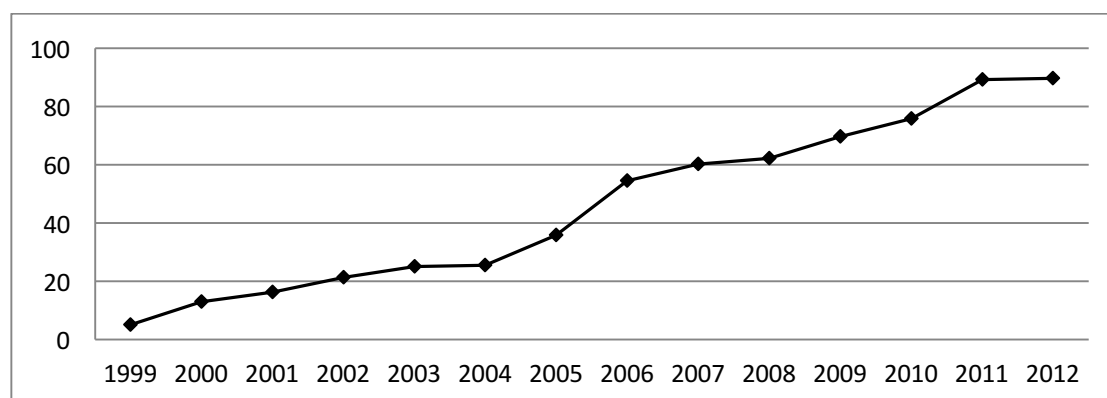
Using UNCTAD/Erasmus University database, six cases were selected from the top 100 non-financial EMNEs ranked by their foreign assets (US\$ million and No. of employees, 2008). These are: China National Petroleum Corporation (CNPC) (27th) and ZTE (79th) from China, Tata Steel (15th) and Hindalco Industries (29th) from India and MTN Group Limited (21st) and Sasol Limited (44th) from South Africa.¹

This paper uses qualitative interpretative research approach rather than quantified measurements to understand how OFDI from case EMNEs evolved and has grown between 1999 and 2013, what are the motivating factors, and what are the patterns of technology/knowledge transfer/ flow between the EMNEs and host economies.

4.1 China National Petroleum Corporation (CNPC, China)

CNPC, founded in 1988, is a state owned MNE and one of the largest oil and gas producers in the world. CNPC's outward investment started from early 1990s. Since then, its overseas oil and gas field production has increased 10 times as shown in Figure 2. By 2010, it has entered into more than 30 overseas joint projects involving investment of over US\$5 billion (Finance and Economy, 2010). By 2012, its operation has expanded to 63 countries and regions.

Figure 2: CNPC's Annual Field Production of Overseas Crude Oil over the Last Ten Years (million ton)



¹ One natural resource based and one technology intensive company were selected from China and South Africa out of total nine and eight available from UNCTAD/Erasmus University database respectively. But both cases selected from India are natural resources based, as total companies are only five.

Source: Annual Reports of CNPC 199-2000 to 2011-2012, <http://www.cnpc.com.cn/cn/gywm/qywh/cbw/lncbw/>

Since 2001 CNPC has recorded continuous growth by developing a number of large oil and gas projects across different regions on its own, through partnership with national oil companies (e.g. Malaysia, Algeria, Peru, Ecuador), as well as with other international oil companies (e.g. Iraq, Iran, Brazil, Mozambique, Australia). It also used mergers and acquisitions. For example, in 2004 it purchased 100% of stocks from the Ay-Dan Petroleum Joint-stock Company (Kazakhstan) and in 2009 it acquired the Keppel Oil and Gas Services (Singapore) and the Mangistaumunaigas (MMG) from Central Asia Petroleum Ltd. at a cost of US\$3.3 billion (CNPC News Release, 24 April 2009). In Canada it acquired 60% of MacKay River and Dover oil sands assets of Athabasca Oil Sands Corp, which was “a major breakthrough for CNPC in the overseas unconventional energy sector” (CNPC Annual Report, 2009: 53). In 2013 it purchased the entire shares of Petrobras Energia Peru S.A. for over US\$ 2.6 billion (CNPC News Release, 15 November 2013).

According to CNPC’s President, Jiang Jiemin, the global financial crisis and its increasing competitiveness have helped the company to expand its global business (CNPC Annual Report, 2009, p. 9). It was ranked 83rd in 2001 when it first appeared in Fortune Global 500 and by 2014 it ranked 4th with an annual revenue of US\$ 432.01 billion (CNPC News Release, 08 July 2014). Its global growth also reflected in its technological and innovation growth in terms of registered patents. In 2010, it was granted 1,701 patents (out of 2,178 applications) including 300 invention patents (out of 841 applications). In 2013, it applied for 4481 patents and was granted 3639 (CNPC Annual Report, 2010: 14; 2013, p. 16). According to Jiang Jiemin, CNPC followed a strategy of making the human resources in its overseas operations “more international, professional and local” (CNPC Annual Report, 2011, p. 3), and its effort to “promote indigenous innovation and deepen global cooperation and international exchange of technology” produced significant results. For example, its OFDI expansion enabled to forge partnership with Shell for establishing a shale oil joint research centre.

4.1.1 Investment in Developing World

Since 1997 CNPC has been investing in Sudan providing finance, technology and training and “helped Sudan become petroleum exporter almost from scratch in just a few years, establishing a relatively sophisticated, state-of-the-art, large-scale and integrated petroleum industry system covering oil exploration and development, ground facilities construction, long-distance pipeline operation, refining and petrochemical production” (CNPC Annual Report, 2007, pp. 46-47). In Kazakhstan and Venezuela, it invested in mature oil fields and used its “proven technologies” as well as “excellent management” to achieve significant annual growth in output. It followed a strategy of employing locals and providing training to them. For example, in Aktobe city, Kazakhstan, with a population of 300,000 and a workforce of around 150,000, it employed about 20,000 local people, nearly 15% of the city’s workforce (CNPC Annual Report, 2007, pp. 47-48).

4.1.2 Investment in Developed Economies

CNPC has forged alliances in the emerging and developed countries based on more evenly balanced two way traffic of technology and knowledge flow. For example, its collaboration with Transneft (Russia) to jointly construct a 1,000 km long pipeline between Russia and

China has helped its engineers to master innovative construction techniques such as “pipeline construction in multi-year frozen soil areas”, “construction on forest wetlands”, “construction in swamps of permanently frozen soil”(CNPC Annual Report, 2010, p. 36). Similarly, its joint venture with the US-based ION Geophysical Corporation helped provide global seismic contractors with “brand new portfolios of first-class onshore geophysical products and premium services” such as enhanced drilling fluid and liquid cement systems, integrated matching technologies, and horizontal, underbalanced, and gas drilling (CNPC Annual Report, 2009, p. 58). In 2010 it acquired oil sands assets from Canada's Athabasca Oil Sands Corp. and agreed to jointly develop them. In 2013 it acquired SPEC Engineering Inc., which gave access to the latter’s technological expertise in land based operations and troubleshooting experience in offshore production platforms. In 2011, CNPC bought 19.9% of Australia's LNG, which specialises in technology development and application of natural gas liquefaction and possesses natural gas liquefaction OSMR technology. This gave CNPC preferential rights in using LNG’s patented OSMR technology (CNPC News Release, 12 February 2010; 27 January 2011; 26 September 2013). In 2011 CNPC and INEOS Group Holdings plc signed a “strategic co-operation agreement to share refining and petrochemical technology and expertise between their respective businesses”, which helped CNPC enter the high-end European market (CNPC News Release, 05 July 2011).

4.1.3 Technology & Knowledge Sharing in Host Economies

It appears that the OFDI by CNPC has resulted in uneven knowledge flow between CNPC and the developing host economies. That is to say that more technology and knowledge flowed from CNPCs to host economy in terms of equipment, machinery, advanced technology, specialist expertise and training to local employees. On the other hand, it gained knowledge about local conditions, specific national managerial culture, and international experience transferrable to its operations in other host economies and training for Chinese employees, and so on.

CNPC provided a range of technical service and expertise such as seismic data acquisition, processing and interpretation, apart from technology and products. For example, in 2004, a total of 43 seismic crews provided seismic data acquisition, processing and interpretation services in 22 countries. There were 38 well logging, 30 geologic logging and 29 testing crews in operation in Sudan, Iran, Kazakhstan, Venezuela, Pakistan, Azerbaijan, Syria, Libya and Algeria (CNPC Annual Report, 2004, p. 28). By 2012, it has been operating in 63 countries “providing technical services in geophysical prospecting, well drilling, well logging and mud logging, as well as engineering and construction services for oil/gas field production capacity building projects, large refining and chemical installations, and pipelines and storage facilities” (CNPC Annual Report, 2012, p. 38).

CNPC fostered international talents among its Chinese employees. For example, in 2007 it trained 370 senior management teams, employed 237 certified project management professionals and sent 128 professionals to study abroad. In 2011, it sent employees to Russia and the United States for financial and legal training, Executive MBA courses and project management professional training. In 2012, 227 high-level executives received training at home and abroad. It sent Chinese employees for advanced management and technology training programs in Canada, quality management training at Siemens, an internship program at Baker Hughes, visiting scholar programs in Stanford University and the University of Texas and the EMBA courses at the University of Houston (CNPC Annual Report, 2007, pp. 23-24; , 2011, p. 16; 2012, pp. 13-14; 2013, p. 15).

CNPC “proactively promoted the local hiring of employees and created a communicative, coordinated and harmonious working environment” and provided “well-tailored management knowledge, job-related skills and HSE training to foreign employees” (CNPC Annual Report, 2010, p. 10; 2011, p. 16). In 2010, it employed over 80,000 foreign employees, 90% of whom were local in Sudan, Kazakhstan, Peru, Venezuela and Indonesia. By 2011, the percentage of foreign employees in overseas projects has reached 91% (CNPC Annual Report, 2010, p. 10; 2011, p. 16).

In Turkmenistan, CNPC trained 120 local employees as welders, and worked with local schools to train more than 600 local people. It established the Surface Engineering Skills Training Centre to provide training courses on welding, oxy-fuel cutting and engineering machinery. It trained 3,850 local employees since 2010 and most of them “have become skilled workers, with some standing out as technical managers” (CNPC Annual Report, 2012, pp. 13-14). Similarly, in Iraq the company has set up an integrated training centre and trained more than 110 local workers in welding skills, and has been collaborating with the University of Basrah (CNPC Annual Report, 2010, p. 10; 2013, p. 15).

In Myanmar it ran a three-phase training programme: (i) learning professional skills at the University of Yangon; (ii) Chinese and English language and pipeline management courses at Southwest Petroleum University, China; and (iii) hands-on experience at CNPC’s pipeline transport stations. Similarly three-stage training was provided in Venezuela: first stage induction training; second stage on-site training; and third stage advanced training for outstanding employees in China. An employee who received the three-stage training would be able to train other local employees. In Kazakhstan, CNPC has set up training centres in Shymkent and Zhanazhol to provide simultaneous training to 25 welders, 30 pipeline workers and 30 riveters. It also worked with the local universities to run skill trainings. Furthermore, CNPC has been funding students in host countries to study Master’s degree programmes in Chinese institutions such as China University of Petroleum (CNPC Annual Report, 2011, p. 16; 2012, p. 14; 2013, p.15).

4.1.4 Strategic Alliances with Western Oil Companies

OFDI in the developing countries eventually appears to have helped CNPC to forge strategic alliances with other global oil companies based on two way street technology and knowledge flow both in developed host economies and at home in China. For example, its engineers were part of more than 10,000 managers, technicians and construction workers from over 20 countries involved in the implementation of the Amu Darya and Turkmenistan-China natural gas project in 2009. The 50/50 joint venture with Shell in Australia (2010) helped combine their “strengths in technology, capital, experience on project management and marketing ability” and the CSG production in Australia. The relationship helped CNPC acquire 35% of Shell in Syria, and to forge R&D cooperation on unconventional oil and gas development (shale oil and gas, CBM). They jointly set up the Shale Oil Joint Research Centre in Beijing (2013) and agreed to “strengthen long-term worldwide cooperation in unconventional resources, deep water, LNG, and upstream and downstream businesses”. (CNPC News Release, 8 November 2013, 09 April 2014). They also collaborated with Exxon Mobile on joint technology R&D related to exploration and development, refining and chemicals and oilfield services. In 2012, CNPC and Siemens (Germany) agreed on procurement and supply of merchandise and service sharing best practices and experiences, and cooperating in equipment manufacturing (CNPC Annual Report, 2009, p. 55; 2013, p. 18; CNPC News

Release, 29 September 2012). In 2013, CNPC and Celanese (Dallas, Texas) forged technology partnership to “upgrade the quality of oil products, strengthen technological innovation capability and contribute more to air quality improvement” (CNPC News Release, 28 August 2013).

CNPC’s strategic alliance not only helped it expand into overseas market but also domestic oil and gas resources. In 2013, it entered into 37 joint exploration and development projects (16 conventional crude oil, 10 conventional natural gas, 10 CBM and 1 shale gas), which included partnership with Eni S.p.A. (Italy), Chevron (US), Dart (Australia); Shell (Anglo-Dutch); Roc Oil (Australia); and Total (France) (CNPC Annual Report, 2010, p. 22; 2013, p. 24).

4.2 ZTE (China)

4.2.1 Growth

ZTE is a global telecommunications equipment and network solution provider, founded in 1985 with the headquarter in Shenzhen. It is listed in both Shenzhen and Hong Kong stock exchanges.² ZTE’s strategy of globalisation began in 1995 when it invested in Indonesia. In 2004 ZTE made rapid progress and expansion into Asian, African, South American and Russian markets and in 2005 it set up 15 branches with the functions of marketing, technological support, service and maintenance in Europe (Hou, 2006).

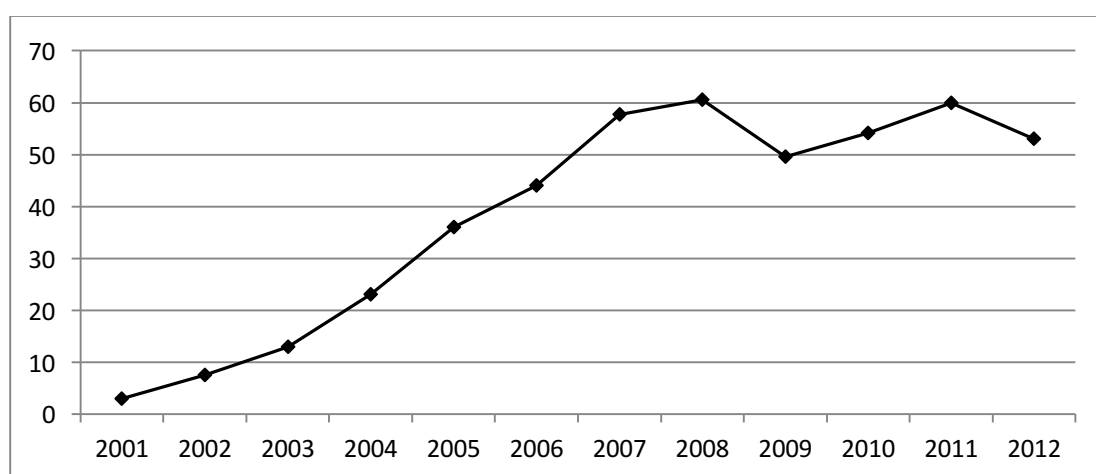
OFDI by ZTE followed two different modes: (i) building up functional facilities for marketing, production, and R&D as a telecommunication equipment supplier; and (ii) joining the telecommunication networks of different countries as an operator. Before 2006, ZTE mainly adopted the telecommunication supplier mode. In 2004, it invested RMB 2.1 billion in overseas market out of the RMB 3.5 raised from its IPO in Hong Kong Exchange. Its factories, research, training, service and engineering centres provide customised and innovative products and services to the local telecommunication operators and end customers. Since 2005, ZTE has also adopted a ‘band-together’ strategy to go global. It followed the Chinese companies abroad to help them build up IT infrastructure and provide telecommunication service. Having been regarded as a “low-end mobile phone vendor”, in 2009 ZTE overtook Nortel and Motorola to become the world’s fifth-largest telecoms infrastructure vendor, and became the sixth largest handset vendor by exporting over 60 million terminals. In 2011 ZTE replaced Apple as the world’s 4th largest handset vendor, and in 2013, it became the fifth largest smartphone company in the world.

Currently, ZTE delivers products and services to over 500 operators in more than 140 countries and has 107 subsidiaries and eight delivery centres abroad. It also has 18 overseas R&D centres including five in the US and two in Europe. Apart from its cooperation with top Chinese telecommunication firms such as China Mobile, China Telecom and China Unicom, it has also forged long-term partnerships with industry-leaders globally such as France Telecom, UK’s Vodafone, Australia’s Telstra, Canadian Telus, MTN of South Africa, and America Movil.

² Although it is a public listed company it is considered as State holding company (while CNPC is fully state owned company), as the government has significant control over the company. The other category of state ownership is ‘state invested company’ where the government control is less or none.

Over the years, ZTE's percentage of annual overseas business income to annual total income has increased continuously (see Figure 3), which shows the importance of its OFDI. By 2011 its overseas sales have amounted to RMB20.8 billion (\$3.27 billion) accounting for 55.7 % of its total sales. In 2011 and 2012 ZTE was ranked the first in the international patent applications by World Intellectual Property Organization. It filed applications for 3,906 patents in 2012, 37% more than a year earlier. ZTE's patent applications in 2012 greatly exceeded other companies in the telecommunications equipment industry such as Panasonic (2951), Ericsson (1197), Nokia Siemens (326), Alcatel-Lucent (346). Between 2009 and 2012 ZTE has invested more than RMB 30 billion on R&D (ZTE Press News, 14 March 2013).

Figure 3: ZTE's Percentage of Annual Overseas Business Income to Annual Total Income



Source: Annual Reports of ZTE 2001-2012, http://www.zte.com.cn/cn/about/investor_relations/corporate_report/

4.2.2 Skills and Knowledge Flow

ZTE has 3,500 R&D staff and eight R&D centres including international facilities in India, Pakistan, and France. More than 5,000 engineers specialise in 4G LTE technology development, and it operates eight R&D centres in China, the U.S. and Europe (ZTE Press clipping, Maistre, 02 June 2014; Luk, 05 December 2013). ZTE actively set up research centres overseas including in North America and Europe and employed local talent. For example, according to Denson Xu, President and CEO of ZTE Canada, “ZTE is aware of the needs to employ locals if it wants to develop and grow in Canada, so as to better understand the local culture and business environment”, “90% of its Canadian hires are local” (ZTE Press clipping, Lok and Na, 08 November 2013). ZTE has set up five R&D centres and one logistics centre in the US and employed around 300 people. According to Lixin Cheng, CEO of ZTE USA, in 2012 ZTE invested \$30 million more in the US for “leveraging local talent to bring new innovations to consumers” (ZTE Press clipping, Fiercewireless, 12 December 2012).

ZTE also invested significantly in training of local staff and forging links with local academic and research institutions. For example, in Romania it targeted training of 200 students in

Bucharest initially and then planned to expand to other university centres. In Germany, it joined with Technical University Dresden to set up a R&D centre for innovation and patent development of Long Term Evolution technologies. ZTE linked up with the Etisalat Academy, Dubai, to provide technical expertise to operators across the Middle East, Asia and Africa (ZTE Press clipping, Zawya, 19 March 2010). In 2011 it announced setting up a high-tech industrial park in Sao Paulo, Brazil which would employ about 2,500 people by 2014. (ZTE Press clipping, Gomonews, 04 July 2011; Romania Insider, 12 December 2012).

In 2011, ZTE opened “the UK Innovation Centre” (London), the first of 10 international Innovation Centres that ZTE was building to forge collaborative R&D programmes with major operators in different countries including Spain, France, and Germany. According to Xie Daxiong, Executive Vice President of ZTE: “The innovation centres under development by ZTE and its partners are a collective, proactive response to” “transformative shift in the industry” (ZTE Press clipping, Smart Gorillas, 03 August 2011). Because of this transformation in the global industry, ZTE was able to forge a number of knowledge sharing partnerships in developed countries (e.g. Dusseldorf Test & Innovation Centre with Vodafone, Poitiers in France, Kista in Sweden). Michael Stückmann, COO of ZTE Vodafone Business Unit (Germany) said: “ZTE will benefit from the excellent test conditions, outstanding infrastructure and the good support which the Centre has to offer” (ZTE Press clipping, Total Telecom, 08 March 2010).

The most interesting development was in India. ZTE made the India branch as global experts resource hub to support its operations and subsidiaries across the world. ZTE India employed over 90% Indian staff and they were sent to ZTE offices across the world. Jie Li, Director of Human Resources of ZTE announced: “We are delighted to name ZTE India as our global expert resource hub. With its vast pool of skilled talent and resources and excellent language skills, India is the instinctive choice” and Indian “employees will have the opportunity to work with and lead global teams on various innovative projects and expand their expertise in the latest technological developments in the telecommunications arena” (ZTE Press clipping, Times of India, 19 August 2011).

Furthermore, in 2009 ZTE launched a global recruitment drive in universities in the US, France, Mexico, Colombia and Ethiopia to “help inject fresh thinking and talent into ZTE from major regions in the world”. Also, ZTE was able to actively recruit talents from its competitors such as BlackBerry and Motorola Mobility. Adam Zeng, head of ZTE's mobile-device business said: “We hope the talent from BlackBerry can enhance our product security and design capability” and “the company will continue to actively recruit more talent from BlackBerry and other competitors” (ZTE Press clipping, Luk and Osawa, 10 June 2014).

4.2.3 Strategic Alliances

Like CNPC, the OFDI by ZTE in developing economies and second tier European countries appears to have helped it expand into developed countries and forge knowledge sharing alliances. By 2013, ZTE has reached cross-licensing agreements with Qualcomm, Siemens and Ericsson, Jazztel (Spain), Duxbury Networking (South Africa), and Telekom Austria. According to Wang Haibo, ZTE's Director of Legal Affairs, “ZTE advocates an open and win-win model based on sharing” of knowledge (ZTE Press News, 14 March 2013).

In 2011, ZTE and British telecom (BT) forged partnership to develop the next generation technologies. Clive Selley, CIO of BT Group said: “We've been very impressed by the

knowledge and sophistication of the ZTE's team and by combining our complementary strengths and expertise on a range of research projects, we expect this partnership to be very fruitful for both ourselves and our respective customers" (ZTE Press clipping, Total Telecom, 02 June 2011). ZTE also joined up with Intel focusing on the new Intel® Atom™ Processor Z2580 platform to enhance its next generation smartphones' performance.

In summary, OFDI by ZTE shows that two-way knowledge flow occurred through technology transfer, recruitment and training of local talent, technical service, local R&D in the host economies (more in developed host countries than developing countries) and through strategic alliances with other industry leaders. ZTE has learned and gained knowledge from emerging economies in different regions and shared them among its operations in different host countries.

4.3 Tata Steel (India)

Tata Steel Group has a presence in over 50 countries with manufacturing operations in 26 countries. In 2007 it acquired Corus (UK), later named as Tata Steel Europe (TSE), which is Europe's second largest steel producer with main operations in the UK and the Netherlands, and a global network employing 37,000 people. South East Asian operations comprise Tata Steel Thailand and NatSteel Holdings headquartered in Singapore, one of the largest steel producers in the Asia Pacific region. From the acquisition of NatSteel, Tata Steel gained markets in Vietnam, Thailand, Australia, China, Malaysia, Philippines and Singapore. Now, it is the tenth largest steel producer in the world with 81,000 employees across five continents. Table 4 shows the importance of OFDI by Tata Steel and demonstrates that about two thirds of its revenue is from outside India and over 50% from the UK and other EU countries.

Table 5 shows that before the onset of global financial crisis in 2008-2009, the company has invested heavily in the Asian and EU countries and the investment declined but somewhat stabilised since 2010-2011.

Tata Steel has adopted different integration strategies in Asia and Europe. In Asia, the focus is "to share the know-how for best operating practices and enhancing of product quality" among plants in different countries, while in Europe, the focus is on "quality and technology integration" and sharing two way best practices related to productivity, process improvement and cost between Corus and Tata Steel in India.

The R&D activity within the Tata Steel Group takes place in five major centres: (i) IJmuiden Technology Centre (Netherlands); (ii) the Swinden Technology Centre (UK); (iii) Teesside Technology Centre (UK); (iv) Automotive Engineering Group (UK); and (v) Jamshedpur R&D Centre (India), which employs over 1,000 researchers. The fact that four of them are located in Europe shows that the company has gained significant R&D capability by acquiring the Corus. Investment in Europe appears to have paid off and enhanced Tata Steel's R&D, product and process technology development capabilities, and also enabled it to forge strategic collaborations with others. For example, the European operations launched 14 major new products mainly in automotive sector in 2012-13 such as Bake Hardening 260 or 'BH260' which helps make lighter doors and bonnets, safety-critical automotive sheet steel called 'DP800GI' (Tata Steel 2012-2013, p. 23, Tata Steel Press Release, 11 July 2013), perforated armour steel-PAVISE™ SBS 600P, and special railway track, called SilentTrack®. Its UK operations helped penetrate the US and European markets. For example, it won the bid to supply pipes for Enterprise Products Partners's new crude oil export pipeline

in the Gulf of Mexico's Keathley Canyon, and also won a contract in 2009, worth €350 million to supply rails to the French railway operator SNCF (Tata Steel Press Release, 19 April 2012, and 29 September 2011).

Tata Steel has forged international R&D partnerships such as partner in the multi-partner ULCOS Project aimed at developing technology to achieve a 50% reduction of CO₂ emissions per tonne of steel produced, development of High Strength and Ductility steels in collaboration with Salzgitter, Germany, and physical vapour deposition based coating process in collaboration with POSCO, South Korea (Tata Steel, 2008-2009, p. 59). Tata Steel Europe (TSE) has been working with the UK Ministry of Defence (MoD) to develop a new high-strength armour plate at a lower cost, which was originally developed by Cambridge University, QinetiQ and the MoD Science and Technology Laboratory (Tata Steel, 2008-2009, p. 71). Its Long Products Division was awarded the prestigious certificate by CARES, UK, for superior quality rebars, the only rebar manufacturer in India to be awarded this accreditation (Tata Steel, 2008-2009, p. 51)

The interesting fact is that the knowledge, technology and experience gained in its Europe operations have been transferred to the whole group. For example:

Building on the experience gained with Process Improvement Groups in Corus, the Tata Steel Group Process Improvement Teams have been set up with the aim to ensure that best practice in process technology is applied throughout the Group. This involves among other things, transferring technology that has been proven in one plant to similar other installations (Tata Steel, 2008-2009, p. 72).

Also “as a result of shared best practice from Corus’ Scunthorpe and Teesside plants, the number of coke ovens in Batteries 5, 6 and 7 at Jamshedpur [in India] that were subject to down-time during the year fell to zero from 48 in 2008” (Tata Steel, 2009-2010, p. 24). Furthermore, investment in Europe enabled Tata Steel not only to expand upstream steel capacity expansion in India but also move into downstream value added products and market globally in automotive sector, aerospace products, high speed rails, special rails for metro and tramways, and speciality pipes and plates for the energy and power sector, and consumer goods (Tat Steel, 2010-2011, p. 20).

On the other hand, TSE gained managerial knowledge and experience from its home company in India, particularly to implement ‘One Company’ operating model by setting up a single sales and marketing team, a consolidated supply chain organisation with three steelmaking hubs, speciality businesses and pan-European support functions.

4.4 Hindalco Industries (India)

Hindalco (Aditya Birla Group) is one of the largest producers of primary aluminium in Asia. In 2003 it acquired Nifty copper mine and Mt. Gorden copper mine in Australia and, Novelis in Canada in 2007, which helped it become one of the top five aluminium leaders in the world. Novelis has a large global presence and operates from 12 countries with 31 manufacturing plants, and employs 12,000 people. Novelis is the global leader in aluminium rolled products and aluminium can recycling. It produces about 19% of the world's flat-rolled aluminium products and is the number one producer in Europe and South America, and the second largest in North America and Asia. In addition to its aluminium rolling activities, Novelis operates bauxite mining, primary aluminium smelting and power generation facilities in Brazil. After the acquisition of Novelis, the high quality assets of the closed Rogerstone plant in UK have been moved to Hirakud in India (Hindalco Press Release, 20 June 2008).

According to Debnarayan Bhattacharya, Managing Director of Hindalco, the acquisition of Novelis helped Hindalco in many ways:

Novelis is a strategic fit for Hindalco. We wanted to grow upstream (with value-added products) to ensure sustainable profits... For value-added products like cans, we needed to have technology and customer acceptance. Neither can be purchased from the market. Even if we invest time and develop technology, there is always a fear that it may not succeed. We have learnt many things from Novelis. We began with cultural integration, followed by finance and technology, and now marketing. For example, the energy efficiency of their plants was far better than Hindalco's... We can bring Novelis' technology into India and make cans and sheets for Indian consumers (Kalesh, 2008; Business Standard, 7 March 2011).

Novelis helped Hindalco gain a major share in the automotive sheet market with customers including Audi, BMW, Chrysler, Ferrari, Ford, GM, Hyundai, Jaguar, Land Rover, Mercedes-Benz, Porsche and Volvo. By moving the "high quality assets of the closed Rogerstone plant in the UK" to Hirakud in India, it created a hub for can body stock to meet the increasing of beverage can market in India and neighbouring countries. Like Tata Steel, the acquisition of Novelis has helped Hindalco forge international research partnerships with global leaders. For example, it joined hands with Thyssen-Krupp to develop a joining technology that could help carmakers to dramatically reduce the weight of vehicles (Hindalco Press Release, 02 September 2010; 10 April 2012; 04 June 2013).

When Hindalco acquired Novelis for \$6 billion, it was financed by \$3.5 billion of its own cash and \$2.5 billion debt. But unlike many similar buyouts, Hindalco avoided raising finance for acquisition by leveraging Novelis' balance sheet and instead, paid \$3.1 billion through recourse financing on Hindalco's own corporate guarantee and \$450 million by liquidating some treasury stocks. No new debt was added on the Novelis' books so that Novelis could avoid facing liquidity problems and recover quickly from inherited financial problems (Business Standard, 7 March 2011). In 2010 Novelis experienced "a remarkable turnaround in the midst of extremely challenging circumstances. In the economy that was still emerging from recession, Novelis reported record results in terms of record adjusted EBITDA³, liquidity and free cash flow" (Hindalco Press Release, 03 September 2010). Novelis posted an EBITDA of \$754 million and its liquidity improved by \$640 million to \$1 billion and net profit stood at \$400 million and sales at \$8.7 billion (Datta and Anand, 2010). With increasing profitability, Hindalco was able to move its acquisition debt to Novelis' books. The financial integration of Novelis and Hindalco indeed enabled Hindalco to fund its \$4.6 billion expansion plan in India and "within four years, half of the \$3.5 billion that Hindalco spent to buy Novelis has come back into its fold" (Business Standard, 7 March 2011). Novelis accounted for nearly 68% of Hindalco's consolidated revenues and around a third of its profit in 2011-2012.

Apart from gaining high technology from Novelis, Hindalco was able to create can body making capacity in India by relocating its (non-performing) Rogerstone plant from the UK to Hirakud in India. This helped Hindalco gain competitive advantages both in India and overseas. Bhattacharya, Managing Director of Hindalco stated: "In the can body plant that we are putting up in Hirakud, we have made sure that even with the highest subsidy that a Chinese manufacturer can enjoy, we will not only be competitive in India but also take on the Chinese in China" (Business Standard, 7 March 2011).

³ Earnings before interest, taxes, depreciation, and amortization.

While Hindalco gained Novelis' high technology, Hindalco's cost management expertise has helped Novelis to turn around its financial downtrend quickly. The Australian subsidiary has also made a quick turnaround due to sustained cost management processes learned from Indian operations (Hindalco Press Release, 02 September 2010). In the words of Bhattacharya: "Indian companies are very cost conscious and we wanted to impart that in Novelis. That's what our effort was and I will say that we are reasonably successful in that". It is evident that there has been a two-way transfer of technology and knowledge between Hindalco and Novelis. Particularly the home company has benefited more from the knowledge and technology transfers. Bhattacharya stated: "There is still significant disparity in skill levels. We have a lot to learn [in India] and have to complete our learning before we try to replicate what they [Novelis] do (Business Standard, 7 March 2011).

4.5 MTN Group (South Africa)

Between 1994 and 2001, MTN was known as M-Cell Limited. In 2002 it was renamed as 'MTN Group Limited'. MTN is a multinational telecommunications group, listed on the Johannesburg Stock Exchange. "*MTN's vision is to be the leader in telecommunications in emerging markets*" (MTN Annual Report, 2008, p. 11). It started investing in the African regional market to diversify its revenue sources and emerge as the industry leader in Africa. Today MTN operates in 22 countries in Africa and the Middle East (with clear market leadership in 15 countries). By 2009, total subscribers have increased to 116 million and 70% of the earnings of MTN came from outside South Africa from OFDI. This shows that MTN's revenue diversification strategy through mainly acquisitions in emerging markets proved effective. It helped MTN develop competitive advantage by adding "more depth" to its "management teams as well as professional and telecommunication-specific skills" (MTN Annual Report, 2006, p. 22).

OFDI by MTN across Africa and other countries helped the company foster knowledge sharing across entities in these countries and facilitated sharing of innovation and best practices. For example, in 2012 the company launched numerous new services and products and "many operations benefited from the experience of others, with regard to, for example, subscriber registration, subscriber acquisition, the execution of handset or device strategies and cost management" (MTN Annual Report, 2012, p. 35). Also, they enabled MTN to forge technology alliances or knowledge partnerships with leading companies in different sectors which complemented MTN's core operations. For example, MTN Uganda and Fundamo, a leader of mobile financial services, jointly launched in 2009 MTN MobileMoney in Uganda. Similarly, MTN and MFS Africa partnered to launch the online money transfer service MTNMMO.COM. In 2011, MFS Africa pioneered the fully mobile-based life insurance service Mi-Life in Ghana partnering with MTN, Hollard Insurance and Microensure.

MTN Group and TRACE (leading international brand and media platform focused on music and sports celebrities with over 60 million subscribers in 151 countries) have joined forces to offer innovative entertainment services to the fast-growing youth segment within the African mobile market, the first of its kind in Africa. MTN also formed partner with Microsoft to provide Windows 8 and Windows Phone 8 operating systems to its customers. American Tower Corporation and MTN formed a joint venture in Uganda after working together in Ghana where the former's "tower expertise, operational excellence and a focus on delivering growth and value from the asset portfolio, are highly complemented by MTN's regional operational experience" (MTN Group Media Release, 09 December 2011). MTN has also formed Africa Internet Holding (AIH), by partnering with Rocket Internet and Millicom

International Cellular (each becoming 33.3% shareholders) to develop Internet businesses in Africa.

For MTN “relationships with third party developers were important to enable and increase access to innovative financial services such as merchandise payments, online payments and insurance solutions”. Its leading presence across Africa helped forge such partnerships (MTN Group Media Release, 13 November 2012).

4.6 Sasol Limited (South Africa)

Sasol is an integrated energy and chemicals company with operations in South Africa, Europe, the Middle East, Asia and the Americas. Its OFDI is directed towards either new investments in developing economies in Africa and Asia to secure oil, gas, and coal supplies for its global operations or consolidating existing investments in the developed economies such as the US and European countries to improve performance. Sasol made major investments in GTL projects in Nigeria and Qatar. The acquisition of Exxon Mobil’s European Wax emulsion business helped its operations expand in Europe. Sasol Polymers has made significant investment in Malaysia. Because of global expansion of its operations, by the end of 2006, 33% of the Group’s turnover was contributed by operations outside South Africa (Sasol Annual Report, 2006, p. 7).

Sasol is one of the technology leaders in the industry with expertise in coal and gas processing, Fischer-Tropsch catalysis and engineering research, refinery and fuels technologies, and chemical technologies. Particularly, it is one of the world’s largest producers of synthetic fuels, and a leader in gas-to-liquids (GTL) technology. Its current combined capital and operational expenditure for R&D is over R1 billion a year (90% invested in South Africa and about 10% overseas). This includes investment of £15 million in UK-based OXIS Energy to develop next-generation battery technology. It set up a new state-of-the-art Research and Technology (R&T) facility (Sasol One Site) at home in 2012 to drive the company’s global expansion. This includes 14 laboratories, a number of piloting facilities, 150 PhD students, about 100 engineers, 200 scientists, 100 chemists and technologists. Flip De Wet, Managing Director of Sasol Technology stated: “This facility will enable us to be more competitive and further push boundaries when it comes to our ambitious global growth program” (Sasol Media Release, 9 November 2012; 10 September 2012).

Sasol demonstrated its global technological leadership through expansion in the US and Canadian markets. The shale gas revolution created further growth and investment in the US market for Sasol employing its “transformational technologies in unlocking the value of these resources”. According to Sasol Senior Group Executive for Global Chemicals and North American Operations André de Ruyter’s testimony to the U.S. Congress: “Sasol’s gas-to-liquids (GTL) facility, the first of its kind in the U.S., will be a game-changer for America’s energy future”. He further asserted: “While natural gas is a major energy source for global power generation, it has lacked the versatility to address transportation needs. Now, with our proven GTL technology, natural gas can be transformed into a range of high-quality fuels and chemical products, maximizing in-country value”. In 2012 it decided to set up “a world-scale ethane cracker and an integrated GTL facility”, near Westlake, Louisiana, to help “further strengthening Sasol’s position in the global chemicals market” (Sasol Media Release, 20 June

2013). It forged technological partnerships with leading companies such as Technip Stone & Webster Process Technology, ExxonMobil Chemical Technology Licensing, Univation Technologies, and Scientific Design Company to execute this project. Its technological leadership has led to the Joint Venture by Sasol and INEOS to manufacture high density polyethylene. It also partnered with General Electric to develop new water technology, which “will further entrench” Sasol’s “position as a world-leader in gas-to-liquids technology and synthetic fuels production” (Sasol Media Release, 06 November 2013).

Similarly, Sasol’s technological capabilities helped the company join up with Talisman Energy in Canada to develop its Shale Gas operations. On the other hand, new technology products developed overseas have helped support its South African operations. For example, new ALCAT®TEAL highly purified tri-ethyl aluminium product developed by TEAL plant in Brunsbüttel, Germany, helped Sasol Polymers in South Africa (Sasol Media Release, 15 July 2013).

5. Synthesis of Findings from the Six Cases

Table 6 presents mapping of the major drivers and type/ mode of OFDI and the nature of knowledge flows between home and host economies.

We can identify key factors such as R&D capability, technological & knowledge level, skills and products (mostly institutional factors) to trace the differences between the OFDI by EMNE and DMNE in terms of location decisions. The cases demonstrate that EMNEs tend to start OFDI in developing countries first (either in own region or outside) as their R&D, technological and knowledge level, skills, and product range are limited. However, with increasing R&D, technological capability, product range and experience they subsequently enter the developed countries, and eventually emerge as technology and knowledge partners for the global leaders in their industry (as well as strong competitors). The experience of Tata Steel, CNPC, ZTE, and to a less clear extent Hindalco, broadly demonstrated that their OFDI trend started with South to South (within region) at first, then expanded to South to South (outside region), and entered into South to North. DMNEs do not face constraints which drive them to follow such growth trajectory. However, this internationalisation process of cases EMNEs cannot be fully explained by the traditional MNE models of internationalization and FDI, as there are significant differences among the way Chinese, Indian and South African EMNEs’ internationalisation.

The Chinese cases demonstrated that their home technology/knowledge base and competitive advantages and their foreign expansion coevolved. Indian MNEs had still weak knowledge base when they entered the developed countries. Both South African cases had strong home technology/knowledge base from early stage, but their internationalisation process evolved differently. While, MTN expanded its operations mainly into the African countries, Sasol simultaneously expanded into African, other developing and developed countries. They demonstrate complex pattern of latecomer strategies towards internationalisation. Similar complexity was also highlighted by others. Jung and Rhe (2009) found opposite trajectory where the OFDI was first concentrated in developed countries and then moved to developing countries. Of course, they argue that “South Korean outward FDI possesses unique characteristics different from those of developed countries and developing countries” and explain this as the result of rapid development of home economy and ‘market seeking’ motive due to lack of capital and technology skills (Jung and Rhe 2009, p. 137, 139). Also, there are other aspects that need to be taken into account. For example, Indian software

EMNEs tend to directly export and expand to developed countries (US and Europe) and the Chinese EMNEs face major entry barriers in the US and they have to come up with strategies to overcome them (e.g. US telecommunications operators were asked by the government not to do business with Huawei and ZTE because of security threat). Therefore, one can argue that internationalisation of DMNEs and EMNEs and their OFDI operations are not similar.

The case studies demonstrate that the trajectory of OFDI by EMNE starts with large differences with DMNE at the early phases than later phases, and it converges with the later as its operations become mature and global. At the mature stage when they enter the developed countries their locational motive is not only 'market seeking', 'strategic asset seeking' and 'strategic alliance seeking'. This helps them to enhance their technology and knowledge assets and also helps them to forge strategic partnerships with the global leaders in their industry. In other words, they emerge as strong competitors as well as knowledge partners in their industry. The 'technology/ knowledge alliance seeking' seems to be in response to market changes brought about by globalization and rapid technological changes, and increasing capital intensiveness of R&D. This appears to be an important aspect of OFDI by EMNEs which is different from DMNEs. However, the experience of South Korean MNEs shows similarity only with respect to 'market seeking', 'strategic asset seeking' in developed countries, not 'strategic alliance seeking' (Jung and Rhe 2009, p. 137, 139). This shows complex nature of OFDI from EMNEs mainly driven by impact of globalisation and different strategies employed by them to internationalise. Dunning presented an updated eclectic paradigm of international production to "still claim to be the dominant paradigm explaining the extent and pattern of the foreign value added activities of firms in a globalizing, knowledge intensive and alliance based market economy" (Dunning 2000, p. 163). However, the complexities of EMNE operations suggest that we need to look beyond traditional FDI models to explain their activities. For example, according to CNPC's President, Jiang Jiemin, the global financial crisis is one of the main factors that helped the company to expand its global business. Therefore it is evident, there is a need for alternative theoretical model which can help better understanding of the EMNE activities. There are alternative 'latecomer catch-up' and 'Internationalisation' models proposed by different scholars. For example, Meyer and Thaijongrak (2012) presented the usefulness of extended internationalisation process model (IPM) (originally known as Uppsala model) to explain the evolution of EMNEs, specifically focusing on the role of acquisitions in the internationalisation process. They used six Thai case studies to illustrate this. Mathews (2007) in his model 'linkage, leverage and learning' (LLL) highlighted the important role of global value chains in creating opportunities for latecomer firms in emerging economies to forge linkages and leverage that to acquire technology, knowledge and market access and accumulate capabilities through sustained and repeated learning process. There are other models such as Li's (2007) "holistic, dynamic and dialectical framework" and Yamakawa et al.'s (2008) 'strategy tripod' framework that attempt to present alternative models to traditional FDI models. These attempts suggest that it is necessary to combine the traditional FDI models like 'OLI' with 'latecomer catch-up strategies' and come up with an integrated model that can help understand the dynamics of EMNEs.

Furthermore, there appears to be significant differences in the mode of OFDI and the way EMNEs operate in both developed and developing host countries than DMNEs. The modes OFDI by EMNEs in developing countries are mainly joint ventures and 100% owned subsidiaries and in developed countries, they are joint ventures and mergers and acquisitions (often of failing or underperforming companies, as they offer less barriers to entry). There are

no such constraints that force DMNEs to choose specific mode of FDI particularly in host developed countries.

EMNEs appear to follow the business philosophy of “mutual benefit” and “an open and win-win model based on sharing” of knowledge (as in the words of Wang Haibo, ZTE’s Director of Legal Affairs). This is evident from the cases from China and India (e.g. Hindalco’s financing of Novelis); however, to a lesser extent South Africa. It suggests there are significant business cultural differences between EMNEs and DMNEs that warrant further research.

Among the Institutional factors, the key motivational factors which drive OFDI are: strengths and weaknesses of home technology and R&D base, home market and economic conditions. For example, the weaknesses of home technology and R&D base of Indian EMNEs were the major driver behind their OFDI in developed countries. In contrast the strength of technological and R&D base at home drove the OFDI by the Chinese and South African EMNEs. Again dominance and securing of long term future of the home base first played a major role behind OFDI by the Indian EMNEs and to some extent the Chinese EMNEs. The South African EMNEs were not driven by concerns about securing home base, but mainly by market seeking in regional and global markets. Political factors appear to play significant role (the home government) determining the nature of OFDI when the EMNE is state owned and state holding as in the case of China. Previous studies also suggested that government policy plays an important role in OFDI by EMNEs, particularly in countries like South Korea and China (e.g. Lu et al., 2010), Although this study did not focus on this aspect deeply, there appears to be significant differences in the way government policy impact on OFDI in different emerging economies. The impact appears stronger on Chinese MNEs than in India and South Africa. These differences among the institutional motivational factors across different case countries are difficult to explain using traditional FDI theories alone.

In relation to business, the key factors which drive OFDI are: globalisation, strategic expansion to new markets, and gaining/sharing knowledge and technology. Certainly the globalisation process has created necessary conditions for the OFDI by EMNEs and forced them to think globally and seek intelligently and selectively markets, raw materials, skills and knowledge, and technology both in the South and North. For example, MTN’s OFDI is mainly driven by dominating regional market in Africa, but less by ‘skills and knowledge’ seeking. ZTE’s OFDI in selected Southern countries like India is driven more by seeking skills and knowledge, but less by market. However, its OFDI in developed economies are driven by both ‘skills, knowledge and technology’ and ‘market’ seeking. Similarly, OFDI by the two Indian cases in the developed countries are driven more by technology and R&D than just market advantages. On the other hand, OFDI by Sasol in the developed countries is mainly driven by market seeking and to a lesser extent by knowledge and technology partnerships seeking. Its OFDI in developing countries is driven mainly by market and efficiency seeking as in the case of Tata Steel. OFDI by CNPC is largely driven by strategic expansion into new markets particularly in developing countries so as to gain leverage with global oil companies towards forging strategic partnerships in gaining/sharing knowledge, skills and technology. What we see from these case studies is that business factors capturing the motivations and drivers of OFDI are interlinked presenting complex dynamics that require explanation by going beyond existing traditional FDI theories.

Similarly, although the knowledge and technology flow from OFDI broadly can be seen in two patterns: (i) in the case of developing countries hosts, it is mainly one way from the home

to host; (ii) in the case of developed countries hosts, it is two-way and more evenly matched, in some cases of developing host countries, the knowledge flow is two-way (e.g. ZTE's operations in India).

6. Conclusions

The findings from the six case studies suggest that there are significant differences between the OFDI from EMNEs and DMNEs. The cases show that they cannot not be explained by using traditional FDI models. Institutional factors which drive OFDI such as home technology and R&D base and home market and economic conditions are assumed to play similar role in both DMNE and EMNE. However, a closer analysis reveals that there are complex differences. It is not always the strength of home technology and R&D base which drives OFDI by EMNE, but also their weaknesses. Again dominance and securing of long term future of the home base can be the main drivers as shown by Indian EMNEs. Their long term strategic objectives are different. They use the OFDI in developing markets as leverage to expand into developed markets and forge strategic technology and knowledge sharing partnerships with established global leaders in the industry. This is clearly evident from the cases from China and India, but to a lesser extent from the South African cases.

The investigation shows also that the internationalisation pattern of EMNEs are complex, driven by business factors such as competition pressure, globalisation, strategic expansion to new markets, and gaining/sharing knowledge and technology. EMNEs are seeking intelligently and selectively markets, raw materials, skills, knowledge, and technology both in the South and North. In the same country, OFDI from one EMNE can be driven more by dominating regional market and less by seeking skills and knowledge, while the OFDI by another EMNE can be exactly the opposite.

There are also significant differences in the way that EMNEs enter and operate in developed and developing countries. OFDI by EMNEs in the developing countries are mainly through joint ventures and 100% owned subsidiaries; however, in the developed countries, it is through joint ventures, mergers and acquisitions (often takeover of failing or underperforming companies) as this helps overcome entry barriers.

While knowledge transfers between EMNEs and developing host economies are predominantly one way and the former transfers more technology and knowledge than they gain. In the case of EMNEs and developed host economies, the knowledge and technology transfers appears to be more evenly matched and a two-way street benefitting both parties almost equally. Increasingly, as shown from all the cases, EMNEs have become global players and successfully forged global partnerships and alliances with other industry leaders which sometimes extend to active participation in EMNEs' home economies (e.g. CNPC). It is clear that increasingly EMNEs have become sources of cutting edge technology and knowledge that helped forge strategic partnerships with global industry leaders for sharing technology and knowledge.

Another interesting finding is that their style of operation both in developing and developed markets appears to be significantly different from DMNEs. They are mainly driven by the business philosophy of "mutual benefit" and appear to be more willing to share knowledge than DMNEs. This may be due to business cultural differences which needs further research.

To conclude, the case studies have shown that there are complex aspects of OFDI from EMNEs which cannot be explained by the existing FDI theories. These appear to be due to the impact of globalisation, rapid technological change, increasing capital intensity of R&D and varied and dynamic strategic responses from EMNEs towards internationalisation and catch-up. A theoretical model that integrates both 'latecomer strategies for catch-up' and 'the traditional FDI' models is necessary to fully understand the dynamics of EMNEs including their OFDI patterns.

Although the limited number of cases studied is a constraint towards making generalisations for theory building, the evidence from the cases shows that new unified conceptual frameworks and theories can provide the basis in furthering both empirical insights and varied appreciative conceptual frames in OFDI research.

Based on the evidence, some policy implications have been drawn. Firstly, the South-South OFDI appears to play an important role in significant technology and knowledge transfers particularly to the host economies. It is thus very important the policy makers in the South actively seek and promote OFDI from South.

Secondly, it is evident that OFDI from EMNEs in developed economies often involves acquisition of failing or underperforming high technology companies which can help their survival and retain technological capabilities, knowledge and talents in the host economy. It is evident too that OFDI from EMNEs in developed economies results in an evenly matched two-way flow of technology and knowledge which is beneficial mutually. It is important the policy makers in the developed countries encourage OFDI from South in the targeted areas.

Thirdly, it is clear that increasingly EMNEs have become sources of cutting edge technology and knowledge which helped forge partnerships with other global industry leaders (DMNEs). Policy makers in both emerging and developed economies should actively support and encourage such partnerships.

As the emerging economies continue to grow (China now is the biggest economy in the world measured on purchasing power parity (PPP)), EMNEs are likely to play a significant role in the world economy. It is therefore an important task to undertake further and more comprehensive research on how OFDI from EMNEs is likely to impact on economic growth and development.

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Table 1: OFDI from Different Regions Across the World		
Region	OFDI (\$ in Billion) - 2013	Trend over 2012 (%)
Asia Pacific	177.91	- 1.94
Europe	246.99	+16.79
North America	127.26	+9.5
Latin America & Caribbean	17.53	Almost Double
Middle East & Africa	48.02	+21.81

Source: The fDi Report 2014 (The Financial Times Limited)

Table 2: OFDI from Countries of Asia Pacific, Latin America & Caribbean, and Middle East & Africa								
<i>Asia Pacific</i>	<i>Capital Investment (\$ in Billion)</i>	<i>Market Share (%)</i>	<i>Latin America & Caribbean</i>	<i>Capital Investment (\$ in Billion)</i>	<i>Market Share (%)</i>	<i>Middle East & Africa</i>	<i>Capital Investment (\$ in Billion)</i>	<i>Market Share (%)</i>
Japan	50.04	28.13	Brazil	6.38	36.41	UAE	14.68	30.56
Hong Kong	48.18	27.08	Mexico	4.29	24.47	Kuwait	10.73	22.35
China	18.97	10.67	Bermuda	1.94	11.08	South Africa	5.45	11.36
India	13.52	7.60	Argentina	1.37	7.84	Mauritius	3.25	6.77
Singapore	12.48	7.01	Chile	1.09	6.21	Israel	3.12	6.49
South Korea	8.59	4.83	Colombia	1.09	6.19	Nigeria	3.06	6.37
Australia	8.35	4.69	Jamaica	0.44	2.54	Saudi Arabia	1.50	3.13
Taiwan	5.14	2.89	Honduras	0.37	2.10	Qatar	1.46	3.04
Thailand	4.27	2.40	Guatemala	0.19	1.10	Egypt	1.12	2.33
Malaysia	2.56	1.44	Bahamas	0.10	0.55	Bahrain	0.56	1.17
Other	5.82	3.26	Other	0.26	1.51	Other	3.09	6.43
TOTAL	177.91	100	TOTAL	17.53	100	TOTAL	48.02	100

Source: The fDi Report 2014 (The Financial Times Limited), p.5, 11, and 13

Table 3: Some Major Traditional FDI & Internationalisation Theories/ Models

FDI Theories	Author(s)	Highlights
Industrial Organisation / Monopolistic Advantage Theory	Hymer (1960) Published in 1976	Identified two major determinants of FDI: removal of competition and firm-specific advantages and FDI takes place only if the benefits of exploiting firm specific advantages outweigh the relative costs of operation overseas.
Product Cycle Theory	Vernon (1966)	Identifies four stages of production cycle: innovation, growth, maturity and decline to explain some FDI by the US companies in Western Europe.
Internalization Theory	Buckley & Casson (1976) Hennart (1982) Rugman (1982)	Buckley and Casson founded Internalization theory: MNCs organize their internal activities in order to develop specific advantages and to exploit them. Hennart developed two models of internalization – vertical and horizontal. Rugman argues for Internalization as general theory of FDI and why the MNEs exist.
The Eclectic / OLI Paradigm	Dunning (1973, 1980, 1988)	According to the framework, foreign investment occurs when three factors act simultaneously in a country: (i) Ownership Advantage; (ii) Locational Advantage; and (iii) Internalization Advantage of a firm. Precise configuration of the OLI parameters facing any particular firm, and the response of the firm to that configuration, is strongly contextual (i.e. they are different from company to company and also depend on specific socio, political, and economic conditions of the host country).
Uppsala Internationalization Model	Johanson & Vahlne (1977)	How firms gradually intensify their activities in foreign markets through continuous adjustments and learning by doing to ever changing international markets.
POM Model	Luostarinen (1979)	How companies from small and open markets internationalize
Host country FDI Policy/ Choice of FDI location by MNEs	Dunning (1998)	The choice of location is an important factor in the FDI by the transnational firms and the countries that want to attract FDI could influence their decision by setting in place an attractive FDI policy regime.
Host country's locational advantage	UNCTAD (1998)	Host country can influence directly/indirectly the locational advantage as it relates to the host country's own decision. Three determinants: FDI policy framework, Economic Determinants and Business Facilitation. The determinants differ from country to country and time to time.
Typology of FDI	UNCTAD (1998)	Classified FDI into four types: (i) Natural Resource Seeking; (ii) Market Seeking; (iii) Efficiency Seeking or Export Oriented; and (iv) Strategic Asset Seeking.

Table 4: Tata Steel - Geographical Distribution of Revenues (% of Total Revenues)					
Financial Year	India	Asia (Excluding India)	UK	EU (Excluding UK)	Rest of World
2007-08	15	12	37	32	5
2008-09	16.87	11.80	34.25	30.14	6.94
2009-10	-	-	-	-	-
2010-11	26	13	27	29	5
2011-12	27	13	26	29	5
2012-13	29	13	24	28	6
<i>Source: Tata Steel Group, Annual Report (2007-08 to 2012-13).</i>					
Note: data for 2009-10 are not available					

Table 5: Tata Steel - Geographical Distribution of Capital Employed (% of Total Capital)					
Financial Year	India	Asia (Excluding India)	UK	EU (Excluding UK)	Rest of World
2007-08	20	7	43	27	3
2008-09	27.98	11.6	31.83	25.95	2.64
2009-10	-	-	-	-	-
2010-11	43	21	14	20	2
2011-12	33	35	8	20	4
2012-13	46	11	17	20	6
<i>Source: Tata Steel Group, Annual Report (2007-08 to 2012 to13).</i>					
Note: data for 2009-10 are not available					

Table 6: Drivers of OFDI & Type/ Mode of OFDI & the Nature of Knowledge Flows: Evidence from the Cases

	CNPC	ZTE	Tata Steel	Hindalco	MTN	Sasol
Institutional Factors behind OFDI from Emerging MNEs						
Type of MNE (ownership)	State Owned √	Public Listed √	PLC √	PLC √	PLC √	PLC √
Nature of Industry sector	√	√	√	√	√	√
Home Tech./ R&D/Knowledge	√	√	√	√	√	√
Home Market/ Economy/ Politics/ Govt. Policy	Home Market/ Economy/ Politics/ Govt. Policy	Home Market/ Economy/ Govt. Policy	Home Market/ Economy	Home Market/ Economy	Home Market/ Economy	Home Market/ Economy
Business Factors behind OFDI from Emerging MNEs						
Competition pressures		√	√	√	√	√
Globalisation	√	√	√	√	√	√
Gaining access to natural resources	√		√	√		√
Strategic Expansion to new markets	Expansion to new sources of oil supply	√	√	√	√	√
Gaining/ sharing knowledge, skills & technology	Intra/inter learning	Intra/inter learning	√	√	√	√
Brand names			√	√		√
Type/ Mode of OFDI from Emerging MNEs						
Green Field Project		100% owned subsidiaries	100% subsidiary		√	√
Merger and Acquisitions	√		√	√	√	√
Joint Ventures	√	Long-term partnerships	√		√	√
South to South (Neighbourhood Region)	√	√	√	√	√	√
South to South (Outside Neighbourhood Region)	√	√	√		√	√
South to North (Developed Economies)	Strategic partnerships	√	√	√	Strategic partnerships	√

Table 7: OFDI - Nature of Knowledge Flows: Evidence from the Cases

Types of Knowledge Flow from OFDI						
	CNPC	ZTE	Tata Steel	Hindalco	MTN	Sasol
Technology	√ Mainly Outflow	√ Mainly Outflow	√ Inflow	√ Inflow	√ Outflow	√ In/Out flow
R&D		√ In/Out flow	√ In/Out flow	√ Inflow		√ In/Out flow
Management		√ Inflow	√ Outflow	√ Outflow	√ Outflow	
Cost Efficiency			√ Outflow	√ Outflow		
Best Practices & Cross Learning	√ Outflow	√ Inflow	√ In/Out flow	√ In/Out flow	√ In/Outflow	√ In/Out flow
Direction of Knowledge Flow from OFDI						
<i>Two way:</i> Home to Host to Home	√ Uneven in developing countries	√ Strong but unequal among developed & developing hosts	√ Strong/Equal	√ Strong/ Equal	√ Uneven	√ Uneven
Home to Host	√ Strong	√ Strong	√ Strong	√ Strong	√ Strong but through Third parties	√ Strong
Host to Home	√ Weak But strong indirect through strategic partnerships	√ Strong in some cases and less strong in others	√ Strong	√ Strong	√ Strong but through Third parties	√ Less Strong
<i>Intra:</i> Among Host Locations/ Entities	√ Strong	√ Strong	√ Strong	√	√ Strong	√
<i>Inter:</i> Cross border	√	√	√	√	√	√

Figure 1: OFDI from Emerging Economy MNEs (EMNEs) – Drivers & Knowledge Flows

Figure 2: CNPC's Annual Field Production of Overseas Crude Oil over the Last Ten Years (million ton)

Figure 3: ZTE's Percentage of Annual Overseas Business Income to Annual Total Income