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The Evolution of South Korean outward FDI:
- Internationalisation Strategies, FDI motives, and Location Choice

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Thesis Summary

This thesis aims to contribute to the understanding of the relationships between foreign direct investment (FDI) motives and the location choice of internationalising firms. Based on data from South Korea, this thesis comprises three empirical chapters examining, from different aspects, South Korean internationalisation.

The first empirical chapter is conceptualised work, exploring how South Korean firms invest abroad. It covers the way in which South Korean firms give consideration to 1) the economic structure and the dynamic country specific advantages in the host and home countries, 2) the growth of firms in emerging countries, and 3) their own competitiveness through the strategic- use of assets such as technology. These location choice strategies vary with the host countries. Additionally, it examines the Korean outward FDI model by distinguishing between the motives for FDI, and discusses the development over time of the relationship between South Korean FDI motive and location choice, and it then identifies trends.

The second empirical chapter analyses, by motive, factors that influence South Korean firms to locate their foreign subsidiaries in China. It discusses the factors by province, and takes into account the impact of the global financial crisis upon the location choice (by Chinese province) of South Korean firms. The third chapter studies how South Korean firms locate their FDI in the United States in order to obtain a strategic asset. It examines the relative importance of various location determinants of Korean high-tech industries and knowledge-intensive services.

Specifically, the empirical works study how Korean firms internationalise. South Korean outward FDI in developing countries is mainly for the purpose of efficiency-seeking and export promotion motives; these transform over time to efficiency-seeking and market-seeking. On the other hand, the initial motivations for investing in developed countries were strategic asset-seeking and export promotion motives; these then developed into strategic asset-seeking and market-seeking FDI.

Key words: internationalisation, FDI motive, location choice, South Korea

DEDICATION

I hereby declare that this thesis is my own work and empirical chapters contained within this thesis are original research carried out by me. This thesis has not been submitted for a higher degree to any other University or Institution.

Jae-Yeon Kim
6th June 2017

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CHAPTER 1: INTRODUCTION

1.1 Background

In 1998, John Dunning's JIBS Decade Award winning paper became a guideline for exploring the relationship between location advantage and the location of MNEs value adding activities. This has since been extended to explore the influences on location choice within a changing world. In this context, I consider Dunning's main findings; the changing role of complementary foreign assets and capabilities in the research into foreign direct investment (FDI); and the importance of strategic asset acquiring and market-seeking FDI in developing countries and developed countries.

I highlight how the stages of South Korean economic development and economic structures are related to South Korea's outward FDI, with the location advantages interacting with Korean MNEs firm specific characteristics. South Korea (hereafter called 'Korea' in the interests of brevity) may be a good example of the evolution of outward FDI, because Korea was first a net inward receiver of foreign investment, and has evolved into a significant outward investor. To explore this, I use the updated investment development cycle (Dunning, 1981) perspective and the Korean context to argue that both location choices and FDI motivations can be associated with different investment positions in Korea's investment development stages over time.

Over the course of the six decades that followed the Korean War of 1950-1953, Korea has transformed itself from an agricultural country to one of the world's most dynamic industrial economies. When Korea first launched its industrialisation efforts it was hampered by poor resources, a small domestic market, and its large population. Thus, when Korea started to industrialise, it began by making labour intensive products such as apparel and miscellaneous goods in the 1970s. After achieving this initial industrialisation, the Korean economy developed into heavier industrial areas, such as manufacturing steel products, vehicles and ships. These quickly evolved, and Korean firms have come to dominate some of the most technologically intensive manufacturing sectors, both in terms of trade and FDI.

Korea is of particular interest in the study of internationalisation because of its unique and rapid economic development. The explanations of Korean industrial development are almost all directly or indirectly related to shifts in the world economy and in the industrial structure of Korea's economy. Korean industries have transformed from labour-intensive industries (based on textiles and other light industries) to heavy/chemical industries, and then to knowledge-intensive industries. Over the course of time we see Korean industries upgrading to an export-oriented industrial structure, emphasising value adding manufacturing. Although the significant increase in Korea's exporting and FDI has hitherto drawn scrutiny from academics and government, such attention appears to be concentrated on the country's strong state intervention, which harnesses the importance of scale advantage.

One of the characteristics of Korea's current industrial structure is high expenditure on R&D.

In 2012, Korea's total R&D expenditures stood at 49.2 billion dollars, being an 11.1 percent increase from a year earlier despite difficult economic conditions. The Korean R&D to GDP ratio was 4.36 percent, up 0.32 percent from the previous year and the second highest ratio after Israel in 2011 (Korean Ministry of Science, 2013). R&D efforts have also contributed to the development of high-tech industries in Korea. Its technological competitiveness in semiconductors, computers, displays, telecommunication equipment, and so on is the result of collaboration between government and industry. These efforts engaged to shift the trade in medium-low-tech and low-tech commodities toward high-tech commodities. Now, Korea's exports are highly concentrated in high-tech products.

In the context of EMNEs, the existing literature focuses almost entirely on how these firms can access technological capabilities by investing in developed host countries. This is a challenging question since EMNEs' firm specific advantages may be different compared to those of their Western counterparts (Meyer & Xia 2012; Bhaumik et al., 2010; Guillen & Garcia-Canal 2009; Narula 2012; Peng et al. 2008). One of the issues is the previously uneven levels of development of industries and economies between host and home countries. This may be explained by the firms' access to knowledge-intensive assets and learning experiences, which augment their existing firm-specific advantages, and also by their seeking other locations as the market conditions in their host countries changes over time. EMNEs first internationalise through country specific assets (CSAs) such as economies of scale, thereby increasing their competitive advantages and overcoming their inherent liability of "foreignness" (LOF) (Bhaumik et al. 2010; Bhaumik & Driffield 2011). EMNEs are also expected to be motivated by potential for technology sourcing and subsequent technological upgrading in developed host markets (Bhaumik et al. 2016; Driffield & Love 2003). However, extant literature on EMNEs gives little attention to how their patterns of investment and motivations for foreign direct investment (FDI) evolve over time.

This leads to the purpose of this thesis, which is to investigate the relationship between Korean outward FDI and the motivations of Korean firms for undertaking FDI in both developing and developed countries, with particular consideration given to the Korean industrial development process, and the changing patterns of Korean firms' outward FDI motives. Therefore, three research questions are explored in this thesis so as to provide an organised investigation into the relationship between Korean outward FDI and its motivation: (1) what is the conceptual framework of Korean outward FDI (ie., a consideration of the shifts of FDI motives over time); (2) how do Korean firms make the location choice for their outward FDI in a developing country (ie., a consideration of the relative differences between location choices and motives in a developed country over time); and (3) how do Korean firms choose outward FDI location in a developed country in order to obtain strategic assets. This requires analysis of the process by which FDI facilitates acquisition of high-technology knowledge, and the importance of the relationship between FDI location choice and motives. These questions are inter-related and aim to study distinct aspects of internationalisation.

The first research question investigates how Korean firms internationalise, and examines their changing motives over time in terms of FDI. Additionally, this empirical concept elucidates the links between the firms' motives for undertaking FDI, and the countries that host the firms' international operations, in order to develop a common framework and identify changing trends over time.

The second research question is related to identifying the factors that drive Korean firms to choose a certain FDI location. Further, we, assess whether a firm's motives change over time how such decisions are affected by economic circumstances, and whether these factors are more or less influential according to the firm's motive for undertaking FDI.

The third research question is to explore how the FDI location choices of Korean firms were affected by the differing R&D factors in economically developed countries. It examines the patterns of distribution of Korean outward FDI in such countries, and the kinds of R&D factors that affect Korean location choice.

The main research contribution of this thesis is to develop and to test the Korean outward FDI methodology. However, this is a significant contribution to the international business (IB) literature. The thesis is based on the outward FDI history of Korea. The use of the Korean model is an emerging tool in the boundary between traditional FDI theory and more recent FDI theory generated by the rapidly emerging economies. In addition, there are key issues, namely: the development gap between Korea and host countries; and the relationship between FDI motives and location choice.

In addition, this thesis contributes to the understanding of the motives of a firm when it decides to undertake FDI. I examine the factors that drive South Korean firms to internationalise and the influence that these factors have on their location choices in the countries they choose to host their international operations ("host countries" hereafter).

The thesis makes several contributions to the understanding of Korean outward FDI. Chapter 2 provides a conceptual framework for Korean outward FDI and discusses how firms' FDI motives influence their choice of location. Chapter 3 contributes to the understanding of how firms changes their motives for FDI according to changes in the host country and global environment. Chapter 4 proposes an approach that firms might take if they wish to invest in a developed country for technological achievement. It also generates a high quality dataset, linking location choice and firms' motives for outward FDI.

1.2 Research Aims and Objectives

The aim of this thesis is to contribute to the understanding of the relationship between South Korean outward FDI location choice and its motives. Three empirical studies have been conducted. This section individually explains the motivation for each chapter, the research aims, the data and contributions.

1.2.1 Development of outward FDI from South Korean

Chapter 4 links South Korean firms' internationalisation strategies with the motives for FDI as identified by Dunning's (1981) investment development cycle. In this chapter we rely on high quality data obtained from the Export-Import Bank of Korea ("EXIM"). In Korea, if a company wishes to engage in foreign direct investment, it has to satisfy Korean foreign exchange law by submitting detailed financial information to Banks such as EXIM. The information includes the total amount of FDI, its exact location, the firm's motivations, size, industrial sector, and so on. Thus, the data is categorised by year, host country, and industrial sector, and include various FDI motivations such as local market seeking, export promotion, low wage, introduction of advanced technology.

The motivation for chapter 4 is the paucity of work identifying the changing trends of South Korean firms' location choice and motive in both developing countries and developed countries. It is further actuated by the observation that Korean internationalisation cannot be fully explained by current FDI theory because Korea is too developed to be categorised as a developing country but is not sufficiently advanced to be considered to be fully developed. This chapter discusses the trends of Korean outward foreign direct investment (FDI), and maps the general academic theory of multinational firms onto the FDI location choice of Korean firms. Using Korean FDI EXIM data from 1980 to 2014, I demonstrate two different patterns of Korean outward FDI, which apply to host countries at different stages of economic development. As a result, I suggest that the economic development features of the host country correspond to Korean FDI location choice in terms of motivation.

This chapter contributes to the literature in several ways. Firstly, it confirms the importance of the overall trends of outward FDI, which changed as the Korean economy transformed in line with Dunning's investment development cycle (Dunning, 1981). Secondly, it distinguishes FDI motivation and suggests a predicted relationship of exporting, thereby informing firms how to effectively conduct FDI to obtain host country advantages. Thirdly, this chapter explains the relationship between the economic structural change of South Korea and its FDI location choice over time.

1.2.2 How do South Korean firms choose outward FDI location in a developing country?

Chapter 5 is concerned with the factors of location choice for South Korean firms in China. It stresses the important roles of the following: attractive factors at regional level; the FDI motives of the firms; and the impact of the global financial crisis of 2008. The thrust of Chapter 5 is that Korean firms' FDI motivations have changed over time. It analyses the changing profile of Korean firms' FDI motives into China, and explores the apparent dichotomy between the changes in motivation for Korean firms to invest in China and their actual location choice. I show that South Korean FDI to China was essentially dominated by efficiency seeking motives in the period before the global financial crisis of

2008. Since 2008, South Korean firms may have changed their investment decisions in order to exploit opportunities in China beyond low costs. While evidence is emerging that Western MNEs are now investing in China for market-seeking reasons (e.g., Yang et al., 2012), no such evidence yet exists for firms from Asia.

Chapter 5 exploits a data set from the Korean Export-Import Bank to examine whether Korean firms have changed their motive for investing in China, and explores the relative importance of various location determinants. These findings are indicative of a change in strategy by Korean MNEs in China, both in terms of motive and location that has not received attention in the existing literature. FDI motivation plays a crucial role for location choice in terms of efficiency-seeking and market seeking in emerging markets. In addition, technologies are transferred from home country to host country. Thus, South Korean FDI motives have changed to keep up with the rapid industrial development in China.

Chapter 5 investigates three questions. First, what are the location patterns of Korean FDI are the inconsistent with firm strategy, leading to suboptimal location decisions? Second, as a result, what are the traditional models that explain Korean firms' location choices in China can no longer be relied upon? Third, what is the impact of the agglomerations of Korean firms is one of the key factors that prospective Korean investors should take into account if they have specific motivations in terms of location choice in China?

Using the following baseline model for each FDI project, I examine the consistency of coefficients across time, location and firm size, based on the motives that are provided in the official survey. I use a random effect estimation based on the following empirical model of location choice of Korean MNEs:

$$FDI = f(GDPPC, WAGE, EDU, RAILWAY, EXPORT, COAST)$$

where, GDPPC denotes GDP per capita; WAGE is the wage level; EDU is education level (number of college graduate students); Railway is a proxy for transportation infrastructure; Export measures the total value of exports to each province of China; and Coast is a dummy indicating whether a Chinese province is located on the coast of China.

So far, I have tested hypotheses in which a subset of the parameters of the model differs for two groups. In other words, I want to test whether the same equation is valid for a number of subgroups across motives and regions (Coastal and non-coastal regions) through the Chow test (1960). When investigating each hypothesis, I have 11 different subsets: before the finance crisis (from 2000 to 2007); after the financial crisis (from 2008 to 2012); Coastal regions (11 provinces including Beijing); and non-coastal regions (15 provinces); and three different motives (local market seeking, export promotion and low wage FDI).

1.2.3 How South Korean firms choose outward FDI location for obtaining strategic asset?

Chapter 6 contributes to the work on the relationship between FDI location choice of high-tech industries, and the knowledge-intensive service industry in the United States. Most empirical evidence on technology-seeking FDI is based on studies that explore the location of R&D facilities for research-intensive industries in developed countries. We still know relatively little about the how the knowledge-seeking motive impacts upon the overall industry characteristics as compared with the market-seeking motive. Further, in comparison to their western counterparts, Korean firms are late-comers to the technological game, striving to reduce the technological gap after investing in earnest in the US and European markets in the 1980s, and at the same time, needing to develop a trade channel for entering the overseas market.

Chapter 6 explores the changing nature of FDI from South Korea to the US and, importantly, the patterns of location of knowledge-intensive activities and technology-seeking FDI. Historically Korean multinational firms invested in the US market in order to take advantage of the advanced technology (a knowledge-seeking motive for FDI). This study exploits a unique dataset to consider whether Korean firms have changed their motivation for US investment to market-seeking, and to examine the relative importance of various location determinants of Korean high-tech industries and knowledge-intensive services.

The chapter contributes to the existing literature by throwing light on the changing patterns in strategy by Korean MNEs in the US, both in terms of motive and location choice. This is something that has not received attention in the existing literature. I explore the relationship between FDI motives and location choices of Korean high-tech firms compared to other Korean industries. This study analyses the distribution of Korean firms according to FDI motives in the US.

An understanding of the theory and practice of knowledge-seeking FDI from emerging countries in the US is crucial for Korean firms and their decision makers when estimating the attractiveness of location advantages in each state, and equally crucial for US policy makers. In particular, I use macro-level economic data from OECD statistics to better understand the correlation between FDI motives of Korean firms, and their location decisions, distinguishing different kinds of assets in the US. Chapter 6 makes three observations: (1) Korean knowledge-seeking FDI in the US has decreased in the high-technology sectors, as Korean firms strengthen their own competitiveness; (2) high-tech industries and knowledge intensive service FDI from South Korea to the United States is influenced by higher education R&D in comparison to other local R&D types; (3) in terms of high technology sector, FDI from Korea to the United States is influenced by relatively different R&D intensities of each state. These have strengthened for Korean investment in certain regions of the United States.

As regards the methodology, location modelling has its roots in the work of authors such as McFadden (1974) and Carlton (1979, 1983). In this study, the nature of the dependent variable (i.e.,

counts of Korean firms) makes several options of nonlinear modelling appropriate, the most commonly used of which is the Poisson model. However, there are two important issues with this such a model. First, it assumes that conditional variance equals an expected count. The consequence of applying the Poisson estimator in this case is that the standard errors and statistical significance will be both underestimated and higher because there are too many zero observations in the sample. Second, the Poisson model assumes that Korean firms have a positive probability of being present in each state. However, in reality, Korean firms have never been present in some states in the US. Therefore, a Zero Inflated Negative Binomial (ZINB) model is preferred as an alternative to the Poisson model. I set up these variables: R&D investment is a key factor in determining a high-tech industrial region. Therefore, this thesis takes as an indicator the ratio of R&D expenditure in each state to GDP for the said state. A relatively higher R&D/GDP ratio is an important sign of innovation capacity and reflects the R&D investment attending on high-tech products (Falk, 2009). So far I have tested hypotheses in which a subset of the parameters of the model differs for several groups. In other words, I want to test whether different R&D investment of each state has relatively different attractiveness by industry and outward FDI motive in certain regions of the United States.

CHAPTER 2: THEORETICAL BACKGROUND & LITERATURE REVIEW

2.1 Introduction

In this thesis, I argue that careful analysis of the rise of EMNEs, can help to explain different types of FDI activities as a country develops, and contributes to the understanding of FDI theory for undertaking FDI and the influence of FDI on the selection of an international expansion strategy and firms' efforts to upgrade.

Dunning and Narula (1996) posit that countries move away from labour or resource intensive assets to capital or knowledge intensive assets, as countries upgrade from an emerging country to advanced country status. These considerations have led firms from emerging countries to target their FDI for specific motives to a limited number of locations, realigning activities toward developing and developed countries. The selection of outward FDI of EMNEs reflects both their international expansion strategy and their efforts to undertake value-adding activities through their location preferences of FDI. In addition, the interdependent relationship between different firm types may affect their internationalisation (Vahlne and Johanson, 2013). Therefore, the FDI motives and strategies of the internationalisation process of EMNEs strengthen firms from emerging countries through the acquisition of additional resources that are not available to them in the home country.

The central research question is: how have the FDI motives of EMNEs in certain locations changed as the countries develop? The traditional international business (IB) theory and evidence do not categorise these ambiguous relationships. As Ramamurti (2008) points out that EMNEs' ownership structures and their motives shape the methods of EMNEs' own internationalisations. We can see recent attempts to conceptualise a framework/theory to explain the rise of EMNEs by arguing that such a new approach is needed to have a greater understanding of EMNEs. The subsequent sections in this theory chapter are as follows: the first section is a literature review introducing the traditional "ownership" advantage and other relevant theories. The second and third sections will be looking at the context in which recent FDI theory on emerging countries generally has been developed, with reference to Korean FDI in particular. The last section will deal with the theoretical gap in order to explain the recent rise of emerging countries.

2.2 The determinants of Foreign Direct Investment

This chapter explains the relationship between FDI location choice and its motive. It extends the large literature on multi-nationality and internationalisation strategy by not only considering the importance of multi-nationality per se, but also the impact of motivation on FDI strategy. The study of multi-nationality and location choice has been a core issue in international business (IB). FDI theory has developed from various theoretical perspectives. These theoretical approaches mainly range from

economic theories (Caves, 1971; Hymer, 1960; Kindleberger, 1969; Vernon, 1966), internalisation theory (Buckley and Casson, 1976; Rugman, 1981), transaction cost theory (Anderson and Gutignon, 1986; Caves, 1982; Williamson, 1985) to Dunning's eclectic paradigm (1988, 1993). This last theory is conceptually different from the theory based on traditional "ownership" advantages.

This chapter focus on Dunning's Eclectic Paradigm (1981, 1988, 1993) and Rugman's FSA/CSA matrix (1981) to connect the different streams of theory on foreign investment motives, and to explain the location decisions of MNEs foreign value-adding activities.

2.2.1 Overall FDI theory

Theories Assuming Perfect Markets

Before the 1960s, FDI theory assumed the existence of differences between rates of international capital investment due to higher rates of return. However, this theoretical hypothesis has a critical weakness in that the implication was that bilateral FDI flows between two countries. Thus, an alternative explanation of FDI flows emerged from the application of portfolio diversification theory (Markowitz, 1952; Tobin, 1958). This approach contends that MNEs consider both the rate of return and the level of risk when making their decisions to invest in foreign countries. The international diversification of multinational enterprises investment portfolio reduces the overall risk in this theory. However, the problem is that many multinational enterprise's investment portfolios tend to be clustered in foreign markets that have correlated expected high returns. The main problem in the neoclassical analysis of foreign investment is that it is theorised on the back of a competitive environment that is assumed to be perfect, which was first applied to international trade. Many scholars provide theoretical frameworks that focus on specific characteristics of FDI. The scholars share similar theoretical backgrounds and typically suggest that multinational enterprises (MNEs) should, if it is lucrative, locate their manufacturing amenities abroad.

Market Imperfection Theory

Hymer (1960) challenged the assumption of the model of perfect competition and pointed out that the neoclassical theory of portfolio investment does not deliver a clear answer as to which way capital flows due to the risk and the costs of gathering information. He provides a seminal study for FDI and multinational enterprises by challenging the assumption of perfect competition and focusing on firms' ability to impede market competition. The main point of his argument is that the movement of capital associated with FDI is not in response to higher interest rates between home and host countries, but is a result of market imperfections. Firm specific advantages (FSAs) and the firm's position in the market have been used to illuminate why MNEs engage in cross-border investment. In considering the roots of the rise of multinational firms, Hymer identifies four factors, which he explains in his model. First, market imperfections in the goods markets; second, market imperfections in the factor markets; third,

internal and external economies of scale; and fourth, government interference with production, or trade. He provides a theoretical contribution to the theories of industrial organisation, notably those of Kindleberger (1969), Caves (1971) and Rugman (1981), in terms of market imperfection and the interaction of supply and demand.

Kindleberger (1969) further extended Hymer's work. He stated that there are two conditions for FDI to thrive. FSAs have to outweigh the disadvantages of being a foreign firm in the host country, and the market for the advantages has to be imperfect. The market imperfection includes knowledge advantages, economies of scale, product differentiation and distribution channels. These advantages lead to the development of MNEs.

To sum up, Hymer argues that although local firms have advantages over foreign investors, multinational firms have advantages over local firms in the host countries because of their global access ability. Hence foreign investors have some advantages, such as economies of scale (Kindleberger, 1969). Hymer's determinants of foreign investment extend both the national and international levels under market imperfect conditions. Both Hymer and Kindleger were preoccupied with the issue of specific internationalisation from the US at that time, and emphasized the cost of foreign investments. In general, this was a reasonable standpoint, and internalisation theory was developed in order to investigate further the theoretical issue of FDI.

Internalisation theory

The basic argument of internalisation theory derives from the argument about the presence of transactional market imperfection. The theory dates back to Coase (1937) who argued that transaction costs on foreign investments make it more helpful for a firm to generate profits within the internal market, rather than in foreign markets. The internalisation theory explains why a firm would own and operate a production facility in a foreign market instead of coming to a licensing or supply agreement with a local business entity in the foreign market. In addressing this issue, the internalisation theory relies heavily on transaction costs analysis. Thus, internalisation theory and the transaction cost theory are viewed as one and the same theory. A market transaction involves transaction costs: the costs associated with negotiating and monitoring and enforcing a contract (Coase, 1937; Williamson, 1985). It defines the international extension of the economics based explanations of the boundaries of firms (Buckly and Casson, 1976; Hennart, 1982) and is further expanded upon by Dunning (1980) and Rugman (1986).

Internalisation theory also posits that MNEs are created when they internalise certain markets for intangible assets across national borders (Buckley and Casson, 1976; Hymer, 1960). As a result, MNEs can internalise knowledge-based resources and capabilities, whether in innovation- or marketing-related activities—inside their firm boundaries in order to effectively offset the additional costs incurred from the liability of operating in a foreign environment (Caves, 1996; Zaheer, 1995).

MNEs thereby achieve a higher performance in foreign markets (Dunning, 1973; Hymer, 1960). Internalisation theory also emphasises that FSAs need to be sheltered by the organisational structure, meaning that FDI becomes favourable when the profits of internalisation outweigh its costs. However, the existence of impediments, such as non-trade or trade barriers, cause the actual location of the FDI to move away from a suggested location according to factor costs. Thus this impediment produces an alteration in relative factor prices that market imperfections across borders provide a motivation for MNEs to start production in local markets (Caves, 1982). MNEs can therefore maximise their profits through utilising their monopolistic advantages (Dunning, 1980). Rugman (1979) extends this theory by analysing the role of MNEs in the context of international diversification. While internalisation supports building internal markets according to capital market imperfections, it is also highly consistent with the transaction and eclectic theories.

Transaction Cost Theory

Both internalisation theory and transaction cost theory view foreign investment as a response to market failure. The transaction cost theory is more micro-analytic, focusing on a basic unit of analysis. The basic foundation of the theory is the need to minimise transaction costs by creating a governance structure that is conducive to MNEs' entering and operating in a foreign market (Hennart, 1982; Williamson, 1985). This means that location advantages are the market opportunities for firms, allowing cheap transaction costs to occur. It is suggested that when transaction costs are low, firms will choose to internationalise through non-FDI modes, such as licensing or franchising their business operation.

Williamson (1985) characterised transaction costs by three determinants, namely: asset specificity; uncertainty; and complexity. Thus, when the transaction costs of external markets are higher than the internal markets, or the production costs in a host country are lower than in the home country, FDI can provide an efficient governance structure by minimising the total transaction costs.

Product life cycle theory

Based on the case of the US electronics industry in the 1960s, Hirsch (1965, 1976) found that as the industry matured, the US lost its initial competitiveness in the market, leading to US firms trying out other low cost locations, thereby improving mass production. Vernon (1966) proposed the product life cycle (PLC) theory, including in an FDI theory the ideas of innovation, economies of scale, ignorance and uncertainty. In his model, FDI is viewed as a part of the exploitation of foreign markets. He suggested that location choice is a way of integrating PLC and location characteristics because the costs of various production factors become significant for firms when extending their facilities in foreign markets. In PLC theory, firms in developing economies are passive recipients of technology or skills that are held by developed countries that are at the mature stage of PLC. Vernon (1979) extended the PLC theory, emphasising that firms will be less concerned with production costs (such as labour and

capital) during the initial stage of product development, in an effort to become a market leader with highly differentiated products. Hence, at the early stage, the firm's location choice will fix on host countries that can contribute to efficient product development and facilitate the firm has little incentive through product in foreign market during the early stage of PLC, the product eventually becomes more standardised and competitive by setting up facilities overseas (Vernon, 1979).

However, the PLC theory has been criticised for being one-sided theory, addressing merely the market-seeking motive. It needed to tackle other types of FDI, such as the resource seeking and efficiency seeking modalities (Dunning, 1993). In the context of changing technologies in multiple markets, the PLC takes a dynamic view, combining the geographical reach of many firms and focusing on the gap between home countries (at the time this was the US) and other national markets in terms of factor costs.

Internationalisation theory

Johanson and Wiedersheim-Paul's (1975) internationalisation theory declares that a firm conducts its international development in four stages. The main point of this theory is that market related knowledge plays an important role in the internationalisation process of a firm. In this theory market related knowledge is viewed as a resource available to the firm. Thus the internationalisation theory overlaps with the resource-based view. However, a very provocative point is why a firm would start its internationalisation journey by founding an entirely owned foreign subsidiary, rather than by entering the export market (Zhao and Decker, 2004). The internationalisation theory posits that most investors seek ways to reduce foreign investment risk. However, CEOs who are keen to internationalise need to fit with the firm's strategic motivation and timing in the gradual stages of internationalisation. This theory is meaningful for a researcher wishing to investigate the stages of and motives for FDI. However, the internationalisation stages cover only one strategic reason (the market-seeking motive) for undertaking FDI and the internationalisation theory is therefore still in the process of being developed.

2.2.2 CSA/FSA matrix and OLI paradigm

Rugman (1981) states that FDI ultimately depends upon the linkages between a firm's unique, idiosyncratic capabilities (firm-specific advantages) and its home country assets (country-specific advantages). It is well known that the competitive advantages of multinational enterprises (MNEs) are determined by the interaction of two sets of factors. First, the internal factors of the firm, which lead to the development of unique capabilities, known as Firm Specific Advantages (FSAs). Second, the factors that are external to the firm and which offer complementary resources for the exploration and/or exploitation of FSAs in foreign markets, referred to as Country Specific Advantages (CSAs). The nature of FSAs, CSAs, and their interaction has been developed by Rugman (1981) into a basic FSA/CSA framework for the analysis of the activities and performance of MNEs.

The FSA/CSA framework captures the essence of the Resource-Based View (RBV) of firms as suggested by Wernerfelt (1984) and Barney (1991), and the internalisation theory as developed by Buckley and Casson (1976, 2009). According to the RBV of firms, the acquisition and accumulation of hard-to-imitate resources and capabilities will allow firms to achieve sustainable competitive advantages, translating into high performance in the markets (Barney, 1991; Day, 1994; Wernerfelt, 1984). The internalisation theory also posits that MNEs are created when they internalise certain markets for intangible assets across national borders (Buckley and Casson, 1976; Hymer, 1976), and, as a result, MNEs can internalise knowledge-based resources and capabilities—either in innovation- or marketing-related activities—inside their firm boundaries in order to effectively offset the additional costs incurred from the liability of operating in a foreign environment (Caves, 1996; Zaheer, 1995). MNEs thereby achieve a higher performance in foreign markets (Dunning, 1973; Hymer, 1960).

Rugman's FSA/CSA matrix shows the linkages between the FSAs of MNEs and their home CSAs. The FSA is the internalisation of a firm's own assets (such as the capability to venture abroad and engage in foreign investment) while home CSAs include quality of labour, institutions, scale of economy, and endowments of natural resources. The firm's strategy is then developed with this combination of both firm- and country- specific advantages. It can be seen that both the FSA and CSA matter and represent the firms' ownership advantages being strengthened through the CSAs of home countries. The firms combining CSA with FSA tend to be the successful ones (Rugman, 1996).

Dunning develops a systemic theory of internationalisation. His approach is to address the process of internationalisation taking into account two simultaneous processes: trade and FDI. Dunning's approach consists of an attempt to analyse the why, the how, and the where of FDI activities in terms of ownership (O), location (L) and internalisation (I) advantages. This paradigm represents the most recent theoretical undertaking, bringing other views together within one framework and explaining both the location choice and ownership characteristics of FDI. In short, the paradigm seeks to explain both the ownership and organisation of foreign activities, and the location choice of value-adding activities (Dunning, 1981; 1988).

Dunning (1981, 1988) elaborated the theory into an extensive set of propositions concerning three types of advantages, namely ownership-, location-, and internalisation advantages and called this the eclectic or OLI paradigm. These advantages are available to a firm, which utilises its own internal avenues of asset transfer and exchange to maximise its potential. Dunning's paradigm explains why firms invest abroad, with the combined concept of these three advantages emphasising the assertion that the ownership advantages drawn from a home country constitute the important driver for FDI (Dunning, 1998). Dunning's eclectic theory (1981) expands the internalisation theory to incorporate location choice, explaining the reason for a particular location choice among alternatives. Location specific advantage is based on the different spatial distribution of resources, endowments and market, for firms so they can create or add value, and obtain competitive advantages. The competitive advantages of

home and host countries are assumed to reflect the characteristics of immobile assets (Dunning, 1993). Production factors are related to the successful exploiting of firms' competitive advantages in foreign countries, and the consideration of foreign locations' capabilities and other conditions.

Ownership advantage and internalisation are related to the push factor, which makes multinational enterprises conduct FDI in host countries. Meanwhile, location advantage is related to the pull factor, which attracts multinational enterprises (MNEs) to the host country. The pull factor is therefore a relative advantage compared to other locations (Dunning, 1998). Such location strengths in host countries may relate not only to conventional production or demand factors, but also to the knowledge development processes embedded in specific locations.

Therefore, the CSAs can be re-labelled as 'location advantages' in order to better explain location choice by interlinking the eclectic paradigm and the FSA/CSA matrix. At the host country level, this comparison explains the various patterns of resource combination between home and host countries. In order to establish why MNEs decide to do FDI, we need to find specific motives in terms of location choice. We see that the decision of MNEs to embark on investment in a foreign location is affected by various economic conditions, and the firm's strategic motivation to exploit a comparative advantage in a foreign location. This decision involves a consideration of cost factors such as capital, labour, or other elements. The MNE then needs to decide whether they are going to expand their facilities horizontally or vertically; this decision is affected by forces such as high transportation cost, protection barriers, or the requirements for location adaptation. Therefore, firms seek different resources in host countries, which are determined by the firm's internal capabilities (Barney, 1991).

2.2.3 Motivations for foreign production

The eclectic paradigm combines national factors and firm-specific (such as ownership and internalisation advantages) in order to explain international trade and production patterns (Dunning, 1993). In terms of FDI motive, Dunning classifies the motives of firms engaging in FDI into four groups, namely: natural resource-seeking, market-seeking, efficiency-seeking and strategic-asset seeking.

The resource-seeking FDI motive is driven by a demand to access a resource such as minerals, or other raw materials. The need to secure a cheap, safe and reliable source of supply is a major driver. If a resource can be transported at a low and stable cost, it might be more economic for a firm to produce goods. Hence, large industrialised nations seek out natural resources and establish foreign operations in order to access them. Efficiency-seeking investments are driven by the intention to obtain cost advantages by operating in different countries. Essentially the MNE is striving to reconfigure its activities internally due to increasing costs in the home country. Firms in sectors where unskilled or semi-skilled labour is a significant factor in the costs of production seek to increase their cost efficiency by setting up in low costs locations. In order to maximise efficiency, the target location corresponds to

investment aimed at rationalising the operations of existing MNEs. Common examples are US investment in Mexico, and north and western European investment in eastern European countries; in both cases, firms want to take advantage of the cheap labour available abroad. Market-seeking investment is undertaken to enter into and supply the local markets. Strategic-asset seeking FDI may be critical for a firm to enable it to obtain long term investment which it does not currently enjoy. In other words, strategic-asset seeking FDI is internally driven by firms; in this case, competitiveness is the firm's prime concern when deciding to position itself in other countries.

From the standpoint of these FDI motives we see that, firms are involved in FDI to exploit and develop the value of their FSAs abroad (Madhok, 1997; Trevino and Grosse, 2002). Previous literature has built on Dunning (1993), analysing location choice through the motive for FDI. This means MNEs will switch their FDI motives so as to prioritise different attractive factors in host countries. It may be that location-specific advantages are of paramount importance to the firm and affect their motives for FDI (Trevino and Grosse, 2002).

2.2.4 Investment development cycle (or path)

Further to his eclectic paradigm, Dunning integrates the rather different motives behind foreign investment in the home and host countries into one general theory. In order to give a full account of the dynamic interaction between variables, one of Dunning's applications of the eclectic paradigm is in the form of the Investment Development Cycle (or path), which theorises on the changing international investment position of countries in different stages of development (Dunning, 1981, 1988, 1993; Dunning and Narula, 1996; Narula, 1996; Dunning *et al.*, 2001). In terms of location advantage, the basic hypothesis of the international development path (IDP) is that as a country develops, the investment conditions facing its domestic and foreign companies change. In addition, in introducing the investment development cycle (IDC), Dunning (1981) suggests that a firm's capacity to engage in FDI depends on three factors: country, industry or enterprise specific. In other words, and supported by case studies, a country's stage of economic development is closely related to the flow of inward and outward direct investment. Thus, an individual country has an investment position based on its net outward investment (NOI). Dunning's investment development cycle (1981) describes the stages of development a country might pass through, the characteristics of each stage being linked to the country's investment position.

Stage 1

Countries in stage 1 have various restrictions on economic development. These include inappropriate, inadequate or undeveloped commercial and legal frameworks, economic infrastructure, and so on. Thus the stage can be designated the pre-industrialisation stage. The domestic companies in countries at this

stage of development do not possess any significant ownership advantages, so their governments usually try to improve the investment environments such as infrastructure and human capital, adopting macroeconomic policies intended to change the structure of the country's industries and domestic markets.

Stage 2

In stage 2, the combination of national policies and a degree of location advantage attracts inward FDI and some export oriented FDI exists in natural resource-based industries. In consequence, some vertical integration into labour-intensive industries can be expected once the domestic infrastructure has been provided. An important characteristic of this stage is that fast growing inward FDI with a small but increasing amount of outward FDI make the country a net receiver of investment. Dunning argues that the combination of these inward and outward FDIs increase labour productivity and strategic assets for domestic firms, increasing their ownership advantages as they operate in developed countries. This development of ownership advantage sees an improvement in the level of outward FDI, even though the country's net stock of FDI remains negative.

Stage 3

The determining factor of stage 3 is investment specialisation. In this stage, the country seeks outward FDI location in those sectors in which the country's comparative ownership advantages are strongest but its comparative location advantages are weakest. Thus import substituting or export platform activities are interlinked by engagement with local firms in host countries as companies become more competitive. The MNEs from stage 3 countries are prone to internalising their activities to gain ownership advantages in technologically advanced sectors. As domestic firms develop, ownership advantages and increasing production costs are related to the rise of outward investment. As a result, net outward investment (NOI) will start to fall. At the same time the increased ownership advantage of domestic firms makes them more competitive against foreign competition leading domestic firms to seek larger markets for economies of scale. Market-seeking FDI to both developed and less developed countries is expected to occur as domestic firms develop, and strategic-assets seeking FDI occurs in developed countries. Dunning (1981) claims that government policy at this stage should have two main aims. First it should promote the country's attractiveness to those industries where domestic firms are as yet unable to exploit their country's location advantage. Second, it should provide incentives for domestic firms to internationalise in industries where the country location advantages are weak or eroding.

Stage 4

In Stage 4, outward FDI of the country exceeds that of inward FDI. The country has an increasing

propensity to exploit these advantages internationally rather than domestically through process specialisation. This is partly due to rising labour costs at home or the pressure to obtain additional resources abroad so as to sustain an internationally competitive position (Dunning, 1981). The reasons for firms to engage in outward FDI are diverse. In labour-intensive industries, domestic firms seek efficiency by relocating their facilities in less developed countries (efficiency-seeking FDI). At the same time, other industries, such as the high technology industry, will locate their FDI in developed countries. At this stage, government's role has changed to concentrating on improving market efficiency and reducing production costs.

Stage 5

Stage 5 of the IDP (Dunning and Narula, 1996; Narula, 1996; Dunning *et al.*, 2001), which does not exist in the investment development cycle (Dunning, 1981, 1986), occurs after stage 4. There is a fluctuation between outward and inward FDI that arises when there is a different level of development between the home and host countries, where firms wish to not only exploit ownership advantages in a foreign location but also to explore specific assets. In addition, countries at stage 5 will be the recipients of strategic asset-seeking FDI, as well as market seeking FDI from countries at the lower stages. MNEs are a dominant force in shaping international trade and production because it is implicit in the description of stage 5 that no single country has a complete advantage over the other developed economies.

The decision of MNEs to embark on overseas investment is sparked by its need to exploit a comparative advantage in foreign location. This is affected by various economic conditions including cost factors such as capital, labour, or other elements. In order to theorise on why multinational corporations decide to do FDI, we need to find patterns in terms of their location choice according to their specific motivations. An important factor in the decision-making process for MNEs wishing to expand their facilities is related to the type of expansion required (whether it is Horizontal or Vertical) and thus is motivated by forces such as high transportation costs, protection barriers, or the requirements for location adaptation. Therefore, firms seek different resources in host countries (Barney, 1991).

Over time, a large body of literature has been devoted to the relationship between FDI motive and location choice. Location choice of FDI is a strategic issue for firms wishing to internationalise. Therefore, a consideration of FDI location choice extends to the specific motives of firms that invest abroad. Previous literature categorised three different motives, namely: market seeking; resource seeking; and strategic asset seeking (Dunning 1993).

Dunning (2006) suggests that what is different about MNEs from emerging countries is that their primary motivation to engage in outward FDI is to develop FSAs by gaining knowledge, resources, and markets in the host country. However, these two perspectives (Asset-exploitation and Asset-

augmentation) are not mutually exclusive because MNEs from the emerging country are latecomers to the specific industry in which they are competing, so that they need to accelerate internalisation with the explicit goal of gaining access capabilities, assets, or resources that they cannot find in their home countries (Mathews 2002).

2.2.5 Summary of overall FDI theory

Many scholars provide theoretical frameworks that bring into focus various characteristics of FDI. There are minor differences between their theoretical frameworks, but on the whole, scholars suggest that MNEs should locate their manufacturing facilities abroad if profitable. Early theory focused on the firm's ability to exploit home country assets in the host country. In terms of location choice, the theories aim to explain why firms choose foreign locations for a particular activity- based on costs and benefits - compared to other locations.

Hymer (1960) asserts that MNEs have certain kinds of proprietary advantages that differentiate them from local firms. While Hymer sees outward FDI as a way of internalising from market imperfections, Caves (1974) adds the concept of transaction costs. And Buckley and Casson (1976), Rugman (1980), and Hennart (1986) transmute Cave's transaction costs concept into the internalisation theory. Buckley and Casson (1976) see outward FDI as a way of internalising pecuniary externalities that have arisen due to external market imperfections. They focus on a firm's ability to transfer its knowledge to its affiliates and the transaction cost of doing so. The internalisation theory explains why a firm would own and operate a production facility in a foreign market, instead of entering into licensing or supply agreements with local business entities in the foreign market. A market transaction involves transaction costs; costs associated with negotiating, monitoring and enforcing a contract (Coase, 1937).

The internalisation theory also posits that MNEs are created when they internalise certain markets for intangible assets across national borders (Buckley and Casson, 1976; Hymer, 1976), and, as a result, MNEs can internalise knowledge-based resources and capabilities—either in innovation- or marketing-related activities—inside their firm boundaries in order to effectively offset additional costs from the liability of operating in a foreign environment (Caves, 1996; Zaheer, 1995). MNEs thereby achieve a higher performance in foreign markets (Hymer, 1976). Based upon a framework built on the work of Hymer's monopolistic/unique advantage, MNEs have to retain possession of their advantage to overcome the costs associated with foreign direct investment. The monopolistic/unique advantage is a term now replaced by ownership-advantage or firm-specific advantage (FSA). Its definition broadened by Dunning (1988) leading to ownership-advantage being categorised as asset-type or transaction-type ownerships¹.

¹ Firm specific advantage (FSA) and ownership advantage are seen as interchangeable in this chapter

2.3. FDI from emerging countries and Research Gaps

Traditional theories of internationalisation suggest that the role of ownership advantage is obviously acknowledged in the OLI paradigm and its extension (Buckley and Casson, 1976; Dunning, 1993). Generally, these ownership advantages are believed to be technological, innovative and economical skills that are not able to be replicated outside of the firm without incurring substantial transaction cost. Simultaneously, the resource-based theory explains how a firm's strategies for growth and internationalisation is reliant on resources that give the firm characteristic competencies (Anderson and Kheam, 1998; Peng, 2001; Westhead et al., 2001). The resources linked to these characterized advantages of host countries can be tangible assets, such as natural resource, and intangible assets, such as technology. This discussion of host country advantages has been applied to outward FDI by EMNEs, and has been the subject of recent debate concerning the necessity for ownership advantage of EMNEs.

However, traditional theories are incomplete. Traditional theories of FDI are heavily based on the ownership advantage of multinationals from developed countries, while, internationalisation of EMNEs, unlike traditional MNEs, are explained in terms of a wider vector of firm specific, and country specific advantages (Bhaumik et al., 2016). As a result, it is argued that a new approach is needed when conceptualising a theory or framework to describe the rising role of EMNEs (see Matthews, 2006; Luo and Tung, 2007). Dunning (1998) argues that the motives for FDI were significantly changed with the growth of asset-seeking FDI, which saw investors not only exploiting an investing firm's existing specific ownership advantage but also exploring new advantages. In reality, firms from emerging countries invest in both developed and developing countries for a strategic asset-seeking purpose when the firms can attain a specific asset, such as particular technology, even though the investment is not immediately profitable (Kumar and Kim, 1984). Further, the recent increasing role of emerging economies undertaking outward FDI has implied a different facet of FDI theory. A weakness in the literature comes from a particular comparison between developed country MNEs and emerging country MNEs. Firms from emerging countries overcome the liability of foreignness through a combination of country specific assets, which is in line with the CSA/FSA matrix of Rugman (1981). Bhaumik et al. (2015, 2016) demonstrate that MNEs from the emerging economies also manage to overcome the liability of foreignness, and compare the relative importance of technical progress with the economies of scale seen in the development of Chinese MNEs. This means that MNEs from emerging economies have different motives (that are related to their own emerging country-specific assets) to firms from the advanced economies.

Indeed, the importance of the acquisition of intangible assets is a key issue in the consideration of internationalization strategy of EMNEs (Kedia et al., 2012; Gaffney et al., 2013). Mathews (2002, 2006) argues that EMNEs internationalise to create linkages with overseas firms, enabling them to obtain these intangible assets by learning from their counterparts abroad. However, the competitive

advantages of EMNEs are related to ownership assets such as natural resources or cheap labour costs. Ramamurti (2008, 2012) points out that the competitive advantages of EMNEs are country-specific (CSAs), such as those of IT firms in India, rather than firm specific (FSAs).

Teece and Pisano (1994) argue that a firm's competitive advantage depends not only on ownership advantage but also its ability to deploy and upgrade these capabilities. It is inherent in the ownership advantage theory that EMNEs lack the competitive advantage of their traditional counterparts. However, despite their technological weaknesses, firms from the emerging countries are upgrading their competitiveness through value-added activities (Mudambi, 2008). Based on framework of the CSA/FSA matrix (Rugman, 1981), Bhaumik, Driffield, and Zhou (2016) show that not only the choice of location in the host country will be influenced by the EMNE's firm specific advantages (FSAs) but that the location search poses a problem for the generalisation about the access-to-technology based motivation for the internationalisation of EMNEs. In other words, not all emerging market firms can leverage CSAs equally, and EMNEs are better than non-MNE domestic partners in terms of exploiting their CSAs. This implies symmetrical interests between MNEs from developed and emerging countries. In addition, the resource-based view suggests that firms expand to foreign markets to acquire new resources, whether by exploiting the characteristic possessions they have established at home, or increasing cash flow, or pursuing new tactical possessions from foreign markets so as to reinforce their competitive advantages (Wang et al., 2012 a; b).

The existing literature on EMNEs focuses almost entirely on how these firms can access technological capabilities by investing in developed host countries. This is a challenging question since the sources of EMNEs' firm specific advantages may differ from those of their Western counterparts. The key point of the traditional theory has argued that EMNEs internationalise through CSAs, and then use technology sourcing to acquire FSAs. While a firm from an emerging country has the ability to assimilate knowledge, it is competing with another firm from a developed country that already has the knowledge and can therefore focus on efficiency. Therefore, we seek to explore how EMNEs undertake FDI, in terms of location decision.

The traditional "ownership" advantage theory argues that firms are involved in FDI to exploit and develop the value of firm-specific advantages abroad (Madhok, 1997; Trevino and Grosse, 2002). Previous literature, as mentioned above, has sought to analyse location choice through the motive for FDI, building on Dunning (1993). A parent firm may diversify its location decisions of FDI in a host country in a dynamic sense according to the firm's strategic choice. This means FDI location choice in a host country is influenced by the MNE's specific motives, and the importance it attaches to the various attractive factors in each country. FDI theory and particularly the underlying motives for FDI are considered to be a suitable framework for an examination of FDI location choice (Lei and Chen, 2011; Svetličič, et al., 2007). Thus, the interaction between the firm's preexisting advantage and its motive for investing enables the firm to match to the host environment because of its location-specific

advantages (Trevino and Grosse, 2002).

By contrast, over time, as internationalisation has quickened and the global economy has become more interlinked, so MNEs have been seeking new global value chain locations for product development, logistics, and other functions beyond production. It therefore follows that considerations of costs or knowledge, or other resources (e.g. locating R&D in knowledge-intensive regions) are now significant factors for the location choice of outward FDI (Zander, 1999). According to the assumptions of the IDC, certain relevant factors for the location choice of FDI can be affected by the development stage of the host countries because they have different systems of economic development. Following on from the research on Dunning's investment path, Deng (2004) finds that less developed countries attract firms seeking cost advantages or other efficiency-seeking factors such as low wage in product markets. However, despite the economic factor conditions and the market demand conditions of the home country, firms nevertheless invest abroad, as seen by the increasing amount of the outflow of FDI from the Asian newly industrialised economies to the more developed countries (Kumar and Kim, 1984).

How about fast growing countries such as South Korea? South Korea might be too economically developed to be considered to be a developing country; however, its development is not yet sufficiently secure to enable it to be categorised as an economically developed country. Thus, it fits into the inelegant but accurate category of 'rapidly developing country'. Regarding motives and location choice, Dunning and Narula (1996) categorise five stages of economic development for countries, and identify four types of motives for firms to invest abroad: resource-seeking FDI; efficiency-seeking FDI; market-seeking FDI; and strategic-asset seeking FDI. These motives are similar vein to the asset exploitation and asset exploration motives identified by Makino *et al.* (2002) and Buckley *et al.* (2007).

In Dunning different stages of the investment development cycle (or path), for example, South Korea is the newly industrialised country in 3rd stage, which is catching up and converging with the developed country. In 1981(Dunning's category of Korea's IDC position), the majority of Korean industries are still regional, motivations are resource and market seeking in developing countries meanwhile; in 4th stage of IDC, efficiency-seeking MNE motivation aimed at optimising use of each country's comparative location advantages. In Dunning's view (1986), MNEs from 3rd stage of IDC countries is mainly concerned with unique asset advantage, while MNEs from developed countries are derived from many of their ownership advantages from internalising in foreign locations and thereby they can avoid transaction costs of the market. As a result, most empirical works of FDI have been done to explain either the industrial composition of a particular country's outward/ inward FDIs or the determinants of FDI location choice in specific relationship between changes of investment position. Thus this chapter starts from the initial assumption whereby Korea is a net inward receiver of foreign investors in 1980s, and progresses through the stages of IDC until Korea eventually becomes a net outward investor. This evolution is a good example of the importance of examining the

internationalisation of uni-national firms over a period of time.

The implication of Dunning's investment development cycle (or path) is that the position within the cycle of individual countries may shift to more or less developed stage in line with their economic status. In the case of South Korea, economic status is because outward investment has risen rather than because inward investment has fallen. Dunning (1981) mentioned "it has been the rising ownership rather than falling location advantages of these countries which have been responsible for the changing ratio. The identification and evolution of these advantages, which are linked to the structure of industry and the strategy of firms, both of which (particularly the former) are affected by the resource endowments of the country, government policy and market size, is a matter for further research".

In fact, when firms invest abroad, the type of outward FDI emanating from the home country might evolve as the host country develops economically, whether as a whole or within certain industries. In other words, MNEs need to consider their changing motives and the economic conditions of the global economy in terms of relative changing factors, such as wage levels or technological levels between home and host countries over time. This phenomenon is likely to be repeated when investing firms have more complex motives, such as strategic asset seeking in developed countries. In the face of so many influences on the decision making process, it is difficult to identify the pattern or the trend of a certain country's FDI when competitive pressure starts building up in host countries.

Consistent with this, I argue that, when considering the differences between various motives for Korean FDI, the key location factors will play a special role, determining location choice of firms. The distinction between market-oriented FDI and export-oriented FDI has been noticed (Woodward and Rolfe, 1993); what differentiates them is the type of incentive that drives them. Export-oriented investment is largely determined by unit costs (Caves, 1996). According to the investment development positions and FDI motive theories, there should be a difference in the key determinants across vertical FDI and horizontal FDI. However, there are few studies testing the relative importance of the determinants of firms' behaviour under different FDI motives. Authors such as Kang and Lee (2007) came up with new variables that explained Korean firms' location choice in some specific regions, taking into account the market conditions of the host countries and the home countries. According to the perspective we can see different market situations and different market entry strategies as important variables for FDI. In a host country there are many possible market locations each with their own specific advantages, such as coastal region, consumer spending power, the average wage level, good infrastructure, etc. Certain of these factors would carry more weight foreign firms choosing the location of their overseas operation, and the firms' motives for investing abroad will influence the location choice of FDI to meet their strategies.

Korea is home to a set of large firms, often referred to as "chaebols", which can be classified as Multinational Enterprises (MNEs). An MNE is defined as a firm with some foreign sales and some foreign production, where the latter takes place in a wholly owned foreign subsidiary (Rugman, 1981).

In the list of the world's largest 500 companies, ranked by sales for 2001, Oh and Rugman (2008) state that there are 12 Korean firms. In 2004, there were 11 Korean firms in the list of the world's largest 500. The literature on international business analyses the growth and foreign expansion phase of MNEs. The starting point of the Rugman theory of the MNE, (1981 and 1996), is the proposition that an MNE goes abroad to further expand on its firm-specific advantage (FSA). The FSAs are proprietary to the firm. These can be technology based, knowledge based, or they can reflect managerial and/or marketing skills (Rugman & Verbeke, 2003). These academic works show that the largest MNEs have developed FSAs and CSAs in their home region (Girod & Rugman, 2003; Rugman & Verbeke, 2004; Delios & Beamish, 2005; Oh & Rugman, 2006, 2007).

Using Porter's terminology, the CSAs form the basis of the global platform from which the multinational firm derives a home-base "diamond" advantage in global competition (Porter, 1990). Tariff and non-tariff barriers to trade and government regulations also influence CSAs. Building on these CSAs, the firm makes decisions about the efficient global configuration and coordination between segments of its value chain (operations, marketing, R&D, and logistics). The skill in making such decisions represents a strong, managerial, firm-specific advantage (FSA). The FSAs possessed by a firm are based ultimately on its internalisation of an asset, such as production knowledge, managerial, or marketing capabilities, over which the firm has proprietary control. FSAs are thus related to the firm's ability to coordinate the use of the advantage in foreign production (Rugman, 1981).

In terms of Korean outward FDI analysis, the amount of the outflow of FDI from Korea has increased since the 1970s (Kumar and Kim, 1984). However, from the mid-1980s, Korean firms engaged earnestly in FDI, due to the world's liberalisation and globalisation. Korean FDI policies were gradually liberalised as the Korean government started to perceive FDI as a way of technology improvement to reduce the technological gap between Korea and developed countries (Kim and Seo, 2003). Thus, in the 1980s, Korean FDI was encouraged in the light manufacturing industries targeting export markets because at that time the Korean industrial development strategy was predominantly export-based. However, despite liberalisation efforts by the Korean government, the role of outward FDI in the Korean economy remained small during the 1980s. After the Asian economic crisis of 1997, the Korean government changed tack and opened its door to MNEs to try and offset its large amounts of foreign debt and the weakness of the Korean currency (Ismail, 2002; Stoeber, 2005). The small amounts of outward FDI also generated an increase in exports from Korea to the host countries since the Korean firms in the host countries import intermediate inputs and capital equipment from Korea. Lee and Huh (2009) show that Korea generally increased exports into each region, which is consistent with the findings of previous studies. On the other hand, Korean industrial development had reached the stage at which its domestic industries found it difficult to be competitive in the global market because they were reliant on imported technologies and employed domestic labour that was becoming more expensive. So Korean MNEs needed to consider the changing factor conditions in developing and

developed countries. Kim and Rhee (2009) analyse Korean outward FDI in this context highlighting the differences to and similarities with other countries. They conclude that Korean outward FDI to developed countries and to developing countries have differing factor endowments in terms of efficiency-seeking FDI (host country average wage), market-seeking (GDP and population), and technology-seeking (total annual patent applications). However, no such evidence exists for Korean full-scale outward FDI paths by location preference during the span of its economic development. This is due to the majority of research interest being concentrated on location choices for specific regional factors.

CHAPTER 3. DATASET

3.1 Introduction

Historically, empirical research has tended to model FDI location factors to examine the location choice of FDI outflow by multiple econometric techniques that model both FDI motive and location. Generally speaking, these econometric techniques can reveal the macro-level determining factors that impact the FDI location choice/flows in host countries. More specifically, investing firms and countries have different capabilities and characteristics, which lead to different motivations with regard to the home or parent company's involvement in FDI activities. As a result, internationalising firms have different preferences/trends in FDI location choice. Therefore, it is necessary for investing firms to focus on the motive for FDI location choice, with exclusive emphasis on firm specific assets (FSAs).

A large body of empirical literature has sought to examine this question, building on the conceptual analysis of the 4 main reasons for FDI identified by Dunning (1993). The decision of MNEs to embark on investment in a foreign location is affected by various economic factors in the host country. These factors may ascribe to enhance or diminish MNEs' outward FDI. Host locations can attract different types of inward FDI from foreign countries thanks to the country's attractive factors, such as low wages and availability of natural resource.

A significant volume of literature has been developed that seeks to provide an explanation of these attractive location factors, and to analyse a particular host location through the lens of the motive for FDI. Shaver (1998) for example, maps location choice onto the market-seeking, resource-seeking, efficiency-seeking and strategic asset-seeking motives. However, the relationship between FDI motive and location advantage has generated much debate and empirical research because a country's location advantage may broaden as the country develops. To date however the empirical research has been done carried out using a system of firm/country levels, which is affected by the subjective viewpoint of the researcher. A good quality dataset can go for a temper research bias and thus, a study using such a dataset to provide answers to the detailed process of FDI location choice for specific motive could make a significant contribution to international business (IB) literature. In addition, FDI determinants impacting FDI location choice by motivation can be more effectively explored.

3.2 Korean outward FDI Dataset

I collected data on Korea's outward FDI from the Korean Exporting Import Bank (hereafter called EXIM). EXIM manages international capital data from the firms that participate in foreign investment. In Korea, if a company wants to engage in foreign direct investment, they must submit documents to the Korean Banks that include details of the exact location of their subsidiaries, their total amount of FDI, their investing motivations, their firm size, industrial area, and so on. This is in order to comply

with Korean foreign exchange law from 1968 to the present day. Thus data from EXIM show the total FDI amounts and the number of local subsidiaries. These are categorised by motive, host country, firm size and industry sector. In the subsection below, I will describe the data in more detail.

3.2.1 Outward FDI by motive

Over time, a large body of literature has been devoted to the relationship between FDI motive and location choice. Location choice of FDI is a strategic issue for firms embarking on internationalisation. The firms' specific motives for investing abroad is key to the decision regarding location. Previous literature examined the motives and categorised four different motives, namely: market seeking; resource-seeking, efficiency-seeking and strategic asset-seeking (Dunning 1993). The EXIM dataset has records of Korean firms' investing motives, which fall into 8 categories:

1. Local Market seeking: foreign investment to find new local markets
2. Exploitation of resources: foreign investment to secure and exploit natural resource
3. Export promotion: foreign investment to export Korean products through price competitiveness
4. Low wage (Efficiency seeking): foreign investment to reduce the wage cost of products
5. Technology seeking: foreign investment to obtain advanced technology
6. Going to third countries: foreign investment to go to other locations
7. Overcome protective trade: foreign investment to help overcome trade barriers
8. Others: foreign investment for other reasons

However, according to the EXIM data from 1980 to 2014, there are 5 main reasons (local market seeking, export promotion, low wage (efficiency seeking), introduction of advanced technology (strategic-asset seeking) and natural resource development) that account for more than 88.8% of total outward FDI and 93% of manufacturing industrial FDI from Korea.

3.2.2 Outward FDI by country and region

EXIM data of Korea shows overall location choices of outward FDI from Korea. There are 188 countries hosting Korea's outward FDI from 1980 to 2014. The top 10 host countries of Korea's outward destinations are USA, China, Hong Kong, Vietnam, Australia, Netherlands, the UK, Canada, Cayman Islands, and Malaysia. Total investment flow for the period is 281,791 million US dollars, and Korean firms reported 59,677 new local subsidiaries during the period. The dataset can be categorised by region. The 188 host countries are classified by regions, and the top ranking regions are Asia, North America, Europe, Central & South America, Oceania, the Middle East, and Africa. From 1980, Korean firms have invested nearly 43.2 % of FDI flow in Asian countries, with North America at 23.2 % and Europe at 16.9 %.

Unlike many other emerging countries, Korea's outward FDI has been directed towards both the developing and developed countries. Hence, Korean outward FDI provides a rich and unique opportunity to compare the potentially differing characteristics of outward FDI into developing countries, versus outward FDI into developed countries'. Among the total South Korean outward FDI countries, almost 95% of the FDI amount were invested in the Top 30 countries of the Korean FDI flow. Korean firms have invested, about 73 billion (73.7%) US dollars in 20 developing countries, and about 21 billion US dollars in 10 developed countries (21%). The developed countries are the USA, the Netherlands, the UK, Singapore, Germany, Canada, Japan, Ireland, Australia and France (10 countries), and the developing countries are China (including Hong Kong), Vietnam, Indonesia, India, Brazil, Malaysia, the Philippines, Russia, Thailand, Mexico, Poland, the Czech Republic, Slovakia, Turkey, Uzbekistan, Romania, Sri Lanka, Kazakhstan and Bangladesh (20 countries). Chapter 4 will focus on Korea's FDI destinations, while this chapter describes the EXIM bank data of Korea's data.

3.2.3 Outward FDI by firm size and ratio

EXIM bank data provides outward FDI information in terms of the investing firms' size and type, such as whether the investment has taken the form of a joint venture between the Korean MNE and the local firm. The data includes the information on the joint venture's ratio level: less than 10%, 10% to < 50%, 50%, 50% to < 100%, and 100%. In addition, the data designates Korean large enterprises and small & medium size enterprises (SMEs). The criteria for Korean firm size follows.

Criteria for South Korean large enterprises and SMEs

Korean revenue laws categorise large enterprises and SMEs. Although the criteria are not clearly in day to day terms, the Republic of Korea has a legal definition of SMEs according to company law. A company is defined in the statute as a large enterprise when one or more of the following requirements is fulfilled.

1. The company employs more than 1000 full-time workers
2. It has total assets of more than 500 billion won (Korean currency)
3. Corporate capital is more than 100 billion won
4. The average annual turnover of the three immediately preceding business year, more than 150 billion won

Source: Enforcement decree annex 1<number of workers in the industry constantly SMEs, based on capital or revenue (Article3, Paragraph1, Item No. 1 related)> on and grounds

3.2.4 Outward FDI by industry

The companies making returns to the EXIM bank are self-categorised according to the classification system of the Korea National Statistical Office (the Korean Industrial Standard Categories “KISC”). The investing companies apply KISC to each classification of themselves and report it to the EXIM bank of Korea when they undertake FDI. In KISC, there are 20 industrial sectors. The main outward FDI sectors are manufacturing, mining and quarrying, construction, wholesale and retail trade, and financial and insurance activities.² More specifically, in the manufacturing industry, there are sub-industrial sectors enabling the companies to provide better particulars of their outward FDI industrial sectors. For example, in the manufacturing industry (100,313 million total FDI flow), there are 24 sub-industrial areas. The major outward FDI areas from Korea are KISC No. 25 (Manufacturing of computers, videos, sound and telecommunications equipment); No. 30 (Manufacture of fabricated metal products, except machinery and equipment); and No. 20 (Manufacture of chemicals and chemical products).³

3.3 Advantages and limitations in the dataset

This thesis exploits a unique dataset to uncover a change in FDI strategy, both in terms of motive and location, something that has received little attention in the IB literature. The major advantage of these data is that firms were required to state their motivation for FDI *ex ante*. This allows us to extend the existing literature which rather assumes motivation based on differences between home and host country. The dataset includes details such as location information, total amount, investing firm’s size, industrial sector and so on. Specifically, the dataset captures specific motives of Korean FDI in host countries by Korean unique foreign exchange law; submitting documents to the Korean Banks that include details of the exact location and investment motive of their subsidiaries. In other words, this

² 20 industrial sectors: Agriculture, forestry and fishing/ Mining and quarrying/ Manufacturing/ Electricity, gas, steam and water supply/ Sewerage, waste management, materials recovery and remediation activities/ Construction/ Wholesale and retail trade/ Information and communications/ Transportation/ Accommodation and food service activities/ Real estate activities and renting and leasing/ Financial and insurance activities/ Professional, scientific and technical activities/ Business facilities management and business support services/ Public administration and defence; compulsory social security/ Education/ Human health and social work activities/ Membership organizations, repair and other personal services/ Arts, sports and recreation related services/ Activities of households as employers; undifferentiated goods- and services- producing activities of households for own use

³ Note: KISC 10. Manufacture of food products 11. Manufacture of beverages 12. Manufacture of tobacco products 13. Manufacture of textiles 14. Manufacture of wearing apparel 15. Manufacture of leather and related products 16. Manufacture of wood and of products of wood and cork, except furniture 17. Manufacture of paper and paper products 18. Printing and reproduction of recorded media 19. Manufacture of coke and refined petroleum products 20. Manufacture of chemicals and chemical products 21. Manufacture of basic pharmaceutical products and pharmaceutical preparations 22. Manufacture of rubber and plastics products 23. Manufacture of other non-metallic mineral products 24. Manufacture of basic metals 25. Manufacture of fabricated metal products, except machinery and equipment 26. Manufacture of computer, video, sound and telecommunication equipment 27. Medical, precision and optical instruments 28. Manufacture of electrical equipment 29. Manufacture of machinery and equipment n.e.c 30. Manufacture of motor vehicles, trailers and semi-trailers 31. Manufacture of other transport equipment 32. Manufacture of furniture 33. Other manufacturing

dataset can link the FDI location and the FDI motivation. It would be interesting to investigate how different FDI motivations can shape Korean firm's investment in each country. For example, one could collect a dataset on FDI motivation; such as market-seeking, efficiency-seeking, strategic asset-seeking, and natural resource-seeking, and host country (195 countries) by industrial sectors.

However, the aggregate data have some drawbacks when undertaking analysis of micro economics data with firm-level information on FDI. When employing the data, it is not possible to link firm level data with information on a firm's subsidiaries, as there is no information about a firm's ownership or financial data for both parent companies and their subsidiaries in host countries.

CHAPTER 4: DEVELOPMENT OF OUTWARD FDI FROM KOREA

: The relationship between national investment position and location choice

Abstract

The Investment Development Cycle (Dunning, 1981) assigns investment positions to countries based on their inward and outward investment portfolios, and their stages of economic development. This chapter uses Dunning's cycle to conceptualise the model of South Korean outward foreign direct investment (FDI). In our South Korean outward FDI model, we differentiate between two paths of Korean outward FDI. The two paths flow to developed and developing countries, with a change from technology seeking FDI to market seeking FDI in one case, and efficiency seeking FDI to market seeking FDI in the other, while taking into account South Korea's own investment position within the investment cycle (Dunning, 1981). We have collected South Korean FDI data from 1980 to 2014. The data includes the total FDI amount and the number of new overseas firms by country, industrial area and motivation. Our analysis of Korean economic development maps directly onto Dunning's conjecture concerning the investment development cycle, which we extend by considering different FDI motivations.

Key words: South Korean outward FDI, FDI motive, location choice, investment development cycle

4.1 Introduction

One of the key debates of International Business (IB) is “what are the drivers of internationalisation of multinational enterprises (MNEs) from advanced economies and emerging economies (EMNEs)?” The debate focuses on whether the existing theories and concepts that are derived from the study of those MNEs from advanced economies could be equally well applied to the behaviour of EMNEs. The question presents a challenge for International Business theory, since the firm specific advantages of firms from emerging economies are not applicable to the kind of standard analysis that is appropriate for western firms (Meyer and Xia, 2012; Meyer and Peng, 2005; Bhaumik, et al., 2010). Firms are keen to exploit ownership advantages in new markets, which by definition entails their locating ownership advantages in those markets, thus the literature has regard to what types of factors characterise ownership advantages and how they relate to the literature concerning, for example, knowledge acquisition. Previous literature concentrates on the topic of internationalisation from two perspectives. The first considers internationalisation in terms of firms looking for new markets (Johanson and Vahlne, 1977). The second studies the motivation behind location choice (Dunning, 1993) through the lens of the various motives for outward FDI. In this literature, host locations are categorised either as those with advanced economies in which MNEs seek to benefit from strategic assets, or emerging economies in which MNEs gain the advantages of cost-based assets. However, these insights on FDI motives are driven by an analysis of the international expansion of MNEs from advanced economies only.

In the context of EMNEs, the existing literature focuses on exploring how emerging market firms can access technology sourcing by means of outward investment into developed countries. Authors such as Peng et al. (2008) describe experiences of EMNEs that spur them into going abroad, and Guillen and Garcia-Canal (2009) offer generalisations as to how EMNEs differ from conventional MNEs that originate from developed countries. Dunning argues that the proprietors of EMNEs are unlikely to be the same entities as the proprietors of their developed country counterparts. In other words, the ownership of EMNEs is perhaps assumed to evolve once internationalisation has been established, in a manner that is not generally seen MNEs. However, the relationship between technology sourcing and the subsequent technological upgrading is not an automatic process (Driffield and Love, 2003). Further, it has been noted that firms from emerging countries also internationalise through country specific assets (CSAs) such as economies of scale, thereby increasing their competitive advantage and overcoming their inherent liability of “foreignness” (LOF) (Bhaumik et al., 2010; Bhaumik and Driffield, 2011) The key points are that the development of EMNEs through technology sourcing FDI relates to their location choice. While some firms from emerging countries focus on assimilating knowledge, firms from developed countries can focus on efficiency (Bhaumik et al., 2016). However, the existing literature on EMNEs has less given attention to how EMNEs emerge over time.

We argue that we have developed an appropriate framework in which to anchor the motivations of FDI by South Korean firms to their different location choices, while taking into account the development process of Korean FDI over time. This allows us to combine analysis of FDI motives with location choice, and enables us to explore how Korean firms can exploit different location advantages at different stages of their internationalisation, moving from for example technology seeking FDI through to market seeking FDI in developed countries. Our framework therefore takes as its basis Dunning's four stages of investment development (1981) in which Dunning discusses FDI motives and a firm's location choice in the context of a country's economic development over time. In 1993 he identified four types of motive: resource-seeking FDI; efficiency-seeking FDI; market-seeking FDI; and strategic-asset seeking FDI.

Dunning (1981) suggests a systematic relationship between the determinants of FDI flows and the stages of investment position based on a country's net outward investment (NOI). The relationship is also symbiotic within the structure of a country's economic development. In this study, we used as our methodological reference the Investment Development Cycle (IDC) introduced by Dunning (1981). The basic thrust of this particular theoretical approach is that, during the process of economic development, a country's NOI experiences the different stages of the IDC. Thus it starts from the initial one whereby the country is a net inward receiver of foreign investors, and progresses through the stages until it eventually becomes a net outward investor. This analysis of a country's evolving patterns of investment can explain not only how the country and its firms have developed their internationalisation strategies during the course of the country's development, but also how the development of investment position effects location choice.

This chapter examines these issues through the investigation of a unique dataset from the Export-Import Bank of Korea ("EXIM"). This dataset not only contains information upon the motives that lead South Korean (hereafter called 'Korean' in the interests of brevity) MNEs to establish themselves in a certain location but also can show the changing nature of FDI motives and flows by industry and country over time. Thus, we are able to demonstrate that Korean firms have, despite their initial technological weakness, been increasing their competitiveness over time by honing their motives for internationalising and tweaking their location preferences in order to utilise the different specific advantages of their host countries. Therefore, we argue that the rise of Korean investment positions, particularly those with early development has evolved, not merely by FDI motivation, but also by location, as firm development influences location strategy. This allows us to consider Korean FDI through the lens which is typically applied to EMNEs, in terms of the relative importance of firm specific and country specific assets, and explore the changes that have occurred in parallel to the development of Korea.

Our unique dataset enables us to extend the existing literature by linking location choice and ex ante motivation for the investment, and relating these to the bigger picture. Thus, we are able to

extend the theoretical work on EMNEs so that it is no longer a mere side-shoot of the MNE literature. We make the following contributions to the literature. First, we have researched the process of development of a country's economic position, adapting a pure theoretical model and using it to empirically examine the relationship between FDI location choice and motives. Second, we contribute to the literature on the internalisation of both MNEs and EMNEs by examining, through Korean outward FDI data, how FDI motive and location choice interact with each other. We do this by applying Dunning's IDC theoretical model to the relationship between the home and the host countries. Further, we explore Korean FDI activities in developing and developed countries, which garner little attention in the existing international business (IB) literature. This chapter thus has an empirical application of interest for MNEs/EMNEs and policy makers, enabling a better understanding of FDI motives and the impact thereon of a country's investment development stage. Our research shows the relationship of the different constructs that EMNEs should investigate when making a decision about their FDI location choice.

We show that Korean FDI in developed countries was initially dominated by strategic asset-seeking motives most notably a desire to acquire technological information. In developing countries, on the other hand, the motivation for Korean FDI was efficiency-seeking. However, when net outward investment (NOI) is positive, Korean firms changed their investment decisions to expand internationalisation into the developed countries for motives other than the mere acquisition of technology. We observe a convergence of FDI motives from 1980 to 2014, moving from a clear distinction between technology sourcing in the west and efficiency seeking in the east, to technology driven market-seeking FDI in all host countries from 2001. We then explore this in the context of FDI location. Our results highlight the differences between the two paths of outward FDI in developing countries, and how they change after net outward FDI of Korea became positive. This allows us to extend the IB literature by exploring the changes in FDI motives as South Korea developed.

The remainder of the chapter is structured as follows: Sections 2 and 3 suggest and examines Korean investment position of outward FDI, and the Korean FDI model. Section 4 investigates the location preferences of Korean outward FDI. Section 5 defines the relationship between the structure of Korean industry and outward FDI for. Section 6 explains the implication of Korean FDI. Section 7 and 8 concludes and considers future research issues in terms of the conceptual framework and FDI location choice.

4.2 Revisiting the investment development cycle theory and Korean outward FDI development

In his introduction of the investment development cycle, Dunning (1981) suggests that an enterprise's capacity to produce goods abroad depends on the three factors that are country specific, industry specific and enterprise specific. He states that the country and its industry are clearly interlinked. In addition, in the cases of South Korea and Taiwan, a development of trade and FDI tends to be positively correlated with national wealth and asset intensity (Dunning, et. al., 2001). In other words, and supported by case evidence, the positions of countries within the stages of economic development and economic structures are strongly related to the flow of inward and outward direct investment. Thus, an individual country has its own investment position based on its net outward investment (NOI).

There are four stages of the investment development cycle. In Stage 1, domestic markets are small so inward and outward FDI are almost non-existent. In Stage 2, inward direct investment begins but there is no outward FDI so NOI is negative. In Stage 3, the country's firms start to internationalise, leading to an increase in outward FDI and the negative NOI starts to reduce. Finally, NOI increases to the point of becoming positive and the country has become a net outward investor. In Dunning's 4 categories, each stage has its own feature based on its NOI position.

To summarise each stage: those countries in stage 1 share various characteristics, being restricted by inappropriate, inadequate and underdeveloped commercial and legal frameworks economic infrastructure, and so on. In stage 2, the main type of FDI is inward, import substituting manufacturing investment for efficiency seeking or natural resource seeking. In Stage 3, the key feature is investment specialisation. During this stage, the country seeks outward FDI locations in those sectors in which the country's comparative ownership advantages are strongest but its comparative location advantages are weakest. Thus import substituting or export platform activities can interlink with local firms in the host countries as local and foreign companies become more comparable. The MNEs from Stage 3 countries are prone to internalising their activities in order to gain ownership advantages in technologically advanced sectors. In Stage 4, the outward FDI of the country exceeds its inward FDI. The country demonstrates an increasing propensity to exploit these advantages through process specialisation internationally rather than domestically. This is partly due to rising labour costs at home or pressure to obtain additional resources to sustain an international competitive position (Dunning, 1981). The investment development cycle suggests that a country's international investment position is related to the economic development process. However, the theory has not yet been empirically tested by time series analysis.

The implication of Dunning's four stages of investment development is that the position of individual countries can shift to less or more developed stages depending on their country's economic status. In Dunning's view, EMNEs are mainly concerned with knowledge acquisition; MNEs derive their ownership advantages through internalising in foreign locations thereby avoiding transaction costs of the market (Dunning, 1986). As a result, most empirical work on FDI has dealt with either the

industrial composition of a particular country's outward/ inward FDI or the determinants of FDI location choice with respect to the specific relationship between the changes of investment position as the country develops. However, as a country develops in terms of obtaining strategic assets, the firms' motives for outward FDI change. This might be explained by the EMNEs' access to knowledge-intensive assets and learning experiences, which augment their existing ownership advantages. It also may be that they need to find, other investment locations as the market conditions in other emerging countries also change over time. However, these two perspectives (asset-exploitation and asset-augmentation) are not mutually exclusive because EMNEs are latecomers in the specific industry in which they are competing, so that they need to accelerate internalisation with the explicit goal of gaining access to capabilities, assets, or resources that they cannot find in their home countries (Mathews 2002). However, in existing IB literature, there is still no clear explanation for the relationship between location choice and FDI motivation as a country's investment position develops.

We address the following research questions: "When (Investment position), where (location choice), and why (FDI motive) have Korean firms invested in foreign economies and can we link this to Korea's investment development position as it moved from a position of emerging to advanced country? We are able to answer this by considering the relationship between Korea's investment position and the changing nature of firms' outward FDI motives in host countries during the course of the country's economic development. We also ask how the stages of Korean economic development and economic structures are related to Korea's flow of outward direct investment since the ownership advantages of MNEs reflect country specific characteristics (Dunning 1986).

It can be seen from the above that, the IDC theory has brought richness to the field by linking country level and investment position based on NOI. The argument is cogent but research to date on IDC has not looked at the change in FDI motivations over a period of time, specifically a cross different locations in developing countries and developed countries. Building on this critical view, this study investigates the variation in FDI motives, paying particular attention to the Korean context. As such, this section starts with the historical background of FDI in Korea, followed by an analysis of the country's economic transformation and the reasons for it.

We start with a discussion of the history of Korean outward FDI. It is fair to say that from 1970s the outflow of FDI from Korea has increased (Kumar and Kim, 1984). However, from the mid-1980s, Korean firms embraced internationalisation in earnest, due to the world's liberalisation and globalisation. Korean FDI policies were gradually liberalised as the Korean government started to perceive FDI as a way of reducing the technological gap between Korea and the developed countries (Kim and Seo, 2003). Thus, in the 1980s, the predominantly export-based Korean industrial development strategy was to encourage light manufacturing industries to target the export market. However, despite these liberalisation efforts by the Korean government, the role of outward FDI in the South Korean economy remained small. After the Asian economic crisis of 1997, the Korean

government opened its doors to both inward and outward FDI by MNEs as a means of dealing with its large amounts of foreign debt and the weakness of the Korean currency (Ismail, 2002). Overall conditions for investing in foreign markets have changed since the Asian economic crisis of 1997 significantly, and Korea has also seen an increase in labour costs particularly in the technology sectors. However, there is as yet no research on Korea's full-scale outward FDI paths with location preferences as its economy develops. This is due to the majority of research interest being location choices for certain regional factors.⁴

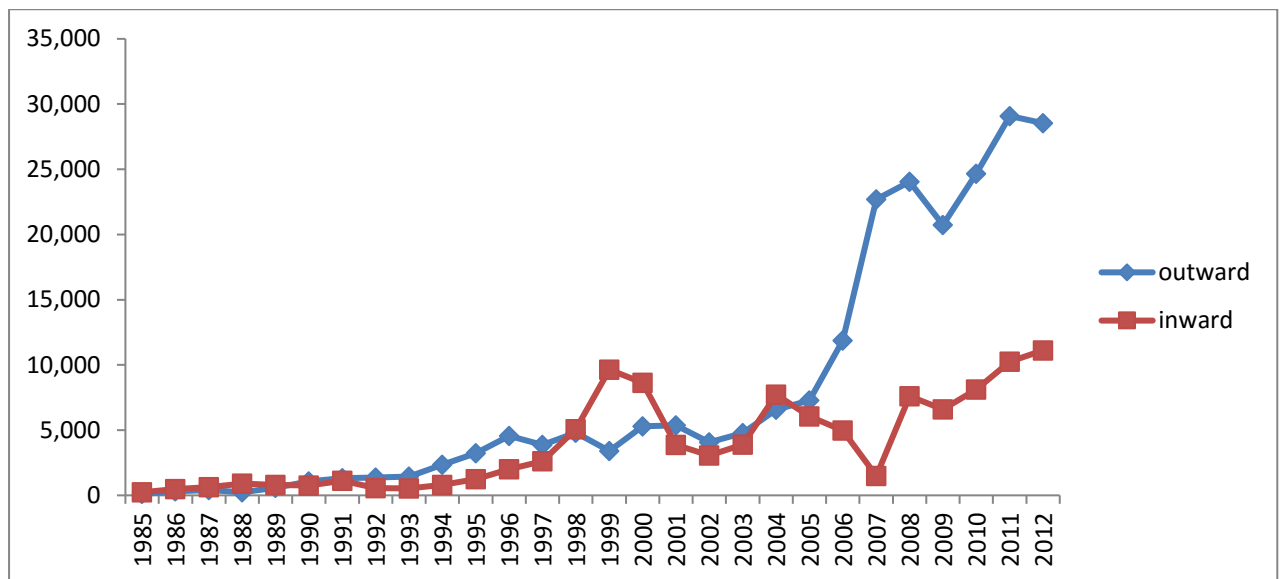
As economic development progresses, a country's location assets move from being labour-intensive to knowledge-intensive (Dunning and Narula, 1996). The first key issue, as alluded to above, is whether Korea's set of locational assets broadens as the economy develops. The second issue is the interdependent relationships among different types of industries that may cast effects on internationalisation (Vahlne and Johanson, 2013). The evolution of Korean outflows of FDI is shown in Figure 4.1-1 and 4.1-2. The Korean outflows were relatively low until 1987. The two main destinations for Korean outward FDI are the United States and China (Appendix 1). The United States has been the main partner for Korean outward FDI since the early 1980s. China has become a new destination for Korean outward FDI after liberalisation and the subsequent normalisation of relations in 1990. During its internationalisation process, Korea targeted some factors which partially eroded the international competitiveness of its manufacturing and assembly activities. For example, there is outward FDI from Korea to South Wales as a result of increasing wages in the late 1980s, and from Korea to many Asian countries in order to secure Korean domestic supplies of raw material and labour-intensive manufacturing (Read, 2002).

However, unlike other emerging countries, the Korean development process has a unique pattern in terms of technology development. The industrialisation of South Korea in the early stage was a process of learning how to utilise and improve upon foreign technologies for their industrial development; technological learning through technical agreement, rather than domestic technology development, was at the core of the early development stage (Chung, 2011). Data on the payment of royalties on imported technologies reveal the critical role of technology transfer in Korea's key industries. The principal sectors of these royalty payments being Electronic & Electrical (\$1.8 billion, 60 per cent of total royalties in 2000) and Machinery (\$400 million, 13.5 per cent) in 2000 (Read, 2002).

⁴ In Dunning's investment development cycle (1981), he categorises 4 stages of investment development stages. However, due to availability of data, we analyse from 3rd stage (increasing outward FDI) and 4th stage (more outward FDI than inward FDI (Net Outward FDI is positive)).

Figure 4.1-1 Korean inward and outward FDI Industrial total
dollar

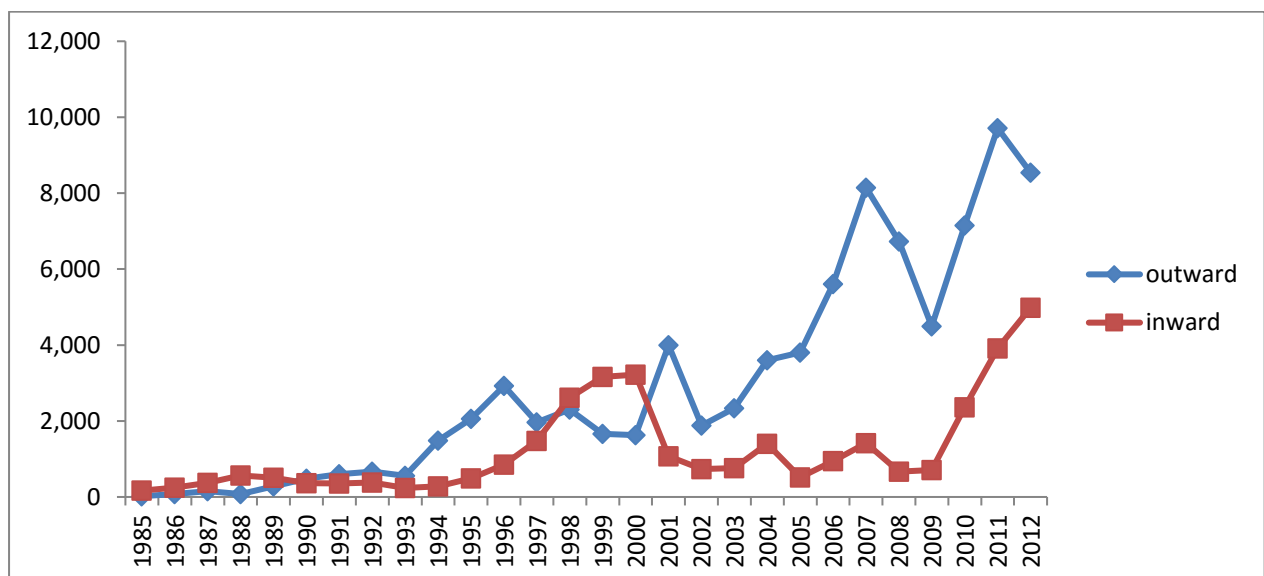
unit: million US



Source: calculated from Korean Export-Import Bank data and OECD statistics data

Figure 4.1-2 Korean inward and outward FDI of manufacturing industry
dollar

unit: million US



Source: calculated from Korean Export-Import Bank data and OECD statistics data

Figures 4.1-1 and 4.1-2 illustrate that Korean net outward investment (NOI) flows have changed from the third stage to the fourth stage of the IDC investment position. It can be seen that Korean NOI has been positive since the 1990s. After 2000, the figures show that Korea is a net outward investor (4th stage). Although development has proceeded in line with the IDC, it is worth nothing that learning by doing enhances the firm-specific assets of Korean firms, allowing outward direct investment to begin. At the same time, Korean economic development may cause an erosion of the cost competitiveness of

Korea's assets in labour-intensive industries, which impacts on the incentive for inward FDI. As illustrated by Dunning (1981), these are sub-industries of manufacture in which Korea's comparative ownership advantages are strongest but its comparative location advantages are weakest. Thus, import export platform activities of labour intensive industries are interlinked with local firms in host countries as companies become more competitive. At stage 4, Korea's NOI position becomes positive, as the flows of both inward and outward investments change. Outward FDI may grow further as Korean firms seek to maintain or expand competitiveness, which will be discussed later.

4.3 Korean outward FDI motives: An integrated model

The above section discusses the general upgrading of the Korean investment position; we now turn our discussion to the implications of this for outward FDI from Korea. Typically, the dominant framework in linking the development of an emerging economy to its internationalisation is to discuss this in terms of the investment development cycle (Dunning, 1981; 1986). This argument posits that less developed countries start by attracting resource-seeking and efficiency-seeking FDI in the product market and developed countries attract strategic asset-seeking and market-seeking FDI. In turn, this promotes development of the type discussed above in terms of exporting, and through the processes described in the incremental literature (Johansen and Vahlne, 1977). Such development leads to outward FDI. Thus, a country which engages in international trade is significantly related to outward FDI (Dunning, 1986). In Dunning's theory of international production (Dunning, 1993), the dynamic effects of international economic integration improve the competitive advantages of MNEs established within the area by expanding their market size, creating opportunities for scale economies, and increasingly high levels of innovation activities. These effects can add more competitive advantages for those internal MNEs, which obtain newly created location advantages as compared to other MNEs outside of the integrated area. While the focus on technological development as the main source of firm-specific advantage flows naturally from traditional "ownership" advantage, it is also important to allow for other sources of firm-specific knowledge intensive assets within the analysis of the MNE (Driffield and Love, 2007). Outward FDI may be promoted by utilising the knowledge and expertise embedded in investors with international experiences from the home country to host countries (Bhaumik, et al., 2010). Driffield and Chiang (2009) illustrate that in the Taiwanese context, outward FDI plays a significant role in the structural changes of the economy and the move towards becoming more skill intensive with Taiwanese outward FDI. They explain that Taiwanese outward FDI to China contributes to the reallocation of activities of manufacturing, towards more high technology sectors such as electronics. These sectors are associated with higher levels of export-intensive, value added and skill-intensive industries.

Our focus however is not only on the investment cycle hypothesis per se, but also on the evolution of FDI in terms of the changing internationalisation strategies of Korean firms. In this regard, South Korea can be a good empirical example for examining firms' changing motives for undertaking

outward FDI as the home country develops from an emerging to advanced economy. Regarding motives and location preferences, our analysis argues that the framework on FDI motives needs to be rethought to reflect the changing investment positions of Korean firms from a weak position to a strong position. When South Korea was in the third stage and the initial fourth stage (from 1990 to 1997) of the investment development cycle, Korean FDI was motivated by export promotion, cost reduction and technology seeking. Internationalisation decisions were therefore driven by location advantages, such as low wages, acquisition of technology, and pursuing export-led growth, during a period of very rapid economic growth. This represents a key stage in the development of Korean firms through the overall investment development cycle (Dunning, 1981).

Table 4.1 South Korean manufacturing NOI and FDI motives in different countries unit: million US dollar

	World			Outward FDI to developed countries				Outward FDI to developing countries			
	inward	outward	NOI	market	export	Low wage	tech	market	export	Low wage	tech
1988	564.8	80.4	-484.4	5.4	6.3	0	0	0	6.1	3.1	0
1989	506.6	278.0	-228.6	29.4	109.5	0	0	2.2	16.0	3.4	0
1990	367.8	479.8	112.0	44.1	97.3	0	0	7.8	41.9	13.0	0
1991	354.8	599.5	244.7	18.7	137.9	0	4.6	12.0	95.8	30.1	0.1
1992	379.9	671.2	291.3	96.6	74.7	1.2	11.3	0.4	230.1	76.6	0
1993	241.8	554.8	313.0	3.5	33.0	1.4	9.6	12.5	205.0	158.2	0
1994	282.1	1,486.9	1,204.8	16.9	87.9	0.2	172.2	55.9	628.2	228.6	0.1
1995	493.6	2,057.3	1,563.7	44.1	222.0	5.3	75.9	48.5	916.8	314.7	0.2
1996	850.2	2,927.5	2,077.3	100.5	934.8	11.2	20.3	88.2	684.6	413.1	0.3
1997	1,480.4	1,963.3	482.9	99.5	488.7	3.5	38.3	127.8	490.3	242.6	0.5
1998	2,612.5	2,299.8	-312.7	93.0	256.5	14.8	10.6	69.3	855.6	165.5	0
1999	3,166.2	1,663.9	-1,502.3	190.9	463.3	4.0	20.2	95.6	346.8	164.5	0.5
2000	3,223.1	1,631.6	-1,591.5	232.4	194.9	0.8	98.7	119.6	485.5	133.3	0.0
2001	1,070.8	3,995.3	2,924.5	25.9	2,475.9	0.1	46.9	73.9	477.4	300.1	2.9
2002	731.0	1,884.4	1,153.4	110.2	182.4	0.1	41.0	314.3	544.9	291.6	3.6
2003	764.5	2,335.1	1,570.6	73.4	269.6	1.0	16.2	426.7	683.3	505.6	11.6
2004	1,402.7	3,597.9	2,195.2	322.3	389.5	2.2	36.7	549.5	826.6	612.7	19.5
2005	512.3	3,806.0	3,293.7	126.8	91.1	4.7	46.4	821.7	987.5	786.9	62.0
2006	945.0	5,607.4	4,662.4	398.3	110.9	7.4	36.2	1,560.4	1,246.8	986.8	23.4
2007	1,421.2	8,147.1	6,725.9	701.1	149.8	0.9	154.6	2,638.6	2,415.6	1,177.1	102.2
2008	669.8	6,729.0	6,059.2	827.2	202.3	10.8	59.6	1,912.6	1,325.6	1,536.9	11.3
2009	708.1	4,493.8	3,785.8	435.1	159.6	6.7	244.6	1,724.0	813.1	621.6	6.6
2010	2,365.4	7,149.6	4,784.3	344.5	104.0	2.2	82.6	4,075.5	959.3	768.0	19.9
2011	3,910.0	9,712.9	5,802.9	911.3	1,062.3	0.2	166.7	3,408.0	1,638.6	1,321.3	231.4
2012	4,984.4	8,544.6	3,560.2	522.1	235.4	0	405.6	4,320.4	1,057.9	859.7	23.2

Source: calculated from Korean Export-Import Bank data and OECD statistics data

Table 4.1 shows that the location choice for foreign investment and the motives for undertaking such investment are related to each other. In the table, it can be seen that once Korean FDI reached the stage of positive NOI, Korean MNEs had different motives for internationalisation. Basically, the most

significant motive for Korean FDI is export promotion, and this remains the case in both developed and developing host countries. However, the proportion of low wage (efficiency-seeking FDI) is significant in host developing countries while the proportion of technology-seeking (strategic-asset seeking FDI) is higher in developed host countries as compared to developing host countries.⁵ This table illustrates the changes in Korea's investment positions as it has moved through the phases of IDC. Interestingly, after 2001, the ratios of market-seeking Korean FDI are greater than both the ratios of efficiency-seeking (low wage) in developing countries and strategic asset-seeking in developed countries. This reflects the Korean investment position (4th stage) whereby Korean MNEs are able to acquire resource endowments from foreign affiliates in their midst. Overall, these particular patterns of Korean FDI show two different paths in developing and developed countries after the point at which NOI is positive in 2001. At the point at which outward Korean FDI exceeds inward FDI after 2001, the Korean FDI to technology intensive countries changes from technology sourcing to market seeking. At the same time, FDI to low wage countries changes from efficiency sourcing to market seeking also.

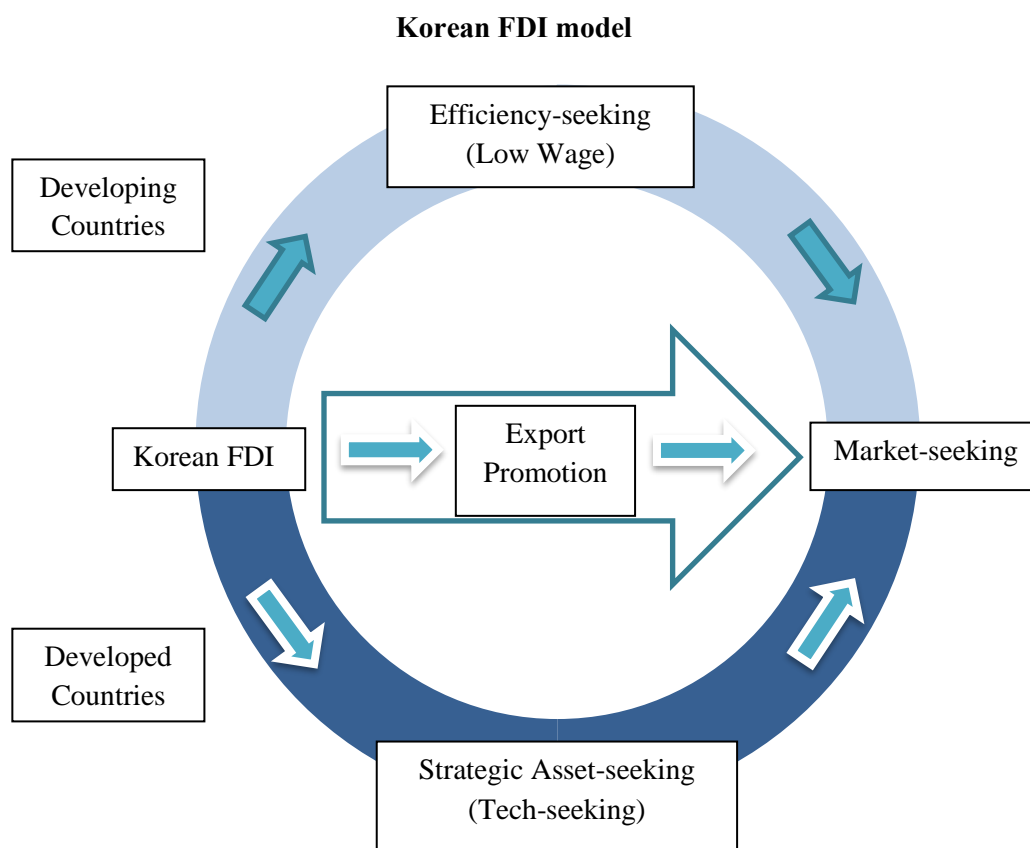
Consistent with this, when considering the difference between the 3rd and 4th stages of IDC, we argue that the location advantage will play a special role in influencing FDI motives, given that it determines the decision making for Korean FDI location choices in developing and developed countries. In 3rd stage and transition period to 4th stage of IDC, Korean MNEs have transformed Korea into a net outward investor. Korean MNEs' ownership advantages may be in technologies forgotten by developed countries but not yet adopted by latecomers. Thus the proportions of efficiency seeking FDI motive by Korean MNEs in developing countries, and technology seeking FDI in developed countries, are high compared with market seeking FDI both in developing and developed countries. However, the motives for foreign production have changed since 2001. In Korea's 4th stage of the IDC, where NOI is positive, table 4.1 shows Korean MNEs moving into more market-seeking positions.

Consequently, Korean MNEs' motives for FDI develop to reflect their international expansion strategy. These motives are in similar vein to asset exploitation and asset exploration (Makino, et al., 2002; Buckley, et al., 2007). On the world stage, Korea is an ingénue, the newly industrialised country which is eager to catch up and converge with the developed world. According to Dunning's IDC, certain motives for location choice can be affected not only by the home country's investment position, but also by the development stage of host countries. Since host countries have different processes in terms of economic development, Korean MNEs take into account location incentives for setting up or acquiring foreign value-adding activities.

The diagram below provides the conceptual framework for Korean outward FDI and outlines our approach to explaining it in terms of the investment development cycle (Dunning, 1981; 1986).

⁵ The ratios of tech-seeking in developing countries and of efficiency-seeking in developed countries are less than 1% respectively.

Interestingly, in our analysis, we see that although Korean MNEs have located their FDI in developing countries for motives of efficiency-seeking, and in developed countries for strategic asset-seeking, their location decisions in both cases are also actuated by market-seeking motives. Our model allows us to trace the paths of Korean outward FDI on different country levels. Korea's international trade intensity is very high and it has sped towards becoming a developed economy. While MNEs derive many ownership advantages from international activities in developing countries, Korean MNEs are mainly concerned with exploring how they carry out technology sourcing through outward investment into developed countries. This reflects distinctive country specific characteristics.



Many Korean firms may rely on the development of firm-specific assets (FSAs) as they achieve competitive advantages in host countries. This can be explained by the double diamond framework developed by Rugman and D'Cruz (1993). In the case of Korea, FDI from Korea is related to strategic location decisions to attain competitiveness in host country factor or demand conditions. In the taxonomy of FDI motives by John Dunning (Dunning, 1993; Dunning and Lundan, 2008), there is a four-way classification of motives: namely resource-seeking; efficiency-seeking; strategic asset-seeking; and market-seeking. These explain the reasons for outward FDI in terms of assets that firms do not possess, or do not have sufficient quantity to enable them to compete with their rivals.

The diagram illustrates the changing trends of South Korean firms' location choice and motive in both developing countries and developed countries. It demonstrates two different patterns of Korean outward FDI, which apply to host countries at different stages of economic development. We suggest that the economic development characteristics correspond to Korean FDI location choice in terms of motivation. In terms of location advantage, FDI is generally related to country-specific phenomena, or a benefit such as a cost and technological advantage conferred on the firm by its decision to operate in a particular host country (Driffield and Love, 2007). In particular, FDI motives can be considered to be within two broad categories of asset exploiting and asset-seeking, with a view of gaining cost or technological advantages in order to gain a competitive edge over other MNEs from emerging or advanced countries.

Viewed from this approach, Korean firms give consideration to their location choice in order to gain the benefits of the sophisticated economic conditions that assist with international expansion. In developed countries, Korean firms invest for motives of technology-seeking and export promotion and then they change track for more market-seeking motives. In developing countries, on the other hand, their FDI motives are initially for the purposes of low wage-seeking and export promotion, and these then shift more market-seeking motives. These symmetrical patterns can be seen from the early stages of outward FDI right up to recent years. Therefore, in our Korean FDI model, we categorise two different paths for country level data. The developmental economics literature has shown how FDI motives change in line with the host countries' economic development. In this context, Korean outward FDI follows different paths compared with other developing and developed countries. Korean outward FDI in developing countries is mainly for efficiency-seeking and export promotion motives and these transform over time to efficiency-seeking and market-seeking. On the other hand, in developed countries, the initial FDI motivations were strategic asset-seeking and export promotion, changing to strategic asset-seeking and market-seeking. The further development of Korea and its host countries may differ in terms of their industrial structures and economic factors such as wage, technology level and GDP/GDP per capita.

Viewing Korean outward FDI in its different locations through the lens of investment motivation, two unique patterns reveal valuable insights for Korea's international expansion strategy (see Appendix 2 and 3)⁶. As discussed earlier, Korean firms are constrained by their lack of knowledge

⁶ The statistics data of The Export-Import Bank of Korea has records of Korean firms' investing motives; namely advancing to the local market, advanced technology introduction, exploitation of resources, export promotion, going to a third country, low wage, overcoming the protective trade, and others. In terms of motivation, there are 8 reasons for South Korean firms to invest in international markets. However, 5 main reasons; local market-seeking, export promotion, low wage (efficiency-seeking), introduction of advanced technology (strategic asset-seeking) and natural resource development are more than 91.2% of the total outward FDI thus we use these 5 motives for the analysis of South Korean outward FDI.

infrastructure even though they have lower production costs. Unlike many other emerging countries, Korea's outward FDI has been directed towards both developing and developed countries. Hence, Korean FDI provides a rich and unique opportunity to compare the potentially different characteristics of outward FDI into developing countries versus outward FDI into developed countries. Based on the investment development cycle (Dunning, 1981), Korean MNEs' investment pattern demonstrates a different priority at the point of positive NOI in 2001. In general, Korean firms' FDI into developed countries was positively perceived as creating channels of technological transfer and market access. The growth of South Korean firms' FDI into developing countries, on the other hand, is expected to enhance the competitiveness of Korean firms' in the global market in terms of cost reduction through employing low wage employees in developing countries. The location choices of Korean MNEs can, through our model, be explained by different motives through location factors over time. From the assumptions of this approach, the most relevant factors for choosing the location of Korean FDI are the positions of Korea's economic development and that of the host country.

4.4 Transforming the economy and outward FDI

The above section discusses the general paths of South Korean outward FDI in different countries. We now turn our attention to a consideration of the FDI motives of Korean firms within specific industry groups. This enables us to understand how the structure of Korean industry has changed and how each industry's motives for undertaking FDI varies as Korea develops. Further, we expect to consider which value-added activities in which foreign locations(s) will permit Korean firms to exploit and augment to the fullest their distinct assets, thus enabling the development of an efficient international strategy. As Driffield and Chiang (2009) illustrate for Taiwanese firms investing in the Chinese mainland, outward FDI plays a key role in the structural changes of the economy and the move towards becoming more skill intensive. Taiwanese firms' FDI motives may be derived from their host country's superior R&D knowledge required for value-adding activities, or it may be that they are conjecturing or surmising their motives on the basis of what it is that they are achieving such as disaggregation of their core activities or taking advantage of low wages. In Korea's case, the industrial sectors of Korea are associated with an export-intensive structure and Korea has changed the core of its industrial structure from labour intensive to knowledge intensive industries. The explanations of Korean industrial development are almost all directly or indirectly related to shifts in the industrial structure of the Korean economy, and the evolution of the world economy. Korean industries have transformed from labour-intensive industries (based on textiles and other light industries) through to heavy/chemical industries, and then to knowledge-intensive industries. The upgrading process reflects a more export-oriented industrial structure and emphasises value adding manufacturing. We found that, whilst the significant increase in South Korea's exporting and FDI has drawn academic attention, government policy remains

concentrated on the country's strong state intervention, which harnesses the importance of scale advantage.

4.4.1 Korean industrial change

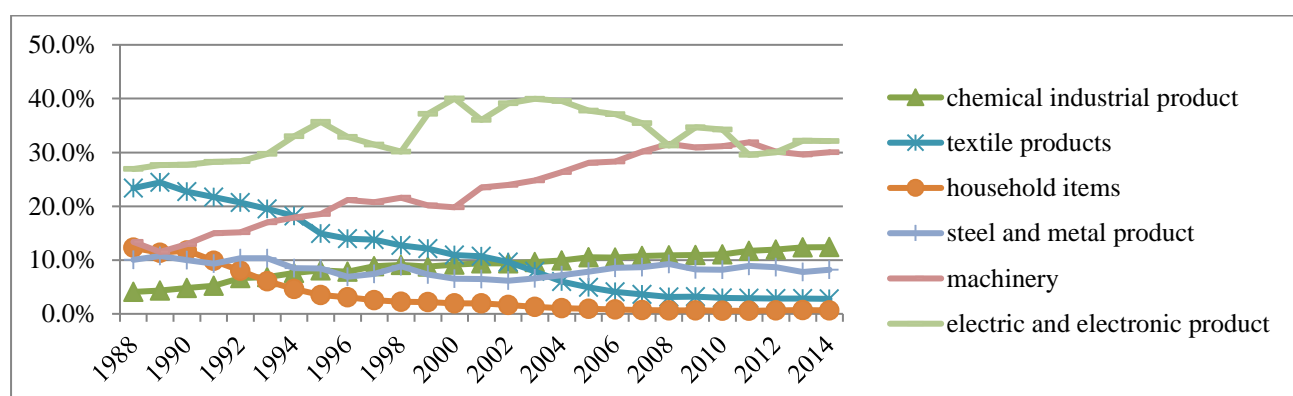
Table 4.2 shows the evolution of the Korean manufacturing sectors. In 1980, the major exporting commodities were light industrial items or heavy industrial items such as ships, iron & steel, synthetic fibre and so on. However, from 1990, we can see serious changes in Korean exports, from light industrial commodities to heavy/chemical and knowledge intensive commodities. From the 1990s, one of the major global export commodities was electronics/electrical equipment. These items became major exporting commodities for Korean trade. Korea's major export items are IT products such as semiconductors, telecommunication equipment and electronic parts, chemical industrial products and machinery including vehicles.

Table 4.2. Korean Top 10 export commodities from 1980 to 2014

Rank	1980	1990	2000	2007	2014
1	Apparel	Apparel	Semiconductors	Automobiles	Semiconductors
2	Iron & Steel	Semiconductors	Automobiles	Semiconductors	Petroleum products
3	Ships	Shoes	Ships	Telecom. equipment	Automobiles
4	Synthetic fiber	Ships	Cell phones	Ships	Ships
5	Audio	Video equipment	Synthetic fiber	Petroleum products	Telecom. equipment
6	Tire	Iron & Steel	Auto parts	Displays	Auto parts
7	Wooden products	Synthetic fiber	Display	Auto parts	Displays
8	Miscellaneous goods	Computers	Telecom. equipment	Computer	Synthetic fiber
9	Semiconductors	Audio equipment	Computers	Visual instruments	Steel
10	Video	Automobiles	Colour televisions	Electronic parts	Electronic parts

Source: calculated from Korea International Trade Association data

Figure 4.2. Industrial ratios of Korean exporting commodities from 1988 to 2014



Source: calculated from Korea International Trade Association data

Figure 4.2 illustrates the changes in exporting patterns of South Korea's industrial sectors. It shows an increase in machinery and chemical industrial products, with a decline in textiles and household items. Within Korea, the industrial structure has developed to emphasise more knowledge intensive and heavy industries. This is reflected in the outward FDI trend. In addition, the country's trade insensitivity, industrial structure, and extent of urbanisation were higher in 2014 than previously. It can therefore be seen that the main labour intensive and knowledge intensive industries need specific internationalisation strategies so as to extend the geographic scope of their firms' activities, given the changing industrial structure, linkages with the domestic wages level and technological development.

4.4.2 Korean outward FDI by industry

The effect of Korean industrial change needs to be considered as part of Korea's outward FDI strategy due to the complicated pattern of export products from Korea. As Korean labour-intensive industries faced pressure from rising wages in the mid-1980s, firms turned to FDI to replace the exporting activities. Korean firms started to set up foreign affiliates so as to be close to their customers thereby having a finger on the pulse of local taste or production standards (Kim, 2000). Simultaneously, the importance of high tech industries has substantially increased for FDI as well as for trade. This is reflected in the fact that major firms in leading export industries relocated some segments of their production lines into new export bases, most notably in China or other developing countries, while capital-intensive input production and core R&D are kept at home. On the other hand, unlike for China, the patterns of FDI and exports to the US are mostly concentrated in high tech industries (Ahn et al., 2005). The relocation of the industry to a host country thereby replaces Korea's exports. This is an example of FDI substituting for the home country's overall exports. On the other hand, the impact of Korea's foreign affiliates on her exports should be weighed over the reduction of the substitution of final exports and the creation of intermediate and parts exports.

Korean industrial change can be explained by the characteristics of Korean export-oriented

industries and the relationship between FDI and exports. Various results from different studies on the relationship between FDI and exports affect our understanding of the relationship and of whether the effect of FDI operation is positive or negative. FDI could be either a substitute for or a complement of exports. The substitution impact brings an increase of exports to a host country as outward FDI is attracted to the country. Korean MNEs might wish to seek comparative advantages through FDI. Thus FDI could be an engine for industrial growth and international expansion for Korea's industries, whether they are less-developed, growing or mature. Various studies have demonstrated that FDI contributes to international trade expansion and assets in establishing competitive industries. In this way, benefiting from outward FDI flows by restructuring economic frameworks has become a major concern for emerging or newly industrialised countries, such as Korea.

Korea's tendency towards technological development can be seen as a core motive for the initial engagement of Korean firms with foreign investment as their economy developed and market environments changed over time. The CSA/FSA matrix (Rugman, 1981) shows that as the technological or internationalisation behaviour gaps between two countries reflect different CSAs, the MNEs internalise in order to upgrade their FSAs. This can be clearly seen in the case of Korea where, as a result of the industrial changes from the 1980s to the present day (leading to an upgrade in status from emerging to advanced country), Korean firms have moved away from labour- and resource-intensive assets to capital- and knowledge-intensive ones. A possible motive for technology-seeking firms from emerging countries to invest in an advanced country is to access and obtain technological knowledge, rather than seeking to exploit their own proprietary technology at home. The literature on the internationalisation of R&D suggests a range of reasons for FDI in R&D, much of which is concerned with the relative technological strengths between home and host countries (e.g. Driffield and Love, 2007). In addition, the traditional labour/resource intensive industries are influenced by the strategy of firms', in which South Korean firms leverage their firm-specific assets in other emerging economies to benefit from lower costs such as wage levels or natural resources.

With the growth in economic development, Korean MNEs have changed location choice in three ways. First, they have invested in developing countries in order to amalgamate their existing FSAs with the host country's advantages, such as a low wage economy. So we see Korean MNEs investing in countries such as China and South East Asia, where they can concentrate their production capacity. Korea has seen a gradual decrease of labour-intensive industries, whereby their MNEs had been very competitive and leading the domestic and global export commodities table for Korean trade in 1980s. Second, countries with an advanced economy and level of technology have succeeded in attracting subsidiaries of Korean MNEs. These economies have a high level of domestic capabilities and industrial infrastructure. Third, Korean MNE motives and strategies also have their place. Korea's economy is an export-oriented market, so that the increased competitiveness of Korean FSAs or CSAs, which determines foreign investments in the long run, does provide growth of FSAs so there has been

sequential investment in both upgrading the initial strategies and maintaining the existing ones.

Turning to broader FSAs, Korean firms are able to undertake FDI for a more diverse range of motives. The four types of FDI motive (Dunning, 1993) can be applicable to Korean international expansion according to their sector, depending on how these industries select their industrialisation strategies to reflect the disaggregation of industrial factors in host countries. As pointed out in the Korean FDI model, Korean firms pursue different FDI motives in various locations, both in developing and developed economies.

The previous literature shows that MNEs from advanced economies benefit from their already sophisticated knowledge intensive assets, while MNEs from emerging economies have the advantage of lower cost-based assets. However, most research into the motives for FDI has concentrated on the international expansion of the MNEs from advanced economies. Despite their technological weakness as compared to their developed host countries, Korean firms have invested in advanced economies, initially seeking strategic-assets to upgrade their technological capacity. At the same time, they have invested in emerging countries to take advantage of lower costs. In this chapter we seek to bring together two theories from (i) Dunning and Narula (1996) and (ii) Driffield and Love (2007) as to how firms choose their locations for investment in host countries, by considering the nature of FDI location by industry and motive over time.

Considering first the motives of Korean firms for undertaking FDI, we see two connected motives: natural resource-seeking and efficiency-seeking. Here, MNEs leverage their firm-specific advantages in other countries in order to obtain cost advantage, thus enabling product cost reduction and greater competitiveness in a third country. Market seekers invest in host countries so as to supply to that country goods and services that were previously provided through exports. Strategic asset seekers may be looking to reinforce existing advantages or to obtain new technologies that contribute to long-term competitiveness. However, the key overall issue is the prioritisation of internationalisation as the Korean economy develops. Currently, the most commonly debated issues concern how differences in the firm-specific assets of MNEs and EMNEs affect their international expansion strategies (Mathews, 2006; Luo and Tung, 2007; Narula, 2012) and how different location advantages affect Korean MNEs' internationalisation strategies as the Korean economy develops.

Table 4.3 South Korean outward FDI motives in developing and developed countries

unit: million US dollar

Industries	FDI summary		Motives			
	Flow	Countries	Developed countries		Developing countries	
			3rd stage	4th stage	3rd stage	4th stage
10	3,562	72	Resource	Resource Market	Resource Efficiency	Resource Market
11	833	13		Resource Market		Re/Eff Market
12	342	9		Market		Market
13	3,431	69	Resource	Market	Resource Efficiency	Efficiency Market
14	3,864	68	Resource	Market	Resource Efficiency	Efficiency Market
15	1,467	34	Resource	Market	Efficiency	Efficiency Market
16	479	40	Resource	Market	Efficiency	Efficiency Market
17	537	34		Market	Resource Efficiency	Efficiency Market
18	83	25	Resource	Market	Resource Efficiency	Efficiency Market
19	926	27		Resource Market		Resource Market
20	7,807	62	Resource	Market	Resource	Market
21	598	38	Technology	Technology Market	Resource	Market
22	4,082	47	Resource	Market	Resource	Efficiency Market
23	2,248	50	Resource	Market	Resource Efficiency	Efficiency Market
24	9,121	58	Market	Market	Market	Market
25	3,743	62	Technology	Market	Efficiency	Efficiency Market
26	26,792	71	Technology Market	Technology Market	Efficiency	Efficiency Market
27	1,289	69	Technology	Technology Market	Efficiency	Efficiency Market
28	4,047	62	Technology Market	Technology Market	Efficiency Market	Efficiency Market
29	4,598	62	Technology	Technology Market	Efficiency	Efficiency Market
30	13,633	58	Technology Market	Technology Market	Efficiency	Efficiency Market
31	4,595	39		Efficiency Market		Market
32	255	29	Resource	Market	Resource Efficiency	Efficiency Market
33	1,790	70	Resource	Technology Market	Resource Efficiency	Efficiency Market
Total manufacture	100,135	155	Resource Technology	Technology Market	Resource Efficiency	Efficiency Market

Source: calculated from Korean Export-Import Bank data with Korean Industrial Standard Categories (KISC)

Note: KISC 10. Manufacture of food products 11. Manufacture of beverages 12. Manufacture of tobacco products 13. Manufacture of textiles 14. Manufacture of wearing apparel 15. Manufacture of leather and related products 16. Manufacture of wood and of products of wood and cork, except furniture 17. Manufacture of paper and paper products 18. Printing and reproduction of recorded media 19. Manufacture of coke and refined petroleum products 20. Manufacture of chemicals and chemical products 21. Manufacture of basic pharmaceutical products and pharmaceutical preparations 22. Manufacture of rubber and plastics products 23. Manufacture of other non-metallic mineral products 24. Manufacture of basic metals 25. Manufacture of fabricated metal products, except machinery and equipment 26. Manufacture of computer, video, sound and telecommunication equipment 27. Medical, precision and optimal instruments 28. Manufacture of electrical equipment 29.

Manufacture of machinery and equipment n.e.c 30. Manufacture of motor vehicles, trailers and semi-trailers 31. Manufacture of other transport equipment 32. Manufacture of furniture 33. Other manufacturing ⁷

Arguing from FDI theory (e.g. Hymer, 1976), firms are involved in FDI to exploit and develop the value of their firm-specific advantages abroad. Previous literature, as mentioned above, has sought to analyse location choice through the lens of the motive for FDI, building on Dunning (1993) and linking to location choice (Shaver, 1998). Parent firms within a sector may actively change their search for a host country according to another firm's strategic choice. This means FDI location choice in a host country depends on the MNEs' specific motives and the relative important it assigns to the various attractive factors of each country.

Table 4.3 details Korea's manufacturing outward FDI motives. From 1980 to 2014, South Korean firms invested in 155 countries and the total FDI flow is over 100 billion US dollars. In this table we can see three different paths, across 24 sub-sectors of the manufacturing industry. Most labour and resource intensive industries start their internationalisation programme by following the path of efficiency/natural resource-seeking and market-seeking FDI motives. Thus, in the initial stage of investment, in these labour and resource intensive industries, the main motives of FDI are (i) to access cheap labour costs in developing countries, (ii) to access natural resources in resource-rich nations (which can be either developing and developed countries) or (iii) to access advanced technologies in developed countries. The three motives then converge as firms in most Korean manufacturing industries internationalise for reasons of market seeking.

However, examining the data by looking at the changing patterns of FDI motive ratios over time, three different distinctive streams can be categorised. First, Figure 4.3 sets out the FDI ratios of the apparel industry from 1980 to 2014. The Korean apparel industry has been investing in foreign markets mainly for cost reduction from the 1980s (3rd stage of IDC). However, this changes to a market-seeking motive after 2010 even though the low wage FDI ratio remains very high. Thus, the major motives of initial FDI are resource-seeking and efficiency-seeking (low wage). In the 4th stage of IDC after 2001, the trend of FDI changed to efficiency-seeking and market-seeking motives. Similar patterns can be seen in most of the resource and labour-intensive industries (KISC 10,13,14,15,16,17,18,19,22,23,24,32 and 33). Second, some knowledge intensive industries (KISC 21, 25 and 27) show that when Korean firms initially invested abroad (before 2001), the main FDI motive during this early stage was to gain access to advanced technology. For example, in Figure 4.4, we can see that internationalisation motives of the firms that manufacture basic pharmaceutical products and preparation changed from technology-seeking to both technology-seeking and market-seeking FDI

⁷ Basically the two standard categories are very similar. The only differences between KISC and ISIC are, in KISC, there are new category; KISC 26 (Manufacture of computer, video, sound and telecommunication equipment) however, in KISC there are no ISIC 33 (Repair and installation of machinery and equipment).

motives. Third, Korean leading industries after 2001 show a change to efficiency and market-seeking FDI motives in developing countries, and technology seeking and market seeking motives in developed countries. This path includes electronics and electrical equipment (KISC 26 and 28), chemicals and chemical products (20), machinery (29) and automobiles (30).

Figure 4.3 Korean outward FDI ratio of wearing apparel from 1980 to 2014 by motives

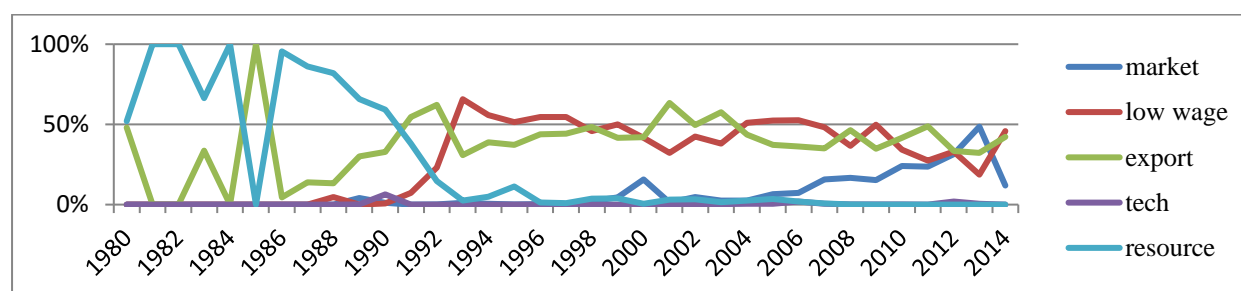


Figure 4.4 Korean outward FDI ratio of manufacture of basic pharmaceutical products and pharmaceutical preparations from 1980 to 2014 by motives

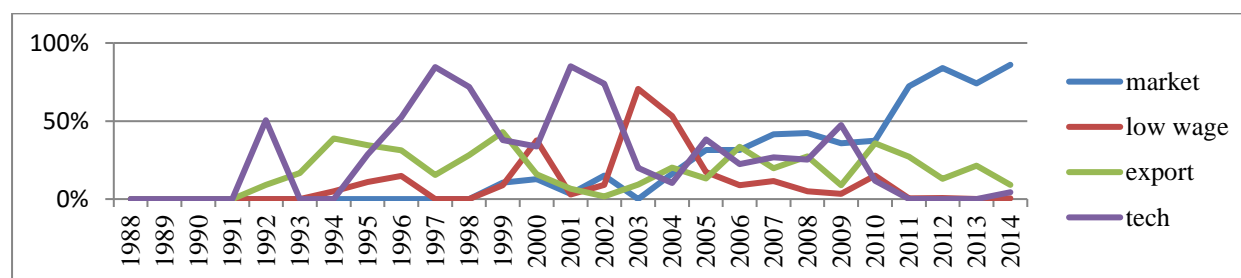
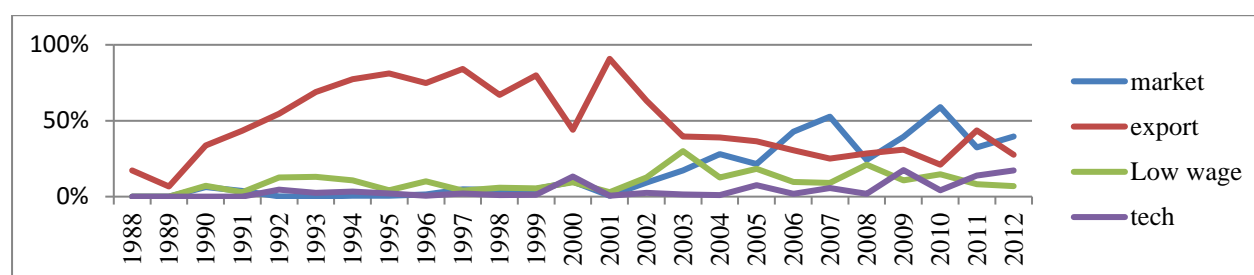


Figure 4.5 Korean outward FDI ratio of computer, video, sound and telecommunication equipment from 1980 to 2014 by motives



These results suggest that Korean firms are still making labour-intensive products such as textiles, but that they are not produced in Korea. Korean firms used efficiency seeking FDI to offshore them. The figures implicitly address the relationship between FDI and trade. However, as depicted in tables 4.2-4.3 and figure 4.2, the total volume of high and medium-high tech industries has substantially increased for outward FDI as well as for exports. As for high-tech industries, Korean FDI has actually induced an increase in export trade. It is clear that the motive of Korean outward FDI in the host country has played a significant role in the structural changes of the economy.

In Figure 4.5, we examine the manufacture of computers, videos, sound and telecommunication equipment, which is one of the leading industries in Korea. Here we see a different pattern as compared

to the apparel and pharmaceutical product industries. The industry has changed its focus from exporting to undertaking market-seeking FDI. There has been some low wage and technology-seeking FDI, but these numbers are not significant before 2001. After 2001, efficiency seeking FDI can be seen in developing countries, and strategic asset seeking FDI in developed countries.

Korean outward FDI motives, in terms of industrial sector, follow unique paths for obtaining location advantages until they closely match MNE's strategy. These characteristics of three South Korean industries show the different paths of their main motives over time. Our analysis of the FDI motives for Korean firms enriches our understanding of investment development in host countries. Table 4.3 shows that Korean outward FDI motives need to be rethought to take into account the various positions of Korean firms by sector. The FDI locations of Korean firms modifies the thinking on their FDI motives in two ways.

First, FDI location decisions of Korean firms are not only undertaken according to location characteristics, but also influenced by their industry's level of technical competence as compared to that seen in the host country. Analysing Korean FDI by industry, the different patterns of FDI motive become more distinctive. In the case of a labour intensive industry such as wearing apparel, Korean firms, in the 3rd stage of IDC, were motivated by reasons of cost competitiveness in developed countries and technological advance in developing countries. Therefore, the main business strategy for Korean apparel firms was to obtain cost advantages. After 2001 (4th stage of IDC), the industry's main FDI motive was efficiency seeking. On the other hand, Korean knowledge intensive industries such as manufacturing pharmaceutical products, have continued to seek and obtain strategic asset advantages in developed countries from the 3rd stage of IDC. By examining the FDI motives within these two disparate sectors we can see that the initial position of Korean industries, and Korean firms' FDI location decisions are influenced by technological deference between Korea and host countries.

Starting with various sets of FSAs by sector, Korean firms have integrated the host country location advantages according to their investment position. In order to gain further growth, in the short and long term, Korean firms may accumulate FSAs in different locations. They may engage in natural resource- and efficiency-seeking FDI to seek cost benefits in developing countries, while the knowledge intensive industries may continue to engage in FDI in technologically developed countries. While moving into investment development positions should be in the best interests of Korean firms' such movement may be inter-related with the technological levels seen in the home and host countries. Future FDI decisions within these industries depend also on the investment position of Korea. If Korean firms encourage further upgrading into higher technological development, FDI may focus on the strategic asset-seeking FDI motive, as these Korean firms can accumulate yet more FSAs. Alternatively, if Korean firms are not enthusiastic about acquiring these advantages from their host countries, the firms may need to consider using other modes of market access, such as exports. The Korean industrial sector results add nuances to the interpretation of Korean FDI motives by period and host country.

Second, the FDI motives of Korean firms reflect both their international expansion strategy and the degree of upgrading effort that Korean firms wish to undertake in host countries. Analysing Korean FDI motives from the perspectives of location allows us to reveal further insights on the dynamic relationship between the nature of the sector and the host country's characteristics. Some MNEs have motivations that involve FDI through upstream activities which create products and downstream activities (which involve selling products) (Porter, 1986; Defever, 2006). When trade costs rise, exporters would try to avoid a high marginal cost. Hence, they have an incentive to transfer their facilities to the host country and sell their products directly. As a result, exports and FDI are substitutes for each other in the horizontal FDI model. Therefore, the main factors that affect the vertical FDI model are trade cost and the different skill levels between the home and host countries. In this context, previous research has developed some variables, which are related to efficiency seeking FDI, such as wage cost, labour quality and location proximity to industrial core regions, to ascertain the efficiency drivers in developing countries.

Interestingly, in the industrial analysis, Korean outward FDI has developed to combine the paths between different industries: the path of knowledge intensive industries for strategic asset-seeking and market-seeking motives, and the path of resource/labour intensive industries for natural resource/efficiency-seeking motives. This therefore lends itself to a conceptual framework for the different paths of Korean outward FDI across different industries. As illustrated by Dunning (1981), Korea has manufacturing sub-industries in which Korea's comparative ownership advantages are strong but their comparative location advantages are weak. Given the pattern of Korean outward FDI by sector, the concept can be explained by our Korean FDI model. In this model, Korean outward FDI shows two different paths, according to industrial differences, this reflects the country specific characteristics of Korea and takes into account the changes in its industrial structure over time. Therefore, FDI theory and the underlying motives for FDI are a suitable framework for an examination of FDI location choice. The impact of the motives of a firm to invest in a particular location, to its advantage, may be matched to the local environment because of advantages that are specific to that location.

Bhaumik, Driffield, and Zhou (2016) highlight not only that the choice of location in the host country will be influenced by the FSAs of emerging MNEs but that the finding poses a problem for the wide generalisation about the access-to-technology based motivation for the internationalisation of emerging country firms. In other words, not all emerging market firms can leverage CSAs equally and EMNEs are better than non-MNE domestic partners in terms of exploiting their CSAs. This implies symmetrical interests between MNEs from developed and emerging countries. While a firm from an emerging country has the ability to assimilate knowledge, another firm from a developed country can focus on efficiency. In this context, the function of technological capacity from EMNEs and the technology gap between host and home countries are key issues (Bhaumik, et al., 2016).

In concrete form, for Korean firms investing for an efficiency-seeking (low wage) motive in

these labour intensive industries, the total FDI flow is 5,191 million US dollars in 58 countries. However, in advanced countries, the total amount of FDI is 11 million US dollars (0.2% of total efficiency-seeking FDI) in only 4 countries (Australia, Canada, Japan and USA). On the other hand, for strategic asset-seeking (technology-seeking) motive investing in knowledge intensive industries (KSIC 21, 25 and 27), Korean firms invested a total of 518 million US dollars in 19 countries, including 5 developing countries (India, China including Hong Kong, Zambia, Hungary, and Thailand) ; the total was \$22 million (3.3% of total technology-seeking FDI). Compared to the apparel industrial FDI pattern, Korean leading industries show a change from the export promotion to market-seeking FDI motive. These industries invest abroad for other motives such as efficiency-seeking, strategic asset-seeking and resource-seeking. However, the proportions of efficiency-seeking and strategic asset-seeking motives are not significant before 2001. This means these Korean leading industries (KSIC 21, 25 and 27) maintain their principal production bases in their home country, and these industries are expanding their foreign affiliates for market seeking reasons after 4th stage of IDC after 2001.

Overall, these particular patterns of South Korean FDI across different industries show two different paths to meeting the necessary and sufficient conditions in terms of FDI motive after the point in 2001 when manufacturing NOI became positive. The natural resource-seeking and efficiency-seeking FDI types, in which Korean MNEs leverage their firm-specific assets in other emerging economies for cost reductions, appear to be the most attractive options. We see the impact of this cost advantage when Korean MNEs locate their production facilities in cheaper countries rather than domestically. Meanwhile, strategic asset-seeking FDI in other geographical locations with advanced knowledge environments may be needed not only to gain knowledge of their technological developments, but also to seek new markets. Specifically, Korean industrial restructure from labour intensive industries to heavy/knowledge intensive industries has led to different paths according to industrial differences. In terms of labour intensive industrial outward FDI, South Korean firms have continued to seek cheap labour markets to reduce production costs such as wage and natural resource in developing countries. As the investment cycle is completed, local production in low value activities is replaced by foreign production. On the other hand, strategic asset seeking benefits of location choice has led firms to achieving long term competitiveness, thereby upgrading their assets in developed countries.

4.5 Implications on Korean FDI model

Our Korean FDI model deepens our understanding of the FDI motives of MNEs from emerging countries and advanced countries. We argue that the framework on FDI from emerging countries needs to be rethought in order to reflect the weak position of EMNEs and the changing nature of FDI motives as a country develops. During the time of Korea's weak investment position, Korean MNEs strategized their internationalisation in two ways. In the first place, we see that the internationalisation decisions of South Korean MNEs are undertaken as a means of seeking further growth.

Without the means of increasing their competitiveness, Korean MNEs are restricted by their firms' specific assets from competing with other MNEs in developed and developing countries. Specifically, South Korean industrial restructuring has led to a geographical spread of outward FDI beyond simple relocation of production. This shift towards further growth is due to two main reasons. First, increasing domestic cost has forced Korean MNEs to seek cheap inputs in order to reduce costs. Second, by locating their facilities in developed countries, Korean MNEs can obtain long-term competitiveness from a continued upgrading of their firm specific advantage. The explanations behind the investment development cycle (Dunning, 1981) are related to a shift in the industrial structure. According to analysis based on the investment development cycle, we see that South Korean economic development shows its own sub-patterns of outward FDI varying with the location advantages in developed and developing countries.

In the second place, we see that the country specific assets of South Korea are related to shifts resulting from the restructuring of its industry from labor- or resource- intensive industries to knowledge-intensive industries. The technologies underlying the shift are obtained via the sophisticated upgrading that was achieved through international expansion allowing Korean MNEs to engage in asset-accumulation. In our findings, South Korean industrial change and FDI development show their different patterns of outward FDI depending on the industrial area. As a result of these differences in the industry structure, we can observe distinct strategic company operations. Different industries have different characteristics over time and therefore different outward FDI priorities. The nature of Korean outward FDI adds more nuances to the interpretation of internationalisation strategies undertaken by firms in countries with differing investment positions. Therefore, the Korean FDI model from the perspectives of both EMNEs and MNEs reveals further insights into the nature of the relationships between outward FDI and motives in certain locations.

4.6 Conclusion

This chapter has outlined the conceptual framework for South Korean outward FDI. The chapter has discussed the different paths of South Korean outward FDI in developed countries and developing countries, with an emphasis on FDI motives. Consequently, there is a need for a new approach so as to inform the strategy for on outward FDI location choice through different motivations at a country level. The South Korean outward FDI trend has changed from 1980 to the present day. However, Korean firms tread common paths when they invest in host countries. This pattern of paths should be given consideration by MNEs from rapidly developing countries and by those decision makers with responsibility for developing suitable strategic motivation for outward FDI. Especially, we need to discuss what aspects of the proposed Korean model are likely to apply to other countries developing a general theory beyond the Korean case. Korea's transition from an emerging economy to an advanced economy indeed affords the possibility for longitudinal analysis to yield important insights into key

international business (IB) questions about difference between MNEs and EMNEs through FDI.

This chapter presents a rich characterisation of how Korean outward FDI has changed over time. From our empirical findings, we show that the motivations of South Korean firms for investing abroad are similar to those of firms from developed countries albeit with some differences. This means that their motivations over time may be fluid in order to obtain competitive advantages and to suit other economic situations. The main research contribution of this conceptual framework is to develop and to test the Korean outward FDI methodology. However, this is a significant contribution to the international business literature. The framework is based on the outward FDI history of Korea. The use of the Korean model is an emerging tool in the boundary between traditional FDI theory and more recent FDI theory generated by the rapidly emerging economies. In addition, there are key issues, namely: the importance of external factors; the development gap; and the relationship between FDI motives and trade that we believe should be given attention in the future.

CHAPTER 5: THE CHANGING NATURE OF SOUTH KOREAN FDI TO CHINA

Abstract

The purpose of this chapter is to explore the changing motives and location choice patterns of foreign direct investment (FDI) from South Korea to China. Prior to the global financial crisis of 2008, South Korean multinational enterprises (MNEs) invested in China for efficiency-seeking motives in order to take advantage of low costs. While evidence is emerging that MNEs from developed countries are now investing in China for market-seeking reasons, no such evidence exists for MNEs from Asia. This study exploits a unique data set to uncover a change in strategy by South Korean MNEs in China, both in terms of motive and location, something that has received little attention in the IB literature.

Keywords: South Korea, China, Foreign direct investment motivation, Location choice, Global financial crisis.

This chapter was published

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5.1 Introduction

A large body of empirical work in the international business (IB) literature examines the relationship between the location decisions of multinational enterprises (MNEs) and their motivation for undertaking foreign direct investment (FDI). This builds on the conceptual analysis of Dunning (1993) whereby host locations are viewed through the lens of the various motives for FDI (i.e. market-, resource-, efficiency-, and knowledge seeking), and linking these in turn to location choice (Shaver, 1998). However, this literature essentially infers motivation from regression models that link host countries to a vector of location specific variables, such as technological capacity, labour costs and market size. This type of analysis lends itself to an understanding of motivation in the aggregate for the average firm based on average effects. It also has limited value in terms of its ability to identify changes in the patterns of motivation over time, or to respond to them in a modelling framework.

According to Korean official statistics, China has been the second largest destination for Korean FDI after the US, and South Korea is the 7th largest investor in China⁸ (National Bureau of Statistics of China, 2013). South Korean firms invested over \$4 billion US dollars in China in 2012. The majority is in manufacturing industries and the FDI flow is 2,687 million US dollars; 66% of total FDI flow from being South Korea.

The purpose of this chapter is twofold. Firstly, we aim to extend the existing literature using a unique data set that has information not only on location decisions, but also the stated motivation for the investment. As such, we are able to move away from making inferences regarding the motives, to examining the coherence of location strategy, and specifically how the changing motivation has influenced location decisions over time. Secondly, while evidence is emerging that developed country MNEs are now investing in China for market-seeking reasons, no such evidence exists for MNEs in Asia. We, therefore, offer evidence for recent South Korean FDI activities in China, which have not received attention in the existing international business (IB) literature.

My analysis is based on official survey data produced by The Export-Import Bank of Korea which captures not only location but also the motive for FDI, for the period of 2000 to 2012. This data set is unique in one crucial respect: the data captures specific motives of Korean manufacturing FDI in China, allowing us to distinguish between market-seeking, resource-seeking, and efficiency-seeking FDI ex ante rather than ex post. Thus, in order to explain how motives vary across the Chinese regions, we consider a baseline model using macro-level economic data of China.

This chapter shows the relative importance of various determinants of location choices in China's provinces. Moreover, we highlight an apparent discrepancy between the FDI location choice of

⁸ Given that those ranked above South Korea are Hong Kong, Virgin Islands, Singapore, Japan, US, and Cayman Islands, this places it fourth in terms of "genuine FDI"

Korean MNEs and the apparent changes in motivation for MNEs to invest in China. This allows us to extend the IB literature by exploring FDI location patterns, which are due to changing MNE strategy as stated by their FDI motive.

The remainder of the chapter is structured as follows. Section 2 reviews the literature on FDI location choice and motives and derives a number of testable hypotheses. Section 3 reviews the methodology. A description of the dataset follows in section 4. Section 5 discusses the results, and Section 6 concludes.

5.2 Literature Review and Hypotheses Development

The decision of MNEs to embark on investment in a foreign location is affected by a multitude of economic conditions in the host country, as well as by the strategic motivation of the firm to exploit firm-specific advantages (FSAs) in a foreign location. Previous studies of FDI use models where location choice is a function of several determinants (see Appendix 4). Location economies are realised when the strategic aims of MNEs are matched with an environment of clustered institutes (McCann, et al., 2002). Given the obvious overlaps between location theory, and related issues such as agglomeration, along with internalisation theory and the desire at the firm level to exploit ownership advantage, models developed in international business have long been considered suitable to explore the nuances of FDI location choice, within a spatial setting. The importance of motivation has long been understood to be important within theoretical or conceptual models of FDI location based on FSAs (Rugman and Verbeke, 2001), and this has been extended to cover the importance of location-specific advantages (Trevino and Grosse, 2002). However, exploring the relationship between FDI location and motive has been problematic empirically due to lack of data.

Traditionally, South Korean MNEs have favoured China as a production base because of its cheap labour. However, overall conditions for investing in China have changed significantly in recent years including an increase in labour costs particularly in technology based sectors. Moreover, the eastern provinces of China have historically been major destinations for migrant workers from the central and western parts of China. However, in 2008 and 2009, there appears to have been a recent shift in labour away from these coastal regions. This is partly due to the economic effects of the global financial crisis, but it could also reflect the government supported shift in Chinese economic activity towards developing the central and western provinces (Rush, 2011). Survey-based evidence appears to show that there has been a shift in motivation from exploiting low cost advantage in China to market-seeking reasons (Yang et al., 2012).

Previous research on spatial distribution of FDI in China relates FDI to a series of regional level variables. For example, Kang and Lee (2007) show that market size, quality of labour, transport infrastructure, and government policies all play an important role in influencing location choice of South Korean outward FDI in China. I seek however to extend this analysis, by linking the motivation

of a firm to carry out FDI to its location decision, and also by exploring the apparent agglomeration effects in Korean FDI to China. There are numerous treatments of this apparent phenomenon, ranging from incentives for foreign firms to cluster around the sources of inputs (Shaver, 1998), or simply co-location of labour-intensive activities in labour-abundant locations (Helpman, 1984; Helpman and Krugman, 1985). Therefore, where low wages is one of the key drivers for efficiency seeking FDI, one would expect co-location. In addition, infrastructure drives such agglomerations, due to similar demands for transport links, especially for export processing (Coughlin, et al., 1991; Chen, 1996; Cheng and Kwan, 2000). Korean firms seem to have similar location strategies. This leads to the first hypothesis:

Hypothesis 1: Irrespective of motive, a set of common factors drive location choices of Korean FDI to China.

In a host country such as China, the determinants of FDI location may vary significantly across region. For example, wage rates, infrastructure and disposable income vary significantly between east and west, and have also changed significantly over time. These factors therefore would be expected to impact different types of FDI in different ways. Despite this, the location choice of Korean MNEs is highly concentrated in coastal regions in China and there is a significant gap in overall FDI between the coastal and non-coastal regions. We therefore seek to explore in more detail the relationship between FDI motives and location decision. Typically, the existing literature infers motivation from correlation, such that a negative correlation of average wages is interpreted as evidence of efficiency seeking, while a positive correlation on market size is interpreted as market seeking FDI. We seek here to nuance this analysis somewhat. In order to do this, we make use of two pieces of information. Firstly, as is illustrated by Kang and Lee (2007), FDI into China has concentrated historically in coastal areas. As we illustrate below, this pattern remains consistent throughout the period of my analysis. Kang and Lee (2007) explain these location patterns by reference to market size, quality of labour, transport infrastructure and government policies. In a similar vein, Cheng and Kwan (2000) emphasise the importance of wages, income, education, and infrastructure. The analysis above however is predicated on the assumption that Korean FDI to China is motivated by efficiency seeking. Alternative motives are seldom discussed, possibly due to the time frame under consideration, and possibly because the analysis is unable to determine motivation.

Yang et al. (2012) for example highlight the recent changes in FDI motive from efficiency-seeking to market-seeking, and we seek to extend their analysis. We therefore consider differences in motives for Korean FDI, both across the regions and over time. For example, we consider the market potential in adjacent regions. However, it is interesting to note that the same factors are used to explain location in the analysis by Yang et al. (2012) as are used by Cheng and Kwan (2000) some 12 years

earlier. This suggests that both firms' location strategy, and the analysis of that strategy, has not kept pace with the changes in FDI motivation. This leads to the second hypothesis:

Hypothesis 2: Since the global financial crisis, location patterns of Korean FDI do not reflect the shift from efficiency seeking FDI to market seeking.

As the motivation for FDI changes, our understanding of the forces that encourage agglomeration of Korean FDI needs to evolve. Porter (1998) summarises the benefits of such agglomeration of FDI more generally. These include: access to specialised factors and workers, information on local demand; market conditions; and technology trends. Equally, as FDI evolves from efficiency-seeking FDI to market-seeking FDI, co-location promotes complementarities and cooperation in, for example, adaption of technology, and the development of infrastructure to facilitate technology transfer from the parent. As innovation occurs locally, there are also strong agglomeration forces in innovation (Ning et al., 2016). Finally, FDI companies that are motivated by market-seeking would be expected to be agglomerated in the wealthier and larger markets (Blonigen and Wang, 2004).

Firms seek different resources in host countries depending on their internal capabilities (Barney, 1991). These theoretical approaches explain how cost factors and FDI motives affect firms' location choice. Shaver (1998) shows that FDI location, in the presence of agglomeration economies, could be motivated to locate in areas where their industry sector is already concentrated, as is common, in the US. Thus agglomeration economies could lead to similar location patterns between the US and foreign firms. However, there could also be agglomeration economies even among those foreign firms that do not locate amongst extant domestic capital (Shaver, et al., 1997).

In this context, research shows that MNEs seek to have positive inflows of spillovers and knowledge (Alcacer, 2006; Narula, 2015). Although it has been noted that MNEs may avoid co-location so as to minimise knowledge leakages of valuable firm-specific assets (Cantwell and Santangelo, 2002), empirical evidence indicates that the nature of the industry structure in which MNEs operate is related to the involvement of firms in clusters or close spatial proximity (Narula, 2015).

We argue that agglomeration effects play a distinct role in the location choices of South Korean FDI. Kim and Lee (2012) explore different distributions of FDI from Korean large firms and SMEs and find that there is a degree of co-location between large and small investors. Also that both SMEs and large firms are influenced by existing locations of Korean investors with a strong effect, similar to that reported by Shaver for the US. Kim and Lee argue that this is the single most important determinant of FDI location in China, and refer to this as the "demonstration effect", linked to agglomeration economies, external economies of scope, and information sharing (Porter, 1998; Henderson 1986). This leads to the third hypothesis:

Hypothesis 3: Agglomeration of Korean FDI dominates other regional considerations for Korean investors in China.

5.3 Empirical Analysis

In order to test the hypotheses of this chapter, we use several econometric models to investigate how the drivers of FDI patterns differ over time, location, firm size and motivation. We therefore define several dependent variables, including: FDI total money from South Korea into China; FDI total money of Korean large firms; FDI total money of Korean SMEs; FDI total money for firms claiming the low wage motive; FDI total money for firms claiming the market-seeking motive; FDI total money for firms claiming the exporting promotion motive. In addition, independent variables are included from Chinese annual statistics books and Korean data as we mentioned above (see Appendix 5 and 6).

The summary of previous work on location choice in China (Appendix 4) provides the foundation of this work. Previous studies show that location choice in China is affected by GDP per capita; income level; size factors such as market approximation; cost factors; such as average wage and education level; and transport infrastructure, related to business efficiency. Therefore, this chapter considers market size, cost, infrastructure and trade variables as explanatory variables in this work. This builds on previous work seeking to capture market-seeking (linked to market size) and efficiency-seeking, linked to labour costs.

In addition, host region infrastructure is key for firms to undertake FDI in terms of effective business activities. Many scholars also agree with this idea as can be seen in Appendix 4. In this chapter we use railways per square kilometer as our infrastructure variable.

Lastly, we include exporting from South Korea to each province in China and coastal areas as dummy variables, since most of the Chinese special economic zones are located in coastal areas, and therefore can be considered to be a trade and FDI determinant. The other variable is the number of Korean firms; this is calculated by the accumulated total from 1988 to the previous year ($t-1$).

With the following baseline model, we are testing for the consistency of coefficients across time, location and firm size, based on the motives that are provided in the official survey for each FDI project. We use a random effect estimation based on the following empirical model of location choice of Korean MNEs:

$$FDI_{rt}^i = f(\text{GDPPC } rt, \text{WAGE } rt, \text{EDU } rt, \text{RAILWAY } rt, \text{EXPORT } rt, \text{COAST dummy})$$

The dependent variable is FDI_{rt}^i . The total FDI flows of motive i in region r in China in year t .

Where, GDPPC denotes GDP per capita; WAGE is the wage level; EDU is education level (number of college graduation students); RAILWAY is a proxy for transportation infrastructure; EXPORT measures the total value of exports to each province of China and COAST is a dummy indicating

whether a Chinese province is located on China's coast. In order to check the suitability of independent variables, the correlation matrix (see Appendix 7) shows a number of high correlations. In order to avoid multicollinearity problems, we therefore estimate alternative specifications where variables with high correlations enter the regression separately. We also conducted a series of VIF calculations. These are below 2.5 and do not suggest further multicollinearity problems.

5.4 Data

The data is sourced and merged from three different data sets in order to measure inward FDI flows and the factors/motivation driving such investments from South Korea to China. The first dataset comes from the Export-Import Bank of Korea. If a company wishes to engage in FDI, they have to satisfy South Korean foreign exchange law by submitting information to the South Korean Banks. This information includes the exact proposed location, the monetary amount of FDI, the firm's motivations, size, industrial area, etc.

Further, Korea's EXIM bank handles South Korean firms' FDI data. The data shows total amount of FDI and the number of firms categorised by year, country, industrial area and size of MNE firm (see Appendix 8).⁹ It also includes type of FDI; namely, whether it is a single investment from South Korea, a joint venture between South Korean and Chinese firms, in which case the ratio of investment is stated.

The second dataset comes from the Korean International Trade Association and shows the trade amounts between South Korea and each province of China. The data includes total export/import volume between the two countries and by industrial sector according to the international standard industrial classification.

The third dataset comes from the Chinese annual statistics books, which collect all important statistics published by the Mainland China express and cover various kinds of census and survey data. They offer variables such as labour cost (average wages), market size (PGDP), infrastructure (Railway per square kilometer), and other variables reflecting the trend of national economic and social development in China

The data covers the period of 2000–2012 for the 26 regions of China. China has 22 provinces (Sheng) excluding Taiwan; 5 autonomous regions (Zìzhìqū); and 4 municipalities (Shì). In this chapter we include 26 regions, 22 provinces, the average value of 5 autonomous regions (Inner Mongolia, Guangxi, Tibet, Ningxia, and Xinjiang), and 3 municipalities (Beijing, Tianjin, and Shanghai excluding Chongqing municipality). These categories depend on the report of the Export-Import Bank of Korea,

⁹ Manufacturing, agriculture/ forestry/ fishing, essential services, construction, wholesale and retail trade, real estate, education service, lodging and food, science and skill service, art/sports/leisure, mining, finance and insurance, welfare, media service, transportation etc.

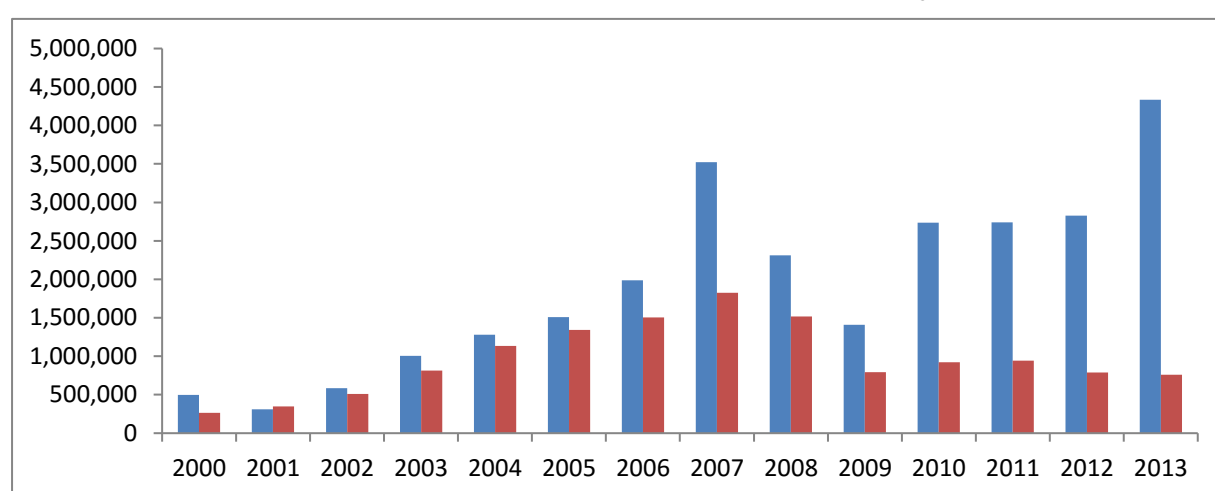
in which the five autonomous regions have been reported collectively. In addition, since Chongqing municipal only became independent from Sichuan province in 1999, the data for this city has been combined with that of Sichuan sheng by The Export-Import Bank of Korea from the 1980s. The currencies are converted to US dollars. We have corrected data of 338 observations including 26 regions in China for 13 years from 2000 to 2012.

Figures 5.1 and 5.2 show total the investments by South Korean firms before and after the financial crisis, and investment distributions by Korean SMEs and large firms in China from 2000-2012 by regions.

Figure 5.1: Total Investments of Korean large firms and small medium enterprises in China from

2000 to 2013

Unit: 1,000 US dollars (Blue = large MNEs, Red = small MNEs)

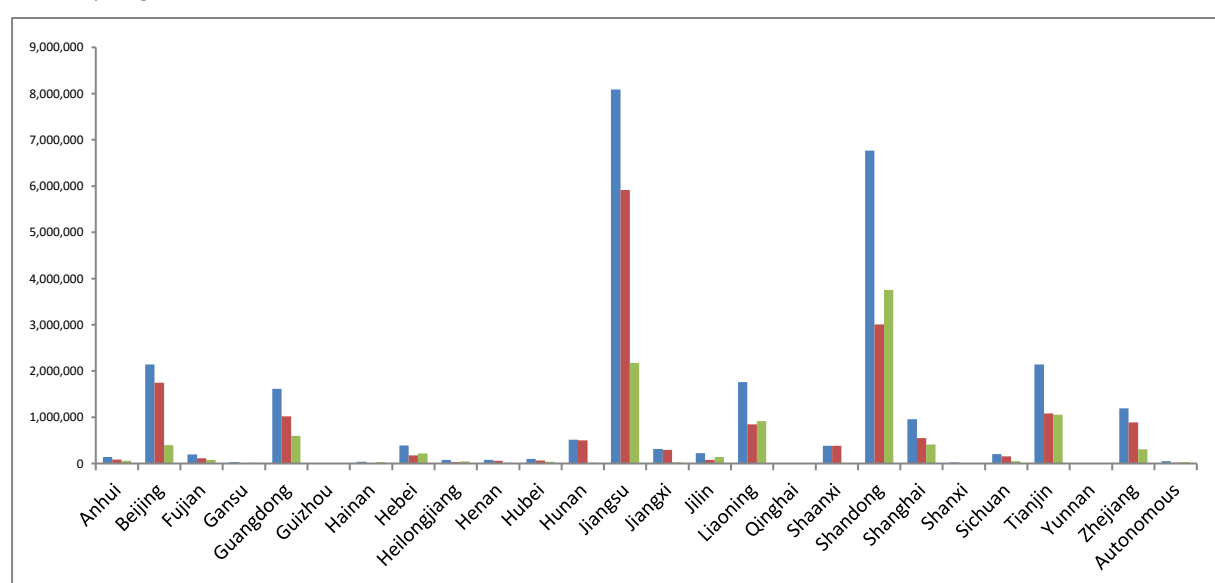


Source: Calculated from data of The Export- Import Bank of Korea

Figure 5.2: Investments of Korean large firms and small and medium enterprises in China from 2000-

2012 by regions

Unit: 1,000 US dollars (Blue = all firms; Red = large MNEs; Green = small MNEs)



Source: Calculated from data of The Export- Import Bank of Korea

The number of investment-receiving regions has broadened since the year 2000 and the proportion of investment in the North-East has decreased. On the other hand, investment in East China has increased since 2002. The investment to China's central and western regions has increased over the period. However, the concentration of Korean enterprises' investment in these areas is extremely unbalanced compared to other countries' distribution as illustrated in Table 5.1 Korean FDI in Shandong, Jiangsu, and Beijing is more than half of its total. This means that the Korean firms' investment was both limited, and concentrated in certain specific areas.

Table 5.1 Distribution of Korea's investment into China by region (in %)

	Bo Hai Coastal Region	Yangtze River Delta	South China Region
Japanese-invested enterprises in China	40.0	33.0	9.6
British-invested enterprises in China	32.6	31.3	20.2
German-invested enterprises in China	39.0	29.6	8.0
American-invested enterprises in China	38.5	31.0	11.0
South Korean-invested enterprises in China	67.0	6.0	3.0

Source: Yang. et al., 2012

The motivations of Korean firms for undertaking FDI in China are shown in Table 5.2. Access to local market was ranked 1st (40.6%) over the period 2000 to 2012, and export promotion, cost reduction are 28.56% and 21.15% respectively.

Table 5.2 Purpose of South Korean firms' FDI in China from 2000 to 2012

Purpose	Total amount (US \$)	Ratio (%)
Total	27,461,979,021	100.00%
Local market seeking	11,148,817,870	40.60%
Export promotion	7,842,966,579	28.56%
Low cost	5,808,858,523	21.15%
Others	1,362,518,853	4.96%
Overcome the protective trade	798,390,543	2.91%
Exploitation of resources	169,802,754	0.62%
Securing of raw material	122,326,231	0.45%
Going to third country	110,280,519	0.40%
Advanced technology introduction	98,017,149	0.36%

Source: Calculated from Korea Export-Import Bank data

5.5 Results

Table 5.3 shows that the main motive for FDI in China has changed from taking advantage of cheap labour to the development of the Chinese consumer markets after China joined the World Trade Organisation (WTO) in 2001. This data shows that there has been a shift in motive from achieving a cost advantage to market seeking. Before China joined the WTO, the proportion of investment in China for cheap labour was 27.22%. However, this figure dropped to 21.13% after 2000s. On the other hand, investments targeting a proportion of the local market seeking have significantly increased from 5.43% to 40.57%. In particular, the proportion of investment with the purpose of targeting local consumers was 52.89% of the entire investment in the aftermath of the global financial crisis in 2007/8. However, the proportion of investment motivated by cheap labour was reduced to 18.1% after the financial crisis (The Export-Import Bank of Korea, 2014).

Table 5.3 Change in reasons for investing in China (in %)

	1988-1999	2000-2012		
		Total	2000-07	2008-12
Total	100.0	100.0	100.0	100.0
Promotion of export	45.9	28.5	31.6	24.7
Using low wage	27.2	21.1	23.5	18.1
Market seeking	5.4	40.5	30.5	52.8
Others	21.3	9.7	14.1	4.3

Source: Calculated from Korea Export-Import Bank data

FDI motives

Table 5.4 shows that for low wage FDI, average wage is significant and more negative than market seeking FDI coefficient (t-test 95% confidence level). Furthermore, for local market seeking FDI models, average wage and transportation infrastructure are not significant. This means that Korean firms' investment for local market seeking places new markets which have a low degree of these factors compared to other motives of FDI.

Agglomeration effect

Table 5.5 shows that, when we compare the FDI decisions of large firms and SMEs, Chinese regions with higher share of South Korean firms' presence attract inflows of South Korean FDI location choice. The difference is that the transportation infrastructure variable is significant for large firms but

insignificant for SMEs. This means that the ratio of SMEs' FDI in non-coastal regions is higher than large firms' thus in total their coefficient of infrastructure is not significant compared to large firms.

Table 5.4 South Korean FDI to China by different motive from 2000 to 2012

	Market-seeking			Export-promotion			Low-wage		
FDI	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
GDPPC	2.86** (1.20)	3.42*** (1.29)	1.58 (1.20)	3.70*** (1.06)	2.05* (1.18)	1.86* (1.04)	3.82*** (1.31)	2.38 (1.66)	2.10 (1.41)
WAGE	-1.53 (1.49)	-2.12* (1.22)	-0.14 (1.27)	-4.78*** (0.76)	-3.59*** (0.86)	-3.52** (0.82)*	-6.09*** (0.94)	-5.08*** (1.37)	-4.70*** (1.16)
EDU	1.23** (0.49)	2.05*** (0.36)	1.05** (0.45)	0.68 (0.48)	1.33*** (0.38)	0.48* (0.29)	1.56*** (0.50)	2.11*** (0.57)	1.19*** (0.44)
RAILWAY	4.256 (22.17)	20.45 (21.33)	-6.32 (20.32)	53.26** (24.29)	65.54*** (23.69)	16.50 (17.31)	37.94* (21.12)	46.43** (21.17)	5.02 (18.30)
EXPORT	1.01*** (0.27)			0.62** (0.27)			0.50* (0.27)		
COAST		1.64* (0.99)			4.18*** (0.96)			3.43*** (1.06)	
Number of Large firms			1.11*** (0.27)			1.98*** (0.24)			1.73*** (0.36)
Constant	-40.96*** (4.49)	-30.36*** (4.61)	-24.27*** (4.59)	-3.40 (5.49)	3.84 (4.57)	12.84*** (4.72)	1.29 (4.46)	7.26** (3.70)	14.93*** (4.24)
R-sq within	0.388	0.366	0.373	0.010	0.015	0.019	0.071	0.091	0.069
Between	0.732	0.719	0.830	0.721	0.774	0.866	0.655	0.693	0.833
Overall	0.612	0.596	0.670	0.555	0.605	0.674	0.516	0.549	0.651

Significance level: *** p<0.01, ** p<0.05, * p<0.1

Table 5.5 South Korean FDI to China by firm size from 2000 to 2012

	LFFDI			SMEFDI		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
GDPPC	1.55* (0.92)	2.603*** (0.91)	2.39** (1.15)	1.46** (0.67)	1.46** (0.67)	1.34* (0.71)
WAGE	-3.36*** (0.91)	-3.22*** (1.03)	-3.65*** (1.10)	-2.39*** (0.58)	-2.39*** (0.58)	-2.39*** (0.62)
EDU	1.42*** (0.31)	1.56*** (0.34)	1.37*** (0.42)	0.477* (0.25)	0.48* (0.25)	0.51** (0.26)
RAILWAY	37.65 (15.28)	48.17** (21.05)	49.89** (21.40)	0.59 (13.19)	0.59 (13.19)	-1.04 (13.42)
No of Large firms	1.66*** (0.25)			1.11*** (0.16)		
No of SMEs		0.87*** (0.21)			1.11*** (0.16)	
No of total firms			0.85*** (0.23)			1.20*** (0.17)
Constant	4.58 (3.36)	-6.91 (4.39)	-0.129 (4.58)	7.41** (3.43)	7.41** (3.43)	7.66** (3.48)
R-sq within	0.079	0.045	0.057	0.063	0.063	0.084
Between	0.885	0.872	0.832	0.901	0.901	0.891
Overall	0.587	0.563	0.546	0.691	0.691	0.688

Significance level: *** p<0.01, ** p<0.05, * p<0.1

Structural changes

So far we have tested hypotheses in which a subset of the parameters of the model is different for two groups. In other words, we want to test whether the same equation is valid for a number of subgroups by motives and regions (Coastal and non-coastal regions) through the examinations suggested by Chow (1960) (i.e., Chow test). In the hypotheses, we have 11 different subsets; before the finance crisis (from 2000 to 2007), after the finance crisis (from 2008 to 2012), Coastal regions (11 provinces including Beijing), and non-coastal regions (15 provinces), three different motives (local market seeking, export promotion and low wage FDI).

In these Chow tests (see table 5.6 and 5.7), we find no structural breaks in the majority of cases. The exceptions are low wage FDIs. The particular reason depends on the extent to which Korean firms are motivated by low wage. The South Korean FDI for low wage is dominated by SMEs. However, South Korean SMEs' FDI ratio for low wage is decreased after the financial crisis. Therefore, in coastal and non-coastal regions in China, South Korean SMEs do not invest in specific regions for only low cost advantage after the financial crisis in 2007.

Table 5.6 Structural breaks by different motives and firms size

Motives	Overall Korean FDI	Local market seeking	Export-promotion	Low wage	Large firms	SMEs
F-Statistics Before/After FC	0.984726	1.082529	1.385055	4.066667	0.682982	0.963152
P- Value	0.4357516	1.082529	1.385055	0.000625	0.663529	0.450471
Result	No Structural Break	No Structural Break	No Structural Break	Structural Break	No Structural Break	No Structural Break

Note: Structural break cannot be seen between before/after financial crisis as an F-test result (0.99)

Table 5.7 Structural breaks by different motives and coastal/non-coastal regions

	Coastal Regions			Non-Coastal Regions		
Motives	Local market seeking	Export-promotion	Low wage	Local market seeking	Export-promotion	Low wage
F-Statistics Before/After FC	0.92265	2.04375	3.263473	1.454639	0.518165	3.877715
P-Value	0.481257	0.064918	0.005214	0.196912	0.794001	0.001198
Result	No Structural Break	No Structural Break	Structural Break	No Structural Break	No Structural Break	Structural Break

Note: Structural break can be seen between coastal and non-coastal regions as an F-test result (6.36)

Investigation of hypotheses

The results show clearly that we have support for the hypotheses. They are indicative of an adjustment process in the location choice of South Korean firms in Chinese provinces depending on time, firm size and motive. Table 5.4, along with figure 5.1, and the Chow test results (table 5.6 and 5.7) offer support for Hypotheses 1 and 2. We find significant structural breaks in low wage FDI from South Korea to China comparing the pre- and post-crisis periods. These results suggest that the determinants of FDI location have become divorced from FDI motive.

The results show clearly that South Korean firms' motives and their investment patterns in China changed over the financial crisis period. After the crisis, South Korean firms have invested into China for market-seeking FDI rather than low wage (efficiency-seeking) reasons. In terms of Hypothesis 3, independent of firm size, there is a strong co-location effect among Korean investors in China, that also appears to be persistent over time, and across the changes in FDI motivation. The results suggest that education and infrastructure are more important for large firms, though the results suggest co-location rather than merely larger firms influencing location decisions of smaller Korean firms.

5.6 Endogeneity Issue

As with any regression based approach, one may have concerns about endogeneity of the right hand side variables. In the case of the analysis in this chapter, the dependent variable is taken from a firm level study of location decisions, while all of the right hand side variables are location (province) level measures of determinants. The chapter includes dependent variables such as the total FDI regarding different time, space, firm size, or motive to test different hypotheses. The equation contains independent variables; market size, average wage, infrastructure and Korean/China openness as mentioned in the chapter (see Appendix 4 and 5), I estimate the equation to test relative differences among right hand side variables.

Based on previous work, market size can be considered as a factor for location choice. Broadman and Sun (1997), Cheng and Kwan (2000), Kang and Lee (2007) have used this factor. In this work, GDP per capita is used as an explanatory variable. Second, labour costs are assumed to drive efficiency seeking FDI (Dunning, 1981), so we use wages as a determinant of FDI, building on Cheng and Kwan (2000), and Kang and Lee (2007) who show that wage levels have a negative impact on FDI in location choice models. Third, infrastructure is very important for firms to decide FDI in terms of effective business activities. Many scholars also agree with this idea as can be seen in Appendix 4, as an infrastructure variable, the study uses railways per square kilometer. Lastly, on the openness factor for FDI, the study designates openness is strongly related to FDI.

For one to be concerned about endogeneity, one would have therefore to believe that an individual firm's investment decision would have an impact on these prevailing economic conditions.

For example, the entry by a large inward investor may have the impact of pushing up wages through increased labour demand. This problem presents itself when the unit of analysis is a small region, or a defined sector within a region, such that the inward investors make up a significant proportion of the total relevant activity. In this case, however, the Korean firms represent only a small fraction of the aggregate activity within the province, so there is no reason to believe that they influence aggregate conditions in this way.

5.7 Conclusion

China was the most strategic location for Korean firms for the motive of cost in terms of efficiency seeking. However, after the global financial crisis, the motive for low wage advantage has changed and there were structural breaks in two regions (Coastal and Non-coastal regions). In addition, my results show that the motives partially explain the FDI location choice's different coefficients and significances between baseline variables. We investigated the different coefficients of FDI on the relationship between firms' motives (i.e. local market seeking, export promotion, and low wage), two different areas (i.e. Coastal and Non-coastal regions). Financial crisis changes the total ratio of FDI volume in terms of firm size. This means there is relatively different importance to invest in the Chinese provinces with different motives of location choice.

Location patterns of Korean FDI are inconsistent with firm strategy, leading to suboptimal location decisions. South Korean FDI for low wage was strongly focused on low wage regions compared to other FDI types. However, in terms of efficiency seeking, it cannot match suitable places for both low wage and low transportation infrastructure. Local market seeking FDI of South Korean firms is located in regions in which average wage and transportation infrastructure are not significant. It is important to understand the nature of the correlation between FDI motives and location decisions more generally, but the results here suggest a degree of persistence and co-location among Korean investors in China, that appears as a strategy to not be supported by the data. Rather, South Korean firms should consider a degree of dispersion within China, and a stronger link between motive and location, including for example moving their efficiency seeking further east.

This chapter highlights the tendency of Korean investors in China to co-locate, even where the apparent economic incentives to do so are relatively weak. This suggests that a potential avenue of research is to explore the extent to which outward FDI from other countries exhibits similar patterns, and the drivers for it. Equally, this suggests that further analysis of firm performance in this context should explore the extent to which the apparent disconnect between strategy and location leads to a reduction in long term performance. Equally, one could also consider this in the context of FDI by emerging economies to richer countries. As FDI by EMNEs evolves from technology sourcing to market seeking FDI, do we see the same hysteresis in location decisions? Such questions are important

for home countries in terms of location choices generating firm performance, but also for regions of host countries seeking to maximise the benefits of FDI.

CHAPTER 6: THE LOCATION OF TECHNOLOGY SOURCING FDI : South Korean investment in the US.

Abstract

Research on foreign direct investment (FDI) has demonstrated that emerging market MNEs engage in investment with advanced countries in order to access resources such as technology. However, research to date has investigated this through the lens of the various FDI motives, which are related to location choice. This chapter examines the nature of technology sourcing FDI, and what attracted Korean FDI to the United States over the period 1995-2008, differentiated by specific FDI motives; a consideration that has received little attention thus far. We use a unique dataset that not only captures the number of new entry firms at US state level, but also designates their exact FDI motives. We collected 663 such observations in the US. Our analysis addresses the determinants of the R&D sectors, and the different roles they play across the FDI factors. The findings suggest that, despite their technological weakness, firms from South Korea are upgrading their competitiveness through value-added activities which form the technology based motivation for Korean internationalisation. We also find that different R&D intensities attract different South Korean industries with different types of FDI motives. Our findings suggest that, beyond a desire to catch up with advanced technology, Korean firms wishing to internationalise consider the different relative importance of Korean industrial sectors both in terms of motive and location choice.

KEY WORDS: Korean FDI motivation, high-tech industries and knowledge-intensive services, FDI location choice.

6.1 Introduction

Emerging markets now account for a considerable proportion of the global economy, and this raises two key questions: first, what determines foreign direct investment (FDI) from emerging countries, and second, since ‘emerging countries’ are not a homogenous group, what drives the FDI of countries within the group that have different specific advantages. The vast literature on traditional “ownership” advantages puts exclusive emphasis on the technological transfer from advanced countries to emerging countries. Any variations between the internationalisation process of multinational enterprises (MNEs) from advanced economies and those from the emerging markets must therefore reflect the specific motivations of the MNEs themselves, influenced by their different location advantages. The traditional taxonomy of FDI motives (Dunning, 1993) has the four FDI classifications. However, most of empirical FDI analyses are viewed through the lens of the motives for FDI and linking these in turn to location specific advantages.

Industrial development in a home country has led to a geographical spread of outward FDI that indicates that firms choose to internationalise in a particular location in order to obtain one of the assets identified by Dunning. In a similar vein, firms from emerging markets engage in the search for strategic assets, especially firm-specific assets that allow them to upgrade their limited competitive advantage. Strategic asset-seeking FDI has therefore become more widespread by firms as they conduct their operations in foreign locations (Dunning, 2004). Thus we see the growing role of strategic asset-seeking FDI reflects how industrialising countries, such as Korea and Taiwan, have based their international strategies on the search for competitive assets which they either do not possess or do not fully leverage (Dunning et al., 1997). However, in the empirical literature on strategic asset-seeking, FDI from the emerging markets is usually treated as a homogeneous factor, categorised as “technology sourcing FDI”, without consideration of its possible heterogeneous motivations. An examination of Korean FDI leads the way in which emerging countries can rethink their FDI strategy, reflecting the changing nature of their FDI motives based on the industrial development process. In terms of internationalisation strategy, emerging countries are seeking further growth in order to compete with MNEs from advanced and other emerging countries. Without doubt, technology plays an important part in an EMNE’s choice of host country, as does the nature of the technology employed by the EMNE. Technology has been linked to location advantages, particularly in the context of technology sourcing. Therefore, if MNEs from the emerging markets (EMNEs) focus on technological development as a key firm specific advantage, it is important for EMNEs to consider the characteristics of the host country’s industrial development in terms of technology.

There are two knowledge gaps identifiable in the literature on the relationship between FDI and the location choice of firms from emerging or newly industrialised countries to advanced countries. First, although the literature suggests an important connection between knowledge-seeking FDI and location choice, there is little evidence-based discussion of the extent to which this has implications for

the relative importance between FDI and various R&D types, suggesting technical diversity of local R&D (e.g. Chung and Alcácer, 2002). Second, while the difficulties of assimilating new technology in the outward FDI of EMNEs has been mentioned above, firms' FDI decisions from emerging countries to advanced countries are investigated through the lens of Dunning's 1993 strategic-asset seeking motives for FDI. Therefore, the FDI is simply linked in turn to location choice thus there is little evidence-based discussion of the extent to which this has implications for the FDI motives beyond knowledge-seeking.

We aim to extend the existing literature through the use of a unique dataset, that contains precise information on the motives and location choice of Korean firms that invest in the US. We offer evidence for South Korean FDI activities in advanced countries, and fill the gap in the existing literature as to how EMNEs emerge over time. This chapter proposes a direct way of examining the drivers of high-tech industrial regions, linking them with various motives over time, thereby extending the recent literature on newly industrialised countries. We tackle the question of what determines strategic asset-seeking FDI by EMNEs that invest in a country that is more advanced than their own. We focus on how these determinants relate to the bigger FDI picture. Our dependent variables, which encapsulate the motivations behind internationalisation of EMNEs, extend the existing literature on the role of local R&D in the location decision, and yield important insights into key IB questions about the relationship between FDI motive and its location choice from emerging economies to more advanced countries.

We use project level data on South Korea, to investigate the correlation between EMNEs' FDI motives and their location decisions, targeting different kinds of assets in the United States. We show the changing FDI motives of Korean manufacturing firms' subsidiaries in the United States. We explain how knowledge seeking FDI varies across the US through a consideration of technology differences (measured by R&D intensity differentials), labour factor differences (measured by types of knowledge/technology labour) and the trend of Korean FDI by motive. Korean firms and US policy makers should, in order to increase competition and productivity, give consideration to characteristics that may exist in specific regions/industries, which are beneficial to the fulfilment of firms' FDI motives, or are more attractive for inward/outward FDI. This chapter thus has an empirical application of interest to MNEs/EMNEs and to policy makers, who need to understand strategic-asset seeking FDI motives over time.

The chapter is structured as follows. Sections 2 and 3 organise and synthesise previous studies on FDI in emerging economies and developed economies, particularly in the context of FDI from South Korea to the US. Section 4 reviews the methodology. We test whether different technological factors have different effects under the different motivations using a dataset of inward investment into the US. Section 5 discusses the results and Section 6 concludes.

6. 2 Korean industrial structure and outward FDI in the US

In the 1980s Korea consisted of firms engaged mainly in trading low-tech and medium-low-tech commodities. The industrial structure moved gradually toward higher technology commodities, and Korea's exports are now highly concentrated in high-tech products, such as semiconductors, telecommunications equipment, displays, and so on. According to Korea International Trade Association (KITA) data in 2015, the share of high-tech and high-medium-tech products in Korea's exports increased from 14 percent in the 1980s to 43 percent in the 2000s.

The contribution of individual industries to exports changed drastically from 1990 to 2014 (Table 6.1). The share of primary and light industries in the total export figure declined dramatically. The share of primary industry declined from 4.9 to 1.4 percent, and the share of textiles declined from 26.7 to 0.7 percent. In contrast, the share of high-tech products rose significantly. In particular, by 2014, precision machinery, telecommunications equipment, displays, and automobiles accounted for almost 40 percent of total exports. According to Korean Industrial Technology Association data, the highly concentrated export structure of Korea reflects the highly concentrated distribution of Korea's R&D expenditures and patents. Of the Korean patents registered in 2006, electronics and communications accounted for 54 percent and machinery accounted for 15 percent. This is consistent with industrial R&D expenditure, which is concentrated in a few industries such as telecommunications, transportation, and so on. Knowledge intensive industries clearly have gained in market share, while labour intensive industries have lost market share. This is confirmed by World Trade Organization data, which show that Korea's world market share increased in technology-intensive products, such as office machines, telecommunications equipment, automotive parts, and chemicals. In those areas, R&D investments also increased significantly.

Table 6.1 Share of Exports by Industry, 1990-2014

Industry	Percent of Exports		
	1990	2007	2014
Decline share in exports			
Primary industries	4.9	1.5	1.4
Textiles	22.7	3.7	1.7
Shoes	6.6	0.1	0.1
Home appliances	11.3	3.7	0.7
Maintaining share in exports			
Steel and iron	6.7	6.2	5.8
Computers	3.9	3.7	1.4
Increasing share in exports			
Petrochemicals	2.0	7.8	8.9
Automobiles	3.0	10.1	8.7
Precision Machineries	0.4	0.5	0.9
Telecommunication equipment	0.8	8.2	6.3
Semiconductors	7.0	10.6	10.2
Flat displays	0.0	4.5	6.6
Ships	4.3	6.5	6.1

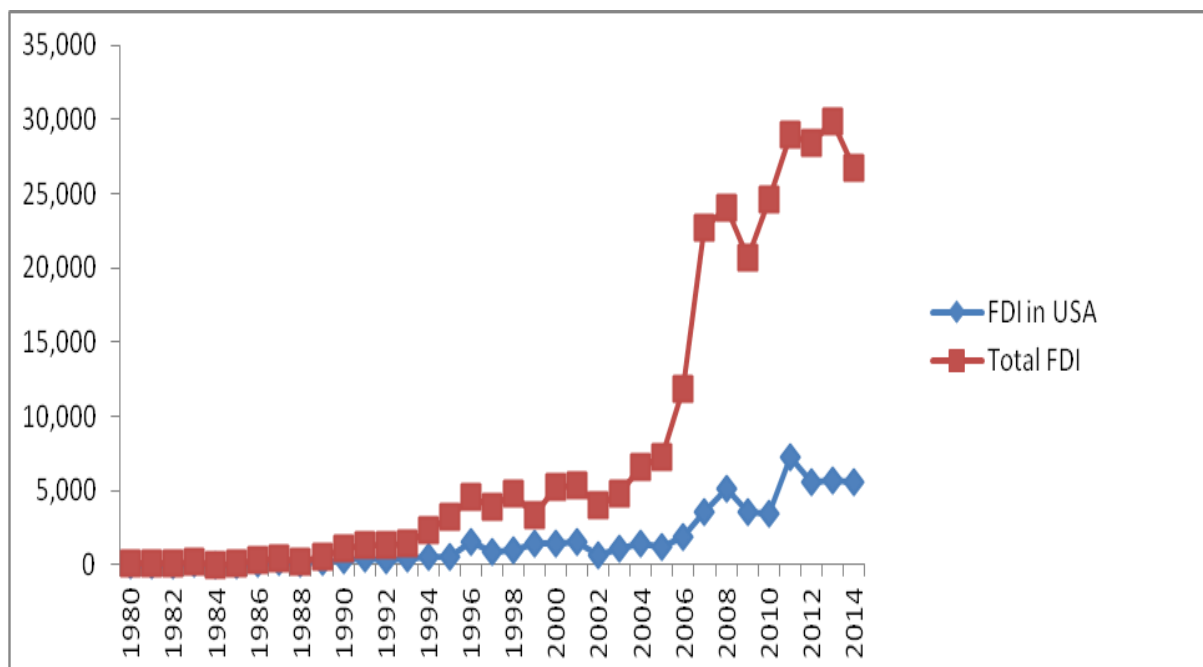
Source: Korea International Trade Association

South Korean outward FDI, like that of many other East Asian countries, has been geared toward accessing important proprietary technology (Dunning, 2006). Thus, MNEs from emerging countries may be prompted to invest in more advanced countries, in order to gain intangible strategic assets, rather than to exploit the MNE's ownership advantages. In line with this thinking, we posit that South Korean outward FDI for strategic asset-seeking motives would gravitate toward developed countries' economies, which typically possess significant levels of human and intellectual capital, so that the South Korean firms could strengthen their own competitiveness (Dunning, 2006).

South Korean R&D's outward FDI to the advanced technology sectors of the US could enhance technology transfer to South Korea, thereby enhancing the specific assets of Korean firms. The point of this is to demonstrate that tech-sourcing FDI improves firm-specific advantages (FSAs), leading to market-seeking FDI (Bhaumik, et al., 2016) and therefore increasing exports to a third country. In other words, in the initial phase, Korean FDI focuses on absorbing established technologies from the local markets (Pearce, 1999a, b). Then, the MNEs enhance the technologies, not only for their local operations but also for the development of their entire MNE network, thereby creating competence (Cantwell & Mudambi, 2005).

The key point for consideration is the development of EMNEs through technology sourcing FDI and how in turn this relates to their location choice. A firm from an emerging country may well have the ability to assimilate knowledge, but another firm from a developed country, that arrives already equipped with the knowledge, can immediately focus on improving efficiency. It is evident that the function of technological capacity from EMNEs and the technology gap between the host and home countries are key issues (Bhaumik, et al., 2016). In addition, the relationship between technology sourcing and subsequent technological upgrading is not an automatic process (Driffield and Love, 2003), but it is one that becomes critically important when trying to create a good environment for obtaining specific knowledge and demands in knowledge intensive industries. Therefore, the motive of strategic asset seeking FDI in a host country contributes to long-term competitiveness of EMNEs. Thus EMNEs' FDI location choices in advanced countries are affected by locational assets in order to reduce the technological gap between host and home countries.

Figure 6.1 South Korea OFDI flows in the US and all over the world (Unit: million US dollars)



Source: Calculated from data of The Export- Import Bank of Korea

Figure 6.1 shows South Korea's FDI flow in the US, which has the most popular destination for South Korean firms seeking economic partners abroad. South Korean firms have invested more than 280,919 million US dollars there in the period of 1980 to 2014, and the number of new Korean firms in the US is 59,650. These figures account for more than 20% of South Korea's worldwide outward FDI. Further, over the period of 1980 to 1999, more than 25% of the total FDI from Korea to the US was related to high-tech industries and knowledge intensive services. The selection of host countries by Korean firms reflects their international expansion strategy and their upgrading, which enables them to undertake higher value-adding activities. Thereafter, once Korean MNEs internationalise in advanced countries such as the US or EU countries, and acquire a greater ability to deploy and upgrade capabilities through linkage and learning through that outward FDI, they further consolidate their advantages by exploiting the market of the host country; thus FDI becomes a "platform" to export to the surrounding area. One of the reasons for this upward trend of FDI from South Korea may be Korea's government policy. From 1986, Korean outward FDI was encouraged by the Korean government, which relaxed FDI regulations, including the investment ceiling for venture capitalism. In addition, the South Korean government provides four major types of outward FDI measures: financial support, favourable taxation, overseas investment services, and institutional services such as administration and information (Kim & Rae, 2007).

Table 6. 2 South Korean FDI and motives in the US 1980-2014

Unit: 1,000 US dollar/%

Purpose	Total FDI flow	% of total FDI	Total manuf. FDI flow	% of manuf. FDI
Market seeking	18,117,588	33.0%	3,781,163	30.3%
Technology seeking	7,479,942	13.6%	1,887,836	15.1%
Exploration of resource	11,001,367	20.1%	499,875	4.0%
Export promotion	13,227,207	24.1%	5,260,454	42.2%
Going to third countries	1,864,109	3.4%	454,634	3.6%
Low wage (Efficiency seeking)	330,742	3.4%	71,917	0.6%
Overcome protective trade	155,477	0.3%	130,259	1.0%
Others	2,736,366	5.0%	391,527	3.1%
Total	54,912,772	100%	12,477,669	100%

Source: Calculated from data of Export-Import Bank of Korea

Table 6.2 shows the proportion of and different motives for investing in the US from 1980-2014. In South Korea, if a company wants to engage in foreign direct investment, they must satisfy Korean foreign exchange law by submitting documents to the South Korean Banks that include information as to the proposed exact location, the total amount of FDI, their motivations for investing, the firm size, industrial area, and so on. Korea's Export and Import Bank (EXIM) handles this comprehensive data. Previous literature examined the motives and categorised four different motives, namely: market seeking; resource-seeking, efficiency-seeking and strategic asset-seeking (Dunning 1993). The EXIM dataset has records of Korean firms' investing motives, which fall into 8 categories for investing in the US. From it we see that, overall South Korean manufacturing industries have three motivations for investing in the US: market-seeking; technology-seeking; and export promotion. In order to interpret Korean FDI motives over time, we need to map Korean FDI data onto the taxonomy of Dunning's FDI motives (1993) of the four FDI types classifications: resource-seeking FDI; efficiency-seeking FDI; market-seeking FDI; and strategic-asset seeking FDI. Basically, the most significant motive for Korean FDI is export promotion (42.2%) out of the total manufacturing FDI in the US from 1980 to 2014, with market seeking and strategic asset seeking (advanced technology introduction) at 30.3% and 15.1% respectively. The proportion of low wage (efficiency-seeking FDI) is not significant in the US while the proportion of technology-seeking (strategic-asset seeking FDI) is significant and higher than the proportions of efficiency-seeking and resource seeking. It is clear from the table that Korean outward FDI to the US is not only for the motive of technology-seeking but also for market-seeking.

In fact, as Korea has developed, we see that the Korean industrial structure has changed to become more export-oriented, especially in the sectors of electronics and other knowledge intensive areas. The change in the industrial structure has rendered it is possible for South Korean MNEs to enter the US for motives beyond merely technology-seeking; the presence of other motive reflects localised technical activity and the need to meet market demand (Chung and Alcácer, 2002). According to Li's (1994) study of South Korean enterprises, electronic firms are more likely to invest in countries where the market potential is large. Assuming that South Korean firms find it easier to access developed countries' potential markets than those of the developing countries, we expect that South Korean firms are more likely to invest in the US for market-seeking purposes. Therefore, we hold the position that South Korean outward FDI pursues both asset exploitation and asset exploration.

6.3 Literature Review and Hypotheses Development

6.3.1 Knowledge-seeking FDI from emerging countries

The conventional IB literature largely focuses on the activities of firms from developed countries. Firms from emerging economies are considered to be latecomers to global business with regard to their home-country specific factors of production (Buckley, et al., 2007; Child and Rodrigues, 2005). With respect to firms from the emerging economies, scholars have highlighted the relevance of knowledge-seeking outward FDI in highly developed economies (Child and Rodrigues, 2005; Mathews, 2006). This is reflected in the empirical literature in its support of the notion of knowledge-seeking FDI being used to acquire knowledge or to enhance already acquired skills (Cantwell and Jane, 1999; Chung and Alcácer, 2002) Driffield and Love (2007) propose an FDI taxonomy and combine two different sets of issues: technology and factor cost differences through the measurement of R&D intensity differentials and units of labour. In their taxonomy, FDI motivations can be considered via two broad categories of asset exploitation and asset-seeking. In other words, they come up with a method of disentangling knowledge-seeking FDI motivations (Driffield and Love, 2007) and the technological levels of host and home countries (Driffield and Love, 2005).

The importance of the acquisition of knowledge or technology to the internationalisation strategy of the EMNE has found empirical support in that the EMNE may have a competitive advantage related to specific factors such as cheap labour or natural resources (Gaffney, et al., 2013). Ramamurti (2008; 2012) points out that these advantages are related to the characteristics of countries that have different economic structures and environments. In the same vein, Porter's diamond terminology (1990) states that multinational firms in a particular country derive a home based advantage in global trade competition. Despite their technological weakness, firms from emerging countries are now upgrading their competitiveness through value-added activities (Mudambi, 2008). In addition, Bhaumik and Driffield (2011) suggest that firm characteristics that reflect firm-specific capabilities of emerging countries explain outward FDI from emerging countries. Fosturi and Motta (1999) question the reliance

on firm-specific advantages as a formal model of the FDI motivation to access technology and transfer it from host country to home country.

MNEs from emerging economies arrive with the liability of foreignness (LOF) and are faced with a technological lag that is as important to them as economies of scale to the emerging markets (Bhaumik et al., 2016). However, the existence of that same LOF makes acquiring technological knowledge problematic for them. EMNEs, for example, face the perception that their brands are not well known, and that their technology lags behind host country frontier firms (Kedia et al., 2012). In terms of being able to enter into technology sharing, or joint development agreements with host country firms, property right theory would say that this places them at a disadvantage (Driffield et al., 2016). As is highlighted by the wider literature on EMNEs (e.g. Bhaumik et al., 2016), firms' location decisions for tech sourcing FDI are driven by the types of organisations with whom they can develop links. In this context, the functions of the technological capacity of EMNEs and the technology gap between the host and home countries should be borne in mind when initiating knowledge-seeking FDI from emerging economies.

Building on the previous literature, empirical work has been done that seeks to explain variations in outward FDI from emerging countries. It focuses on the cause of the disparity between the home and host countries, identifies links between economic and geography, the most notable being industrial agglomeration and development (Puga and Venables, 1996). It is clear then that the host country's infrastructure (including local R&D) is of paramount importance. There is a growing literature that seeks to link industrial agglomeration and development to MNE's location within their host countries, and which considers the links between the location's R&D and the benefits conferred on the organisation by its decision to settle in a particular region within an advanced country, thus linking infrastructure to FDI.

Cantwell (1989) notes that technology differs across global locations because the technology level depends on specific factors, such as established innovations, the educational level of the workforce, and the link between educational institutions and firms in each region. Consequently, firms may access new knowledge by expanding their international activities, improving their existing technologies or connecting with new technology (Cantwell, 1989). In terms of accessing localised knowledge, firms require a degree of physical closeness in a subsidiary's location choice to enable frequent interaction (Kogut and Zander, 1992). Building on this, Almeida (1996) shows that foreign firms make greater use of local knowledge in comparison to their local counterparts in the semiconductor industry. Most of this evidence concerns advanced industrial development in specific countries, and the importance of highly technological industries such as biotechnology/drugs, electronics, chemical/materials, and automotive (Kuemmerle, 1999; Florida, 1997; Serapio and Dalton, 1999). The literature emphasises that physical proximity is required for foreign firms to access localised high-tech knowledge.

In order to capture a new market and exploit the knowledge already in their possession, emerging-economy firms learn new and advanced technology and management skills in specific locations. Researchers have examined the knowledge-related characteristics of host countries that are important for foreign firms when they are deciding on their FDI locations, considering location activities such as the availability of highly skilled labour and the number of research endowments (Chung and Alcácer, 2002). Using this analysis, it appears that MNEs from emerging markets choose their internationalisation location on the basis of factors such as market size, technical activities and labour abilities. However, the capabilities of the home country's assets may also motivate firms' decisions as to the countries in which they initially invest, in that specific countries have particular location advantages related to their differing economic structures and environments through value-added activities (Mudambi, 2008).

The question of what determines strategic asset-seeking FDI of the firms from emerging countries that invest in more advanced countries is an important one. The literature on the flows of FDI from the emerging economies extends the analysis of firms' motivation to invest in a particular location and has highlighted multiple factors that affect strategic asset oriented motivations, including the presence of local hubs of specialist knowledge. In this respect, the FDI location choice from the emerging economies to advanced countries can be considered to be a large scale decision that is made on a smaller scale dimension due to the characterised attractiveness of regional/local areas. When firms from the emerging markets are deciding their FDI locations, and assessing the technical capabilities available in the host location, they are likely to be influenced by the technical capabilities of their home country. Higher education institutions might be such a type – maybe brands and reputation matter less when partnering with higher education.

There is a growing literature linking knowledge-seeking FDI and university research. Abramowsky, et al. (2007) seek to link business R&D location to the UK's higher education funding councils for science. They show that the presence of R&D facilities of foreign firms strongly correlates with the location of top university departments. De Silva and McComb (2009) perform a similar analysis and show that both the size and proximity of university research facilities contribute to higher instances of business start-ups at a local level. The authors point out that the presence of universities, with their ready availability of skilled university graduates, attracts new firms to those areas. This leads to our first hypothesis:

Hypothesis 1: South Korean FDI seeks access to location with Higher Education (HE) institutions in the United States.

6.3.2 Knowledge-seeking FDI and R&D

Much of the technology sourcing literature focuses on employing measures of the relationship between host locality and FDI, because the nature of knowledge and technology flows more explicitly (Driffield, et al., 2010). The selection of FDI motives by EMNEs reflects their characteristic liability of foreignness (LOF), such as weak brands, lack of market penetration and lack of innovation capacity locally. We also need to take into account whether there is a significant difference from level of home countries in the ability of EMNEs to exploit or leverage country specific assets (CSAs) such as scale economies (Bhaumik et al., 2016). As high cash flow makes EMNEs more attractive to higher education R&D (Abramovsky, et al., 2007), the potential for universities to confidently contribute to outward FDI from the emerging economies has recently received more attention. EMNEs cooperate with external institutes for technological development. The availability of research collaboration projects and information contracts (Antonelli, 2008; Bekkers and Freitas, 2008) implies that as universities become more entrepreneurial and engaged with business, they undergo a move toward 'Academic Capitalism' (Slaughter and Leslie, 1997). Empirical research provides sustenance for the many reasons universities are attracted to EMNEs. In general, this research finds that the benefits of physical closeness to universities are various. Focusing on local universities and university concentration, Huggins et al. (2009) argue that a geographical relationship between businesses and local universities in relevant knowledge sources can provide competitive advantages. In the context of research on the characteristics of the FDI by EMNEs that engage with universities for the purpose of innovation, Hewitt-Dundas (2013) finds that the probability of business-university cooperation increases where the business is experiencing a lack of information on technology, and that absorptive capacity increases with proximity between the universities and the private sector. This also links to the study what other facilities are required to attract technological expertise, and suggests reasons for the strong correlation between the relationships (Woodward et al., 2006).

The most widely recognised reason for firms to undertake technology-seeking FDI is that they seek unique capabilities that can make up for the weak points in their specific assets. Technology-seeking FDI explains the location of particular types of economic activity, and the location of R&D. Knowledge seeking FDI is related to the ability of certain regions or locations within a country to attract high technology activities and it explains how a certain firm determines the locations of its various activities. Driffield and Love (2002; 2007) try to distinguish the technology sourcing hypothesis through the use of sectoral R&D intensity, and propose a FDI taxonomy that seeks to disentangle the categories of asset-seeking and asset-exploiting motives. There is a growing literature linking knowledge-seeking FDI location and agglomeration economies. In the classic 'ownership' advantage, technological superiority may be preconditioned; thus, where a company has a competitive advantage over its rivals, this company will set up its subsidiaries in a foreign country through FDI. Some specific advantages in

the host country may exist, meaning that expansion through FDI is preferred over expansion through exporting (Buckley and Casson, 1976; Dunning, 1979; 1988; 1993).

MNEs create and integrate knowledge as they seek to source and combine knowledge/technology and competences from their network of geographically spread subsidiaries. At the outset, foreign subsidiaries mainly adapt their own centrally-developed technology to local conditions (Dunning, 1998; Dunning & Lundan, 2008; Pearce, 1999a, b). These subsidiaries depend on their parent firm's specific assets such as R&D, product and process technology, and brand and management capabilities; and the role of the subsidiaries is to exploit these specific assets in the markets that their parent firms are trying to break into (Cantwell & Mudambi, 2005). Any local R&D is used to support the subsidiary's immediate competitiveness through the adaption of products and processes to suit local characteristics (Hood & Young, 1982; Pearce, 1999a, b). Over time, MNEs in foreign locations switch their emphasis to the significance of strategic asset-seeking and knowledge sourcing (Dunning, 1998; Dunning & Lundan, 2008; Cantwell & Mudambi, 2011).

The above studies generally focus on one of two different aspects of internationalisation. The first is related to the local activities that firms can explore, or the knowledge that they can exploit. The second concerns the gap of technological development level between the home and host country, so firms from the developed or developing countries seek to justify how their FDI is determined by the link of location advantage and internationalisation purpose. Bhaumik, Driffield, and Zhou (2015, 2016) highlight that the choice of location in the host country will be influenced by the firm specific advantages (FSAs) of EMNEs, and go on to point out that this finding poses a problem for the hitherto wide generalisation about the access-to-technology based motivation for the internationalisation of EMNEs. We therefore need to identify the different reasons for internationalisation by firms from the emerging countries, who will presumably want their country specific industrial characteristics or capabilities to be as effective as possible abroad. In other words, knowledge-seeking firms from emerging countries will seek a location that is close to the sources of knowledge. However, firms have numerous reasons for wishing to establish operations abroad, Chung and Alcácer (2002) examine how localised knowledge affects knowledge-seeking FDI, and argue that firms that are seeking knowledge will be attracted to locations where they are able to access such local market and technical activity.

The theoretical explanation for knowledge-seeking FDI points to two reasons for locating R&D abroad. The first is asset-exploiting foreign R&D (Dunning and Narula, 1995). In this case, firms seek to exploit existing technologies to local circumstances and similar motive such as marketing or production may exist for undertaking FDI in their host location. As this type of R&D is specifically targeted to the foreign locale, a firm's activity for knowledge seeking FDI will under many circumstances be most efficient to undertake it in the host region or country. Thus FDI for exploiting existing technology has the advantage of close interaction with local production factors. In terms of essential points about foreign R&D, this type of foreign R&D can be a substitute to the firm's domestic

R&D. In addition, this type of R&D has no inclination toward locating in a specific foreign region on the basis of the technological infrastructure that attracts foreign demand in this region.

The second is asset-seeking (Dunning and Narula, 1995). In many cases of FDI from EMNEs, subsidiaries have evolved into creating core competencies rather than merely exploiting existing assets (Cantwell & Mudambi, 2005). The assumption of asset seeking FDI starts from realising difference between host locations where are characterised by different knowledge bases. The specific investment environment of the foreign technological knowledge base meets the firm's demand for utilising the foreign R&D, so that the firm aims at adapting characterised R&D and develop new capabilities. Subsidiaries are often viewed as bases for MNEs to augment their strategic assets, generating new competitive assets (Rugman & Verbeke, 2001; Rugman, Verbeke & Nguyen, 2011) in the MNE network (Mudambi, et al., 2014). The literature on the internationalisation of R&D suggests that such high-tech industrial facilities are transferred to developed areas of research and innovation (Pearce, 1999a, b) and that is of crucial importance to the research of knowledge seeking FDI from EMNEs.

One of the main problems facing researchers in outward FDI in technology rich countries has been a lack of investment data on the host locations of foreign activities across host countries. Thus it is difficult for researchers to combine the FDI motive and local activities such as R&D. Whereas asset-exploiting R&D does not lead to regional clustering of local R&D, asset-seeking R&D is strategically linked to spatial concentration of R&D activities. Thus, the establishment of new subsidiaries is influenced by strategic choice to access local market or local technology. The difference in R&D internationalisation motives leads to different location choice of subsidiaries by geography and organization (Von Zedtwitz and Gassmann, 2002). In the same vein, firms locate their subsidiaries close to the semi-public research infrastructure, such as research institutes and universities, or other knowledge developed firms. Woodward, et al. (2006) present a potential relationship between local university R&D expenditures and the number of high technology plants. Abramovsky, et al. (2007) investigate the relationship between geographic distributions of private sector R&D labs and university research facilities in the UK, and foreign-owned labs have a stronger relationship for consistence with technology sourcing internationally. This leads to our second hypothesis:

Hypothesis 2: Access to Higher Education (HE) is more important for South Korean firms investing in the United States for knowledge-seeking motives than for other FDI motives.

Kogut and Chang (1991) examine Japanese manufacturing industries in the United States to show that FDI transactions occur in industries that have big R&D differences between the host and home countries. Chung and Alcácer show it is not only firms from technically lagging nations, but also firms from some technically leading nations that are attracted to R&D intensive states in the US. Bhaumik, et al. (2015, 2016) demonstrate that the continued development of MNEs from emerging countries creates lacunae

for the explanation of their internationalisation. MNEs from the emerging countries need to recognise that they can acquire a specific advantage through targeting specific locations which already have strong technology. This idea is evident in the 'strategic asset-seeking' behaviour identified by Dunning and Narula (1995), and through the 'diversity sourcing' motive mentioned by Cantwell and Janne (1999). Cantwell and Janne (1999) challenge the assumption that the primary motive for knowledge-seeking is for firms to catch up with advanced technology. They differentiate between firms that have established a base in leading technical locations and sited in lagging technical locations to explain the technical diversity of knowledge-seeking firms. In general, firms from countries or industries that are relative technical laggards are more likely to do knowledge-seeking FDI, and the difference in the country level of R&D is a determinant of this (Kogut and Chang, 1991; Kuemmerle, 1999). Among various types of R&D, Chung and Alcacer (2002) find that technological strategies for determining location choice are influenced by local R&D. They find that state level R&D has a different attractiveness pull in terms of R&D intensity. In R&D intensive sectors, US states with a high level of the relevant R&D activity are able to attract FDI even though the United States as a whole does not generally attract FDI in that sector.

Although we can, through a review of the literature, begin to develop an understanding of heterogeneous FDI motives, we still know little about its relative importance across the sub-industrial manufacturing levels. The key issue is whether knowledge-seeking FDI is present in all firms, or only in certain industries or locations. In addition, when engaging in technology sourcing, some technology intensive industries or knowledge intensive services are easier to access than others. Almeida (1996) concludes that Korean MNEs invest in US subsidiaries for 'knowledge sourcing', particularly to upgrade their technological ability in areas in which they are relatively weak. Serrapio and Dalton (1999) concludes that the nature of such investment changes with a firm's relative strength in the biotechnology and electronics industries; thus inward FDI to the US demonstrates more emphasis on gaining direct access to technology and expertise.

Cantwell (1989, p. 8) argues that: "The acquisition of new skills, and the generation of new technological capacity, partially embodied in new plant and equipment must be a goal of every firm." Empirical evidence for this claim is more scattered. Kogut and Chang (1991) look at manufacturing industries in the United States and show that there are more Japanese FDI transactions in industries that have greater R&D differences, a finding that is consistent with the "sourcing of US locational advantages in technology".

As noted above, in a consideration of access to advanced technology, South Korean MNEs, operating in a home country where the technological base in their sector is relatively weak, choose to invest in locations of R&D superiority in the US through the development of collaborations. Following the above argument, our third hypothesis concerns the comparison between the motives of Korean MNEs' for outward FDI and those of other sub-categories across high-tech industries. Penner-Hahn and

Shaver (2005) highlight that conducting R&D in a host country, and investing in R&D in the home country, is complementary rather than substitutional. From this perspective, the greatest benefit of local R&D in advanced countries is that it becomes a virtuous circle whereby the knowledge base or technology base of an industry or firm in an emerging country can foster greater benefits from technology-seeking FDI (Penner-Hahn and Shaver, 2005). In this context, we seek to capture the attractiveness of US state level R&D localities by measuring R&D spending at regional level. This leads to our third hypothesis:

Hypothesis 3: Proximity to higher education is more important for technology sourcing FDI by EMNEs, than proximity to private sector research

6.4 Empirical Analysis

To examine our hypotheses, we deconstruct a number of Korean firms invested in the US, and the characteristics of the R&D in each state of the United States. Korean MNEs invest in each state based on motives and different asset augments which are characterised by local innovation characteristics. This is reflected in the empirical literature supporting the theory that firms undertake knowledge seeking FDI to acquire new technology or to enhance acquired skills. As we mentioned above, FDI motivations (Driffield and Love, 2007) and the technological levels of host and home countries (Driffield and Love, 2005) are central aspects of technology, and factor differences through the measurement of R&D intensity differentials.

6.4.1 Model specification

Location modelling has its roots in the work of authors, such as McFadden (1974) and Carlton (1979, 1983). The nature of the dependent variable (the number of Korean firms in each US state) lends itself to several options of nonlinear models, the most commonly used of which is the Poisson model. However, there are two issues with this type of model. First, it assumes that conditional variance is equal to an expected count. The consequence of applying the Poisson estimator in this case is that there are too many zero observations in the sample and so standard errors will be under-estimated and statistical significance will be higher. Second, the Poisson model assumes that Korean firms have a positive probability of being present in each state. However, in reality, in some US states, Korean firms have never been present. Therefore, a Zero Inflated Negative Binomial (ZINB) model is considered to be a better alternative to the Poisson model.

We set up variables in line with the research of Carlton (1983), Coughlin, et al. (1991), Devereux and Griffith (1998) Guimarães, et al. (2004), and Driffield, et al. (2010). R&D investment is a key factor in determining a high-tech industrial region. Therefore, this chapter takes the ratio of in-

state R&D expenditure to GDP as an indicator. A higher R&D/GDP ratio is an important sign of innovation capacity and reflects the R&D investment attending on high-tech products.

Table 6.3 Independent variables for estimation

Name	Description
RGDP	(Log of) GDP in US dollars PPP
RGDPPC	(Log of) GDP per capita in US dollars PPP
RUR	Total unemployment rate
RYUNR	Youth Unemployment rate
RHM	High and medium high-technology manufacturing (as % of total manufacturing)
RKIS	Knowledge intensive services (as % of total service)
RPCT	PCT patent applications per million population
RRD	Total R&D/GDP
RGRD	Total R&D Government sector/ Total R&D
RHERD	Total R&D Higher-education sector/ Total R&D
TREND	Tendency toward increase or decrease of South Korean firms

6.4.2 Explanatory variables

Building on the above hypotheses, the empirical literature that seeks to explain the variations in Korean technology-seeking FDI in the United States focused on the following factors: market size; labour force ability; and R&D locality.

6.4.2.1 Market Size

Many MNEs from emerging countries have the capacity to internationalise, and they seek to access areas with a high availability of capital resource. Thus we might expect a positive relationship between state size and FDI. Our research in this regards builds on empirical evidence from previous studies such as Stone and Jeon (1999), Grosse and Trevino (1996), Tallman (1988), Kyrkilis and Pantelidis (2003) and Thomas and Grosse (2001). The market size variable may simply serve as a proxy for potential consumption in each US state. Indeed, these studies suggest that the impact of market size on FDI is significant. In our study, we focus on the state as our unit of measurement, which suggests that state GDP and GDP per capita are the appropriate metrics here.

6.4.2.2. Labour force availability

The conventional response is that wage level is a key issue for those MNEs that engage in labour-intensive industries. However, a higher wage does not necessarily deter FDI into all industries because a higher wage can reflect a higher productivity level in specific cases. Rather than using labour costs or differentials, we use labour force based measures for measuring different proportions in terms of investment in high-tech industries and knowledge intensive service. By measuring the different proportions of labour in each state across categories such as unemployment, youth unemployment,

proportion of high-tech industrial/knowledge intensive service employment (as an indicator of labour availability), we can assess their relative importance in FDI at state level.

6.4.2.3 Importance of R&D

The present analysis is consistent with these interpretations; Driffield and Love (2007) regard any FDI by a foreign investor as technology sourcing if it involves investment in a host sector which is more R&D intensive than the source sector, regardless of the absolute levels of R&D intensity in each. As Driffield, et al. (2010) argue, interactions flow between inward investors and their host locality, as does, more explicitly, knowledge and technology. In this context, we seek to capture the attractiveness of a region in terms of its stock of knowledge. Research and development effort captures the dynamism of a region by looking at the resources it allocates to innovation activities. R&D is widely considered as a means of fostering economic growth. A general overview on R&D spending at a regional level (as % of GDP) draws a baseline picture of the relative intensity of R&D effort at the regional level. The data included in the following table refers to the intramural R&D spending by the main three actors involved in R&D investments: firms, government and universities (higher education).

6.4.3 Data

This empirical study focuses on the distribution of Korean firms' presence in the US. For this, the study combines two main sources of data: the overseas investment statistics of The Export-Import Bank of Korea ("EXIM Bank") and OCED statistics.

The statistics data of EXIM bank shows the categorised Korean firms' numbers by year, the US states in which they are located, their industrial areas, the type of subsidiary, and the ratio invested across all industries. In addition, EXIM Bank has data on Korean firms' investing motives, namely: advance to local market; advanced technology introduction; exploitation of resources; export promotion; going to third country; taking advantage of host country's low wage structure; overcoming protective trade regulations; securing raw material; and others. Our analysis focuses on high-tech industries and knowledge-intensive service industries, based on the official OECD-Eurostat definitions, highlighted in Table 6.4.

Table 6.4 Classification of high tech industries and high-tech knowledge intensive services

High tech industries	High-tech knowledge intensive services
A. Pharmaceuticals (54)	F. Post and telecommunications (910)
B. Aircraft & spacecraft (0.1)	G. Computer and relative activities (11)
C. Medical, precision& optimal instruments (141)	H. Research and Development (72)
D. Radio, television & communication equipment (389)	
E. Office, accounting & computing machinery(15)	

Note: () total investment volume from South Korea into the US (Unit: US million dollars)

OECD statistics have data on regional demography, economic indicators, and innovation indicators such as patents applications in regions, R&D expenditure by sector, skilled labour by sector, and so on. The OECD data show state proportions of R&D, numbers of patents, and availability of skilled labour in each state.

According to OECD statistics, we can see different R&D expenditures in our chosen high-tech industrial sectors of South Korea and the US (Appendix 9 and 10). In summary, when compared to the US figures, South Korean R&D expenditure by Industry D (Radio, television & communication equipment) dominates Korea's overall R&D. In addition, when we compare the ratio of Korea's R&D expenditure to that of the US, Korea's telecommunication R&D is about 30% of the US's, while the other industries are less than 10% in 2008 (Appendix 11).

In terms of the total volume of these industries, radio, television & communication equipment (industry D) and the post and telecommunications industry (F) invested in the US 3,198 and 910 million US dollars respectively. On the other hand, other industries invested less than 150 million US dollar during the same period (1995-2008).

South Korean FDI location choice extends to the firms' specific motives for choosing a particular US state. It is of paramount importance for Korean enterprises entering the US market to be aware of the distribution of FDI locations by motive. Our research focuses upon the pattern of FDI location choice in the manufacturing and high-tech/knowledge intensive industries/services from South Korea. This is especially interesting given the relationship between R&D development at state level and the location determinants of FDI by Korean firms and industries. Our research period is from 1995 to 2008. This period was chosen not because of restrictions in FDI data generally, but because of the more limited data available on state R&D, this being our independent variable. The total number of manufacturing firms undertaking FDI in the United States during the 13-year period was 1,526, and the total number of high-tech and knowledge intensive service industries was 721. California was the leading recipient of South Korean FDI with 836 and 448 firms respectively (table 6.5).

Table 6.5 Numbers of South Korean new entry firms in manufacturing and high-tech industries/knowledge intensive services in the US from 1995 to 2008

State	No. of new manufacturing firms	No. of new high-tech firms	State	No. of new manufacturing firms	No. of new high-tech firms
Alabama	48	6	Montana	1	0
Alaska	3	1	Nebraska	0	0
Arizona	18	8	Nevada	19	7
Arkansas	1	1	New Hampshire	0	0
California	836	448	New Jersey	74	39
Colorado	11	3	New Mexico	3	1
Connecticut	4	2	New York	79	12
Delaware	34	24	North Carolina	6	1
District of Columbia	2	0	North Dakota	2	2
Florida	26	6	Ohio	11	4
Georgia	37	10	Oklahoma	2	0
Hawaii	6	2	Oregon	22	8
Idaho	1	0	Pennsylvania	17	9
Illinois	27	8	Rhode Island	0	0
Indiana	2	0	South Carolina	4	1
Iowa	3	0	South Dakota	0	2
Kansas	3	2	Tennessee	7	0
Kentucky	3	1	Texas	57	26
Louisiana	24	9	Utah	10	6
Maine	1	0	Vermont	0	0
Maryland	13	13	Virginia	21	15
Massachusetts	14	8	Washington	41	28
Michigan	21	4	West Virginia	0	0
Minnesota	4	4	Wisconsin	2	0
Mississippi	2	0	Wyoming	0	0
Missouri	0	0	Total	1,526	721

Calculated from data of Export-Import Bank of Korea (EXIM bank of Korea)

6.5 Results

Table 6.6 Korean manufacturing firms' distribution with various motives in the US

VARIABLES	(1) Overall	(2) Tech-seeking	(3) Market-seeking	(4) Export-promotion
RGDP	0.850***	0.780***	0.635***	0.819***
RGDPPC	-0.414	-0.244	-1.334**	-1.578***
RUR	16.477	8.737	-22.537	25.839**
RYUNR	-5.137	-7.101	8.896	-13.245*
RHMT	-2.284***	-2.366*	-2.652*	-3.097***
RKIS	0.009	-0.002	0.028***	0.000
RPCT	0.004***	0.003	0.005**	0.005***
RRD	10.819	10.587	-0.8278	38.577***
RGRD	0.292	0.257	2.000**	2.718***
RHERD	1.897**	1.996**	-0.948	4.560***
TREND	0.002	-0.064**	0.173***	-0.030
Observation	663	663	663	663
Non-zero	256	99	85	141

Significance level: *** p<0.01, ** p<0.05, * p<0.1

Table 6.7 Korean high technology and knowledge intensive service firms' distribution with various motives in the US

VARIABLES	(1) Overall	(2) Tech-seeking	(3) Market-seeking	(4) Export-promotion
RGDP	0.869***	0.800***	0.602***	0.643***
RGDPPC	0.712	0.308	1.951	-1.784*
RUR	24.165**	-7.631	-3.095	18.959
RYUNR	-4.943	4.047	9.047	-10.833
RHMT	-0.316	-3.053**	-4.129**	-1.436
RKIS	-0.024*	-0.028**	-0.020	0.010
RPCT	0.005***	0.002	0.003*	0.009***
RRD	5.520	14.860	30.488	20.888**
RGRD	1.183*	-0.420	-0.644	0.513
RHERD	1.925**	1.742	3.729**	4.816***
TREND	-0.086***	-0.078*	0.019	-0.040
Observation	663	663	663	663
Non-zero	161	76	46	70

Significance level: *** p<0.01, ** p<0.05, * p<0.1

Table 6.8 Korean technology and knowledge intensive service firms' distribution detail

VARIABLES	(1) Radio	(2) Telecom.	(3) Med.	(4) Pharm.	(5) R&D
RGDP	0.916***	0.568***	0.531***	0.251***	0.504
RGDPPC	-0.273	1.312	-0.467	0.486	-2.796
RUR	20.108	-14.727	-17.616	-4.986	-8.728
RYUNR	-10.211	12.615	10.844	0.233	19.279
RHMT	-0.367	-2.593*	-0.163	-1.507	1.586
RKIS	0.000	0.004	-0.039**	-0.008	-0.150
RPCT	0.007	0.001	0.004*	0.000	0.005
RRD	24.309**	28.020*	-4.597	8.625	-15.177
RGRD	0.452	0.909	0.889	0.050	1.821
RHERD	4.449***	2.216*	1.149	0.441	1.040
TREND	-0.071**	-0.117**	-0.017	-0.025	0.036
Observation	663	663	663	663	663
Non-zero	88	54	59	40	16

Significance level: *** p<0.01, ** p<0.05, * p<0.1

Note: (1) Radio: Radio, television & communication equipment

(2) Telecom.: Post and telecommunications

(3) Med.: Medical, precision& optimal instruments

(4) Pharm.: Pharmaceuticals

(5) R&D: Research and Development

The results show us different coefficients of different explanatory variables. In these estimation results, we can see several characteristics of South Korean firms' location choice in each state. Table 6.6 shows that the logarithm of GDP, PCT patent applications per million populations, and proportion R&D Higher-education sector/Total R&D are significant and positive. In terms of the different motives for FDI, the trend of technology-seeking is significant and negative, while the trend of market-seeking is significant and positive. Compared with other FDI motives, the proportion of knowledge intensive services compared to total services is significant and positive in market-seeking FDI from South Korea into the US. However, the proportions of R&D of higher-education sector/total R&D, technology-seeking and export promotion are significant and positive while market-seeking is insignificant and negative. In other words, taken overall, South Korean manufacturing firms' location choice shows different location preferences according to their FDI motives.

Table 6.7 shows the Korean high technology industry and knowledge intensive service firms' coefficients of explanatory variables by motives in the US. In these estimation results, we can see similar and different results compared to the results in Table 6.8 (Korean technology and knowledge intensive service firms' distribution detail). In Table 6.7 we see that the presence of higher education has influence on FDI from South Korea to the United States within the high technology industry and knowledge intensive service. However, when firms in high-tech sectors internationalise for the motive of tech-seeking, higher education has less influence compared to other motives. The coefficients of total R&D higher-education sector/total R&D of market-seeking and export promotion are significant and positive, while the same coefficients for the technology-seeking firms are insignificant. In addition, in terms of the absolute levels of R&D intensity in each state, Korean tech-seeking firms in high-tech sectors have no absolute R&D intensity in the US. This may mean that R&D intensities in each state are less attractive for most Korean tech-seeking high-tech sector firms in search of a specific R&D intensity. Or it may mean that specific industrial sectors have their own R&D preferences with regard to the characteristics of South Korean industry. Therefore, we estimated the distribution detail of high-technology industries and knowledge intensive service in Table 6.8. Radio, television & communication equipment industry (Model 1) and Post/Telecommunications (Model 2) show significant and negative trends. In addition, these Korean sectors seek locations that feature Higher Education (HE) institutions and total R&D expenditure in the United States within our R&D explanatory variables.

In summary, the results clearly show that we have support for our hypotheses. The results are indicative of an adjustment process in the location choice of South Korean firms in the US states, depending on their firm type and motive. Tables 6.6, 6.7 and 6.8, show that the industry sector, the firm's motive for undertaking FDI and the local R&D situation all have different influences over South Korean FDI location choices.

Hypothesis 1.

We now discuss the implications of our results for H1. The results reported in Table 6.6 suggest that the presence of Higher Education (HE) institutions in the United States influences the location choice of the South Korean manufacturing industry overall. In addition, Table 6.7 shows that these results hold within the high-tech and knowledge-intensive service industries.

These results support our argument that the FDI location choice of South Korean firms in the US is strongly related to the localised presence of Higher Education (HE) institutions in the United States.

Hypothesis 2.

The results reported in Table 6.6 suggest that different R&D intensities in each state are attractive to Korean manufacturing firms by motive. For firms with a market-seeking motive, access to higher education R&D is not significant; for knowledge intensive service firms within the service sector, the proportion is positive and significant. For firms with a tech-seeking motive, higher education R&D is significant and positive. On the other hand, export-promotion FDI is more related to labour force availability (GDP, GDP per capita and unemployment rate) compared to other motives. In terms of firms with a technology-seeking motive, South Korean manufacturing firms' location choice is strongly related to the presence of a higher education institution. However, higher education linked R&D is not significant for either market seeking manufacturing firms or technology-seeking high-tech knowledge intensive service firms (Table 6.6 and 6.7).

Table 6.7 also shows some interesting results. Korean high-tech industry and knowledge intensive service FDI has decreased overall. Meanwhile, Korean market-seeking FDI in the US has increased both in the high technology sectors and in total manufacturing. The results of Tables 6.6 and 6.7 in particular suggest that higher education R&D (HERD) is important for export promoting FDI, and that this applies to all sectors (Table 6.6) and to high technology sectors (Table 6.7). Further, HERD is also important for market-seeking high-tech FDI. In other words, while H2 is not fully supported by our empirical results, they do provide empirical validity of the changing nature of South Korean outward FDI by different motives based on cross-sectional country data.

Hypothesis 3.

We now focus on Table 6.8 in which we report the relative contributions of Korean technology and knowledge intensive service firms with R&D intensities in each state. Each of the five high-tech industries undertaking outward FDI in the US, seek access to different R&D intensities. The radio, television & communication equipment industry and the post & telecommunication service industry share a distribution pattern in which GDP, R&D, and higher education variables are significant and positive. However, the medical, precision & optimal instruments industry chooses locations where patent intensity is positive. H3 is partially supported by our empirical results. In terms of Korean High-

tech R&D expenditure, access to Higher Education Institutions' R&D intensities has more influence for firms in the radio, television & communication equipment industry and the post & telecommunication service industry. This means that Korean firms' proximity to higher education is more important for technology sourcing FDI than proximity to private research in the US.

6.6 Endogeneity Issue

As with any regression based approach, one may have concerns about endogeneity of the right hand side variables. In the case of the analysis in this chapter, the dependent variable is taken from a firm level study of location decisions, while all of the right hand side variables are location (state) level measures of determinants. In this chapter, building on the hypotheses, the empirical literature that seeks to explain the variations in Korean technology-seeking FDI in the United States focused on state level factors: market size; labour force ability; and R&D locality (see Table 6.3).

The Korean FDI location is sensitively affected by the interstate difference in endowment variations (Lee et al., 2012). These authors find that Korean investors in technological intensive industries try to achieve a monopolistic position by avoiding excessive competition with previously located Korean firms in the same US state. In examining the high-tech industry and knowledge intensive service FDI of Korean firms through their location pattern, these state level factors are important to illustrate how FDI location is affected more by the inter-state endowment variations.

For one to be concerned about endogeneity, one would have therefore to believe that an individual firm's investment decision would have an impact on these prevailing economic conditions. For example, the entry by a large inward investor may have the impact of pushing up wages through increased labour demand. This problem presents itself when the unit of analysis is a small region, or a defined sector within a region, such that the inward investors make up a significant proportion of the total relevant activity. In this case, however, the Korean firms represent only a small fraction of the aggregate activity within the state, so there is no reason to believe that they influence aggregate conditions in this way.

6.7. Conclusion

The US is a key location for those Korean firms that wish to obtain a high-technology advantage and so internationalise for knowledge-seeking reasons. By linking Korean FDI data from the EXIM Bank with OECD statistics data sets, we have been able to extend the existing literature on this newly industrialised country by examining the various motives of firms within the high-tech industrial sectors.

South Korean outward FDI in the US has changed over time. Our findings extend the existing literature on South Korean by examining the drivers of high-tech industrial regions with various motives for investing there over time. In addition, the findings show that the motives partially explain the FDI

location choice's distribution within the US separated according to the different motives for internationalisation. South Korean FDI for technology had been strongly focused on R&D activities particularly in the context of higher education R&D in the US over the period 1995-2008. However, local market seeking FDI by South Korean firms is located in regions that have different R&D activities to those sought by firms that do FDI for technology-seeking reasons. In addition, our results suggest that while the South Korean firms overall expanded to gain access to different R&D intensities in the US states, their location preferences differ by industry and FDI motive.

Our findings provide explicit evidence to facilitate the discussion about the relationship between the sources of R&D and the outward FDI location of EMNEs. There are a number of possible explanation for this, which suggest future avenues of research. With respect to Korean FDI motive, the trend of tech-seeking FDI decreases and the trend of market-seeking FDI increases. In addition, South Korean firms are more likely to make their initial location choice for the motive of market-seeking than for another FDI motive. For manufacturing firms with a market-seeking motive, access to higher education has less influence than other motives. This means that South Korean firms generally internationalise in order to find new markets. These implications add more nuances to the interpretation of MNEs' FDI motives, reflecting both their international expansion strategy and the upgrading effort for specific technology in economically advanced countries.

In addition, our results show that separating out the different motives for FDI partially explain the location choice distribution's different coefficients and significances. We investigated the different coefficients of FDI on the relationship between firms' motives (e.g., local market-seeking, export promotion, and technology-seeking). The technological improvement of South Korea's high-tech industries and knowledge intensive services may affect their motives for investing in the US. The United States has historically been the location for Korean firms for the motive of technology in terms of knowledge-seeking FDI. However, over time, firms started to invest in the US for the reason of market-seeking. The results suggest that despite their initial technological weakness, South Korean firms have changed their motives for undertaking FDI. This can be explained by developments in the internationalisation strategy of Korea.

Looking at the impact of Korea's internationalisation strategy on Korean firms' investments, we can see how the various location preferences are as a result of the specific advantages of the diverse locations. South Korean FDI for technology-seeking is strongly focused on locations with marked R&D activities, especially R&D tied to higher education institutions. Korean firms' investment for local market seeking is focused on markets with different R&D intensities. In other words, the different motives for FDI drive firms to locations which have different R&D intensities in each US state. Our research suggests that while South Korean firms generically expanded to gain access to different R&D intensities in the US states, their location preferences are influenced by their industry sector and their motives for undertaking FDI. Taken together, these finding represent an important contribution to the

existing literature on technology seeking EMNEs. Our results suggest that EMNEs in advanced countries, irrespective of their initial motive for FDI, see enhancement to their competitiveness, which particularly reflects the dynamic relationship between R&D type and FDI motive over time.

Three main policy implications emerge from the results. First, the determinants for R&D sectors play a different role across the knowledge intensive industries by different FDI motive as a country develops. Thus, the Korean case of knowledge intensive industries for strategic asset seeking FDI could help upgrade international strategies of MNEs from emerging countries. Second, it is important for EMNEs to understand the nature of outward FDI for strategic asset seeking, and how it is impacted by their economic position or the home country's industrial restructuring process. Given the importance of specific industrial sectors in a country's long-term economic development, it is crucial for MNEs from the emerging countries to allocate more supportive resources to certain locations regarding their internationalising strategies as EMNEs catch up with advanced technologies and move on to considering other motivations and location choices. In terms of core competence, internationalisation is part of the development process of the EMNEs, as they seek to upgrade technologically and enhance new competences in developed countries.

CHAPTER 7: CONCLUSIONS

7.1 Summary of Finding and Policy Implications

This thesis contributes to the understanding of the relationship between foreign direct investment (FDI) motives and the FDI location choices of Korean firms. It studies three related research questions on how Korean firms internationalise, including the building of a conceptual framework to examine FDI location choices in developing and developed countries and how these choices change over the course of Korea's economic development. This section summarises the main findings of the empirical chapters and identifies the implications.

This thesis outlines the conceptual framework for South Korean outward FDI, taking the analysis beyond the received wisdom of “efficiency-seeking FDI in developing countries, strategic asset-seeking FDI in developed countries” as South Korea develops. In addition, future FDI from Korea is expected to be closely related to the knowledge intensive industries. In the findings, Korean industrial change and FDI development demonstrate different patterns of outward FDI according to the industrial area. The differing paths when studies over time show that the knowledge intensive and labour intensive industries have different outward FDI priorities.

As regards the FDI of manufacturing firms in developing countries, this thesis finds that the location pattern of Korean FDI is, in fact, inconsistent with the investing firms' strategies, leading to suboptimal location decisions. China is the most important location for those Korean firms that are internationalising for efficiency seeking purposes. However, after the global financial crisis, the FDI motive for low wage advantage has changed and there have been structural breaks. The findings highlight the relative importance of FDI location choice in China, specifically by FDI motives. Future research is needed to investigate how different FDI motivations can shape foreign firms' investment in emerging countries.

FDI firms in developed countries strongly focus their activities on R&D. The strategic benefit of locating Korean facilities in developed countries is to gain or improve on their long-term competitiveness so as to continue upgrading their firm specific advantage. In contrast, Korean firms investing in the USA to gain access to local markets locate themselves in different regions from those undertaking technology-seeking FDI. This implies that Korean firms' investment for local market seeking is focused on markets which have different intensities of R&D factors.

7.1.1 Chapter 4 conclusions and implications

Chapter 4 links firms' location choice in different host countries to Dunning's 1981 investment development position of the home country. Korean economic development and industrial restructuring, in which it moved from labour intensive to knowledge intensive industries, show their own sub-patterns of outward FDI according to the location advantages in developed and developing countries.

The Korean FDI model shows not only the changing nature of South Korean FDI but also has implications for further growth on the basis of their added value industries. The shift for further growth is related to two main issues; cost reduction and technological development. Specifically, South Korean industrial restructure has led to a geographical spread of outward FDI location choice by different industries. In terms of labour intensive industrial outward FDI, South Korean firms have continued to seek cheap labour markets to reduce production costs, such as wages and natural resources. On the other hand, firms making their location choices to obtain strategic assets have led to an improvement in the firms' long term competitiveness and have upgraded the firms' assets. Without this enhanced competitiveness, Korean MNEs were restricted by their limited firm specific assets when competing with other MNEs in developed and developing countries over time.

Chapter 4 has two practical implications. First, for EMNEs that aim to enhance their competitiveness in a particular country, I recommend that they should seek out and absorb knowledge through their internationalisation strategy. The willingness to engage with foreign investment reflects a drive to engage in the asset-accumulation process, enhancing growth. Further, EMNEs have an inherent cost advantage in developed countries and developing countries. The technologies that underlie the shift to the value added industries are related to EMNEs' international expansion, being a path by which they can obtain sophisticated upgrading that would allow them to exploit cost advantages while exploring new technologies. Second, the findings show that as a country develops from a reliance on labour intensive to knowledge intensive industries, industrial characteristics highlight the interpretation of the emerging country's internationalisation strategies in different locations. Therefore, I recommended that EMNEs consider their strategies into the nature of the relationship between their country's IDC investment position and the firm's strategic motive for internationalisation when seeking out an overseas location to site their critical assets.

7.1.2 Chapter 5 conclusions and implications

Chapter 5 examines the changing nature of South Korean FDI in China. The importance of this chapter lies in its distinguishing between the FDI motives of efficiency-seeking, export-oriented, and local market seeking. In addition, the findings show that the motives partially explain the FDI location choice's different coefficients and significances between baseline variables. The research investigates the different coefficients of FDI according to the relationship between firms' motives. Chapter 5 also deepens internationalisation theory by estimating the structural break of FDI flows by different motives. It posits that the predicted market seeking leading FDI relationship is more strongly related to Korean FDI strategy in China than to previous efficiency seeking FDI. In other words, the location pattern of South Korean outward FDI is inconsistent with firm strategy, leading to suboptimal location decisions that are inappropriately based on the traditional low cost seeking motive in China.

In the international business (IB) view, chapter 5 has two implications. First, the importance of

encouraging MNEs to take their FDI motives into consideration when they are making their investment location choice in the developing countries, and to re-examine their strategy if necessary as the host country develops. Second, at a regional level, local government should identify and publicise their own area specific advantages compared to other provinces. For example, foreign firms could engage in FDI to complement exports or substitute for exports in each province according to the area's industrial or regional characteristics.

7.1.3 Chapter 6 conclusions and implications

Chapter 6 links Korean firms' location preferences to the R&D intensities in each state of the United States. Korean outward FDI in the US has changed over time. The findings contribute to and extend the existing literature on newly industrialised countries by examining the drivers of high-tech industrial regions with various motives over time. In addition, the findings show that the motives partially explain the FDI location choice distribution within the US according to different motives. South Korean FDI for technology-seeking reasons has been strongly focused on R&D activities, especially higher education R&D in the US. However, local market seeking FDI by Korean firms is located in regions in which different R&D activities prevail compared to technology-seeking FDI. In addition, chapter 5 suggests that while the South Korean firms expanded to gain access to different R&D intensities across the various states, their location preferences differ by industry and FDI motive.

Three main policy implications emerge from chapter 6. First, the determinants for R&D sectors play a different role according to FDI motive across the knowledge intensive industries as a country develops. Thus knowing the details of knowledge intensive industries for strategic asset seeking FDI could help upgrade the internationalisation strategies of MNEs from emerging countries. Second, it is important for policy makers to understand their economic position and economic plan for future development. Given the importance of industrial sectors for economic development in the long-term, it is crucial for EMNEs to be discriminating when they allocate their resources to their overseas locations, taking into account their technology lag, and bearing in mind other motivations and location choices. In terms of core competence, internationalisation is a key part of the development process of the EMNEs, as they seek to upgrade technologically and enhance new competences in developed countries.

7.2 Theoretical Contributions

This thesis makes several theoretical contributions. First, it proposes varying paths of investment location as a country develops. It defines not only a conceptual framework of internationalisation motives but also the possible relationship between FDI and the industrial structure in different locations.

The Korean FDI model is one that emerging countries can learn from as they consider the changing nature of FDI motives, taking into account their own industrial development process. In terms of an internationalisation strategy, emerging countries are driven by a need for growth to compete with

MNEs from advanced and other emerging countries. Specifically, industrial restructuring has led to a geographical spread of outward FDI to a number of host countries, reflecting differing motives for doing so. The spread of FDI is galvanised by two main reasons: cost reduction, and the obtaining of strategic assets, and it follows well-worn paths depending on the location advantages of developed and developing countries.

Second, this thesis proposes a direct way of extending the recent empirical literature on how firms engage in FDI in different countries by motive. Establishing a correlation between their FDI motives and their location decisions targeting different kinds of assets is crucial for better empirical analysis. By looking at the issue through the lens of the various motives for FDI, empirical literature has a focus for further theoretical study and means of applying it empirically to MNEs/EMNEs.

Third, this thesis extends the existing literature regarding specific motives based on Dunning's previous study (1993). The thesis shows the importance of location choices in host countries. In addition, it highlights an apparent discrepancy between the FDI location choice of Korean MNEs and the apparent changes in motivation for MNEs to invest in developing and developed countries. This allows us to extend the IB literature by exploring FDI location patterns due to changing MNE strategy as a country develops or other internal/external factors change. Therefore, the thesis adopts a new approach to take location advantages for technology benefits or cost advantage from FDI, distinguishing different motives and industrial areas.

7.3 Limitations and Suggestions for Future Research

Based on the findings, Korean outward FDI shows two different paths, which reflect the country specific characteristics of South Korea and reflects the changes in its industrial structure over time. Korean firms have, despite their initial technological weakness, increased their competitiveness rapidly by revisiting their motives for internationalising and tweaking their location preferences in order to effectively exploit the location specific advantages of their host countries. However, the thesis needs to consider the generalisability of the findings to other contexts.

First, one needs to explore what this result tells us about IDC/IDP and whether this is applicable to other countries. Other countries are perhaps completing cycle now. I use the updated IDC perspective and the Korean context to argue that both location choices and FDI motivations can be associated with different turning points in Korea's investment development path, which, in turn, will vary significantly with the idiosyncratic socio-economic and political contexts of that country (Narula and Dunning 2000). This thesis links the relationship between the location advantages of host countries and the FDI motives that influence firms' location choice as Korea develops. The study finds that both firm specific and country specific assets are important for obtaining ownership advantages. Future research could use this as a base from which to explore the internationalisation strategies of MNEs from other emerging and advanced countries (e.g. Mexico with firms like CEMEX, or China with large scale outward FDI).

Second, this thesis stresses the importance of location preferences in terms of different industries and FDI motives. The technological development of emerging countries may change the motive for internationalisation in a specific market as the country develops. One could extend this analysis to explore how MNEs from emerging countries develop the ability to learn from outward technology seeking FDI. The thesis has shown that the importance of high technology industries has substantially increased as major firms in leading export industries relocated some segments of their production lines into new export bases, in developing countries. Equally, capital-intensive input production and core R&D activities are kept at home. On the other hand, the patterns of FDI and exports to key developed markets such as the U.S. are mostly concentrated in high technology industries. I discussed how Korean industrial change is linked to the characteristics of industries and the relationship between FDI and exports. However, further work is needed to develop additional insights on the dynamic nature of the relationship between the industrial sector and the characteristics of host countries such as European countries or other developed countries.

Third, the results invite further consideration of the technology sourcing activity by EMNEs, and how they seek to achieve this. For example, one could examine the relationship between R&D in home and host countries. It would be beneficial to study how different R&D and technological assets can be complements or substitutes in specific industrial areas in order to enhance competencies. A possible research question could be: how can a firm obtain technology from outward FDI to advanced countries according to the technology level between the home and host countries? This question is critical for EMNEs to prepare for further growth in foreign markets.

Fourth, one could consider what this thesis tells us about other countries. In this thesis, I develop a conceptual framework in which to anchor the motivations for FDI by Korean firms to their different location choices (developing and developed countries), while taking into account the development process of Korean outward FDI over time. This framework could be employed elsewhere (data permitting) to explore FDI motives with location choices and explore more specifically how EMNEs exploit different location advantages at different stages of their internationalisation and in varying locations. The results illustrate the changing motivations from technology-seeking FDI to market-seeking FDI even in developed host countries. However, as can be seen in the model, Korean FDI shows a two-step process, moving from efficiency-seeking, strategic asset-seeking and export-promotion to market-seeking. This thesis does not investigate matters such as the extent to which differing types of Korean firms invest abroad, nor how well they obtain knowledge from their subsidiaries in the host countries. These matters are important to the home country, enabling firms to make suitable location choices which are inter-linked between the strategy of firms and the structure of industry in home countries. More detailed industrial analysis from cases of other countries would help to make the Korean model more general, or might help to develop specific models for the specific countries.

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APPENDICES

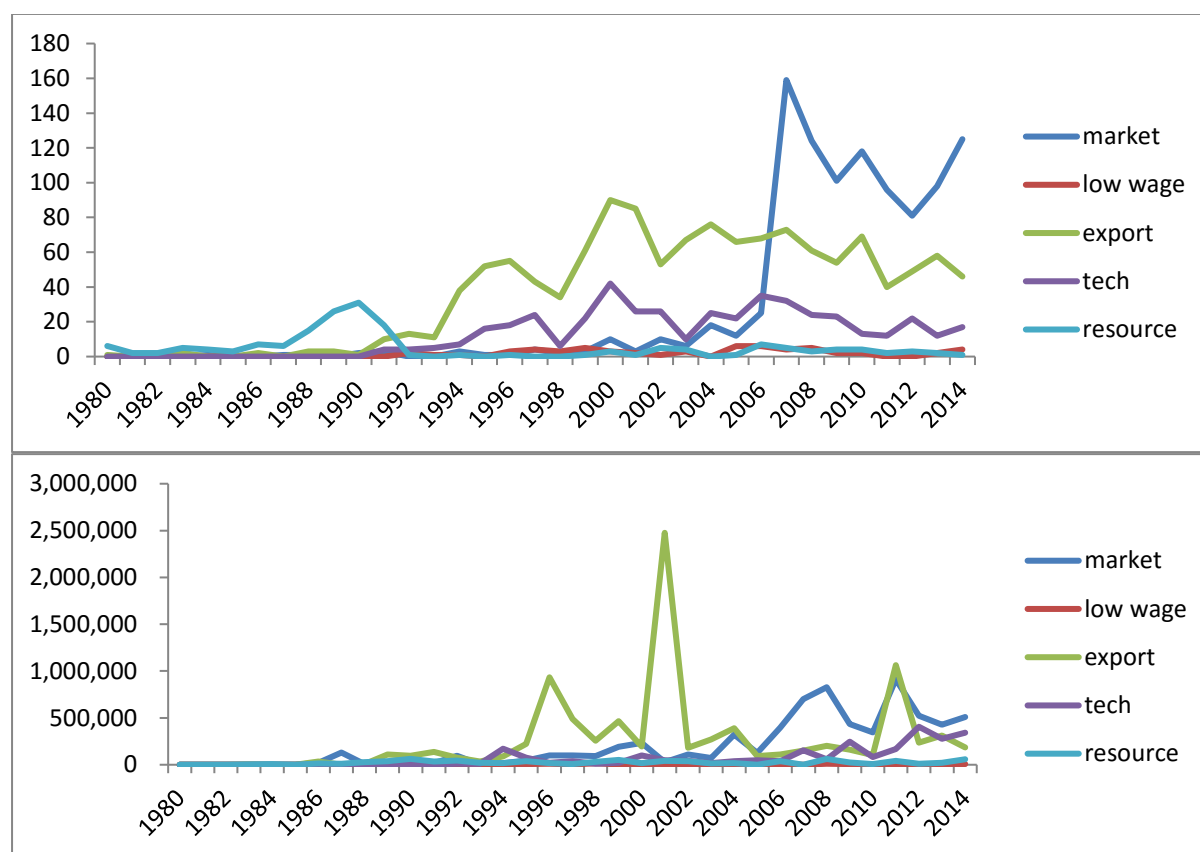
Appendix 1. TOP 10 FDI countries from 1980 to 2014
dollars

Unit: Million US

Country	Number of New Overseas Enterprises	FDI stock
Total	59,678	281,792
U.S.A.	12,069	57,386
China	24,086	49,223
Hong Kong	1,758	15,997
Vietnam	3,226	11,213
Australia	621	10,439
Netherlands	179	10,143
Canada	198	8,205
Cayman Islands	601	8,961
Malaysia	1,749	8,261
U.K.	316	10,098

Source: calculated from Korean Export-Import Bank data (Total 177 countries)

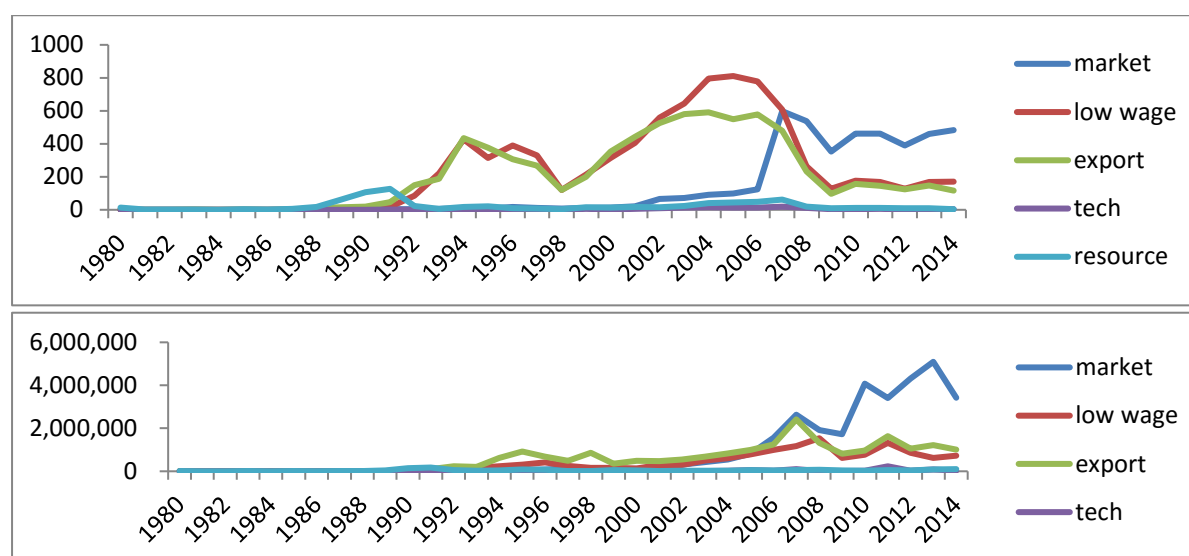
Appendix 2. Korean outward FDI numbers of new overseas enterprises and FDI flow into developed countries from 1980 to 2014 by motives
Unit: number and 1,000 US dollars



Source: calculated from Korean Export-Import Bank data

Note: developed countries are USA, the Netherlands, UK, Singapore, Germany, Canada, Japan, Ireland, Australia and France (10 countries)

Appendix 3. Korean outward FDI numbers of new overseas enterprises and FDI flow into developing countries from 1980 to 2014 by motives
Unit: number and 1,000 US dollars



Source: calculated from Korean Export-Import Bank data

Note: developing countries are China including Hong Kong, Vietnam, Indonesia, India, Brazil, Malaysia, the Philippines, Russia, Thailand, Mexico, Poland, Czech Republic, Slovakia, Turkey, Uzbekistan, Romania, Sri Lanka, Kazakhstan and Bangladesh.

Appendix 4. Summary of previous research on spatial distribution of FDI

Name of authors	host	home	Empirical findings
Carlton (1983)	US	US	Electricity price(-), man-hours in production(+), firm size and economies of scale(+), unemployment rate(-)
Hansen (1987)	Brazil	Domestic	Distance(-), localisation economies in traditional and intermediate sectors (+), urbanisation economies in modern and engineering sectors(+)
Coughlin et al.,(1991)	US	Foreign	Land area(+), per capita income(+), wage(-),unemployment rate(-), infrastructure(+), unitary taxation(-), state expenditure to attract FDI(+)
Woodward (1992)	US	Japanese	Market(+) , unionization(+), manufacturing agglomeration(+), unemployment (-), education (+), poverty rate (-), land
Head et al., (1995)	US	Japanese	Adjacent state income(+), manufacturing wage(+), labour subsidy(-), unitary tax(-), foreign trade zone(+), Japanese manufacturing agglomeration(+), Japanese industry
Guimaraes et al.(2000)	Portugal	Foreign	Manufacturing agglomeration (+), industry-specific agglomeration(+), service agglomeration(+), labour cost(+)
Belderbos & Carree(2002)	China	Japanese	Industrial agglomeration(+), Japanese agglomeration(+), GDP(+), GDP per capita(+), wage level(-), local sales ratio(-)
Head and Mayer(2004)	EU	Japanese	Market potential (+), agglomeration(+), social change rate(-), corporate tax(-), regional area(+)
Cheng & Kwan (2000)	China	Japanese	Political instability, foreign ownership restraint, property right protection,
Pak & Park (2005)	China	Korea	cultural distance with Japan, GDP per capita, population.
Kang & Lee (2007)	China	Korea	low-cost locations(wage), distance, transportation infrastructure,
Kim & Lee (2010)	China	Korea	government policies(SEZ), agglomeration effects, and market potential.

Appendix 5. Description of variables

Variables	Description
Province	Chinese provinces
year	year
FDI	Logarithm of FDI total money from South Korea into China, unit is 1,000 USD
MKFDI	Logarithm of Local market seeking FDI total money from South Korea into China, unit is 1,000 USD
EXFDI	Logarithm of Export promotion FDI total money from South Korea into China, unit is 1,000 USD
LWFDI	Logarithm of Low wage FDI total money from South Korea into China, unit is 1,000 USD
LFFDI	Logarithm of FDI total money of Large Firms from South Korea into China, unit is 1,000 USD
SMEFDI	Logarithm of FDI total money of Small and Medium Firms from South Korea into China, unit is 1,000 USD
WAGE	USD
GDPPC	Logarithm of Average wage of staff and worker of Chinese province, unit is Yuan
EDU	Logarithm of GDP per capita, unit is Yuan
EXPORT	Logarithm of number of college graduation students
RAILWAY	Logarithm of Total money of exporting from S. Korea to each province, unit is 1,000 USD
LFno.	Logarithm of railway kilometre per squares kilometre
SMEno.	Logarithm of total accumulated number of South Korean large MNEs
FIRMno.	Logarithm of total accumulated number of South Korean small MNEs
COAST	Logarithm of total accumulated number of South Korean large and small/medium sized firms Coastal region dummy, coastal regions are 1 or 0

Appendix 6. Summary of variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Province	338	13.5	7.511119	1	26
year	338	2006	3.747205	2000	2012
FDI	338	8.552818	3.55862	0	14.26679
MKFDI	338	5.793584	4.671306	0	13.92646
EXFDI	338	5.904528	4.393928	0	12.59051
LWFDI	338	5.71753	4.241785	0	12.86925
LFFDI	338	6.518515	4.858507	0	14.08843
SMEFDI	338	7.504948	3.53552	0	13.13455
WAGE	338	9.623013	0.675549	7.944324	11.06823
GDPPC	338	9.950195	0.572923	8.842027	11.35402
EDU	286	4.168626	1.389028	0.615186	6.972137
EXPORT	338	20.12909	1.59025	16.27071	23.75222
RAILWAY	338	4.059811	2.159553	0	8.66682
No of large firms	338	4.218094	2.070485	0	8.705166
No of small firms	338	0.423077	0.49478	0	1

Appendix 7. Correlations matrix

	1	2	3	4	5	6	7	8	9
1. GDPPC	1								
2. WAGE	0.861	1							
3. EDU	0.527	0.495	1						
4. Railway	0.620	0.422	0.248	1					
5. Export	0.776	0.546	0.675	0.406	1				
6. Coast	0.563	0.262	0.142	0.467	0.660	1			
7. Number of Small Firms	0.671	0.359	0.560	0.538	0.775	0.677	1		
8. Number of Large Firms	0.716	0.449	0.492	0.582	0.783	0.732	0.915	1	
9. All Firms	0.677	0.371	0.551	0.543	0.774	0.684	0.998	0.934	1

Appendix 8. Criteria of South Korean large enterprises and SMEs

Criteria to categorise South Korean Large enterprises and SMEs is a means to raise revenue and has large assets and employees above a certain size. The criteria are not clear in the day-to-day terms, the Republic of Korea to the legal definition of SMEs within fundamental law of small and medium enterprises. It can be seen as when, according to the statute, one or more of the requirements of these enterprises.

5. The number of full-time workers more than 1000 people company
6. Total assets of more than 500 billion won Enterprises
7. Corporate capital is more than 100 billion won
8. The average turnover of the three immediately preceding business year, more than 150 billion won Enterprises

Korean Small and Medium size enterprises (SMEs)

Enforcement decree annex 1<number of workers in the industry constantly SMEs, based on the size of the capital or revenue (Article3, Paragraph1, Item No. 1 related)> on and grounds

*Manufacturing: regular workers 300 people can be less than or more than eight billion won capital

Appendix 9. Korean R&D expenditures by high tech industries and high-tech knowledge intensive services

Unit: US dollars, millions

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
A	135	163	163	104	222	186	361	330	308	394	444	593	775	808
B	144	140	162	27	0	405	621	312	102	248	165	219	238	36
C	68	75	100	96	81	143	226	217	258	353	237	368	479	876
D	3,070	3,569	4,064	3,591	4,483	5,042	5,865	7,710	8,328	10,160	11,200	13,116	13,646	15,127
E	180	226	200	143	623	970	1,261	199	204	209	374	421	446	344
F	0	0	0	612	825	488	492	340	557	297	222	278	423	482
G	0	0	0	237	313	530	1,045	831	748	769	814	969	955	1,130
H	0	0	0	4	3	37	53	69	51	57	67	92	99	147

Source: OECD statistics

Note:

A. Pharmaceuticals B. Aircraft & spacecraft C. Medical, precision& optimal instruments
D. Radio, television & communication equipment E. Office, accounting & computing machinery
F. Post and telecommunications G. Computer and relative activities H. Research and Development

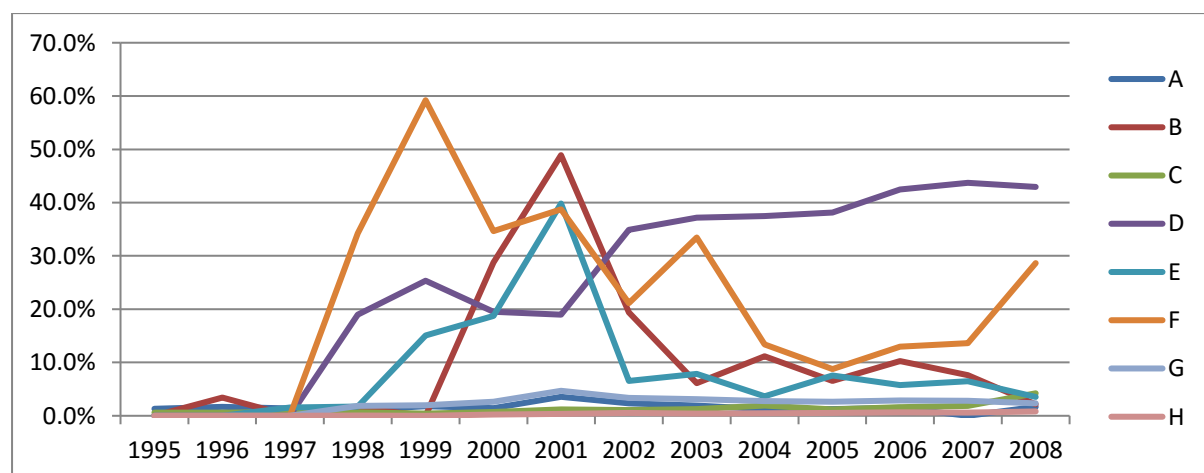
Appendix 10. United States' R&D expenditures by high tech industries and high-tech knowledge intensive services

Unit: US dollars, millions

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
A	10,215	9,773	11,589	9,604	12,236	12,854	10,137	14,186	15,949	31,477	34,839	38,901	0	48,131
B	16,951	16,224	16,296	16,376	14,425	10,319	7,868	9,654	13,205	13,086	15,005	16,367	18,436	36,941
C	11,976	13,091	13,835	14,955	19,566	19,191	18,850	19,902	2,0400	18,557	19,578	22,398	25,614	20,759
D	0	0	0	18,895	17,668	25,795	30,948	22,111	22,399	27,105	29,381	30,875	31,216	35,227
E	0	0	12,840	8,327	4,126	5,171	3,165	3,040	2,587	5,734	4,955	7,289	6,869	9,776
F	0	4,103	0	1,788	1,393	1,407	1,270	1,608	1,663	2,215	2,539	2,135	3,107	1,684
G	11,992	0	13,745	12,826	15,714	19,950	22,265	24,910	24,127	28,085	30,518	33,794	34,041	47,951
H	0	5,484	0	10,566	11,264	1,4018	14,244	13,034	12,460	11,355	12,299	14,525	16,849	17,913

Source: OECD statistics

Appendix 11. The comparisons of R&Ds within high tech industries and knowledge intensive services between South Korea and United States.



Source: calculated from OECD statistics

Appendix 12. Korean outward FDI by region from 1980 to 2014

Unit: Million US dollars

Region	Number of New Overseas Enterprises	FDI stock
Total	59,678	281,792
Asia	40,318	118,886
Middle East	580	5,066
North America	12,670	66,347
Central & South America	1,558	26,588
Europe	2,621	47,953
Africa	432	3,656
Oceania	1,499	13,296

Source: calculated from Korean Export-Import Bank data (Total 177 countries)

Appendix 13. Korean outward FDI by industrial area from 1980 to 2014

Unit: Million US dollars

Industry	Firm number	Total FDI flow
Total	59,678	281,792
Agriculture, forestry and fishing	909	1,569
Mining and quarrying	723	53,116
Manufacturing	28,673	100,135
Electricity, gas, steam and water supply	202	4,417
Sewerage, waste management, materials recovery and remediation activities	87	78
Construction	2,164	6,497
Wholesale and retail trade	10,705	31,933
Transportation	1,114	5,086
Accommodation and food service activities	3,745	3,627
Information and communications	1,876	6,689
Financial and insurance activities	681	25,446
Real estate activities and renting and leasing	2,857	22,636
Professional, scientific and technical activities	2,015	16,959
Business facilities management and business support services	777	781
Public administration and defence ; compulsory social security	13	16
Education	571	318
Human health and social work activities	225	222
Arts, sports and recreation related services	709	1,695
Membership organizations, repair and other personal services	1,629	569
Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	3	1

Source: calculated from Korean Export-Import Bank data (Total 177 countries)

Appendix 14. Korean outward FDI in manufacturing industry from 1980 to 2014 (Unit: Million US dollars)

KSIC Manufacturing	Firm number	Total FDI
Total	28,673	100,135
10. Manufacture of food products	1,714	3,562
11. Manufacture of beverages	44	844
12. Manufacture of tobacco products	9	342
13. Manufacture of textiles	1,768	3,431
14. Manufacture of wearing apparel	3,702	3,864
15. Manufacture of leather and related products	750	1,467
16. Manufacture of wood and of products of wood and cork, except furniture	455	479
17. Manufacture of paper and paper products	368	537
18. Printing and reproduction of recorded media	167	83
19. Manufacture of coke and refined petroleum products	101	926
20. Manufacture of chemicals and chemical products	1,913	7,807
21. Manufacture of basic pharmaceutical products and pharmaceutical preparations	260	598
22. Manufacture of rubber and plastics products	793	4,082
23. Manufacture of other non-metallic mineral products	766	2,248
24. Manufacture of basic metals	778	9,121
25. Manufacture of fabricated metal products, except machinery and equipment	1,543	3,743
26. Manufacture of computer, video, sound and telecommunication equipment	4,490	26,792
27. Medical, precision and optimal instruments	987	1,289
28. Manufacture of electrical equipment	1,169	4,047
29. Manufacture of machinery and equipment n.e.c	2,382	4,598
30. Manufacture of motor vehicles, trailers and semi-trailers	1,652	13,633
31. Manufacture of other transport equipment	278	4,595
32. Manufacture of furniture	408	255
33. Other manufacturing	2,176	1,790

Source: calculated from Korean Export-Import Bank data (Total 155 countries)