DEVELOPING COUNTRIES' FOREIGN DIRECT INVESTMENT AND PORTFOLIO INVESTMENT

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Sahar Khayat

Department of Economics

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ABSTRACT

This thesis is a collection of three empirical essays on foreign direct investment and cross-border portfolio investment.

The objective of the first essay entitled: "Oil and the Location Determinants of Foreign Direct Investment in MENA Countries" is to investigate the effect of oil as a proxy for natural resources and the main location determinants of foreign direct investment. Moreover, this paper examines whether oil as a proxy for natural resources in the host countries alters the relationship between natural resources and institutional quality. The result of the interaction, which is the key interest in this chapter, is robust and undermines the effects of investment profiles on IFDI.

Paying particular attention to the degree of outward FDI concentration in developing countries and transition economies, the second essay is titled "Extending Dunning's Investment Development Path (IDP): Home Country Determinants of Outward Foreign Direct Investment from Developing Countries." The aim of the empirical estimates provided in this paper is to investigate the home countries' determinants of outward FDI from developing countries. Results from the paper support the OLI paradigm, the IDP theory.

In the third essay, "Cross-Border Portfolio Investment from the Developing Economies and the Top Major Partners, using the Gravity Model", I have applied a new approach to a new panel data set of bilateral gross cross-border investment flows between 37 developing countries and 79 host countries. The remarkably strong results have positive implications for the theory of asset trade. The main result suggests that the positive and significant coefficient of GDP per capita in a destination country can explain a significant part of the Lucas paradox, and supports the reason for developing capital being invested outside the region. Interestingly, geographical proximity is found to exert a significant positive influence on assets in order that investors may seek to diversify their portfolios.

DEDICATION

To my mother, you never gave up on me

To my father, your dream has come true

To my siblings, for your love and support

To my lovely children, Renad and Naeer, for your love and patience

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Finally, but not the least, I say thank you to all my friends and well-wishers. God bless you.

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LIST OF ABBREVIATIONS

BRIC	Brazil, Russia, India, China
CIPS	Coordinate Portfolio Investment Survey
CPI	Consumer Price Index
CEPII	Centre d' Etudes Prospective et d' Information's Internationals
EIA	Energy Information Administration
FDI	Foreign Direct Investment
FPI	Foreign Portfolio Investment
FE	Fixed Effects
GDP	Gross Domestic Products
GDP pc	Gross Domestic Product Per Capita
GCC	Gulf Cooperation Council
GMM	Generalized Method of Moments
HO	Heckscher-Ohlin
ICRG	International Country Risk Guide
IDP	Investment Development Path
IFDI	Inward Foreign Direct Investment
IIP	International Investment Position
IMF	International Monetary Fund
IV	Instrument Variable
MNCs	Multinational Corporations
MNE	Multinational Enterprise
MNEs	Multinational Enterprises
M&A	Mergers and Acquisitions
MENA	Middle East and North Africa

NOI	Net Outward Investment
OECD	Organization for Economic Co-operation and Development
OFDI	Outward Foreign Direct Investment
OLI	Ownership-Location-Internalization
OLS	Ordinary Least Squares
OPEC	Organization of the Petroleum Exporting Countries
RE	Random Effects
2SLS	Two-Stage Least Squares
TNCs	Transnational Corporations
WIR	World Investment Report
WDI	World Development Indicators

CHAPTER 1

INTRODUCTION

1.1 Background and Motivation

This thesis starts with an overview of theories underlying the three empirical essays. The first essay studies oil and the location determinants of Foreign Direct Investment (FDI) inflows to Middle East and North Africa (MENA) countries. The second essay studies the determinants of outward FDI from developing countries and, finally, the third essay examines the cross-border portfolio investment from developing economies and top major partners, using the gravity model. The rest of this section is a brief introduction to each of the chapters presented.

1.1.1 Theoretical Studies on Foreign Direct Investment and Cross-Border Portfolio Investment

Chapter 2 provides the theoretical link for all three empirical studies in Chapters 3, 4 and 5. In this chapter, we trace the evolution of the theories of foreign direct investment during the past few decades since the early neo-classical trade theory until the most recent contributions. As a corollary, many theories have been put forward by researchers to explain FDI and portfolio investment (FPI). However, there is no single theory which fits the different types of direct investment or the investment made by a particular Multinational Corporation (MNC) or country in any region. It is in this context that an attempt is also made to explain the growth phenomenon of third world MNCs. The applicability of the theory differs with the type and origin of investment. Indeed, all these theories agree in their view that a firm moves abroad to earn the benefits of the advantages in the form of location, firm-specific advantages or internationalization of markets.

1.1.2 Oil and the Location Determinants of Foreign Direct Investment Inflows to MENA Countries

Explaining the determinants of FDI has attracted a lot of attention, since the first theoretical attempt to explain foreign direct investment was based on the Heckscher–Ohlin (HO) model of neoclassical trade theory where foreign direct investment was considered as part of international capital trade, and continues to be one of the most

important topics in economic literature. It is not surprising why the topic of FDI is still one of the most active fields of research in economics; because FDI can play an important role in an economy's development efforts, including productivity gains, it can become a valuable channel for the transfer of technology, knowledge and modern practices. Therefore, many researchers have examined the effect of numerous variables (such as inflation, infrastructure, human capital, market size, institutions, financial development, trade openness, natural resources) on FDI inflows.

This chapter aims to contribute to the existing literature by the competence of the location dimension of OLI paradigm, institutional dimension, and new theory trade. As stated by Dunning (1998a), location-specific factors lead MNCs to take part in FDI. Additionally, we also show the importance of five alternatives to oil as a proxy for natural resources, which are often not included all together in existing literature. Thus, we consider some of the channels through which oil as a proxy for natural resources and the location determinants of FDI inflows to MENA countries.

First, theoretically, inflation for example the underlying factors of location determinants. A country with stable economic and financial circumstances presupposes general price stability, the maintenance of full employment and balance of payments equilibrium, and a country enjoying all these conditions will tend to receive greater FDI inflows, as stated by Cleeve (2008). Botric and Skuflic (2006), conclude that the rate of inflation is one of the factors affecting investors' yield. A high return encourages FDI and consequently the growth of prices of products the investor has invested in should be positively associated with the FDI. On the other hand, very high inflation rates or volatile inflation can be judged as a hindrance to FDI, since it is a clear sign of macroeconomic instability. Empirically, many researchers find a negative effect of inflation level on FDI inflows (e.g., Asiedu, 2006; Busse and Hefeker, 2007; Schneider and Frey, 1985; Root and Ahmed, 1979). Nevertheless, there are those that find a positive relation between the two variables (e.g., Asiedu, 2002; Addison and Heshmati, 2003; Frenkel et al. 2004). In addition, during periods of high inflation, the uncertainty that multinational companies face in terms of products and input pricing may cause them to avoid or reduce their investment in such countries.

Additionally, location advantage is gained from access to foreign market supply (such as natural resources, a large market size, lower factor costs of production, friendly

business environments which come from trade openness, low tax rates, and institutions protecting property rights). All these advantages enable multinational enterprises (MNEs) to obtain benefits from international operations through FDI.

Secondly, according to institutional theory, the effect of political factors on FDI (political risk and country risk, tax policy, government regulations, trade barriers, and strategic and long-term factors) might discourage FDI inflows to host countries. Empirically, economists such as Mina (2009 and 2012), Mohamed and Sidiropoulos (2010), Busse and Hefeker (2007) and Boubakri et al. (2013) find that the investment profile has a positive impact on FDI inflows. Some economists such as Solomon and Ruiz (2012), Abdel-Rahman (2007), and Goswami and Haider (2014) find that the investment profile has a negative effect on FDI inflows.

Finally, the advantages of ownership (knowledge capital) and location (including market size and moderate to high trade costs for horizontal firms, and low trade costs) combine with technology and the fundamental features of a country (endowment factors) to form a new theory of trade.

This theory adds technology and countries' characteristics to Dunning's eclectic paradigm (OLI).

Therefore, in this chapter, we study the joint impact of natural resources such as fuel, oil rents, oil production, oil reserves and oil production relative to oil reserves for MENA countries in contrast to other studies that focus only on fuel (e.g., Asiedu, 2006; Onyeiwu, 2003 and 2004; Asiedu and Lien, 2011). Our study also differs from other studies which have employed different measures for natural resources, for instance, minerals rents or gas (e.g., Addison and Heshmati, 2003; Jadhav, 2012; Rogmans and Ebbers, 2014). We utilize the dynamic panel with system GMM estimator that precisely deals with endogeneity, omitted variable bias and unobserved country-specific effects.

To the best of our knowledge, our study is the first to include three approaches to oil, as Mina (2007a) applied in six Gulf Cooperation Council (GCC) countries. These are oil production, oil reserves and oil production relative to oil reserves all of which have not been applied before, particularly in the literature on the MENA region. Moreover, this paper examines whether oil as a proxy for natural resources in the host countries alters

the relationship between natural resources and institutional quality. This is done by including an interaction term between natural resources and institutional quality in the FDI inflows regression.

Results from the paper reveal that the key location determinant of foreign direct investment inflows in the MENA region are natural resources in fuel exports form, oil production relative to oil reserves, market size, trade, inflation, and institutional quality, whereas natural resources in approach of oil rents, oil production and oil reserves discourage foreign direct investment to the MENA economies. These findings reveal that natural resources reduce the effectiveness of institutional quality in promoting FDI. I also find that the effect of investment profile as a proxy for institutional quality on FDI depends on the importance of natural resources in host countries.

1.1.3 Extending Dunning's Investment Development Path (IDP): Home Country Determinants of Outward Foreign Direct Investment from Developing Countries

In this chapter we aim to investigate the home country determinants of outward FDI from developing countries by extending Dunning's Investment Development Path (IDP) theory (1981a,1986, and 1988a,b). Outward foreign direct investment (OFDI) has been increased from developing and transition economies in recent years.

Though theoretical research on the determinants of outward FDI has been remarkable in recent years, the empirical research on this topic is scarce. In addition, attention is focused on the determinants of FDI outward from home or source countries.

This chapter contributes to the existing literature on the determinants of outward FDI in the following ways. First, the empirical research on the determinants of outward FDI from home economies is still very limited compared to the research on the host countries' determinants. Second, previous studies have focused on outward investment from the largest firms in such places as China, Russia, and India. Hence, this present study aims to examine the determinants of outward FDI by focusing on developing countries. Finally, previous studies have ignored the potential endogeneity among the variables, hence their results may be biased and inconsistent. To deal with the endogeneity problem, the present study employs a dynamic panel with the Generalized Method of Moments (GMM) estimator. Hence, the results from this study are reliable and unbiased.

Theoretical work attempts to show the importance of fundamentals such as exchange rate in connection with outward FDI, but there is not much empirical support for this theoretical conjecture. Aliber (1970 and 1971) suggests that, theoretically, firms associated with countries which had a strong currency tended to invest abroad, while firms associated with countries which had a weak currency do not have the same tendency. In other words, a country with a strong currency has a tendency to be a source of FDI, whilst a country with a weak currency has a tendency to be a host of FDI. Empirically, there are those that find a negative relation between the two variables (e,g., Das, 2013; Stoian, 2013). There are also mixed findings on the exchange rate/outward FDI relationship (e.g., Kyrkilis and Pantelidis, 2003). Some find no relationship between the two variables (e.g., Wei and Zhu, 2007).

Our finding brings an interesting insight by showing that the IDP theory and theory based on the strength of currency and exchange rate best explained outward FDI activities from developing countries. Additionally, our results are robust to the exclusion of countries from developing and transition economies (Brazil, mainland China, Hong Kong (China), Macau (China), India and Russia), which have a significant amount of foreign direct investment.

1.1.4 The Cross-Border Portfolio Investment from Developing Economies and Top Major Partners, using the Gravity Model

Theoretical and empirical research focuses on investigating the effect of cross-border portfolio investment from countries in recent years. Most studies find that increased distance between countries tends to reduce portfolio investment. However, the channel through which this occurs is less clear. There are two main theories on cross-border portfolio investment. Standard classical economic theory predicts that capital should flow from rich countries to poor countries, due to the effect of diminishing returns, where the marginal returns are higher and poor countries have lower levels of capital per worker. By contrast, in the second theory of the Lucas paradox (Lucas, 1990), the author assumes that capital does not flow from developed countries to developing countries despite the fact that developing countries have lower levels of capital per worker. For instance, capital may flow upwards as rich economies with larger market sizes are connected with superior diversification opportunities and low transaction costs.

It is unsurprising, therefore, that a significant amount of cross-border portfolio investment in both developed and developing countries. The lack of capital to finance in devevloping economiesm in local investment and the removal of restrictions on foreign investors turn out to be one reason for attracting foreign portfolio investment in their home economies which is an important source of finance for the private sector.

In that regard, this chapter aims to outline the main reason for developing countries to invest outside the region rather than within their own region. In addition, the focus is on the main determinants of portfolio investment assets from developing countries and the major partners around the world.

As an additional contribution and as a check of robustness, this paper uses a variety of dummies compared to previous researchers in this field. The study uses, for example, a time trends dummy and source country characteristics to capture the home-economy specific effects that are associated with unobservable county heterogeneity. The remarkably strong results have positive implications for the theory of asset trade. The results found that the sizes and populations of the source and destination economies are positive and significant determinants of cross-border linkages. This result suggests that the positive and significant coefficient on GDP per capita in a destination country can explain a significant part of the Lucas paradox – why capital doesn't flow from rich to poor countries – and supports the reason why developing capital is invested outside the region. Interestingly, geographical proximity is found to exert a significant positive influence on assets in order that investors may seek to diversify their portfolios, and that might help to explain why developing investors prefer to access the major financial centers from a great distance.

1.2 Organization of the Thesis

This thesis consists (in Chapter 2) of a literature review of the theoretical links between all three empirical studies. In addition, this thesis consists of three empirical studies in Chapters 3, 4 and 5. Chapter 6 offers the conclusion to the overall study.

Chapter 2 presents the theoretical link between the three empirical studies in Chapters 3, 4 and 5. The development of economic activity and the growth of international trade and foreign direct investment have been strong in the past few decades. In fact, there is no single theory that can explain international investment. On the other hand, there are various FDI theories which outline the motivation for and determinants of FDI. In this

chapter, a review of theoretical approaches and empirical studies on FDI and MNCs from the earliest neoclassical trade theory to the most recent contributions will be provided.

Chapter 3 analyses the effect of using oil as a proxy for natural resources and the main location determinants of inward FDI for the period 1960–2012 for seventeen MENA countries according to data from the World Bank Development Indicators (2011), the Energy Information Administration (2006), and ICRG data. The focus of this chapter is on the interaction term between natural resources and institutional quality. The study uses a dynamic panel with system GMM estimator, and fixed-effect and random-effect estimators.

Chapter 4 provides an empirical investigation into the determinants of outward FDI extending Dunning's Investment Development Path (IDP), focusing mainly on developing countries. We use a large sample of developing countries in contrast to other studies that focus on a relatively small subsample of both developed and developing countries. Our study is based on panel data for a full sample of 109 developing countries for the years 1960–2012, and a subsample of 103 developing countries excluded from the full sample of these countries, which have significant amounts of foreign direct investment from developing and transition economies (Brazil, mainland China, Hong Kong (China), Macau (China), India and Russia). The study applies the GMM estimation system, with fixed-effect and random-effect estimators. However, a comparison is made between all-sample from developing countries and a rest of the world' subsample.

In Chapter 5, I have used a new approach to a new panel dataset on bilateral gross cross-border investment flows from 37 developing countries and 79 host countries, which were the top five recipients of portfolio investment in the world from 2001 to 2012. The estimation methods employed in this chapter are mainly gravity panel fixed effect, random effect and OLS estimations. Chapter 6 is the conclusion of the study.

CHAPTER 2

THEORETICAL STUDIES ON FOREIGN DIRECT INVESTMENT AND CROSS-BORDER PORTFOLIO INVESTMENT

2.1 Introduction

In the past two decades, there has been a significant growth in Multinational Enterprise (MNE) activity, and in FDI, a faster growth than any other international transactions (Blonigen, 2005). The growth of MNEs and FDI after the Second World War highlights the ineffectiveness of neoclassical theory to describe the phenomenon, and the requirement for a whole new approach. After the Second World War, FDI volume started to decrease in concentration in elementary goods, also the growing efficiency and demand for knowledge-based products, the scale-economies of knowledge production, and the difficulties of organizing a market in knowledge, have caused a major incentive for the growth of MNEs (Buckley and Casson, 1976). During the 1950s and 1960s, the growth was essential for Multinational Corporations (MNCs) and for FDI, especially FDI from the US to European countries.

Undoubtedly, there is no one theory to explain international investment. Indeed, there are an enormous number of theories treated in this chapter as hypotheses that explain the reasons for international capital movement, and the reason for a firm's decision to prefer to invest in one country rather than another (Nayak and Choudhury, 2014).

At the beginning research, capital market and portfolio investment theories were used to explain FDI which was simply international capital movement (Kindleberger, 1969). In the 1950s, FDI was a subset of portfolio investment, and the most important reason for capital flows was based on interest rates. This hypothesis confirmed that capital was likely to move to regions that would gain a higher rate of return and where investors would maximize their profits, when there were less risks or uncertainties.

On the other hand, this hypothesis failed to introduce the differences between direct and portfolio investment. Direct investment entails control, which is the opposite of portfolio investment. The drawback of the interest rate theory is that it does not provide an explanation for the control. When the interest rates were higher abroad, investors

would consider borrowing abroad when it was not necessary for them to control the enterprise to borrow money (Hymer, 1976).

With the increasing role of MNCs in the 1960s, many researchers attempted to integrate their activities with FDI theories. As a corollary, those theories focused on distinct factors governing international capital movement. Some theories looked at perfect markets as the reason for FDI flows whilst others considered monopolistic and oligopolistic advantages. In addition, some FDI theories relate FDI to international trade.

The remainder of the chapter proceeds as follows: Section 2.2 reviews the theoretical studies on the determinants of FDI inflows. Section 2.3 outlines the determinants of outward FDI. Section 2.4 presents the theoretical studies on cross-border investment and gravity specifications. Finally, section 2.5 draws some conclusions.

2.2 Theoretical Literature on the Determinants of Foreign Direct Investment Inflows

A review of the theoretical literature on the determinants of IFDI is presented in this section. The development of economic activity and the growth of international trade and foreign direct investment have been strong in the past few decades. In fact, there is no single theory that can explain international investment, although there are various FDI theories which provide the motivation and determinants of FDI. In this section, a review of theoretical approaches and empirical studies on FDI and MNCs from the earliest neo-classical trade theory to the most recent contributions will be provided.

Theoretically, Hymer (1976), and Kindleberger (1969) were the first to criticize the neo-classical trade approach for explaining foreign direct investment inflows. They argued that the perfect competition hypothesis in neo-classical theory did not explain FDI, and market imperfections needed including in the structure. In addition, in neo-classical trade theory, FDI was seen as part of international capital trade. However, neo-classical trade theory gave limited insights into central issues of FDI because of its assumptions (e.g., factor immobility and full employment) which do not coincide with those of MNEs. Moreover, investment control cannot be explained by this theory. When foreign direct investment is linked with MNEs, that means large firms have the control or market power.

In addition, MNE studies were innovated by international trade economics, and along with trade, FDI is viewed as a route to performing international operations in foreign markets for MNEs.

Both, Hymer (1976), and Kindleberger (1969) concentrated on their assumption of "monopolistic advantage" to describe why companies invest in foreign countries. They stated that foreign firms needed imperfection in the factors of production, or in the market for goods, in order to compete with local firms.

The basis of market imperfections described by Hymer (1976) when he developed the FDI theory approach of the industrial organization hypothesis meant that he was one of the first economists to point out the structure of markets and characteristics of firms operating abroad. He argued that there were two reasons for international operations. The first reason was because of imperfect markets, and in order to affect markets, firms' tendency to concentrate "monopoly power". In addition, he focused on the conditions under control and the degree of horizontal or vertical integration. Extending the works by Kindleberger (1969), Caves (1982) and Dunning (1988a,), Hymer provided the second reason for international operations, that firms, in order to operate abroad, have to compete with local firms to engage in FDI. Multinational corporations (MNCs) should have some firm-specific ownership advantages including technology, a well-known brand name, marketing, economies of scale and a cheaper source of finance, and managerial skills. In spite of these advantages, there are some disadvantages when firms are established in competition with domestic firms. These disadvantages include language, culture, consumer preference, and the legal system.

In addition, Hymer (1976) confirmed that MNCs involved high costs and risk and may have to pay higher wages because of being regarded by workers as a more risky type of employment. On the other hand, the Hymer theory fails to provide an explanation for where and when FDI takes place; this explanation being attempted by the Vernon product life cycle theory (1966), the eclectic paradigm by Dunning (1979, 1988a,b), and the internalization hypothesis by Buckley and Casson (1976).

By extending the work of Hymer and refining his idea, Kindleberger (1969) established his theory of FDI on the basis of monopolistic power. He argued that the

comparative advantages (e.g., high level of technology, patents, managerial expertise, etc.) enjoyed by MNCs could be useful and be large enough to cope with these disadvantages. He expressed different forms of advantages enjoyed by companies over host country firms, but he failed to explain which advantage a company should be focused on. Caves (1971) concentrated his study on product differentiation as a monopolistic advantage. He believed that imperfect competition will be encouraged by MNEs to differentiate between products and engage in horizontal FDI. If product differentiation is built on knowledge, FDI prefers these advantages of exports or licensing, rather than in managerial skills.

Other earlier studies tried to provide an explanation for FDI from different perspectives. First is Ahroni's (1966) behavioural theory. He clarified why firms engaged in FDI and decided to look abroad over competitive factors, for example the fear of losing competitiveness, firms needed to start to compete in local markets by investing abroad. This theory fails to explain why firms decided to invest in one country rather than another; it only provides an explanation of why MNCs decided to invest abroad. This point is addressed in the theory of internalization.

Buckley and Casson (1976) provided an extension of the theories of Coase (1937) on the internalization concept, when firms became multinational. Coase compared the transactions between firms. His idea came from FDI and from market failure and imperfections in intermediate products, including knowledge, human capital, marketing and management expertise, and he stated that it is better to replace market transactions with internal transactions. Some researchers, such as Martin (1991), supported the effects of transaction costs on FDI in the US, while other authors, such as Rugman (1980), argued that the internalization theory is general and does not have an empirical content.

Further, Buckley and Casson (1976) argued that when internalization costs are less than transaction costs, then firms choose internalization by operating through FDI. They added that there is a strong incentive for internalization in certain markets (knowledge), through MNEs, and when firms engage in Research and Development (R&D) which is intensive for industries which have a higher degree of internalization.

Moreover, Buckley and Casson suggested that markets for intermediate products, for instance component parts or services, marketing techniques, and management skills, are imperfect and have uncertainty and high risks that will lead to high transaction costs

(e.g., information, bargaining costs, and enforcement). Internalization can be engaged in different countries through FDI, but the decision about internalization is dependent on region-specific factors (e.g., distance and cultural differences), firm-specific factors (e.g., management skills), industry-specific factors (e.g., product type, market structure and economies of scale), and nation-specific factors (e.g., political and financial factors). The authors also assumed that MNCs may face a greater risk of government intervention across various industries because of the consideration of societal wishes and the balance between private and social objectives.

Magee (1981) used the expression "appropriability problem" as another reason to internalize transactions, due to firms internalizing markets for technology. On the other hand, Teece (1981, 1985) explained that only vertical FDI is a response to market failure, whereas the horizontal FDI responds to both market power and market failure.

Vernon (1966) was the first to develop the product life cycle theory. He clarified the expansion of foreign direct investment in US MNCs between 1950 and 1970 in Eastern Europe after the Second World War in manufacturing industries. Depending on this theory, the demand for manufacturing products was increased after the Second World War in Europe. Consequently, American companies started exporting to make the most of their technology advantage over international competitors.

Knickerbocker (1973) formalized his theory based on market imperfections. He suggested that FDI, as an oligopolistic environment in one firm, reflected the strategic rivalry between firms as a result of a 'follow-the-leader' style of reactive behaviour to enter the internationalization of competitors in certain markets to maintain their market share. Empirically, Knickerbocker used a large amount of data on manufacturing FDI to study the behaviour of 187 US firms that had invested in 23 countries, and he found evidence for 'follow-the-leader' FDI in order to maintain a competitive equilibrium. He found that the entry concentration had a positive effect on FDI; later product diversity had a negative effect on FDI. He suggested that the oligopolistic reaction would be increased in the field of FDI with the level of concentration, and will be reduced according to the diversity of products.

In an attempt to prove this theory, Flowers (1976) studied FDI in the United States by European and Canadian firms, and found a significant positive correlation between the

concentration of FDI in the US and the concentration in Europe and Canada. On the other hand, Agarwal (1980) argued that an implication of the oligopolistic reaction is inconsistent with stylized facts, and that this hypothesis was self-limiting. He said that if there was increased competition in different industries, then this increase did not lead to a fall in FDI. In addition, he added that this hypothesis failed to describe which factors were undertaken for the initial investment.

Generally, along with the theory of imperfect markets suggested by Hymer (1976) and Kindleberger (1969), internalization theory offers an insight into the operations of MNCs. In contrast, it cannot fully explain the aspects of FDI as a general theory (Dunning, 1988a). Theories of imperfect markets or market power and internalization seem to be able to explain only why a firm looks for FDI because it possesses one or more ownership-specific advantages and how it can exploit ownership advantages (by internalization). Further, it cannot fully explain why the distribution of FDI varies across countries. In other words, the theories are unlikely to be able to provide an explicit explanation regarding the location of FDI. This is addressed by the eclectic theory suggested by Dunning (1981a, 1988a) which is presented below.

The next section (2.2.1) is the theoretical review of the location dimension of the Ownership-Location-Internalization (OLI) paradigm (infrastructure, human capital, economic stability and production cost). Section 2.2.2 presents the institutional dimension (financial and economic incentives, corruption, political instability and institutional quality). Lastly, the new trade theory (market size, market growth, openness of the economy, and factor endowment in natural resources) will be presented in Section 2.2.3.

2.2.1 Location Dimension of the OLI Paradigm - Inflation, Infrastructure and Human Capital

The theories regarding inflation, infrastructure, human capital and FDI determinants basically attempt to focus on the relationship between these variables. There are two main theories of the location dimension of the Ownership-Location-Internalization (OLI) paradigm. The eclectic theory, OLI paradigm and location theory. The theory of the OLI paradigm was developed by the hypothesis of Dunning (1979, 1981a,1981b, 1993, 2000) based on OLI, and it explained that MNEs preferred to expand their scale through foreign

direct investment rather than serve foreign markets via other channels. These channels include: involvement in portfolio investment in a foreign country; production in the home country and export of the product overseas; starting a new line of business within the home country and expanding it; licensing their technology to foreign firms to perform their production. The second theory from Dunning (1998a), location theory, is an explanation of why firms choose to invest in one country rather than another country.

Based on those theories, Dunning incorporated all those variables (inflation, infrastructure, human capital) as a location dimension of FDI, instead of explaining the impact of inflation, infrastructure and human capital of each individually on FDI.

The first theory of Dunning's (1979) considers the OLI framework and concluded that a country's firms engaging in foreign direct investment are satisfied that the conditions of OLI are advantageous. All these advantages enable MNEs to obtain benefits from international operations through FDI.

According to Dunning (1980, 1998a), the nature of the connection between OLI components and determinants of FDI and MNE activity was clear. The author stated that all these three components – O-Ownership, L-Location, I-Internalization - are evenly balanced and following probability: if a country had an ownership advantage and no location advantage, it would be launched as a unit in a foreign country, and would expand their production at home and export production. However, if the country had ownership and location advantages, they would be able to expand products to foreign countries and export them. Another probability is that if a country had no internalization gains then firms would license its ownership to another country, specifically if there were location advantage factors from expansion abroad. Dunning claimed that investment for resource-seeking or market-seeking was an initial investment. However, efficiency-seeking and strategic-asset-seeking investments were typically sequential investment (Dunning, 1981a).

Additionally, Dunning (1981a) considered there was a significant systematic distinction between countries' (home and host countries) industry and company determinants of OLI advantages. The tendency for national enterprises to enjoy foreign production, according to the economic advantages of their home countries, where they

will invest, the type and the range of product they intend to produce, and their underlying the management and organization strategies.

Dunning's second theory (1998a) pointed out that location-specific factors are responsible for MNCs undertaking FDI. There are certain production factors, such as natural resources and labour costs, which lead to location-related differences in the cost of these factors. The essential determinant of FDI is the level of wages in the recipient country relative to wages in the source country. For example, India will be attractive for labour-intensive production in countries which have high wages. Sometimes MNCs choose to locate in countries such as Canada rather than Mexico, which will have high quality labour, which is attractive to FDI.

Empirical studies have tested various hypotheses about the effects of wages on FDI (e.g., Tsai, 1994; Schneider and Frey, 1985; Culem, 1988; Moore, 1993; Botric and Skuflic, 2006). For instance, Tsai (1994) presented strong support for the cheap-labour hypothesis in the period 1983–1986, whereas it had weak support from 1975 to 1978. Additionally, Schneider and Frey (1985), Culem (1988) and Moore (1993) pointed out that a rise in wages in host countries discouraged FDI inflows. Botric and Skuflic (2006) obtain similar results, that FDI was attracted by the lower labour cost in South-East European economies. On the other hand, they conclude that there is a positive relation with FDI determinants, and they argue that the qualification of the labour attracted foreign investors to the relatively skilled and productive workers. Other evidence found no significant effects or reverse effects, including Yang et al. (2000), who used Australian data.

In addition, Giesen and Schwarz (2011) develop a general equilibrium framework of international trade with heterogeneous firms extending the Behrens et al. (2009) by horizontal foreign direct investment. The framework features endogenously determined firm entrants, wages, productivity cutoffs, flexible price markups and allows for wage differentials across countries in equilibrium. The model is especially suitable to analyze the welfare consequences of attracting FDI since it permits the study of channels through which FDI might raise welfare - including the not yet explored impact on wage differential and price markups. From a policy perspective, they compare a strategic and a

cooperative FDI policy scenario and find that supranational coordination leads to welfare gains.

In their model of preferences and demand, they take into account two potentially asymmetric countries, and that consumers will drive utility from the consumption of a final good. They assumed that the mass of consumers denoted by L_r in country r. $P_{sr}(i)$ indicate the price, and $q_{sr}(i)$ indicate the per capita consumption in of variety i produced in country s and consumed in country r. They also assumed three different types of firms: local firms, exporters, and FDI multinationals. Both local and FDI firms produce and sell in country r, whereas exporters produce in country s and sell in country r. Thus, $P_{rr}(i)$ indicates the price in country r and $q_{rr}(i)$ indicates the per capita consumption of variety i in country r for local or FDI firms. $P_{sr}(i)$ indicates the price from country s and $q_{sr}(i)$ indicates the per capita consumption of variety i in country s for exports.

In their model of firm side technology and market structure, they assumed that the total Labor force in country r given by its country size L_r, and labour market is perfect competition in country r and wage ω_r. Further, firms invest for research and development (R&D) fixed costs F_r; $m(i) \geq 0$ is marginal labour and lower m (i) reflects a large productivity and is drawn from a country-specific distribution G_r. The decision of how to serve the foreign markets either by exporting or FDI depends on that productivity draw. Exports from country s to r (produced in s and sold in r) are subject to iceberg-type trade costs, which incur in terms of labor $T_{sr} > 1$ as Giesen and Schwarz supposed.

In addition, Giesen and Schwarz assumed increased fixed costs production in foreign markets P_r, and they assumed three operating profits; from domestic firms, from exporters, and by using FDI, where all three operating profits are given by the demand functions in the preferences and demand model. Another assumption is that trade costs and fixed FDI costs will be reduced with minimal marginal labor. For that assumption, companies with medium productivity export to foreign markets, whereas the most productive firms will use FDI. They also assumed segmented markets without sales or possibility of arbitrage. By taking into account the demand functions in the preferences and demand model, firms maximize profits with respect to $P_{sr}(i)$ for each country.

They suppose lemma as they hypothesise three types of firms – domestic, FDI, and exporters – with more production and lower price, sell a great amount of production and earn higher profits in order to show how productivity maps into a firm's price setting, sales revenue and profits, by taking the first order condition for profits and reservation price p_r^d. In the next steps, they prove their lemma by employing the Lambert W function ($\varphi = W(\varphi)\, e^{w\varphi}$), the first order condition which will be solved the profits maximizing prices, quantities, and profits. The authors suppose an important issue in the heterogeneous firms is to determine the so-called cutoff of productivity. Moreover, firms will set a price above the reservation price, then that faced zero demand for the firms with a lower productivity as the respective cutoff productivity. Consequently, serving this market is not successful. They used the demand functions in the preferences and the first order condition for profits to derive the cutoff productivity, for which they need the sales quantity of firms in order to determine the maximum output of firms with higher productivity. A domestic firm that draws a cutoff of marginal labour is indifferent between producing or not, while only firms lower than that remain active in the market. For exporters, as produced in s and it is indifferent between selling or not in country r by exporting, and firms lower than cutoff marginal labour will be productive enough to export.

Further, they introduced an example for the situation where $\omega_s = \omega_r$ and internal trade is costless, however the trade between countries is more expensive. Furthermore, they mention that they cannot use the sales quantity of firms in order to determine FDI cutoff for two reasons. The first is that the profit maximizing quantity is not positive for FDI firms as a result of the fixed costs P_r. The second reason is that FDI will not be chosen as soon as exporting is a more profitable strategy. Consequently, it is necessary to determine the level of productivity above which firms would choose FDI over exporting.

The equilibrium of their framework is characterized by the domestic cutoff m_s^D and the mass of entrants N_s^E in each country r and s, and relative wage $\omega \equiv \omega_s / \omega_r$ between the two countries. These determinants are derived by zero expected profit condition, the labour market clearing condition and the current account balance. They also adopted that firms' productivity draws following a Pareto distribution. They suppose identical shape parameters $k \geq 1$ to capture difference in technological possibilities. Additionally, they let

the upper bounds vary across countries such as $G_s = (m / m_s^{max})^k$. A lower m_s^{max} which means that firms in country s have a higher probability of drawing a better productivity. By using the Lambert W function, the three equations for first order condition for the profit-maximizing prices, quantities, and profits with the Pareto distribution.

Giesen and Schwarz note that if they consider infinitely high fixed costs of FDI, the threshold productivity m_s^T approaches zero. In this case the zero expected profit condition, the labor market clearing and the trade balance will be reduced to the terms that are given in Behrens et al. (2009) as Giesen and Schwarz extended.

Other researchers (such as Cushman, 1987; Lucas, 1993; Pain 1993) indicated that higher unit labour cost leads to lower inward FDI and higher outward FDI. Moreover, Riedel (1975) found that the lower wage costs in Taiwan is the important determinant of export-oriented foreign direct investment.

Additionally, a labour dispute is another factor that is related to labour markets, and it has an adverse effect on FDI inflows and these effects depend on incidence and severity. There is some evidence experimenting with labour dispute variables and finding different results (for instance, Moore, 1993; Tcha, 1998; Yang et al. 2000). Using German data and the number of workers involved variables as a proxy for the severity of a strike, Moore (1993) found unexpected results that this is positively correlated with FDI, while Tcha (1998) supported this as an important factor in determining FDI outflows from Korea. Yang et al. (2000) applied this factor to Australia and used the number of working days lost and found a positive effect on FDI; they also suggested that the unexpected results were in terms of productivity changes and factor prices, which explained the negative relation between wages and FDI.

Another factor is unionization in the host country. If it is present, then there will be a higher labour cost in the host country and MNCs choose flexible non-unionized labour markets. For example, Naylor and Santoni (2003) explained the impact of union power and the degree of substitutability between products on FDI.

Inflation is also an underlying factor of location determinants. Cleeve (2008) proposed that a country with stable economic and financial circumstances presupposes general price stability, the maintenance of full employment and balance of payments

equilibrium, and a country enjoying all these conditions will tend to receive greater FDI inflows. Botric and Skuflic (2006) conclude that the rate of inflation is one of the factors affecting an investor's yield. A high return encourages FDI and consequently the growth of prices of products the investor has invested in should be positively associated with the FDI. On the other hand, very high inflation rates or volatile inflation can be judged as a hindrance to the FDI, since it is a clear sign of macroeconomic instability. Furthermore, the expected sign on the inflation rate is not ex ante determined.

The other factor which may have an effect on determinants of FDI is capital; this theory predicted that FDI will flow to the countries which have a low cost of capital. The example of an explanatory variable used to analyse FDI from the U.S.A to Mexico is the difference between the cost of capital for both countries (Love and Lage-Hidalgo, 2000). Love and Lage-Hidalgo results showed that the impact of the different cost of capital moves in the opposite direction to the theory's prediction.

2.2.2 Institutional Dimension – Investment Profile

The strand of the theoretical literature examines the channels through which institution affects FDI inflows. Different approaches are featured in the literature, each with different empirical implications. For example, Agarwal (1980) argued that the incentives had a restricted impact on foreign direct investment, as investors stand by their decision of the consideration of return and risk. However, incentives for FDI had a less definite effect than disincentives. A result produced by Schneider and Frey (1985) demonstrated in a comparison between the models, including political variables which the models did not include, the models encompassing economic and including political variables were better carried out. Further, simultaneously included were the economic determinants and political determinants.

Additionally, Schneider and Frey (1985) used measures for the type and duration of political regimes and found they had negative effects on FDI. The authors suggested that longer lasting political regimes attracted less foreign investment to the country. Dunning (1993) accepted that risk, especially political risk had a negative effect on the MNC's investment decision in the specific country, so these factors are the key determinants in a specific location to decide whether to invest or not. Cleeve (2008) used the civil freedom index and political instability where he did not find any conclusive results.

There are various pieces of empirical research which state that inefficient institutions discourage or encourage foreign investment. The effect of institutional quality, such as corruption by corruption index, was found to have had a negative effect and was statistically significant (e.g., Asiedu, 2006; Cleeve, 2008; Mohamed and Sidiropulos, 2010; Benassy-Quere et al., 2007). Asiedu (2006) used the ICRG indicator as a measure for institutional quality and found that the legality of a system is neutral and influenced by the application of the rule of law. Cleeve (2008) concluded that the effects of the level of corruption and political instability had limited its development. Furthermore, Mohamed and Sidiropoulos (2010) concluded that institutional variables were important determinants of FDI in MENA countries, when they used a composite index, including bureaucracy, corruption, and investment profiles. The authors found all of these factors to be significant and to have a positive relation with FDI.

Cleeve (2008) and Benassy-Quere et al. (2007) stated their belief that a low level of corruption led to greater inflows that benefit a country and stimulated its development, where corruption is a measure for institutional quality and is an important determinant of a decision to engage in FDI.

Another strand of the theoretical literature examines the channels through which financial and economic incentives affect FDI inflows. For instance, Faeth (2009) found that fiscal incentives and finances, tariffs, and lower corporate tax rate all had a positive impact on the attraction of foreign direct investment. In addition, the author added that government policies such as subsidies or tax breaks could be affected the choice between exporting, or FDI and licensing. Root and Ahmed (1979) used two proxies for financial and economic incentives – corporate taxation and tax incentives. They found corporate taxation was a significant determinant of foreign direct investment in manufacturing, but tax incentives failed to attract FDI. They gave an explanation for this surprising result in that governments removed incentives. Authors such as Cleeve (2008) did not find any statistically significant results for financial and fiscal incentives through three proxies used to measure that variable and tax concessions for certain sectors of activity, temporary tax exemptions, and repatriation of profit.

2.2.3 The New Theory of Trade – Market Size, Trade Openness and Natural Resources Endowment

A number of attempts have been made to ingrate FDI theories with the theories of international trade. Researchers have analyzed the impact of trade from every aspect both theoretically and empirically. The neo-classical tradition of Heckscher (1919), Ohlin (1933) and Kojima (1973, 1975, and 1985) adopted a macroeconomic approach. Heckscher and Ohlin pointed out that countries would export goods and services which were utilized in greater quantities than their relative abundance factors, and would import other goods and services that had relative scant factors. Indeed, this theory is based on perfect competition in local factor or product markets. For any disequilibrium in the prices of goods or factors across countries brought by relative endowments of factors, were corrected by international movement of goods.

Mundell (1957) examined the influence of factor movement in two sectors, two factors, and two countries. Based on this framework, if the price factor did not hold, prices and product factors were unchanged after capital inflows, and then the endowment factors between two countries were extreme. The Heckscher-Ohlin model (1933) (hereafter HO (1933)) suggests that a capital inflow does not have any influence on price factors. In addition, Mundell (1957) states that trade and capital movements were substituted. Furthermore, the author adds that a country that was restricted to international movements of factors and trade would be substituted. Mundell (1957) and MacDougall (1960) analysed the capital inflows in the case of one sector. The authors suggested that if in the receiving country, FDI inflows were to lower than the capital rent, and labour productivity also increased, then welfare would be increased in the receiving economy.

By using the HO (1933), MacDougall (1960), and Kemp (1964) models, Faeth (2009) presented an explanation of FDI which is motivated by higher returns on investment in foreign markets, in exchange for risks, growth, and lower labour costs. The HO (1933) was based on a 2 x 2 x 2 general equilibrium framework with two countries (usually home and foreign country), two factors of production (capital and labour) and two goods. They assume perfectly competitive goods and factor markets. The MacDougall–Kemp model, based on the MacDougall (1960) and Kemp (1964) models, assumed full employment, perfect competition and constant returns to scale, and they take into account only one good and two factors of production.

Kojima (1973, 1975, and 1985) also put forward the first theories on FDI from developed Asian countries - China, India, Taiwan province of China, and the Republic of Korea were not dealt with in the Kojima hypothesis, regarding FDI outflows from Japan. The author identified that technology, transfers of capital, and managerial skills from the source country to the host country were an important motivation behind international investment by firms. He divided FDI into two types: the first is trade-orientated, which creates an trade-orientated for imports and an excessive supply of exports at the original terms of trade. He pointed out that this type of FDI leads to welfare which would provide an improvement in both countries. In addition, FDI would imply the source country had a comparatively disadvantaged industry, which has the potential to promote trade and provide a benefit for industrial restructuring in both the source and host countries.

The second type was anti-trade-orientated FDI which had an opposite effect on trade and led to unfavourable restructuring in both countries. Kojima commented on Japanese FDI, which was trade-oriented but not an FDI of the USA. Therefore, international trade and FDI are complementary, but needed a consideration of comparative costs. He argued that the lack of ability of firms to compete in domestic markets in Japan required them to seek investment abroad in order to make factor markets more efficient and competitive, and to seek production processes which were better in a country that is well endowed with the given resource. He had the opinion that the most effective domestic firms were pricing the less competent firms out of the domestic markets. Therefore, the weaker firms were operating overseas, particularly in other developing countries.

Petrochilos (1989) argued that in Kojima's hypothesis the direction of Japanese outward FDI had been dictated by the loss of some basic resources in the home country, such as raw materials, or the need to exploit low wages, and by the policy of restricting environmental pollution in the home country, which would be better exploited abroad. In addition, Petrochilos argued that elements of Kojima's hypothesis would be found in other theories, for instance, the product life cycle hypothesis, and Japanese outward FDI could be explained sufficiently in terms of the eclectic theory. Another argument was that Kojima's theory was necessary for operating foreign trade, but the theory failed to explain FDI.

Furthermore, based on the theoretical models of Knickerbocker (1973), along with Hymer (1976) and Caves (1971), an alternative analytical framework for analyzing FDI and MNE activity was produced. The authors have provided the essential tools to discuss the trade pattern and firm's behaviour towards production and export. The advantages of ownership (knowledge capital) and location (including market size and moderate to high trade costs for horizontal firms, and low trade costs) combine with technology and the fundamental features of a country (endowment factors) to form a new theory of trade.

This theory added technology and countries' characteristics to Dunning's eclectic paradigm (OLI). The authors have ignored the modes of FDI (e.g., horizontal and vertical) in their research.

Several empirical studies have been conducted on this theory related to international trade as vertical and horizontal (such as Helpman, 1984, 1985; Helpman et al., 2004; and Markusen, 1984). In new theories of FDI, the general equilibrium model with monopolistic competition in horizontally differentiated products was used to explain MNEs as an equilibrium aspect (Helpman 1984, 1985). Helpman model was based on the factor endowment and was different to the variations in location and in factor prices and is present where there is an incentive for a vertical MNC to start its production centre. He argued that firms prefer to choose a cost-minimizing location to profit-maximizing. Furthermore, he showed that MNEs will exploit cross-country which have different factor prices by transferring activities to the cheapest locations. In addition, the theory explained the simultaneous factors of intra-industry trade; intersectoral trade, and intra-firm trade. Moreover, he believed that in the case of vertical MNEs, FDI and trade are complementary.

On the other side, Markusen (1984) analysed the decision of firms who preferred to serve foreign markets through the FDI route rather than exporting in a general equilibrium trade model with imperfect competition. He used this model to describe horizontally integrated firms with simultaneous activities in multiple similar countries. As a result of knowledge capital joint-input nature, there would be increased firm-level scale economies. With more technical efficiency, MNEs had an advantage over domestic firms. Brainard (1993) developed a model using a two-sector, two-country idea for firms to choose between exporting and FDI in the differentiated goods sector. The main finding in his model is that firms preferred horizontal FDI as an alternative to exporting to escape

trade costs. Another finding in his study is that because of rising technical efficiency, MNEs are more likely to increase if firm-level scale economies are high, economies of multi-plant operation are low, and trade costs are high.

Moreover, Hirsch (1976) dealt with the choice between exporting and FDI. He focused on two forms to develop the investment theory and international trade; when firms choose to maximize their profit then firms will involve a foreign market. Another form is that when firms serve a foreign market then local manufacture or exporting comes as a result of direct investment. He also confirmed that FDI was analysed in the framework of the industrial organization and location theories, but is not appropriate in trade theory that assumed the markets are perfect; there was an absence of transportation cost, factor immobility, constant return to scale, and international identical production functions. Even if the international factor mobility is introduced in the trade models, the FDI would not be available.

Helpman et al. (2003, 2004) built a multi-country, multi-sector general equilibrium model to explain the choice of heterogeneous firms between serving foreign markets, either during exports or local subsidiary sales (engaging in FDI). This is consistent with Brainard's work (1993, 1997), where the main finding was on horizontal FDI, and for the MNEs in all his models. Every industry has a different productivity level; the consequence of this is that firms are sorted depending on their productivity.

Helpman's et al. (2003, 2004) theoretical framework is as follows: there are N countries that used labour to produce goods in H + 1 sector. 1 sector produces a homogenous product, while H sectors produce differentiated products. The fraction β_h of income is spent on the differentiated products of sector H, the fraction 1- $\sum_h \beta_h$ on a homogenous good. Country i is endowed with L^i units of labor. 1- $\sum_h \beta_h$ to be small enough and differences in L^i to be small enough, therefore the homogenous products are produced in every country and wages are equal.

The homogenous product is produced with one unit of labour per unit output so the wage rate is an equal one. A firm bears the fixed costs f_E measured in labour units to enter the industry in country i, draws a labour per unit output coefficient a from distribution G(a). Upon this draw, a firm may decide to exit. If a firm chooses to produce, there are

additional fixed labour costs f_D. However, there are no more additional costs when the firm sells only in their home country. If a firm decides to export, then there are additional costs per foreign market f_X. However, if firms decide to engage in FDI, it affords additional fixed costs f_I in each foreign market. f_D and f_X are the costs of forming a distribution and servicing network in foreign countries. f_I contains a distribution and servicing network cost such as the costs of forming a subsidiary in a foreign market and the duplicate overhead production costs f_D. There are melting-iceberg transport costs $\tau^{ij} > 1$, for exported goods from country i to country j, after the producer engages in monopolistic competition.

Preferences across varieties of product h have standard constant-elasticity-of-substitution (CES) $\varepsilon = 1 / (1-\alpha) > 1$. These preferences are a demand function $A^i p^{-\varepsilon}$ in country i for every brand of products, the demand level A^i is exogenous from the point of view of an individual supplier. The brand of monopolistic producer with labour coefficient α is offered for sale at $p = a / \alpha$ price, $1/\alpha$ is the markup factor. Consequently, the effective consumer price is a / α for locally produced goods, they are supplied by a local producer or a foreign affiliate with labour coefficient α ,and $\tau^{ij} a /\alpha$ for imported products for country j from exporters with labour coefficient α. Due to transport costs, the imported products are more expensive than the locally produced goods.

A firm from country i staying in the industry will serve the local market via local production, and may serve in foreign market j. If it decides to access the foreign market, exports will be through local production or domestic sales through affiliate production FDI. This decision is embodied by the proximity–concentration tradeoff, relative to exports, FDI saves transport costs, while duplicate production facilities require higher fixed costs.

In equilibrium, no firm engages in both activities for the same foreign market, Helpman's et al assume:

$$f_I > (\tau^{ij})^{\varepsilon-1} f_X > f_D. \qquad (2.1)$$

Operating profits from serving the domestic market are:

$$\pi_D^i = a^{1-\varepsilon} B^i - f_D$$

For a firm with a labour-output coefficient α, where $B^i = (1- \alpha) A^i / \alpha^{1-\varepsilon}$, on the other hand, the additional operating profits from exporting to country j are:

$\pi_x^{ij} = (\tau^{ij} a)^{1-\varepsilon} B^j - f_X$,

And the additional operating profits from FDI in country j are:

$$\pi_I^j = \alpha^{1-\varepsilon} B^j - f_I$$

These profit functions are for the case where the demand levels are the same in countries i and j. $a^{1-\varepsilon}$ is reflected on the horizontal axis. Because of $\varepsilon > 1$, this variable increases monotonically with labour productivity 1/a and is used as a productivity index. All those profit functions (three) increase in linear functions of this index. In all three activities, more productive firms are therefore more profitable. The slope of π_D^i and B^i are equal, and the slope of π_I^j and B^j are equal. When the demand levels are the same in countries i and j, these profit functions are parallel to each other. Profits from FDI are lower π_i^j causing the fixed costs of FDI f_I to be higher than the fixed costs of domestic production f_D. Moreover, the slope of π_x^{ij} is equal to $(\tau^{ij})^{1-\varepsilon} B^j$, which is less than the slope π_I^j.

Together with the first inequality in (2.1), these relationships indicate that exports are more profitable than FDI for low-productivity firms and less profitable for high-productivity firms. Furthermore, there exist productivity levels at which exporters have positive operating profits that exceed the operating profits from FDI, in other words, $(a_I^{ij})^{1-\varepsilon} > (a_X^{ij})^{1-\varepsilon}$, which ensures that some firms export to country j.

The second inequality in (2.1) indicates that $(a_X^{ij})^{1-\varepsilon} > (a_D^i)^{1-\varepsilon}$, which ensures that some firms serve only the local market.

The least productive firms expect negative operating profits and will leave the industry. This occurs in all firms with productivity levels below $(a_D^i)^{1-\varepsilon}$, which is the

cutoff at which operating profits from local sales equal zero. The firms with productivity levels between $(a_D^i)^{1-\varepsilon}$ and $(a_X^{ij})^{1-\varepsilon}$ have positive operating profits from sales in the local market, however, they expect to lose money from exports and FDI. They will decide to serve the local market but not to serve the market in country j. The cutoff $(a_X^{ij})^{1-\varepsilon}$ is the productivity level at which exporters just break even. Higher productivity firms can export profitably; those with productivity above $(a_I^{ij})^{1-\varepsilon}$ earn more from FDI.

Because of this, firms with productivity levels between $(a_X^{ij})^{1-\varepsilon}$ and $(a_I^{ij})^{1-\varepsilon}$ export, whereas those with higher productivity levels build subsidiaries in country j, which they use as platforms for servicing country j's market. It is clear from the figure that the cutoff coefficients $(a_X^{ij})^{1-\varepsilon}$, $(a_I^{ij})^{1-\varepsilon}$, and $(a_D^i)^{1-\varepsilon}$ are determined by:

$$(a_D^i)^{1-\varepsilon} B^i = f_D \qquad \text{F all i,} \tag{2.2}$$

$$(\tau^{ij} a_X^{ij})^{1-\varepsilon} B^j = f_X \qquad \text{For all } j \neq i, \tag{2.3}$$

$$(1-\tau^{1-\varepsilon})(a_I^{ij})^{1-\varepsilon} B^j = f_I - f_X \qquad \text{For all } j \neq i. \tag{2.4}$$

Free entry ensures equality between the expected operating profits of a potential entrant and the entry costs f_E. This condition can be expressed as:

$$V(a_D^i) + \sum_{j \neq i} [1-(\tau^{ij})^{1-\varepsilon}] V(a_I^{ij}) B^j + \sum_{j \neq i} (\tau^{ij})^{1-\varepsilon} V(a_X^{ij}) B^j$$

$$- [G(a_D^i) f_D + \sum_{i \neq j} G(a_I^{ij}) (f_I - f_X) + \sum_{i \neq j} G(a_X^{ij}) f_X] = f_E \; \forall i, \tag{2.5}$$

Where,

$$V(a) = \int_0^a y^{1-\varepsilon} \, dG(y) \tag{2.6}$$

From equation (2.2) to (2.5), implicit solutions for the cutoff coefficients $a_D^i, a_X^{ij}, a_I^{ij}$ and the demand levels B^i are given in each country. Clearly, these solutions do not depend on the country size variables L^i, since the variation in country size is not large enough to induce some countries to specialize in differentiated products. In addition, it is easy to see that we can also allow cross-country variations in the fixed cost coefficients, since these variations do not lead some countries to stop producing the outside goods.

Other strands of economic literature, such as the market size hypothesis, demonstrate a link between market size and FDI. Difference proxies for market size were used in their empirical model, such as growth rate of real GDP (e.g., Mohamed and Sidiropoulos, 2010) and GDP per capita (Cleeve, 2008) and it was found to be a significant determinant of FDI inflows. Some used real GNP growth rate and found it to be a significant determinant of FDI (Schneider and Frey, 1985). Ramasamy et al. (2012), Kayam (2009), and Stoian (2013) found that GDP per capita had a significant effect on OFDI.

Empirical studies have tested various hypotheses about the effects of market size on FDI (e.g., Medvedev, 2012; Jadhav, 2012; Hisarciklilar et al., 2006). The theoretical foundation of this empirical model is based on the market size theory and the support of this theory of market size requires a significant determinant of FDI.

While most economists and economic theory assume a positive relationship between investment and growth, corruption has a different effect on FDI. Mauro (1995) provided empirical evidence (OLS and 2SLS) on the effects of corruption on economic growth using a new dataset (1960–1985 average) consisting of subjective indices of bureaucratic honesty and efficiency. There is a negative association between corruption and investment rate, as well as growth, which is significant both statistically and economically.

2.3 Theoretical Literature on the Determinants of Outward Foreign Direct Investment

In this section, we briefly review the theoretical literature that studies determinants of outward foreign direct investment. The most important theoretical contributions on outward foreign direct investment (OFDI) are the eclectic OLI paradigm (Dunning, 1977, 1988a,b, 2001), and the Investment Development Path (IDP) theory (Dunning, 1981a,b, 1986, 1988a,b), which is the most developed theory simultaneously explaining both inward and outward FDI.

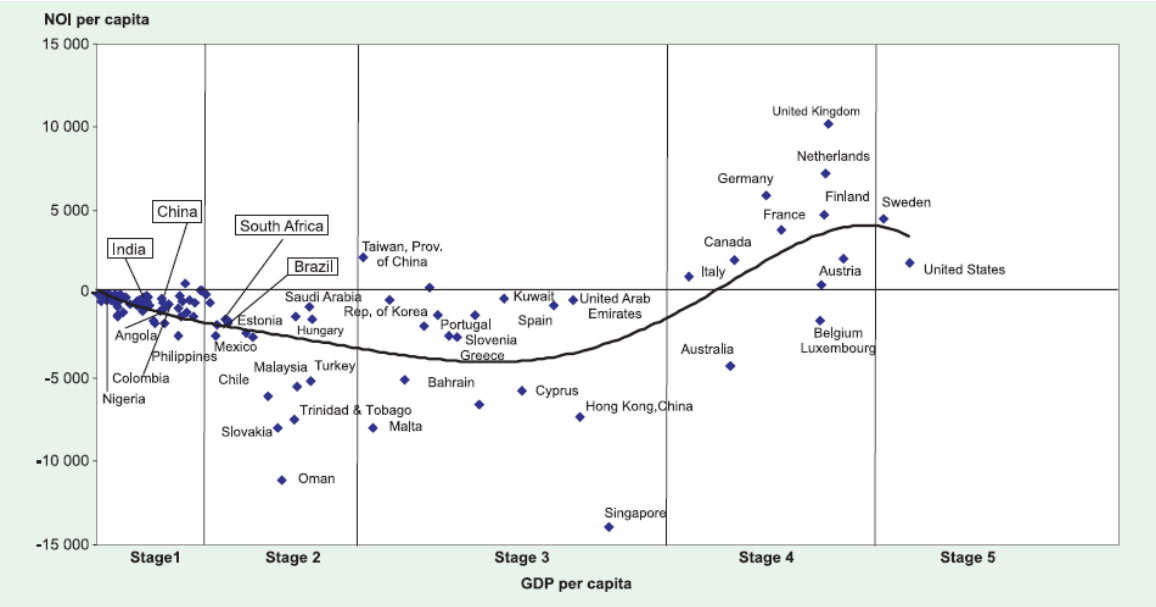
The IDP theory distinguishes five stages of development; in the first stage both inward and outward FDI is limited and countries prefer imports and exports rather than

engaging in FDI. At this stage there are insufficient location advantages, reflected in low GDP per capita, poor human capital, inadequate infrastructure (transportation and communication), and limited government involvement. In the second stage, improved location advantages, especially in GDP per capita and other location assets, tend to increase IFDI, but can lead to OFDI decreasing or remaining at a low level because the companies are still developing.

At stage three, there is an increased competitiveness from local firms. This leads to a decreased growth rate of inward foreign direct investment and increased growth rate of OFDI. In the fourth stage, domestic markets expand and start investing abroad. Outward FDI stock exceeds or equals IFDI stock, but the growth rate of OFDI is still faster than IFDI. In the fifth stage, the net investment position of the country first falls and then fluctuates around zero reflecting high levels of both inward and outward foreign direct investment.

Figure 2.1 represents IDP theory, which shows the relation between Net Outward Investments (NOI) per capita and GDP per capita. Dependent on this figure is whether the IDP holds: the first stage shows the falling NOI and the poorest countries or countries which have a few (TNCs) and will receive less investment. The second stage shows increasing inward foreign direct investment and GDP per capita but still has NOI per capita falling. In the third stage there are increasing competitive TNCs in middle and high incomes, and the curve of NOI per capita is upward. In the fourth stage, which shows OFDI to be equal to or exceeding IFDI, countries are fully developed and NOI per capita becomes positive. Finally, in stage five there are insufficient data points to test this stage (UNCTAD, 2006).

Figure 2.1: Relationship between Net Outward Investment and GDP Per Capita, Selected Countries, 2004



Source: UNCTAD.

Note: A total of 135 countries were included in a regression equation, which postulated a relationship between the level of development and the net outward investment (NOI) position of countries (i.e. Outward FDI stock less inward FDI stock). Only a small number of countries have been shown in the figure, for illustrative purposes. The points on the bottom axis at which the stages are divided from each other were chosen to correspond with theoretical predictions of the relationship between the NOI and level of development, and in this sense are notional. These points dividing the stages are roughly $2,500 (between stages 1 and 2), $10,000 (between stages 2 at 3), $25,000 (between stages 3 and 4), and $36,000 (between stages 4 and 5).

Aliber (1970, 1971) attempted to explain FDI on the basis of the relative strength of different currencies, and he put forward his theory in terms of the variation in the strength of the currencies in the host and source economies. He supposed that comparisons between weaker currencies and stronger investment economy currencies had a higher capacity to attract foreign investment in order to take advantage of the divergence in the market capitalization rate. In addition, he proposed that firms associated with countries which had a strong currency tended to invest abroad, however firms associated with countries which had a weak currency do not have the same tendency. In other words, a country with a strong currency has a tendency to be a source of FDI, whereas a country with a weak currency has a tendency to be a host of FDI. His hypothesis was based on capital market relationships, market preference for holding assets denominated in strong currencies, and foreign exchange risk. The author attracted considerable attention since his hypothesis successfully explained the trend of the outflow of US FDI into Europe. His theory explained the investment of developing countries that had a weak currency MNCs in a developed economy (strong currencies).

This finding contrasts with Lizondo (1991), in which Aliber concludes that his theory was only a partial explanation due to it not explaining the cross investment between currency areas or FDI of one country into another country with the same currency, and the FDI concentration in certain industries. Due to this, there is an overestimation of currencies which are connected with FDI outflows, but an underestimation of the currencies which are connected with FDI inflows.

Empirical work, such as Froot and Stein (1991) and Agarwal (1980), provides support to this finding that an overestimation of currencies is associated with FDI outflow, and vice versa. Froot and Stein (1991) found that the mean real value of the US dollar and a time trend had negative and significant effects on FDI inflows to the USA and on foreign assets. They deduced that the explanation for increasing FDI in the USA resulted from the depreciation of the US dollar which started in March 1985. Furthermore, the authors added more detail to the theory based on market imperfections. They argued that a weak currency may be linked with FDI inflows due to informational imperfections in the capital markets, and it will be happened when the cost of internal financing is less than the cost of external financing.

Agarwal (1980) made note of the risk of confusing the currency area hypothesis with the relationship between FDI and a change in exchange rate. He said the exchange rate is an important factor influencing FDI decisions, or FDI as an alternative to exports. Hence, if the local currency appreciates against foreign currencies, MNCs based in the source economy would find it too hard to export and local goods would become less competitive. If the appreciation of local currency still continues, then MNCs find it beneficial to invest abroad due to a rise in FDI. Dependent on this case, FDI will be seen as a measure taken to hedge economic exposure to foreign exchange risk.

Aliber further reports that portfolio investors have a tendency to ignore the exchange risk on the foreign earnings of firms. As a consequence, MNCs in a hard currency area are able to borrow at lower costs and capitalize the earnings on their foreign investment in soft currency areas at higher costs than domestic firms. He believes that firms which have a strong currency may be more efficient leading to foreign exchange risk. Agarwal argued that Aliber's portfolio investors had a tendency to ignore the exchange risk on the foreign earnings of firms. However, there are a large number of institutional investors

dominating portfolio investment. In addition, it takes time between a decision to expand FDI and the appreciation, unless the decision is based on predictions.

Changes in exchange rates are restricted, in theory, in their impact on FDI. The depreciation of the local currency makes local assets more attractive for foreign investors, whereas foreign assets will become more expensive for residents in the source economy. Consequently, FDI inflows will increase.

The relation between FDI and the exchange rate is represented algebraically as follows:

$$I_t = f_1 (S_t - \acute{S}_t) + f_2 (S_t - S_{t-1}) \quad (2.7)$$

Where, I is FDI flows, $f_1 > 0$, $f_2 > 0$, and $|f_1 (S_t - \acute{S}_t)| > |f_2 (S_t - S_{t-1})|$.

The term $f_1 (S_t - \acute{S}_t)$ represents the dependence of FDI on overvaluation and undervaluation of the currency: if $S_t - \acute{S}_t < 0$ is undervaluation, and overvaluation if $S_t - \acute{S}_t > 0$. The term $f_2 (S_t - S_{t-1})$ represents the dependence on currency appreciation and depreciation. Notice that the equation shows a contemporaneous relation between FDI on the one side, and exchange rate misalignment and changes on the other side. In the empirical work, the exchange rate variable used may be contemporaneous or in lagged form which means that it takes a long time to take FDI decisions. It is dependent in part on the choice of the frequency of data used in the research.

2.4 Theoretical Literature on the Cross-border Portfolio Investment, the Gravity Model

This section considers some of the theoretical literature that studies cross-border investment using gravity equations. There are a number of theories on cross-border portfolio investment. The first theory of the differential rate of return predicted that FDI outflows move from countries that have a low rate of return to countries that have a higher rate of return in a process that leads eventually to the equality of ex ante real rate of return. The second theory is that the portfolio diversification investment assumes that the investors' decision does not only depend on the rate of return but also depends on the risk in selecting their portfolio. The third theory is the capital theory; direct investment and

portfolio investment. International investment was fully explained in the traditional theory of international capital movements until the 1950s when, for example, the Heckscher-Ohlin model made arguments similar to those found in capital movement theories. Finally, the fourth theory for the theoretical foundations is the gravity equation.

The first theory is of the differential rate of return; some studies find supporting results with the theory (e.g., Stevens, 1969; Reuber et al. 1973). Stevens (1969) supported the theory and tested Latin America as a whole, but not individual countries except Brazil. Reuber et al. (1973) showed that U.S. manufacturing investment between 1959 and 1969 was positively correlated with the rate of return in Argentina, Brazil, Chile, India, Indonesia, Mexico and the Philippines with one year time lag.

On the other hand, Bandera and White (1968) looked at American investment in European economies between 1953 and 1962. They rejected the differential rate of return theory, nevertheless they emphasized that they equated the return as a precondition for capital movement. Their results have been examined by surveys conducted on motives and determinants of FDI, but they also failed to support the differential rate of return theory.

Any residual income earned by firms and over the opportunity cost of the stakeholders would happen to the owners of the business in the form of profits (net of tax and depreciation). The maximization of profits in relation to the capital invested, is expressed by Dunning (1993) as follows:

$$\Pi = \frac{TR-TC}{K} \tag{2.8}$$

Where, Π is the rate of return on capital, TR is the total sales revenue, TC is the total cost of production, and K is owner's capital invested.

Assuming that firms aim to maximize their total income over a three-year period and that they will reinvest the profits earned in the first two years, then the equation becomes:

$$\prod_3^T = \prod_1 (1 + r)^2 + \prod_2 (1 + r) + \prod_3 \tag{2.9}$$

Where, r is the maximum income a firm will earn when reinvesting profits earned in year 1 and year 2. Both of these formulae proposed that the value of the owner's investment stake does not change independently of the profits earned. The aim of the owners of the firm is to maximize the value of their equity stake over a period of time, and the equation is modified as:

$\sum\prod_{1\rightarrow3} + \sum \Delta K_{1\rightarrow3}$

Where,

$$\sum\Delta K_{1\rightarrow3} = \Delta K\ (1 + r)^2 + \Delta K_2\ (1 + r) + \Delta K_3 \qquad (2.10)$$

The objective of the wealth maximizing firms, by assuming a three-year time period as the most microeconomic, is as follows:

$$NPV_{(t=1)} = \frac{Y_3}{(1+r)2} + \frac{Y_2}{(1+r)} + Y_1 \qquad (2.11)$$

Where, NPV is the net present value of the expected income of the firm at time t_1, Y is the net income expected at time 1, 2, 3, respectively, and r is the opportunity cost of K invested to earn that income.

The second theory is that of portfolio diversification; the theoretical foundations are to be found in the works on international capital movements by Tobin (1958) and Markowitz (1991). Tobin's and Markowitz's theory of portfolio selection was built on the observation that security returns within a country move in unison over time and are not fully correlated. According to Markowitz-Tobin's theory, firms may reduce the risk via diversification, which is relevant to portfolio investment. Since the probability of correlation is much smaller or almost nonexistent between countries, this theory has been tested by a number of studies related to international portfolio selection and applied to Markowitz-Tobin's theory on FDI (e.g., Prachowny, 1972; Thompson, 1985; Stevens, 1969). Specifically, Prachowny (1972) found more empirical evidence to support this theory to explain FDI in the USA and in US investment abroad. However, the proxy used in his empirical study did not appear to be adequate, and it was doubtful that the significance of the risk term is an explanatory variable of FDI. In addition, he argued that the diversification theory provided a major advantage that it can be generalized.

Furthermore, the author outlines that the main advantage lies in its capacity to be generalized.

Moreover, this theory provided a logical explanation for cross investment between countries and industries and did not rely on the theory of certainty as the differential rate of return assumed. By considering that risk is an essential element in FDI decisions as in the differential rate of return theory, the theory does not provide an explanation for why MNCs are the greatest contributors to FDI and why firms choose foreign direct investment over portfolio investment.

Thompson (1985) examined whether market-based risk measures could have an effect on FDI for 46 large UK firms using monthly share price data. He found that international investment reduced risk, due to the firm's degree of multinationality, which meant that his results supported the portfolio diversification theory. It reduced the sensitivity of domestic security systematic risk, but raised the sensitivity of domestic security returns to movements in a world index. Stevens (1969) did not find evidence in favour of this theory as the aggregate direct investment in Latin America, for an individual country, was found to have some support for portfolio theory, the results showing that it was inferior to those based on the output theory.

Some argue that, in this theory, FDI is firms' movement rather than capital movement (e.g., Lipsey, 2002). Moreover, Agarwal (1980) argued that the portfolio theory cannot provide an explanation of the differences between industries and their tendency to invest overseas. In addition, the author documented that the empirical evidence for testing this theory seemed to have weak support. Another argument involves Ragazzi's theory (1973) that firms preferred FDI as opposed to portfolio investment in terms of financial market imperfections.

The third theory is capital theory; direct investment and portfolio investment. As outlined by Mundell (1960), this theory emphasises that foreign investment is represented by the differences in the rates of return on capital movement between countries, which for American firms in the 1950s was the major source of FDI and they earned a higher rate of return from their European investment than in their home country. Additionally, Mundell (1957) showed that trade and capital movements are substituted. Indeed, capital movement happens from a capital-abundant country to a capital-scarce country in search

of a higher marginal rate of return when the latter hinders the importation of capital-intensive goods from the former.

Hymer (1960) was the first to develop the theory of portfolio investment, and he also revealed the weakness of this approach. He asserted that the differential rate of return theory was not appropriate for many reasons. Firstly, net OFDI with net inflows of portfolio capital were combined in the USA. Secondly, both directions of FDI flows were not rare. Thirdly, numerous firms complemented the FDI with capital borrowed in domestic markets. Finally, at the time, manufacturing firms were more significant than financial companies in international direct investment. The author was also the first to distinguish between foreign direct investment and another kind of international capital, namely portfolio investment. He argued that those engaging in FDI, as opposed to portfolio investment and portfolio investors, did not have control over investment. Furthermore, dependent on those differences, traditional portfolio investment theory was based on the interest rate, and investors seek to maximize their profit according to the differences in the interest rate.

Hymer further compared FDI and portfolio investment of American firms in the 1950s, and he provided evidence that is dependent on this comparison between FDI flows and portfolio investment. The author assumed that FDI investors, as opposed to portfolio investors, had respect to control firstly because international transactions involve risks and uncertainty, and this led to the investors being more conservative in their investment through control. In addition, he believed that the interest rate may play a role for investors to maximize profit, due to investors substituting their FDI for portfolio investment if the risk of expropriation, exchange rate, or the doubt of foreigners was too great. The second reason according to Hymer was to eliminate competition in the overseas location or to prevent them from being able to compete because of lack of ability or skills belonging to the enterprises. As he defined FDI as direct investment, the opposite of this former is international operations as a type of FDI.

Finally, the theoretical foundation is the gravity equation. There are a number of theoretical foundations for the gravity equation in international trade, for example, Tinbergen (1965), Poyhonen (1963), Linnemann (1966), and Leamer and Stern (1970) . The first authors Tinbergen and Poyhonen to use a gravity equation for trade flows, but

this theory only provided intuitive justification. A study by Linnemann (1966) followed, in which he added more variables and more theoretical justification based on the Walrasian general equilibrium model. However, this model included too many independent variables for trade flows and led to the decline of the gravity equation.

Leamer and Stern (1970) followed Savage and Deutsch (1960) in deriving a gravity equation from a probability model of transactions, although they only applied their model to trade, and they did not provide any explicit connection with the HO (1933).

In a similar sense, Leamer (1974) examined the determinants of trade flows based on both the gravity equation and the HO (1933). According to this theory, his theory did not combine the two approaches theoretically. These contributions were followed by several more formal efforts to derive the gravity equation from product differentiation models.

Anderson (1979) was the first to develop a theoretical foundation of the gravity equation; he also was the first to include Cobb-Douglas preferences and the constant-elasticity-of-substitution (CES) preferences. He made the "Armington assumption", in which the products are differentiate by two countries or regions to the geographical distance and size of their countries. He examined the framework with impeded trade, and he presumed that the preferences in all countries were homogenous. Anderson applied the gravity equation to the properties of the national expenditure system, expressing the share of national expenditure for the purchase of tradable goods as a function of income and population.

Anderson developed the Gravity Model that took into account the trade in many goods, over various distances, tariffs and barriers to observe elasticity in tariffs as follows:

$$M_{ijk} = \alpha_k Y_i^{\varphi k} Y_j^{\gamma k} N_i^{£k} N_j^{\varepsilon k} d_{ij}^{\mu k} U_{ijk} \qquad (2.12)$$

Where, M_{ijk} represents the dollar flow stemming from a good, or factor k from one country or region i to another country or region j. Y_i is income of country i; Y_j is income of country j. N_i is population in country i; N_j is population in country j.
d_{ij} is the distance between a pair of countries or regions; and U_{ijk} is the log of normally distributed error term.

Anderson started from the value of consumption goods of type k, imported to country j from country i, which is M_{ijk} T_{ijk}, where M_{ijk} reflects the value of k goods in the foreign port, and T_{ijk} stands for the transport cost factors. By assuming that the tradable goods are homogenous and meet similar preferences, the expenditure portions of traded goods are identical functions θ_{ik} (T_j), where T_j is the vector T_{ijk} for country j. The demand of the imported good ik is

$$M_{ijk} = \frac{1}{T_{ijk}} \theta_{ik}(T_j) \varphi_j Y_j \tag{2.13}$$

Then, the summation equation of trade flows between i and j is

$$M_{ij} = \sum_k M_{ijk} = \varphi_j Y_j \sum_k \frac{1}{T_{ijk}} \theta_{ik}(T_j) \tag{2.14}$$

And the trade balance relation is

$$m_i \varphi_i Y_i = \sum M_{ij} \tag{2.15}$$

$$= \sum_j \varphi \quad Y_j \sum_k \frac{1}{T_{ijk}} \theta_{ik}(T_j)$$

By equaling all factor costs to 1(T_{ijk} = 1) and dividing both sides of equation (2.15) by $\sum_j \varphi_j Y_j$,the summation parameter of the proportion of goods of country i ($\sum_k \theta_{ik}$) is included. The left side is then introduced in equation (2.19) to include:

$$M_{ij} = \frac{m_i \varphi_i \varphi_j Y_i}{\sum_j \theta_j Y_j} \tag{2.16}$$

Under the presence of many tradable goods, only the summation equation (2.16) is valid. If T_{ijk} is small, then dividing both sides in the equation (2.20) by $\sum_j \varphi_j Y_j$ yields the following gravity equation:

$$\frac{m_i \varphi_i Y_i}{\sum_j \varphi_j Y_j} = \sum_j \frac{\varphi_j Y_j}{\sum_j \varphi_j Y_j} \cdot \sum_k \frac{1}{T_{ijk}} \theta_{ik}(T_j) \tag{2.17}$$

Deardorff (1995) criticized Anderson's model arguing for preferences over only traded goods, while Anderson's primary concern was to examine the econometric properties of the resulting equations, rather than to extract easily interpretable theoretical implications.

Theoretical foundations for the gravity equation have been established by a series of papers, for instance Helpman and Krugman (1985), and Bergstrand (1990) who used the multiplicative gravity equation by assuming the products were differentiated by regions or monopolistically competitive markets with product differentiation.

2.5 Conclusion

In the last few decades, the strong growth of FDI has led to major research on the determinants of investment. It is clear that in the economic literature the majority of theories explain the reasons for the international capital movement. These theories provide reasons for firms' decisions to move abroad. Some of the theories are a corollary to trade theories under perfect markets, whereas other theories have been developed from imperfect markets condition.

In spite of differences in hypotheses, these theories are agreed in their view that the reasons for firms moving abroad are to acquire more benefits of advantages in the form of location, firm-specific or internationalization of markets. Moreover, these theories are clear in the fact that government policies have an effect on local economies and play an important role in encouraging international investment by firms.

In addition, some theories propose features such as labour disputes in home countries, lower expatriate costs, the role of diaspora, and familiarity with domestic conditions in other countries. Indeed, there is no single theory that can provide an explanation for international investment, but the majority of theories are on FDI.

CHAPTER 3

OIL AND THE LOCATION DETERMINANTS OF FOREIGN DIRECT INVESTMENT INFLOWS TO MENA COUNTRIES

3.1 Introduction

Foreign Direct Investment (FDI) flows play an important role in the development of the economies of developing countries. There has been an increase in world foreign direct investment flows in 2011, up by 16 per cent compared with 2010. This was caused by the high profits of a number of Transnational Corporations (TNCs) and high economic growth in developing countries. This accounted for 45 percent of world foreign direct investment in 2011, which was recorded at about $684 billion.

Since the industrial revolution, petroleum production had been fully owned by private sectors. It was not until the First World War that governments started to take actions in order to take control and to increase their shares in the holding of the oil and gas industry. The reasons behind this involvement are the great value these two resources hold for the army and the considerable rents involved.

The nationalization of the petroleum industry occurred for the first time in 1917 in the Russian Revolution and, later on, the nationalization occurred in Bolivia, Mexico, Venezuela and Iran, and during the 1960s, nationalization of oil and gas took place in five countries: Argentina, Burma, Egypt, Indonesia and Peru. About a decade later, in the 1970s, the nationalization had finally reached Algeria, Iraq, Kuwait, Libya and Nigeria, along with a slight rise in the Saudi holding of the company Aramco.

To be able to access foreign direct investment, natural resources are a major factor in developing countries, especially in the Middle East and North Africa (MENA) region. Some countries have limited natural resources, such as those in Africa, and some countries are controlled by the government, such as in West Asia or the Middle East. This is because the security of supply of raw materials is deemed essential for their rapidly growing economies. Because of the strategic importance of securing supplies of resources for the home economy, a large proportion of developing-country TNCs engaged in these efforts are state-owned.

Attracting FDI into MENA countries can be beneficial for many reasons. Firstly, the capital is an important source of finance, which helps to build strong relations between different countries, international monetary agencies, and international corporations. Secondly, through foreign direct investment inflows, MENA countries can advance their technology, gain new expertise in management and benefits in production, expanding markets, transport, know-how, employment, and communication networks. Countries' tendency to attract foreign investment (decisions) by Multinational Enterprises (MNEs) adds to the motivations for foreign direct investment.

A common premise in the literature review is that most foreign direct investment which flows to the MENA countries is resource seeking.

There is a vast empirical literature on the determinants of foreign direct investment inflows into developing countries (Ezeoha and Cattaneo, 2012; Onyeiwu and Shrestha, 2004; Asiedu, 2002, 2006; Solomon and Ruiz, 2012; Busse and Hefeker, 2007; Naude and Krugell, 2007; Sekkat and Varoudakis, 2007; Khadaroo and Seetanah, 2009; Kok and Ersoy, 2009).

To my knowledge, only a few studies focus on the determinants of foreign direct investment inflows in the MENA region (e.g., Mohamed and Sidiropoulos, 2010; Hisarcikilar et al., 2006; Moosa, 2009).

In this chapter, we have three limitations. First, empirical evidence which includes fuel as a proxy for a natural resource is limited (e.g., Mohamed and Sidiropoulos, 2010; Onyeiwu, 2003). Second, none of the literature includes oil rents as a proxy for a natural resources as in my study. Third, none of the empirical literature on the determinants of foreign direct investment examines the effect of the three approaches to oil which Mina (2007a) applied in the six Gulf Cooperation Council (GCC) countries. These are oil extraction (oil production), oil exploration (oil reserves) and the link between oil extraction and oil exploration (oil relative_ production). These factors have not been present in the literature on the MENA region before.

As we pointed out earlier, the reason for limiting the determinants of foreign direct investment to MENA countries by oil as a proxy for a natural resources is due to

uncontrollable factors. Some have limited this factor, like North Africa, and in some countries the government is dominant in this factor, such as in West Asia or the Middle East. Furthermore, foreign direct investment in natural resource-rich countries tends to be concentrated in the natural resource sector. However, natural resource exploration requires a large initial capital outlay; the continuing operations demand a small cash flow. Consequently, after the initial phase, FDI may be staggered (Asiedu and Lien, 2011).

The main contributions of this study are threefold. To begin with, it is the first study of foreign direct investment inflows to the MENA countries linking together the effects of oil processing in three approaches, in the same way as Mina (2007a) tested in his model on GCC countries.

Second, this is the first study to analyze the interaction between investment profiles as a proxy for institutional quality and with natural resources as explanatory variables by adding the interaction term between both in the FDI inflow regression. The aim is to determine how the total effect of investment profiles on FDI inflows is affected by natural resources. There is only one study of the joint role of the interaction between democracy and natural resources (Asiedu and Lien, 2011). Thus, the focus of this chapter is twofold; to analyze the significance of natural resources as well as the significance of investment profiles in the FDI inflow regression.

Finally, given the importance of foreign direct investment in the MENA region, in this chapter I address the following questions:

1. How important are natural resources in directing foreign direct investment flows to the MENA region?. The “Dutch disease” concept applies to the manner in which natural resource endowments attract FDI. When a country earns foreign exchange reserves from exports of its natural resources, this causes its real exchange rate to go up, which in turn increases FDI costs for foreign investors. This can be seen even in MENA countries that have exchange rates that are pegged to the US dollar, where it can be argued that oil revenues sustain the currency at the pegged level. Furthermore, the revenues from energy exports earned by countries in the MENA region can be invested domestically, since energy reserves in this region are under government control. Economic

development in countries that are rich in natural resources is therefore not dependent on international investors, and there is no financial incentive for such countries to encourage FDI.

2. Where are the location determinants for foreign direct investment into the MENA countries?
3. Do natural resources alter the relationship between institutional quality and foreign direct investment? Or do natural resources mitigate the positive effect of institutional quality on FDI?

This chapter aims to contribute to the existing literature by attempting to prove the Location dimension of Dunning's (1981a,b) Ownership-Location-Internalization (OLI) paradigm on the determinants of FDI in MENA countries. In other words, we would like to empirically examine the influence of oil, openness to trade, market size, inflation rate, infrastructure development, human capital and institutional quality in host countries on foreign direct investment flows. In order to analyse these questions, panel data was used for 17 MENA countries between 1960 and 2012. The results showed clearly that fuel exports, oil production relative to oil reserves, trade openness, market size, inflation, institutional quality and the interaction between institutional quality and natural resources played a crucial role in spurring inward foreign direct investment to MENA countries. In contrast, oil rents, oil production, and oil reserves discouraged foreign direct investment inflows to MENA countries.

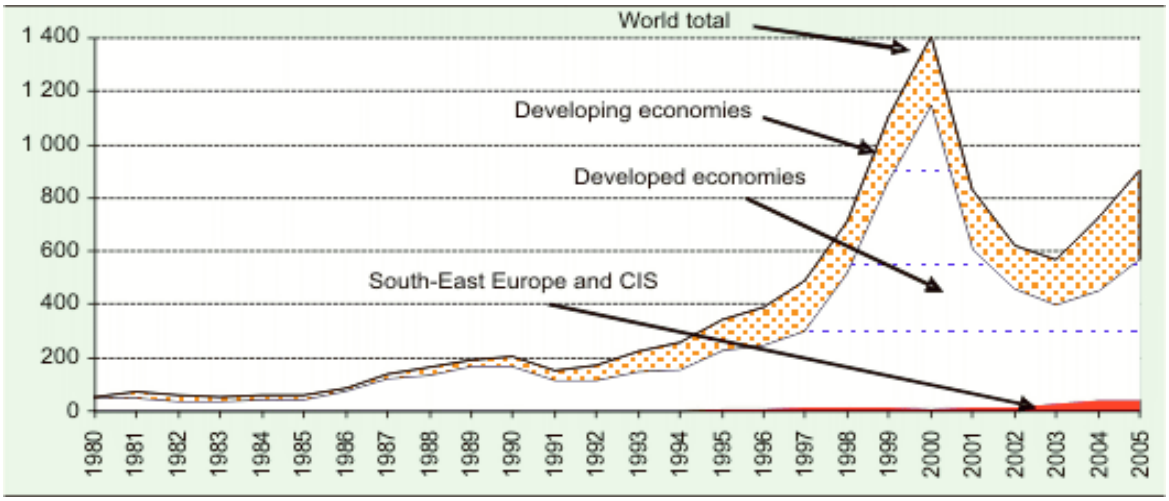
The chapter is organized as follows: Section 2 presents the outline trends of MENA countries. Section 3 analyses the determinants of inward foreign direct investment and empirical evidence. Section 4 illustrates the data employed to build the key variables of our analysis, and describes the model and briefly explains the methodology employed in this study. Section 5 discusses the results and Section 6 the conclusions.

3.2 Recent Trends in FDI

In absolute terms, global foreign direct investment flows grew over a year, rising by 29 percent to $916 billion in 2005, compared to 27 percent in 2004 (UNCTAD, 2006). Figure 3.1 shows foreign direct investment flows throughout the world showing foreign

direct investment stock increased by 3 percent, recorded at $20.4 trillion. Inward foreign direct investment to developing countries rose from 2005, especially, in MENA countries.

Figure 3.1. FDI Inflows, Global and by Group of Economies, 1980–2005.
(Billions of Dollars)



Source: UNCTAD, based on its FDI/TNC database (www.unctad.org/fdi statistics).

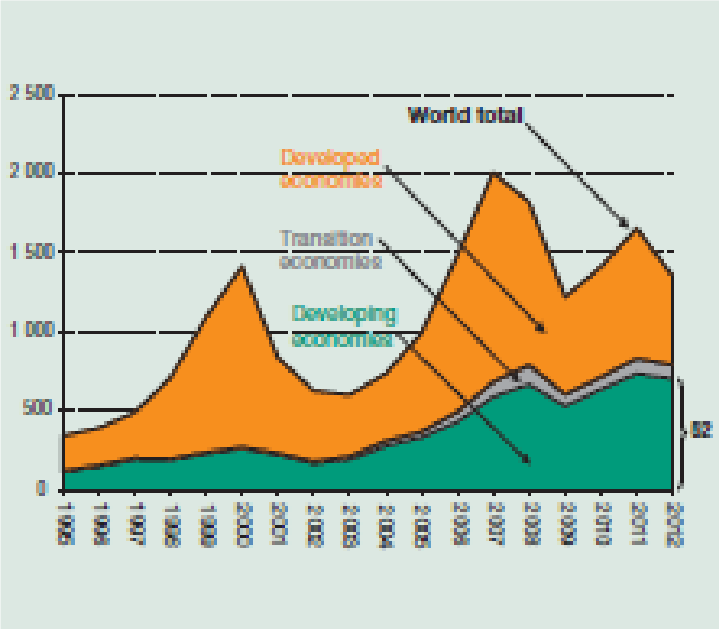
The World Investment Report (WIR) outlined that construction was the most significant area for investment in the last oil boom, along with their activities in investment behaviour in infrastructure, housing, tourism, petrochemicals and real estate.

The UNCTAD World Investment Report in 2006 indicated that FDI inflows have increased in developing countries, boosting the highest level by 22 percent, recorded at $334 billion. The share of total world inflows increased from an average of 20 percent in the period 1978–1980 to 35 percent in 2003–2005. However, MENA countries received FDI inflows of 127 percent ($47 billion) in 2005. As well as the distribution of FDI inflows across MENA countries, Africa attracted a large proportion of FDI inflows. Inward foreign direct investment from developing countries in Africa decreased, but IFDI from developed countries increased.

According to the World Investment Report (UNCTAD, 2006), foreign direct investment progressed from $17 billion in 2004 to $31 billion in 2005 in Africa. It was concentrated in mining, oil and gas, with investment in services from South Africa, the United Kingdom, the United States, India, China, and Brazil. The share of global FDI flows gradually fell from 10 percent in 1978–1980 to 5 percent in 1998–2000.

The top FDI flows to oil-producing countries are: Algeria, 55 %; Egypt, 37 % ; Nigeria, 80 %t; and Sudan, 90 %. Looking only at North Africa, the level more than doubled by 42 % to $13 billion of total FDI inflows to Africa (UNCTAD, 2006); this went to natural resources in oil and services. During the same period, Egypt, Morocco, Sudan, Algeria and Tunisia attracted most of the FDI inflows to North Africa in 2005. The rise in FDI inflows in Egypt to $5.4 billion resulted from a strong increase in investment in the petroleum industry with privatization programmes (UNCTAD, 2006). The main FDI inflow recipient sectors in Morocco and Tunisia are privatization programmes. Further, Egypt reformed its tax system in order to reduce corporate income tax.

Figure 3.2. FDI Inflows, Global and by Group of Economies, 1995–2012.
(Billions of Dollars)



Source: UNCTAD, based on its FDI/TNC database (www.unctad.org/fdi statistics).

In 2008 there was an increase in FDI inflows into developing countries to record levels for both – their shares in global FDI inflows increased to 37% and 7%, respectively (from 27% and 5% in 2007), and the combined share of 43% was close to the record share achieved in 1982 and 2004, demonstrating the increased significance of these economies as hosts for FDI during the crisis of 2008.

From the World Investment Report (UNCTAD, 2012), inward FDI flows to Africa declined for the third consecutive year to $42.7 billion, because of the decrease to North Africa in 2011, which halved to $7.69 billion. In particular, FDI inflows rejoined in Egypt and Libya.

Construction projects were cancelled or suspended in North Africa. The Middle East, in 2011, recorded $1.74 trillion; United Arab Emirates accounted for $958 billion and Saudi Arabia $354 billion alone. Declining foreign direct investment to non-GCC, Arab countries reached 26 percent from 14 percent of the total $7 billion since the political and social unrest in Yemen and the Syrian Arab Republic.

In 2012, FDI flows to developing economies remained relatively stable, reaching over $700 billion, which was the second highest level ever recorded. The downward trend in flows to North Africa was reversed, with renewed investment in Egypt from European investors. There was a decrease in FDI flows to West Asia for the fourth consecutive year, with foreign investors still cautious of investing further in the area due to its continued political uncertainty and the global economic situation.

Obviously, the FDI decrease was one of the major factors of investment financial in Lebanon in the real estate sector. Foreign direct investment is the best way for both home and host developing countries to expand their home market size, and as sources for host countries which have low costs. This has supported the idea which has led to developing countries preferring to invest more in other developing countries rather than developed countries, with which they have similarities in consumer markets, technological prowess or institutions.

It is therefore important that West Asian countries accounted for 85 percent, receiving the highest inflows of FDI growth ($34 billion), due to high oil prices, strong economic growth of gross product and increasing their share in world economies in oil and gas and related manufacturing industries. The average total growth of GDP in the period 2003–2005 was 7.4 percent. Despite this, in 2005 the best performers in the region were Saudi Arabia, Turkey and the United Arab Emirates. Iran and Yemen received FDI inflows which were lower than for the previous year. United Arab Emirates recorded $12 billion, the highest recipient in West Asia, while Saudi Arabia received $2 billion in the same period.

Another location advantage was progress in the business environment, based on the World Bank Doing Business indicators, as shown by the strong performance of the GCC countries. For instance, the Kuwaiti government reduced the tax rate from 55 percent to 25 percent to attract more foreign direct investment inflows.

An improvement in privatization of different services (banking, water and energy supply, and telecommunications) led to another location advantage. For example, power and water in Bahrain, Jordan, Oman and United Arab Emirates, transport in Jordan, and telecommunications in Jordan, Turkey, and the Kuwaiti Mobile Telecommunications Company purchased a 58 percent stake in Celtel International (UNCTAD, 2006).

During the period 2001–2005, inward intraregional foreign direct investment increased as a consequence of the rise in FDI from GCC countries because of increasing oil prices ($8 billion). The oil rich Gulf States attracted the highest foreign direct investment inflows. These were particularly concentrated in Lebanon, Saudi Arabia, Syria and the United Arab Emirates and accounted for over 90 percent of the value of approved investments**.**

Similarly, in 2011, inward FDI dipped by 16 per cent, to $49 billion to West Asia as a result of the deterioration of global economic prospects and the continuing political instability. Overall, inward FDI declined in GCC countries, which registered 53 percent in 2011 in comparison to 2010 where it was 69 percent. Saudi Arabia recorded $16 billion in 2011, Oman and Qatar recorded negative values, and the United Arab Emirates, Bahrain and Kuwait returned to a high level.

3.3 The Determinants of FDI Inflows: Empirical Evidence

In the following section, I will highlight the most important research in the empirical evidence on the determinants of FDI, particularly those linked with the location dimension of the OLI paradigm (infrastructure, human capital, economic stability and production cost), to the institutional dimension (financial and economic incentives, corruption, political instability and institutional quality). In addition the New Trade Theory (market size, market growth, openness of the economy, and factor endowment in natural resources).

Foreign direct investment in natural resources, particularly in oil and mining, increased in importance for primary sectors, and now accounts for the bulk of the primary sector. However, when comparing the distribution of foreign direct investment inflows across MENA countries, the African regions attracted a large proportion of FDI inflows in 2005 to natural resources, especially oil, and petroleum. On the other hand, many FDI inflows were low in low-income economies that lacked natural resources.

The majority of west Asian countries do not allow FDI to take place in the industries related to the exploration and the production of crude oil and natural gas. However, the Islamic Republic of Iran does allow foreign investment of oil and gas as buy-back contacts only. In some countries which extract and produce oil and gas, there have been few policy changes. These changes seek to reduce the interference of TNCs related to oil and gas production.

3.3.1 The Location Dimension of the OLI Paradigm – Inflation, Infrastructure and Human Capital

Location dimensions have historically been used as major factors of foreign direct investment, such as inflation rate, infrastructures, and human capital.

3.3.1.1 The Inflation Rate Effect

The impact of inflation rate on FDI inflows is ambiguous; there are many reasons to expect that inflation would have a negative effect on direct investment. For instance, since volatile inflation is a clear sign of macroeconomic instability, a high inflation rate can be a hindrance to foreign direct investment (Botric and Skuflic, 2006). Another argument (Nonnemberg and Mendonça, 2004; Dhakal et al., 2007) for using inflation as a proxy for economic stability is that unbridled inflation can often be an indication of loss of fiscal or monetary control. This leads to foreign investors investing in other countries which have more stable economies. Moreover, Dhakal et al. (2007) declare that since a declining current account balance leads to devaluation of the host country's account, this leads to more variations on inflation rate and less FDI inflows.

Among the existing studies on the relationship between inflation and FDI, the coefficient is expected to be negative. A high inflation rate leads to lower macroeconomic

stability and reduced market-seeking (Mina, 2012). He focuses on the foreign direct investment into the MENA region and uses panel data between the period 1992 and 2008. Additionally, he adopts fixed effects, random effects, and dynamic panel Generalized Method of Moments (GMM) methodologies in his estimation. His study found that the inflation coefficient is negative and significant, and he suggests that inflation discourages foreign direct investment to MENA countries. Furthermore, Mohamed and Sidiropoulos (2010) examined the effect of change in the Inflation Rate (CPI) on FDI inflows in developing countries. To do so, they divided the samples from twelve MENA countries and 24 developing countries. They found that inflation rates were, as expected, negative and significant in all estimations.

Asiedu (2006) uses fixed effects panel data for 22 Sub-Saharan countries to estimate the determinants of foreign direct investment over the period 1984–2000. The author finds that a low inflation rate encouraged FDI to Africa. Asiedu and Lien (2011) estimate dynamic panel data from 112 developing countries between 1982 and 2007. They conclude that inflation as a measure of macroeconomic uncertainty is negative and significant.

At the same time, some empirical studies (e.g., Busse and Hefeker, 2007) use a cross-section of data for 83 developing economies. To do so, they use the average for the entire period 1984–2003, fixed effects (4-year average), and dynamic panel data (4-year average). They confirm that the percentage change in GDP deflator is negative and significant only in fixed effects results, but it does not show any significant result in the different methods used. Similarly, Kok and Ersoy (2009) focus on the determinants of foreign direct investment to 24 developing countries, using panel data between 1975 and 2005. They conclude that inflation (which used a GDP deflator, annual percent) has a significant negative impact on FDI.

Ali et al. (2010) examine the determinants of FDI in 69 countries (in Asia, East Europe, Latin America and Caribbean, Middle East and North Africa, and Sub-Saharan Africa), using panel data over the period 1981–2005. They demonstrate that inflation (consumer prices, annual %) is negative but statistically insignificant. Medvedev (2012) created an empirical model for 153 countries, using a panel data technique over the period 1980–2004. The results show that the impact of inflation (consumer prices index) is

negative and significant. Shirazi et al. (2008) investigate the determinants of FDI in 15 MENA countries, GCC, and non-GCC countries, using panel data analysis over the period 1980–2003. The author found that the inflation rate as measured by Consumer Price Index (CPI) is negative and significant in MENA and GCC countries, but is insignificant in non-GCC countries. Onyeiwu (2003) used fixed effects panel data to determine FDI into 51 developing countries, 10 of which are from the MENA region. The study concluded that the inflation rate had the effect of boosting the foreign direct investment inflows to developing countries but was insignificant in the MENA region. Naude and Krugell (2007) investigated the determinants of FDI in African countries, using panel data and a dynamic technique five years average over 1970–1990. They outlined that inflation in lagged form is negative and significant in African countries.

Based on panel data for 29 African countries between 1975 and 1990, and using the fixed effects and random effects on their estimation, Onyeiwu and Shrestha (2004) indicate that a negative inflation rate is a significant factor for foreign direct investment flows. Another study by Solomon and Ruiz (2012) investigated foreign direct investment inflows to 28 developing countries from African, Asian, and Latin American countries. In order to capture the macroeconomic stability of the economic model including inflation rate, they found that the inflation coefficient is negative and statistically significant.

Meanwhile, others, such as Dhakal et al. (2007) analyse the key determinants of FDI in the former socialist countries of Eastern and Central Europe, using panel data from 1995 to 2004 and a fixed effect estimator. They report that inflation is negative and insignificant. Schneider and Frey (1985) study the determinants of foreign direct investment in 80 less developed countries, using multivariate regression. They conclude that a significantly negative inflation rate (political instability) will reduce the inflow of foreign direct investment.

Nonnemberg and Mendonca (2004) examine the determinants of FDI into 33 developing countries over the period 1975–2000. Their methods are Ordinary Least Square (OLS), fixed-effects, and random-effects panel. They found that inflation (as a proxy for macroeconomic stability) is negative as expected and significant in fixed and random effects. Root and Ahmed (1979) reveal that in their analysis of developing

economies, FDI is significantly affected by political instability. Another study by Solomon and Ruiz (2012) investigated foreign direct investment inflows to 28 developing countries from African, Asian, and Latin American countries. In order to capture the macroeconomic stability of the economic model, they included inflation rate and found it to be negative and significant.

On the other hand, the empirical studies above show that inflation has a negative effect on investment, and inflation rate can also have a positive effect on direct investment. For instance, Dhakal et al. (2007) argue that foreign investors are taking advantage of the deteriorating current account balance of the host country and that could encourage more negotiation and increase FDI. Botric and Skuflic (2006) argued for the positive effect on FDI. Growth of prices of products becomes high through a high inflation rate, which is a factor affecting investor's yield, and inflation rate has a positive effect on foreign direct investment.

Amongst those against this idea that inflation has a negative effect on FDI in this regard, Asiedu (2002) and Addison and Heshmati (2003) indicated that inflation is positive and had an insignificant effect on foreign direct investment inflows. In addition, Ezeoha and Cattaneo (2012) analyse the individual and interactive influence of financial development, natural resources, and institutional quality on FDI using dynamic panel data on 38 countries in Sub-Saharan Africa. They demonstrate that inflation has a positive effect on FDI stock in Sub-Saharan Africa because the impact of inflation on current consumption reduces the cost of investment.

Addison and Heshmati (2003) present a detailed analysis on an estimated model based on pooled OLS for studying the determinant of FDI into 207 developing countries over the period 1960–1999. Their empirical results are mixed, indicating inflation is positive and had a significant effect on foreign direct investment inflows in Latin America. Inflation is negative and weakly significant for Europe and Central Asia, Western Europe, the Middle-East and North Africa. Alam and Ali Shan (2013) look into the relationship between FDI and inflaition, and nine probability determinants of foreign direct investment in ten OECD countries, using panel data for the period 1985–2009 and fixed effect estimators. They summarize that inflation is positive and insignificant. Jadhav (2012) explained the determinants of FDI in BRICS economies (Brazil, Russia, India,

China and South Africa), using panel data between 2000 and 2009, panel unit root test and multiple regressions. The main results show that the inflation rate (macroeconomic stability) is positive and significant only in multiple regressions.

Several theoretical and empirical analyses focus on the influence of inflation rate in foreign direct investment, Botric and Skuflic (2006) studied the main determinants of foreign direct investment in the seven South-east European countries (SEEC-7). Their panel data technique used GLS regression methods on a pooled sample over the period (1996–2002). They classify the SEEC countries sample into two groups: eight present EU members and seven countries which are very different in political and development terms, but economies that will become significant partners in the next enlargement round. They show that inflation rate is insignificant. Abdul Mottaleb and Kalirajan (2010) analysed the determinants of FDI in 68 developing countries. They divided their sample into 31 low-income and 37 lower -middle income countries in 2005, 2006 and 2007. In addition, they made comparisons between them and Asian, African, and Latin American countries. They point out that inflation is insignificant.

Frenkel et al. (2004) analysed the determinants of FDI flows between major industrial economies and 22 emerging economies, using panel analysis. They apply OLS estimates to the gravity model for the period 1992–2000. They focused on home countries for the five largest economies over the world and in their study for host country the emerging economies in Latin America, Asia, and Central and Eastern Europe. They demonstrated that inflation (consumer prices) is positive and statistically insignificant. Moreover, they demonstrated and tested the determinants of FDI of individual host countries as well as a group as regions of emerging markets and applied the same methodology. This reveals the effect of explanatory variables on FDI in different countries. The results show that the coefficient of inflation (consumer prices) is positive and statistically insignificant. They suggest that inflation does not play a role as a determinant variable for foreign direct investment.

3.3.1.2 The Infrastructure Effect

As indicated above, infrastructure is a key determinant of FDI inflows and has implications for the location dimension of the OLI paradigm. From a theoretical

perspective, some authors find a significant positive relation between infrastructure and FDI (e.g., Asiedu, 2006; Asiedu and Lien, 2011). However, others do not find any statistical significance that infrastructure attracts foreign direct investment (e.g., Mohamed and Sidiropoulos, 2010; Cleeve, 2008), whilst others find a significant negative relationship (e.g., Naude and Krugell, 2007; Groh and Wich, 2012).

The hypothesis is that good quality infrastructure attracts more foreign direct investment.

There are several examples of theoretical and empirical literature which focuses on infrastructure as the one key determinant in foreign direct investment. Sekkat and Varoudakis (2007) use panel data estimators of 72 developing countries; they declared that infrastructure (proxied by mobile phone) plays the main role in the determining of foreign direct investment in an economy. Mina (2007a) analyses the location determinant of foreign direct investment in the six GCC countries over the period 1980–2002. He has built a model based on Dunning (1981b), and he concludes that a natural logarithm form of the sum of telephone mainlines and cellular mobile phones per 1000 people as a proxy for infrastructure is a positive influence on foreign direct investment inflows. Kok and Ersoy (2009) study the determinants of foreign direct investment into 24 developing countries using panel data over the period 1975–2005. They conclude that infrastructure (which used telephone lines per 1000 people) has a significant positive impact on FDI.

Ali et al. (2010) extended the analysis by examining the determinants of FDI in 69 countries (Asia, East Europe, Latin America and Caribbean, Middle East and North Africa, and Sub-Saharan Africa), using panel data over the period 1981–2005. They found that infrastructure (telephone mainlines per 1000 people) has a positive impact on FDI, but statistically insignificant. Another study by Cheng and Kwan (2000) expresses the determinants of FDI in 29 Chinese regions (1985–1995) using GMM estimators. They found that infrastructure (all roads, high-grade paved roads, and railway) is positive and significant.

Botric and Skuflic (2006) found that infrastructure (the number of telephone lines per 100 inhabitants) is positive and has an insignificant impact on FDI. Another measure they used in the same study for infrastructure is the number of internet connections, and found it to be negative and that it had a statistically significant impact on FDI, but also found the internet is positive and statistically significant impact on FDI stock. They

explained the positive sign for the internet coefficient, that the internet became widespread in these countries after 2000, and depending on these results countries were able to attract more foreign direct investment with better infrastructure.

Goswami and Haider (2014) estimate the model for panel data through 146 countries worldwide over the period of 1984–2009, using pooled OLS and fixed effects model. They divided all samples into OECD and non-OECD members to see whether this had an effect. They found, in terms of infrastructure (telephones per 100 people and cell phones per 100 people), that telephones are positive and significant impact on FDI only in the fixed effects; cell phones are positive and significantimpact on FDI in both methods. Alam and Ali Shan (2013) summarize that infrastructure (telephone lines per 100 people) is positive and significant impact on FDI. Abdul Mottaleb and Kalirajan (2010) found that infrastructure (telephone and mobile users per 100 people, and internet users per 100 people) is insignificant in lower-middle income and low-income groups. Telephone and mobile users per 100 people is positive and significant impact on FDI in African and Latin American countries. Internet users per 100 people is positive and significant in Asian countries.

In the case of African countries, Asiedu (2002) found that infrastructure promoted foreign direct investment inflows only to non-Sub-Saharan countries. In addition, Asiedu (2006) examined the determinants of foreign direct investment inflows to Africa. The conclusion reached was that a good infrastructure (natural logarithm form of phone per 1000 people) promoted FDI to African countries. Asiedu and Lien (2011) outline that infrastructure (proxied by the number of telephones per 100 people) is positive and statistically significant impact on FDI. Khadaroo and Seetanah (2009) present evidence for an empirical model to investigate infrastructure (the length of paved roads per square kilometer of area, and the number of telephone lines per 100 population) in attracting foreign direct investment into African countries between 1984–2002. They point out that infrastructure is positive and significant.

Onyeiwu (2003) compared FDI flows between MENA and developing countries; the results reported that MENA countries are different from developing countries. It was also found that infrastructure (the number of telephone lines per 1000 population) promoted FDI only into developing countries. Ezeoha and Cattaneo (2012) find that infrastructure

(the number of telephone lines per 1000 population) has a positive effect on FDI in Sub-Saharan Africa.

Another study by Solomon and Ruiz (2012**)** investigated foreign direct investment inflows to 28 developing countries from African, Asian, and Latin American countries. They found that the coefficient of infrastructure (which is proxied by the number of telephone lines per capita) is, as expected, positive and significant.

In contrast to previous works, Mohamed and Sidiropoulos (2010), and Hisarciklilar et al. (2006) found that infrastructure had a negative influence on FDI and was statistically insignificant in MENA countries. Another study by Addison and Heshmati (2003) showed that infrastructure (the number of phones per 1000 people) had a negative effect on FDI inflows and it was insignificant in developing countries. Similarly, Naude and Krugell (2007) concluded that infrastructure did not have a direct influence on foreign direct investment flows to African countries. Naude and Krugell (2007) investigated the determinants of FDI in African countries, using panel data and dynamic technique for five years average over 1970–1990. They found that infrastructure (phones per 100 people) in lagged form is negative and significant effect on FDI in African countries. Groh and Wich (2012) present a composite index that measured 127 emerging economies to analyse a country's attractiveness to foreign direct investment. They conclude that emerging economies are less attractive to FDI due to meager infrastructure (transportation, railroad, and port), and they recommended that to attract future foreign direct investment, improvements are required in these areas.

Cleeve (2008) studied the effect of fiscal incentives to attract FDI inflows into 16 Sub-Saharan African countries (1990–2000), cross-sectional time series and multivariate regression. She points out that infrastructure (number of telephone mainlines per 1000 population) does not have any statistical evidence of attracting foreign direct investment. Onyeiwu and Shrestha (2004) show that the infrastructure was not found to have any significant determinant on African FDI inflows.

3.3.1.3 The Human Capital Effect

There are other factors that impact on FDI. Education is one of the most important aspects in human capital development, if the quality of education can be improved as well

as a country's location advantages. In skilled labor force sectors, the level of education improves production facilities and techniques. Significant positive effects have been found (Goswami and Haider, 2014; Asiedu, 2006; Asiedu and Lien, 2011), significant negative impacts have been found (Mina, 2007a,b, 2009), and some studies find inconclusive effects (Schneider and Frey, 1985; Cleeve, 2008).

The hypothesis is that the larger the share of secondary school enrolment, the more foreign direct investment occurs. Human capital is expected to have a positive influence on foreign direct investment.

A review of the literature regarding human capital is found to be a relevant determinant in support of this concept. For instance, studies (Asiedu, 2002, 2006; Khadaroo and Seetanah, 2009) found that human capital (the general secondary education enrollment rate) had a positive and significant effect on FDI inflows to Africa. Similarly, Moosa (2009) also found that human capital (students in tertiary education as a percentage of total population) was attractive to foreign direct investment to MENA countries. Sekkat and Varoudakis (2007) outlined that human capital was a correct sign, but was not always significant in developing countries.

In other related studies, Sekkat and Varoudakis (2007) use panel data estimators of 72 developing countries and declared that education (secondary school enrollment ratio) plays the main role in the determining of foreign direct investment in an economy. In another recent study, Noorbakhsh et al. (2001) examine the importance of human capital as a determinant of FDI in developing countries, using panel data for 36 developing countries from Africa, Asia, and Latin America, and OLS estimators for three-year average (1980–1994). They use three alternative variables for human capital (school enrollment ratio, number of accumulated years of secondary school, and tertiary education in the working age population), and they found that human capital is positive and significant impact on FDI.

Goswami and Haider (2014) found that education (gross primary enrollment) is positive and significant in both methods. Nonnemberg and Mendonca (2004) found that education (the percentage of the corresponding segment of the population enrolled in secondary school) has a positive effect on FDI as expected and is significant in fixed and random effects.

However, Mina (2007a,b) presents an empirical study of the influence of education (secondary school enrollment as a percent of a total school enrollment) as a proxy for human capital on foreign direct investment inflows in GCC countries. It was found that human capital significantly discouraged FDI inflows, and it was recommended to be the subject of further research. In addition, Mina (2009) empirically examined (extending on Mina (2007a,b)) the foreign direct investment in the six GCC countries. He uses panel data over the period 1984–2002 and Instrument Variables (IVs) estimation methodology. He concludes that human capital (proxied by secondary school enrollment as a percentage of total school enrollment) has a negative influence on foreign direct investment.

On the other hand, in the case of MENA countries, Onyeiwu (2003) argues that human capital (secondary school enrollment as a percentage of population in the secondary school age category) does not have a significant effect on foreign direct investment inflows in developing countries.

Cheng and Kwan (2000) used three alternative measures of education (percentage of population 6 years or older with primary education or above, percentage of population 6 years or older with junior secondary school education or above, and percentage of population 6 years or older with higher secondary school education or above). They found the coefficient of all alternative measures to be negative and insignificant.

Cleeve (2008) found that human capital (secondary school enrollment ratio and adult illiteracy rate) had inconclusive effects on FDI. Secondary school enrollment ratio as a measure for human capital is positive and significant effect on FDI, and he used another measure, adult illiteracy rate, and found it to be insignificant. Schneider and Frey (1985) studied the determinants of foreign direct investment in 80 less developed countries. They conclude that the share of an age group with secondary education is insignificant and has mixed results, can have a positive effect and be significant, or be insignificant depending on the model used. So their results show inconclusive effects.

Education measured by the percentage of children enrolled in secondary school had inconclusive effects and was significant in developing countries in research by Addison and Heshmati (2003). They conclude that human capital had a negative impact on foreign direct investment in developing countries. However, it is positive and significant in SSA countries. Ali et al. (2010) examine the determinants of FDI in 69 countries (from Asia, Eastern Europe, Latin America and the Caribbean, the Middle East and North Africa, and

Sub-Saharan Africa), using panel data over the period 1981–2005. They indicate that education (average years of higher education in the total population) is positive effect on FDI but statistically insignificant.

3.3.2 Institutional Dimension – Investment Profile

In regards to the influence of the institutional approach as one of the factors that affect foreign direct investment inflows to MENA regions, since the late 1990s the literature on economic development has been concentrated on institutional quality as an important determinant of FDI (Benassy-Quere et al., 2007).

Another deter of FDI, and the most significant factor, is government and institutional determinants. In several studies, risk has been measured in terms of the International Country Risk Guide (ICRG) rating published by the Political Risk Group. The quality of institutions is an essential determinant of foreign direct investment activity especially for less developed economies for the following reasons. First, poor institutional quality leads to meager infrastructure and the profitability of FDI may fall. Secondly, poorer institutions, which are important for strongly functioning markets, lead to an increase in the cost of doing business and FDI activity becoming smaller (Blonigen, 2005).

In this study, I did not find a significant relationship between foreign direct investment inflows and the other components of risk I tested, for instance, government stability, socioeconomic conditions, internal conflict, external conflict, corruption, military involvement in politics, religion in politics, law and order, and ethnic tensions. In this study the investment profile was used as a measure for institutional quality. Depending on ICRG, the risk rating assigned is the sum of three subcomponents, which are: contract viability/expropriation, profits repatriation, and payment delays. Each has a maximum score of four points and a minimum score of 0 points. A score of 4 points equates to Very Low Risk and a score of 0 points to Very High Risk.

3.3.2.1 The Investment Profile Effect

The institutional determinants are expected to positively correlate with inward foreign direct investment in MENA countries; the higher the political risk rating (e.g. less

risk), the better the investment conditions, and the higher the amount of FDI it attracts (Boubakri et al, 2013).

Theoretical and empirical literature on the effect of investment profile as a proxy for political risk on foreign direct investment inflows were examined. Mina (2009), (2012), Mohamed and Sidiropoulos (2010), and Busse and Hefeker (2007) found that the investment profiles have a positive impact on FDI flows. Boubakri et al. (2013) investigate the connection between globalization, measured by foreign direct investment and foreign portfolio investment, and privatization. They use dynamic panel data GMM estimation for 55 developing countries between 1984 and 2006. They provide evidence that investment profile as a measure of the institutional level is positive effect on FDI as expected and significant.

On the other hand, the coefficient for the overall political risk index is negative as expected, and is significant. Political risk creates an additional cost to investors; therefore one would expect a negative relationship with FDI (Solomon and Ruiz, 2012).

Solomon and Ruiz (2012) investigated foreign direct investment inflows to developing countries. This study found that investment profiles were negative and statistically significant in developing regions. Another study by Abdel-Rahman (2007) provided the suggestion that investment profile had a negative effect on FDI inflows.

Goswami and Haider (2014) use a panel data technique for 146 countries worldwide over the period of 1984–2009, and a pooled OLS and fixed-effects model. The sample is divided into OECD and non-OECD members to see whether their different nature has any effect. They found that investment profile is negative effect on FDI and significant in both methods.

3.3.3 New Theory of Trade – Market Size, Trade Openness and Natural Resources Endowment

A new theory of trade has been used to analyze major factors of foreign direct investment, such as market size, trade openness, and natural resources. The new trade theory has provided the essential tools to discuss the trade pattern and firm's behaviour towards investment.

3.3.3.1 The Market Size Effect

For market-seeking, included goods and produced in the objective sources by country and sold in domestic markets, such as market size, market growth, access to regional and global markets, country-specific consumer preferences, and structure of markets. The empirical analysis shows that for transnational corporations (TNCs) developing country markets seeking FDI are the most important motivation.

The real GDP constant as a proxy for market size determinants, as expected, has a positive effect on foreign direct investment. That is, a large market will receive more foreign direct investment inflows.

In a general analytical framework, for example, Medvedev (2012) estimated an empirical model for 153 countries, using panel data technique over the period 1980–2004. The results show that the impact of GDP is positive and significant. Jadhav (2012) explained the determinants of FDI in BRICS economies, over the period (2000–2009), using panel unit root test and multiple regressions. He concludes that GDP is positive and significant impact on FDI in both methods. The purpose of Bonigen's (2005) work is to review the empirical literature on foreign direct investment determinants, the findings support the positive influence that market size plays.

Another study by Mohamed and Sidiropoulos (2010) debated both external and internal factors in 24 developing countries and 12 MENA countries. Regarding market size, it was found that the larger the market size (GDP in natural logarithm form) of the country the more foreign direct investment inflows occurred, but the study did not find conclusive results when using number of inhabitants as a measure for market size. Hisarciklilar et al. (2006) used panel data for MENA countries between 1980 and 2001 to analyze the location of foreign direct investment. They emphasize that large local markets promoted foreign direct investment flows.

Goswami and Haider (2014) found that GDP is positive and significant. Abdul Mottaleb and Kalirajan (2010) found that GDP as a proxy for market size is positive and significant in all developing (low-income and lower-middle income) countries. This supports the theory that market-seeking and horizontal FDI are attracted by the size of the host economy, its growth potential and openness to the global market (for example, UNCTAD, 2006).

Asiedu (2006) outlined that large local markets promoted foreign direct investment flows. Sekkat and Varoudakis (2007) tested a logarithm GDP of the host country in developing countries and summarized that the market size is an important determinant of foreign direct investment flows. Janicki and Wunnava (2004) showed that GDP is positive and significant. In addition, Botric and Skuflic (2006) found that GDP (the number of inhabitants) is positive and has a significant effect on FDI.

Root and Ahmed (1979) found in their analysis of developing economies that gross domestic product as a proxy for market size was insignificant in explaining FDI in Latin American countries. In addition, Mina (2009) found that real GDP as a proxy for market size has no statistically significant influence on foreign direct investment inflows to GCC countries.

A large part of the empirical literature is focused on the relationship between market size and FDI, and authors find it inconsistent with the GDP hypothesis. For example, Mina (2007a) found that GDP as a proxy for market size is a negative and significant influence on foreign direct investment flows to GCC countries. He indicated that market size discouraged FDI inflows to GCC countries. Moosa (2009) used EBA (extreme bounds analysis) on cross-sectional data from 18 MENA countries and found that GDP is negative and insignificant in this sample. Botric and Skuflic (2006) found that GDP (the number of inhabitants) is negative and has a significant effect on FDI stock. Dhakal et al. (2007) report that real GDP is positive and insignificant impact on FDI.

An empirical study, known as the gravity model of trade, was able to successfully predict the flow of trade between countries, but parallel studies of foreign direct investment inflows are well behind the trade literature (Blonigen, 2005). As with trade flows and the gravity equation between countries, similar papers for trade flows and the gravity model are used (e.g., Bevan and Estrin, 2004; Benassy-Quere et al., 2007; Frenkel et al., 2004).

Bevan and Estrin (2004) identify the determinants of foreign direct investment from the European Union (EU) to Central and Eastern European countries (CEEC), from 18 market economies to 11 transition ones between 1994 and 2000, using panel data, the

gravity factors model and random-effect estimation. They found positive and significant coefficients for GDP as a proxy for market size for both home and host countries in the European Union to Central and Eastern European countries. In addition, Benassy-Quere et al., (2007) re-visit the determinants of foreign direct investment for OECD countries over the period 1985 and 2000. They found that GDP for both home and host countries is positive and statistically significant impact on FDI.

Frenkel et al. (2004) analyse the determinants of FDI flows between major industrial economies and 22 emerging economies, using panel analysis. They apply ordinary least square (OLS) estimates to the gravity model for the 1992–2000 period. They focused on home countries for the five largest economies in the world and in their study of host countries they looked at emerging economies in Latin America, Asia, and Central and Eastern Europe. They demonstrated that GDP for both source and host country is positive and statistically significant effect on FDI.

Moreover, they demonstrated and tested the determinants of FDI of individual host countries as well as a group as regions of emerging markets and applied the same methodology. This showed the effect of explanatory variables on FDI in different countries. The results show that the coefficients of GDP for the host countries are positive and significant only in Latin America, and Central and Eastern Europe, whereas, the coefficients of GDP for the home countries are positive and significant in all groups in Latin America, Asia, and Central and Eastern Europe.

3.3.3.2 The Trade Openness Effect

The existing literature on new trade theory is rich with regards to the extended aspects of the theoretical analysis, in which further factors were included, and not limited to market size, trade openness, and factor endowments. Openness of the economy is one of the traditional variables in new theory of trade for explaining the foreign direct investment motivation. The trade in real GDP as a proxy for openness of the economy is expected to correlate positively with inward foreign direct investment in MENA countries.

Mohamed and Sidiropoulos (2010) found that trade openness is significant and has positive sign as expected in all 36 countries, but did not have any significant results when

applied only in MENA countries. Busse and Hefeker (2007) found that the coefficient of trade is positive and significant in cross-country analysis. Addison and Heshmati (2003) found that openness to trade is positive and has significant impact on foreign direct investment into developing countries.

Several studies have been published on the positive effects of the trade openness variable on FDI. The findings of Mina (2007a, 2007b, 2012), Goswami and Haider (2014), Jadhav (2012), Noorbakhsh et al. (2001), Nonnemberg and Mendonca (2004), Dhakal et al. (2007), and Botric and Skuflic (2006) support the positive influence that trade openness plays.

Sekkat and Varoudakis (2007) show that trade (using dummy variable S-W(Sach and Warner's)) is positive and has a significant impact on FDI in developing countries. Medvedev's (2012) estimated empirical model for 153 countries, using panel data technique over the period 1980–2004 shows that trade has a positive and significant effect on net FDI inflows. A regional study by Rogmans and Ebbers (2014) tested the determinants of FDI in 16 MENA regions (1987–2008) using the OLS method, and divided the MENA region into OPEC and non-OPEC countries. They concluded that the coefficient of openness of the economy has a statistically significant positive effect on FDI in MENA countries and in OPEC, but is insignificant in non-OPEC.

Abdul Mottaleb and Kalirajan (2010) found that trade openness is positive and significant effect on FDI in all developing (low-income and lower -middle income) countries. The significance levels of the coefficients for both GDP and trade for low-income countries are high compared with the estimation results for lower–middle income countries. This means that low-income countries can also attract substantial amounts of FDI by adopting a more outward-oriented trade regime and by improving their business environment.

In the case of African countries, Asiedu (2002) outlined that trade encouraged more foreign direct investment inflows to non-Sub-Saharan than Sub-Saharan regions. She suggests that this is because Sub-Saharan areas are less open and trade is important for these countries. Another study by Asiedu (2006) examined the determinants of foreign direct investment inflows to Africa. The conclusion reached was that the openness promoted FDI to African countries. Asiedu and Lien (2011) found trade openness has a significant and positive effect on FDI inflows. Khadaroo and Seetanah (2009) adopted

panel data for 33 African countries between 1984 and 2002. Their analysis showed that trade attracted FDI to these countries. The study by Kok and Ersoy (2009) showed that openness has a strong significant positive impact on FDI.

Ali et al. (2010) examines the determinants of FDI in 69 countries (Asia, East Europe, Latin America and Caribbean, Middle East and North Africa, and Sub-Saharan Africa), using panel data over the period 1981–2005. They found that trade openness is positive and statistically significant. Onyeiwu and Shrestha (2004) showed that trade is a significant determinant of foreign direct investment on African FDI inflows. Significant positive effects have been found in studies by Boubakri et al. (2013) and Cleeve (2008).

Additionally, Shirazi et al. (2008) investigated the determinants of FDI in 15 MENA countries, GCC, and non-GCC countries using panel data analysis over the period 1980–2003. They found that the openness is positive and significant in MENA and non-GCC countries, but it is insignificant in GCC countries. Onyeiwu (2003) compared FDI flows between MENA and developing countries, and the results reported that MENA countries are different from developing countries. It was also found that trade encouraged FDI to developing and MENA countries. Significant positive effects of trade have been found by Ezeoha and Cattaneo (2012) in Sub-Saharan Africa.

However, there are a few studies which contrast with these previous works. For example, Alam and Ali Shan (2013) argue that trade openness is negative impact on FDI and insignificant. Naude and Krugell (2007) concluded that trade did not have a direct influence on foreign direct investment flows to African countries.

Determinants of foreign direct investment have been analyzed by the gravity model. Bevan and Estrin (2004) found positive and significant coefficients for total imports by host countries from home countries as a measure for trade, and they suggest that when countries have higher trading shares with European Union (EU) countries, they will receive significantly more foreign direct investment. They suggest that trade and FDI are complementary. Frenkel et al. (2004) found that openness of a country as measured by the sum of exports and imports normalized by the country's GDP are positive and significant effect on FDI.

3.3.3.3 The Natural Resource Endowment Factor Effect

In the theory of the determinants of natural resource endowment, there are two major arguments in the literature. Some believe that the impact of natural resource endowment such as oil and gas is one of the most important factors to attract FDI So, they expected that factor endowment in oil and gas is positive correlated with FDI (e.g., Khadaroo and Seetanah, 2009; Mohamed and Sidiropoulos, 2010).

However, the counter argument is that a country's endowment of energy resources will attract foreign direct investment (Rogmans and Ebbers, 2014; Mina, 2007a; Asiedu and Lien, 2011). Such empirical studies expected that a country's endowment of energy resources has negative associations with foreign direct investment inflows.

Such authors hypothesize a negative correlation between foreign direct investment and natural resources, namely oil and gas, for the following four reasons. The first reason is that oil reserves are dominated by governments; for the purpose of economic diversification only the government can invest the revenues earned from energy exports. The second reason is based on the resource boom that led to appreciation of local currency; this will make exports of natural resources expensive and less competitive at world price and foreign investment in non-natural resources sector. The third reason is that through boom and bust, there will be increased volatility in exchange rates, which leads to foreign direct investment becoming expensive for foreign investors. Finally, the "Dutch disease" theory was tested by Corden and Neary (1982). The theory expected that as result of increase in revenues, earnings from energy exports in a country's manufacturing sectors will decline, and push up the price and the country's exchange rate. This makes local manufacturing activity uncompetitive in both domestic and international markets.

The literature regarding natural resource endowment and FDI basically attempts to focus on the relationship between these two variables. Mina (2007a) compared three technical aspects of oil processing: oil production, oil reserves, and oil production relative to oil reserves for GCC countries, and found that oil production and oil reserves discourage FDI, but oil production relative to oil reserves for GCC countries encouraged FDI to GCC countries. Only using one type of oil as a natural resource, Mina (2009a) showed that oil production relative to oil reserves has a positive influence on foreign direct investment in the GCC countries. In addition, Mina (2012) found that the oil

production coefficient is positive and statistically significant in MENA countries. Asiedu (2006) used a panel data estimation for 22 African countries between 1984 and 2000, and found that natural resources (fuel and minerals exports % GDP) promoted FDI. In another study in African countries, Khadaroo and Seetanah (2009) found that the share of fuel and minerals in total exports encouraged inward FDI for 33 African countries.

Ezeoha and Cattaneo (2012) find that the mineral rents (a percentage of GDP) as a proxy for natural resources is one of the most important determinants of FDI. In addition, the impact is more robust in FDI stock than FDI flows. Similarly, Mohamed and Sidiropoulos (2010) found that fuel exports, as a share of merchandise export, as a proxy for natural resources, result in a positive and significant correlation between IFDI and natural resources.

Addison and Heshmati (2003) found that natural resources (minerals) is positive and have a weakly significant impact on foreign direct investment into developing countries. This result indicates that natural resources are important factors in foreign direct investment decisions. Jadhav (2012) outlines that natural resources (share of minerals and oil in total) are positive and significant effect on FDI. Another study by Solomon and Ruiz (2012) investigated foreign direct investment inflows to 28 developing countries from African, Asian, and Latin American countries. They outlined that minerals or oil as a proxy for natural resources are not important for foreign direct investment flows to developing countries.

On the contrary, natural resources are an important factor to attract FDI to developing countries. Onyeiwu (2003) and Onyeiwu et al. (2004) indicated that the ratio of fuel exports to total exports as a proxy for natural resources is insignificant in both MENA and non-MENA countries. Noorbakhsh et al. (2001) conclude that natural resources (net energy imports as a percentage of energy use) have a negative sign and significant result.

As predicted, Asiedu and Lien (2011) found that natural resources (fuel and minerals exports as a percentage of GDP) have a significant and negative effect on FDI inflows as expected. They explained their hypothesis of a negative sign between foreign direct investment and natural resources in these ways: a natural resource boom leads to, at world price, a country's exports becomes less competitive and changes investment in another

resource's tradable sectors. Another reason is that by boom and bust, there is a higher share of natural resources in total exports, which leads to increased volatility in the exchange rate, indicating less trade diversification. Rogmans and Ebbers (2014) conclude that the coefficient of natural resources (oil and gas reserves) is negative and significant as they expected in all MENA countries and in non-OPEC countries, but insignificant in OPEC countries. They argue that because in MENA countries' energy endowments are negatively associated with foreign direct investment inflows, "Dutch disease" or "resource curse" applies.

3.3.4 Interaction between Natural Resources and Institutional Quality

Certain studies have found consistent evidence of a relationship between interaction and foreign direct investment flows, including Mina (2012), Asiedu and Lien (2011), and Ezeoha and Cattaneo (2012).

Mina (2012) used the interaction between bilateral investment treaties and domestic institutional function in MENA countries. He found that interaction had a negative impact on foreign direct investment inflows. In addition, Asiedu and Lien (2011) analyze whether natural resources in developing countries alter the relationship between democracies and foreign direct investment, using the interaction between democracy and natural resources. Their results show that the interaction was negative and significant.

Ezeoha and Cattaneo (2012) analyse the individual and interactive influence of financial development, natural resources, and institutional quality on FDI using dynamic panel data on 38 countries in Sub-Saharan Africa. Their study shows that the interaction between financial development and infrastructure is positive and insignificant, suggesting that financial development is dependent on infrastructure to have a positive effect on FDI. Another essential finding in the same study is that the interaction between financial development and natural resources is negative and significant; they indicate that a positive effect may be dependent on economic diversification. For interaction between financial development and legal origin, which has a negative effect and significant coefficient, they suggest a strong legal system that provides appropriate protection for foreign investors. The interaction between infrastructure and natural resources is positive and significant, in order for infrastructure to support the positive effect of the natural resources on FDI. The negative and significant effect on FDI of the interaction between infrastructure and

market size means that the positive impact of infrastructure on FDI as predicted is diminished by the size of the economy.

From the literature, it is shown clearly that the empirical evidence does not always support theoretical expectations. Existing evidence on the positive relationship between natural resources and FDI is scarce and inconclusive.

3.4 Empirical Model and Data

3.4.1 Data Specifications

In order to test our hypothesis concerning the location determinants of foreign direct investment inflows to MENA countries, this study combined the basic Dunning (1981a,b) OLI paradigm with additional variables that were related to certain literature reviews. The theoretical foundation for the link between location determinants and FDI relies on the location dimension of Dunning's (1981a,b), institutional dimension, and new theory trade. As already mentioned in second chapter, refer to Dunning's (1981a,b) Ownership-Location-Internalization (OLI) paradigm for a detailed explanation of this theory.

A large unbalanced or incomplete panel data consisting of 17 MENA countries was generated in the study conducted between 1960 and 2012. Some data or observations were missing for certain cross-sectional units in the sample period, largely in natural resources in three approaches, human capital, and institutional quality variables.

It is important to note that the choice of the 17 MENA countries is based on data available (see Appendix A.1 for the list of countries). Further, the choice of variables and proxies is guided by the literature. The dependent variable in this study is inward FDI, defined in some of the literature as net inflows as a percentage of GDP (Mina, 2007a; Khadaroo and Seetanah, 2009; Ezeoha and Cattaneo 2012).

In this study's model, the explanatory variables (independent variables) are grouped as location dimension, institutional dimension, new theory trade, and other economic determinants.

The location dimension in the baseline model is made up of inflation, infrastructure, and human capital. The Inflation variable is one of the most common control variables in empirical FDI inflows; in this study, we used the inflation of consumer prices annually as a percentage (Asiedu, 2006; Onyeiwu and Shrestha, 2004). In addition, inflation rate is included to capture the general price levels in each country. Inflation is expected to have both a negative and positive sign.

Infrastructure is one of the most fundamental determinants of FDI, and it is measured in one of the following ways: first, as mobile phones per 1000 people as a proxy for infrastructure (e.g., Mina, 2007a; Sekkat and Varoudakis, 2007). Second as the sum of mainline telephone and cellular mobile phones per 1000 people as a proxy for infrastructure (e.g., Mina, 2007a). The third measure is telephone lines per 1000 people (e.g., Naude and Krugell, 2007; Addison and Heshmati, 2003). The fourth measure is transportation, railroad, and ports (e.g., Groh and Wich, 2012). Finally, infrastructure by proxy for all roads, high-grade paved roads, and railways (e.g., Cheng and Kwan, 2000). The estimations use different proxy for infrastructure as a regressor, but this does not have a significant effect on the results. Including the telephone lines per 1000 people as one of the regressors in this study is the best proxy for infrastructures. A positive relationship is expected.

The first concern that arises in measuring human capital is finding a suitable variable as a proxy for education. The literature on human capital uses different proxies to measure education. This is due to the unavailability of annual data for educational attainment in addition to reliable data for MENA countries. One key approach is to use school enrollment (secondary (% gross)) as a proxy for human capital (e.g., Cleeve, 2008; Asiedu, 2002 and 2006; Khadaroo and Seetanah, 2009). Some studies use the percentage of the population 6 years or older with primary education or above, percentage of the population 6 years or older with junior secondary school education or above, and percentage of population 6 years or older with higher secondary school education or above constructed by Cheng and Kwan (2000). Some studies use other measures like average years of higher education in the total population (e.g., Ali et al. 2010). Following Goswami and Haider (2014), other measurements of human capital included gross primary enrollments. We choose school enrollment, (secondary (% gross)) as a proxy for

human capital as our education measure in all estimations. We expect a positive relationship between human capital and FDI.

For institutional determinants, we used various measures such as government stability, corruption, law and order, democracy, investment profile, and bureaucracy quality, as proposed by Boubakri et al. (2013), Mina (2012), Naude and Frugell (2007), and Asiedu and Lien (2011). The variable used in this chapter as proxies for institutional determinants is the investment profile from ICRG (Mohamed and Sidiropoulos, 2010; Busse and Hefeker, 2007). A score of 4 = very low risk and a score of 0 = very high risk, and the higher the index of investment profile, the better the environment. We expect a positive effect on FDI.

The new theory of trade includes market size, trade openness, and natural resource endowment. For market size, and based on insights from the theory and previous empirical work, some studies use GDP growth rate (e.g., Ezeoha and Cattaneo, 2012; Solomon and Ruiz, 2012) while other studies (e.g., Ezeoha and Cattaneo, 2012; Naude and Frugell, 2007) used per capita GDP as a proxy for market size. The market size was measured as a real GDP constant in natural logarithmic form as in this chapter (Mina, 2009; Mohamed and Sidiropoulos, 2010; Medvedev, 2011). A positive coefficient is expected.

To assess the impact of trade openness on FDI, the literature uses three different measures of trade openness: exports as a share of GDP (e,g., Naude and Frugell, 2007); imports as a share of GDP (e.g., Mina, 2009); and trade openness was measured as sum imports and exports as a percentage of real GDP in natural logarithmic form and is used in all the regressions (Mina, 2007a and 2012; Mohamed and Sidiropoulos, 2010; Boubakri et al. 2013). A positive coefficient is expected.

The proxies used to represent the natural resource endowment in determining foreign direct investment inflows are fuel exports, oil rents, and oil resources, in three approaches. The first approach is oil extraction (oil utilization) measured by oil production. The second approach is oil exploration (oil potential) measured by oil reserves. The third approach is the link between oil explorations and oil extraction (relative_ production),

which is the definition of oil production relative to oil reserves (Mina, 2007a, 2009, 2012). Natural resources endowment is expected to have both a negative and positive sign.

Following Asiedu and Lien (2011) and Ezeoha and Cattaneo (2012), other economic variables used in the baseline model in order to determine how the total effect of investment profiles on FDI inflows is affected by natural resources, are the interaction between investment profiles and natural resource endowment.

The choice of variables and proxies is guided by the literature, and the best proxies used in the regressions depend significantly on the results.

Annual data was relied on for the test hypothesis from different sources: the World Bank (2011) World Development Indicators (WDI) (1960–2012), Energy Information Administration (EIA, 2006) database (1980–2009), and from ICRG data (1984–2009).

The definitions of these variables and the sources of their data are contained in Table 3.1. In addition, Table 3.2 contains descriptive statistics on these baseline variables, and Table 3.3 shows the correlation coefficient matrix.

3.4.2 Econometric Methodology and Model Specification

In this subsection, we describe the baseline estimation model and econometric methodology used in this study, which are based on the literature review and location advantages of Dunning's (1981a,b) OLI paradigm, which relies on Mina (2007a,b) examined in the Gulf Cooperation Council (GCC) countries. In this section, empirical models are formulated to help address the main questions raised in this paper.

In general, I have attempted to include all variables that have been found to be relevant by the empirical literature. Additionally, some macroeconomic variable determinants of foreign direct investment are included, which have been widely used and tested in many empirical studies for both developing and developed countries. These are inflation, market size, economic growth, real interest rate, and real exchange rate, as described in detail in Section 3.3. For economic growth, interest rate and exchange rate, these variables are statistically insignificant. It is worth noting that the correlation matrix shown in Table 3.3 shows evidence of high correlation between human capital and

infrastructure. This suggests that two models are required in order to avoid multicollinearity, as Asiedu (2006) used in her research.

For the purpose of our analysis, the equation adopts the foreign direct investment inflows regression approach where the FDI inflows are specified as a function of a set of independent variables. We further extend the empirical model by adding the interaction term between natural resources and investment profile; so the focus of this chapter is twofold. First, it analyzes the importance and significance of natural resources while controlling for investment profile and other variables, and second, it studies the joint effect of natural resources and investment profile on foreign direct investment.

We model the FDI inflows as a function of trade openness, natural resources, gross domestic products (GDP constant), inflation, human capital (education), infrastructures and investment profile (institutional quality) of output. Hence, we are interested in estimating the following model (equation (3.1)):

$$FDIIN_{it} = \alpha_o + \beta_1 TRADE_{it} + \beta_2 NATURAL\ RESOURCES_{it} + \beta_3 GDP_{it}$$

$$+ \beta_4 INFLATION_{it} + \beta_5 HUMAN\ CAPITAL_{it} + \beta_6 INFRASTUCTURE_{it}$$

$$+ \beta_7 INSTITUTION_{it} + \mu_{it} \qquad (3.1)$$

Where, FDIIN is net inflows as a percentage of (GDP) gross domestic products and is the dependent variable. The independent variables are TRADE as % of GDP in the natural logarithm form; NATURAL RESOURCES employs five measures of natural resources which are: (I) the share of fuel in total merchandise exports in natural logarithmic form; (II) oil rents % GDP; (III) oil production in thousands of barrels per day; (IV) oil reserves in billions of barrels per day; and (V) oil (relative_production) oil production in millions of barrels per day relative to oil reserves in millions of barrels per day. These five measures of natural resources were used to provide oil as the most important sector to attract foreign direct investment in MENA countries. GDP is real gross domestic products which areis a proxy for market size in natural logarithmic form; INFRASTRUCTURE is the number of telephone lines (per 100 people); INFLATION is the consumer prices (annual %); HUMAN CAPITAL is school enrollment (secondary (% gross));

INSTITUTION is investment profile; μ_{it} is the error term. The subscripts I and t represent country and time, respectively. Also, i = 1, …, N; t = 1,…,T.

The error term μ consists of country- and time-specific effects as follows:

$$\mu_{it} = \nu_i + \gamma_t + \varepsilon_{it} \quad (3.2)$$

ν_i denotes the country-specific effects that are time invariant, for example, geographical and demographics may be correlated with explanatory variables. γ_t is the time-specific fixed effects and is capable of picking up the impact of any crises that affect any of the countries in the sample. ε_{it} by assumption is an independently and identically distributed component with zero mean and variance $(0, \sigma^2)$ over time and across countries.

To the best of the author of this work's knowledge, the most recent paper that tested the interaction between natural resource and democracy was Asiedu and Lien (2011). We therefore expand the above equation to include an interaction term. The interaction term is estimated by adding β_8 (NATURAL RESOURCES$_{it}$ * INSTITUTION $_{it}$) to equation (3.1) as follows:

$$\text{FDIIN}_{it} = \alpha_o + \beta_1 \text{TRADE}_{it} + \beta_2 \text{NATURAL RESOURCES}_{it} + \beta_3 \text{GDP}_{it}$$

$$+ \beta_4 \text{INFLATION}_{it} + \beta_5 \text{HUMAN CAPITAL}_{it} + \beta_6 \text{INFRASTUCTURE}_{it}$$

$$+ \beta_7 \text{INSTITUTION}_{it} + \beta_8 (\text{NATURAL RESOURCES}_{it} * \text{INSTITUTION}_{it}) + \mu_{it} \quad (3.3)$$

The error term μ consists of country- and time-specific effects and is given by:

$$\mu_{it} = \nu_i + \gamma_t + \varepsilon_{it} \quad (3.4)$$

Equation (3.3) hypothesizes that inward FDI is determined by institutional quality and natural resources, together with additional control variables as described earlier. The interaction term between natural resources and investment profile is expected to shed light on the theoretical expectations outlined by Asiedu and Lien (2011); and Ezeoha and Cattaneo (2012).

For that, I estimate the equation (3.3) to answer the question 'Do natural resources alter the relationship between institutional quality and natural resources?.'

Thus, differentiating equation (3.4) with respect to natural resources and institutional quality, alternatively, gives the following:

$$\frac{\partial \text{FDIIN it}}{\partial \text{NATURAL RESOURCES it}} = \beta_2 + \beta_8 \text{ INSTITUTION}_{\text{it}} \quad (3.5)$$

$$\frac{\partial \text{FDIIN it}}{\partial \text{INSTITUTION it}} = \beta_7 + \beta_8 \text{ NATURAL RESOURCES}_{\text{it}} \quad (3.6)$$

From equation (3.6), in some regressions, $\beta_7 > 0$ and significant, and $\beta_8 < 0$ and significant. This result suggests that natural resources significantly alter the relationship between FDI by reducing the positive effect of investment profile on FDI.

The interaction term in equation (3.3) aims at shedding light on the effects of natural resources in the host countries on the impact of investment profile on foreign direct investment inflows, the investment profile as a proxy for institutional quality may have positive effects but may not have any statistically significant effect on foreign direct investment. Alternatively, natural resources may alter the relationship between foreign direct investment inflows and investment profile into the MENA countries by reversing the positive effect. Therefore, interaction between these alternative five natural resource variables and investment profile is used. The interaction term between natural resources and investment profile is expected to shed light on the theoretical expectations outlined by Asiedu and Lien (2011); and Ezeoha and Cattaneo (2012).

Following Mina (2007a,b, 2009, 2012), Onyeiwu (2003), and Onyeiwu and Shrestha (2004), equations (3.1) and (3.3) estimate the two model parameters as we pointed out before using panel fixed-effect and random-effect models. The Hausman model test is performed in order to assess the suitability of the fixed-effect models or random-effect models. The Hausman test is motivated by the fact that the fixed effect and the random effect should not be different for the case where μ_i is uncorrelated with the regressors. Alternatively, robust check methods were used for all estimations.

Examining the multicollinearity to check two or more variables in a multiple regression model can show if they are highly correlated or not. In order to detect multicollinearity, the Variance Inflation Factors (VIF) were examined (See tables 3.4 and 3.6).

Most of the earlier work on empirical inward foreign direct investment conducts analysis using panel data methods (such as Asiedu et al., 2009; Boubakri et al., 2013; Asiedu and Lien, 2011; Khadaroo and Seetanah, 2009, among others); these researchers address the endogeneity problem between the independent variables and the dependent variables and measured with errors. There are also concerns about omitted variables bias, since the regressors are assumed to be exogenous and motivated by the convergence hypothesis. Consequently, these imply that the ordinary least squares estimates are biased due to the omitted variable, simultaneous causality and measurement errors in variables. Panel data is the one approach to overcome the omitted variable bias and eliminates the time-invariant heterogeneity across countries in the sample. Moreover, the fixed-effects panel can reduce the omitted variable bias. On the other hand, the time-varying country effects are not controlled and the endogeneity problem may still exist in this specification. Hence, an estimation technique requiring the use of instrumental variables is used to correct for a potential endogeneity problem. The GMM estimator is used in preference to the Two-Stage Least Squares (2SLS) and the standard IV approach. The (IV) and (2SLS) estimators are special cases of the GMM estimators, and they assume that the errors are homoskedastic. The assumption of homoskedasticity is relaxed with the Generalized Method of Moments estimator, hence it accounts for heteroskedasticity in the error term of unknown form.

In this study we use a dynamic panel approach with the system GMM estimator, which has two advantages. First of all the preference for the dynamic panel method is based upon the fact that it accounts for the unobserved country-specific effects. In a cross-sectional study, the unobserved country-specific effects are included in the error term. Thus, it can produce biased coefficient estimates if the error term is correlated with the explanatory variables. The inclusion of the lagged dependent variable in regression gives rise to autocorrelation as the lagged value is correlated with the error term. However, this approach will give consistent and efficient estimates even when the country-specific is correlated with the lagged value. In addition, a cross-sectional regression faces

multicollinearity problems while a single country time series study lacks the variety of explanatory variables necessary for establishing the relationship between inward FDI and explanatory variables. However, the dynamic panel estimation overcomes all these limitations.

Second, with the system GMM estimator we are able to tackle the endogeneity issue of all independent variables in the inward FDI equation. Since it is often difficult to find suitable external instruments that suit the required assumptions, the system GMM uses lagged values of the endogenous variables as instruments.

Arellano and Bond (1991) developed the first-differenced GMM, and this method corrects for heterogeneity, omitted variables bias and endogeneity of the regressors resulting in consistent estimates of the variables even with the presence of measurement errors. The problem with the first-difference GMM estimator is that lagged levels of the variables are poor instruments if the variables are close to a random walk. In order to improve efficiency, the GMM system estimation technique proposed by Arellano and Bover (1995) and later fully developed by Blundell and Bond (1998) in dynamic panel data allows for controlling this problem. Using the GMM system increased efficiency for the reason that system GMM a allowed the use of more instruments than the difference GMM and uses an additional initial condition as compared with the first-difference estimator. This method uses lagged differences as instruments in the level equation and the instruments for the difference equation are the lagged levels (Arellano and Bover, 1995; Blundell and Bond, 1998). Additionally, in order to reduce the number of instruments, the instrument set is collapsed.

To illustrate the dynamic panel methodology, specifically, the lagged dependent variable is included in the model as follows:

$$FDIIN_{it} - FDIIN_{it-1} = (\alpha - 1) FDIIN_{it-1} + \beta X_{it} + \mu_{it} \quad (3.7)$$

$$\mu_{it} = \nu_i + \gamma_t + \varepsilon_{it} \quad (3.8)$$

For all $i = 1, \ldots, N ; t = 1, \ldots, T$

Equation (3.7) can be rewritten as;

$$FDIIN_{it} = \alpha\, FDIIN_{it-1} + \beta\, X_{it} + \nu_i + \gamma_t + \varepsilon_{it} \quad (3.9)$$

Where, $FDIIN_{it}$ is the dependent variable; and X_{it} is the vector of explanatory variables; ν_i is unobserved country-specific effects; γ_t is the time-specific effects; ε_{it} is an independently and identically distributed component with zero mean and variance $(0, \sigma^2)$ over time and across countries; and subscripts i and t denote country and time periods, respectively.

In order that the dynamic panel model includes lagged values of the dependent variable as regressors, the model introduces an endogeneity problem by construction, since correlated with the differenced error terms $E[FDIIN_{i,t-1}, \varepsilon_{i,t}] \neq 0$. This is because $FDIIN_{it-1}$ depends on ε_{it-1} which is a function of ν_i and γ_t is competent in μ_{it}.

In this regard, it is possible to wipe out the unobserved country-specific effect by the difference of equation (3.9) as follows:

$$\Delta FDIIN_{it} = \alpha\, \Delta FDIIN_{it-1} + \beta\, \Delta X_{it} + \Delta\gamma_t \quad (3.10)$$

The system GMM overcomes the bias problems of the difference GMM estimator by taking both equations in level (3.9) and in differences (3.10) together. The estimator assumes that the country-specific effects are uncorrelated with the first difference of the dependent variable and the independent variables. Therefore, along with the usual assumptions of the difference GMM, system GMM has two extra moment conditions, which are that the original error term, ε_{it}, is serally uncorrelated, and that the explanatory variables are weakly exogenous. The following are moment conditions:

$$E[FDIIN_{i,t-s}, \Delta\varepsilon_{i,t}] = 0 \quad \text{For } s \geq 2;\ t = 3,\ldots., T \quad (3.11)$$

and

$$E[X_{i,t-s}, \Delta\varepsilon_{i,t}] = 0 \quad \text{For } s \geq 2;\ t = 3,\ldots., T \quad (3.12)$$

Moreover, the following orthogonality restrictions are further imposed:

$$E[\Delta FDIIN_{i,t-s}, \varepsilon_{i,t}] = 0 \quad \text{For } s = 1 \quad (3.13)$$

and

$$E [\Delta X_{i, t-s}, \varepsilon_{i,t}] = 0 \quad \text{For } s = 1 \tag{3.14}$$

The efficiency of the GMM estimator depends on the absence of serial correlation and the validity of lagged values as instruments. To test for autocorrelation, we apply the Arellano and Bond test of autocorrelation (Roodman, 2009). The test has the null hypothesis of no autocorrelation and tests whether the differenced error term is correlated. The test rejects the null hypothesis for AR (1) but should not reject the null for AR (2). A Hansen test of over-identifying restrictions is employed to test the validity of the over-identification restrictions. The null hypothesis of this test is that the instruments are exogenous. This test has a Chi-square distribution with j-k degrees of freedom; j being the number of instruments and k the number of regressors. As a final step, standard errors are corrected for small sample bias based on the two-step covariance matrix attributed to Windmeijer (2005), as for one-step estimator, standard errors permit heteroskedasticity in ε_{it}.

In view of the above, the study first estimates an equation (3.1) using panel fixed-effect models. The Hausman specification test is performed in order to assess the suitability of the fixed-effect models against random-effect models. The Hausman test is motivated by the fact that the fixed effect and the random effect should not be different for the case where μ_i is uncorrelated with the regressors. Second, following the empirical work (particularly from e.g., Liu et al. 2005; Wei et al. 2007; Filippaios and Papanastassiou, 2008), we resort to the dynamic panel data estimation. The dynamic model combines both equations in level (3.9) and in differences (3.10), estimated using the dynamic system GMM estimator as robustness checks. Finally, the study uses cluster-robust standard error to control for possible heteroskedasticity and autocorrelation within firms.

To answer the question 'Do natural resources alter the relationship between institutional quality and foreign direct investment?', I estimate the equation:

$$FDIIN_{it} = \alpha\, FDIIN_{it-1} + \beta_1 X_{it} + \beta_2 \text{ NATURAL RESOURCES}_{it} * \text{INSTITUTION}_{it} + \mu_i + \gamma_{i,t} \tag{3.15}$$

I perform an autocorrelation test and check the validity of the instruments. The test for autocorrelation finds spurious autocorrelation of order 1 and no autocorrelation in order 2. In contrast, in the estimation with interaction between natural resources and institutional quality in the first model, there is autocorrelation of order 1 and order 2 also, but in the second model with interaction there is autocorrelation of order 1 and no autocorrelation in order 2. In addition, the Hansen test for over-identifying restrictions gives a valid and perfect p value of 1.00.

These estimations are conducted to check the robustness of the result and to be compared with the existing literature.

3.5 Results

3.5.1 Empirical Results

In this section, we present the estimation results of the effects of oil and the main location determinants of foreign direct investment in MENA countries, according to Dunning's (1981a,b) OLI paradigm. In all regressions, we use robust standard errors to ensure that the estimates are not biased and are efficient. We estimate the foreign direct investment inflows model using three different methods – Fixed Effects (FE), Random Effects (RE), and the GMM estimation method. These estimations are conducted to check the robustness of the result and to compare with existing literature.

A number of explanatory variables were used, such as interest rate and exchange rate, but none of these variables had any statistical significance.

VIF is reported for all models, and it is concluded that multicollinearity does not seem to be a problem, with no VIF mean being substantially higher than 1, which was not enough to be of concern.

To account for multicollinearity between infrastructures and human capital, we undertake the estimation using two models in the baseline models.

Furthermore, in the baseline models, five alternative measures of natural resource endowment (fuel exports, oil rents, oil production, oil reserves, and oil production relative to oil reserves) were used, along with other dependent variables including the interaction between each type of natural resource and the investment profile as a proxy for institutional quality.

The fixed-effects and random-effects results in all models without interaction were examined; in addition the Hausman test was used which recommends using fixed effects in all models. Only in the estimation of oil reserves with human capital variable does the Hausman test recommend using random effects. Moreover, the fixed effects and random effects resulted in all models using interaction, while the Hausman test recommends using fixed effects in all models. Furthermore, only one model used oil reserves with infrastructure variable, the Hausman test recommended using random-effects results.

Due to this, in this study all the results from fixed effects, random effects, and dynamic system GMM will be reviewed.

3.5.2. Descriptive Statistics

Descriptive statistics for the main variables are presented in Table 3.2. We can see the negative sign of inward FDI that refers to the components (equity capital, reinvestment of earnings, other long-term capital, and short-term capital, as shown in the balance of payments) and the rest of net inflows (new investment inflows less disinvestment), with the net inflows divided by GDP (World Bank Indicators). In addition, the International Energy Statistic notes that the total oil supply includes the production of crude oil, natural gas plant liquids, other liquids, and refinery processing gains. It also mentions that negative refinery processing gain data values indicate a net refinery processing loss.

The average inward FDI is 1.6% with an overall standard deviation of 3.19%. The average inflation is 9.69% with an overall standard deviation of 28.16%. The average fuel in natural logarithm is 2.69%, and the average natural logarithm of GDP constant is 23.83%. Summary statistics for other control variables are presented in Table 3.2, and it can be seen that all the variables have good variation both within and between countries, hence favoring the use of dynamic panel estimation.

Table 3.3 presents the correlation matrix of the main variable. It is observed that infrastructure and human capital are strongly correlated, but this correlation poses no concern as they do not enter the regression at the same time. Likewise, there are strong correlations between oil rents and oil production, and between oil rents and oil reserves. There is a high correlation between GDP constant and oil production, and also a high correlation between GDP constant and oil reserves. This suggests that it may be more

difficult to estimate the effect of oil rents independently of GDP constant, and oil production independently of GDP constant. With regard to the remaining variables, there is no evidence of multicollinearity.

3.5.3 Effects of Fuel and Oil Rents, Fixed Effects (FE)

Table 3.4 presents the estimation results of equation (3.1). Models 1 and 2 are alternative models in which fuel is used as the measure of natural resources. Models 3 and 4, on the other hand, use oil rents as the alternative measure of natural resources.

As shown in Table 3.4, the Hausman Test for the result first model for chi2 (6) is 42.19 and significant at 1%, for the second model Hausman Test for chi2 (6) is 74.38, and significant at 1%. The third model Hausman Test for chi2 (6) is 11.96 and significant at 10%. The fourth model Hausman Test for chi2 (6) is 20.15 and significant at 10%. All these results from the Hausman Test recommended the use of fixed-effects results.

The fixed effects estimated for the impact of fuel exports on FDI flows is positive and significant at 1% in both models. This result corroborates the earlier evidence from Asiedu (2006) and Mohamed and Sidiropoulos (2010). This suggests that oil encourages foreign direct investment to MENA regions. However, the alternative fuel exports such as oil rents are another type of proxy for natural resources and which do not have any statistical significance in regression. Measuring the market size GDP constant, estimates also show that it is positive and significant at 1% in models 1 and 2; moreover, it is positive and significant at 5% in both models 3 and 4. This supports earlier evidence (Hisarciklilar et al, 2006; Asiedu, 2006; Mohamed and Sidiropoulos, 2010). Thus, MENA countries with large markets attract more FDI.

Inflation is positive and significant at 10% in the first model, and significant at 5% in the second and fourth models. This result is consistent with earlier evidence (Dhakal et al., 2007; Botric and Skuflic, 2006). The impact of human capital, trade, infrastructure and investment profiles were not found to be significant.

3.5.4 Effects of Fuel and Oil Rents, Random Effects (RE)

The results are reported in Table 3.5 for estimation of equation (3.1). Models 1 and 2 represent results where the fuel is used as a measure of natural resources, whereas

models 3 and 4 represent results where the oil rents are used as the measure of natural resources.

The random-effects results from the impact of fuel exports and oil rents as a proxy for natural resources are represented in Table 3.5. The Hausman Test for the result first model for chi2 (6) is 42.19 and significant at 1%, for the second model the Hausman Test for chi2 (6) is 74.38, and significant at 1%. The third model Hausman Test for chi2 (6) is 11.96 and significant at 10%. The fourth model Hausman Test for chi2 (6) is 20.15 and significant at 10%. All these results from the Hausman Test recommended the use of fixed-effects results.

The main variable, fuel exports, is positive and significant at 1%, and oil rents are negative and significant at 10%, consistent with the results by Ezeoha and Cattaneo (2012). The GDP constant is positively signed and significant as expected at 5% in all the models, and these results are consistent with Hisarciklilar et al. (2006), Goswami and Haider (2014), Asiedu (2006) and Mohamed and Sidiropoulos (2010). In addition, the macroeconomic condition of inflation is positive and significant at 5% in the second and fourth models. Trade is positive and significant at 10% in models 1 and 4, and significant at 5% in the models 2 and 3. This is in agreement with the literature stating that a more open economy attracts higher foreign direct investment inflows (Asiedu, 2002; Kok and Ersoy, 2009; Mina, 2007a,b). FDI and trade are complementary, as predicted in the new theory of trade. Human capital, infrastructure and investment profiles do not appear to have any significant results.

3.5.5 Effects of Oil Production, Oil Reserves, and Oil Relative_Production, Fixed Effects (FE)

Additionally, equation (3.1) is re-estimated such that oil production, oil reserves and oil relative_ production are replaced with fuel and oil rents. The results are shown in Table 3.6 using the fixed-effects estimation technique for the alternative measure of natural resources. In all the tables, models 1 and 2 represent results where oil production is used as a measure of natural resources, whereas models 3 and 4 represent results where oil reserves are used as a measure of natural resources. Models 5 and 6 represent results where oil relative_ production is used as a measure of natural resources.

Table 3.6 represents the results of fixed effects estimation without interaction between investment profile as a proxy for institutional quality and oil as a proxy for natural resources; another alternative oil approach is oil production as a proxy for natural resources. In the first model in Table 3.6, the Hausman Test for chi2 (6) is 11.29 and significant at 10%, and in the second model Hausman Test for chi2 (6) is 16.25 and significant at 5%. This means that the Hausman Test recommended using fixed-effects results in oil production estimation as a proxy for natural resources.

In Table 3.6, we present fixed-effect results. It was found that, and not surprisingly for the MENA region, the main variables which were significant were oil production at 5% in the first model, but these had a negative coefficient. This result is in contrast to Dunning's (1980) hypothesis that oil resources attract natural resource-seeking foreign direct investment. However, it is consistent with the earlier evidence by Rogmans and Ebbers (2013), and their hypothesis that "Dutch disease" or "resource curse" applies to foreign direct investment. Moreover, this result is consistent with Asiedu and Lien (2011) and energy reserves in MENA countries are dominated by state-owned entities. For example, in model 1, an increase in oil production as a proxy for natural resources of 1% reduces foreign direct investment inflows by about 0.1 %. This means that oil production discouraged inflows of FDI in MENA countries, which is consistent with Mina (2007a, 2012). The GDP constant as a proxy for market size has a positive and significant coefficient at 5% in both models 1 and 2.

In Table 3.6, the fixed-effects results also shows that inflation is positive and significant at 10% in the first model and significant at 5% in the second model. Trade openness is positive and significant at 10% only in the first model, consistent with the earlier evidence (Mohamed and Sidiropoulos, 2010; Sekkat and Varoudakis, 2007). Human capital, investment profile, and infrastructures do not have any significant results.

In models 3 and 4 in the Table 3.6 an alternative oil approach of oil reserves as a proxy for natural resources is used. In the third model, the Hausman Test for chi2 (6) is 6.92 and insignificant, so the Hausman Test recommended using random-effects results. In contrast, in the fourth model, the Hausman Test for chi2 (6) is 11.98 and significant at 10%, meaning that the Hausman Test recommended using fixed-effects results in oil reserves estimation as a proxy for natural resources.

Models 3 and 4 are the results for alternative measures in which the oil reserves are used as a proxy for natural resources. The results concluded that oil reserves as a second approach to oil as a proxy for natural resources have a negative sign and are insignificant in model 3, and have a negative influence on FDI inflows and significance f 10% in model 4. For instance, an increase in oil reserves by 1% reduces FDI inflows by about 0.01%. Rogmans and Ebbers (2013) suggest that for MENA countries, oil-rich countries have not actively encouraged foreign direct investment. In fact, they have enough financial resources and foreign currency with large oil reserves, which they might prefer to be purchased through contractual arrangement and licensing rather than share foreign investment in their own natural resources. Estimates also show that GDP is a constant positive and significant at 5% in models 3 and 4, while inflation encouraged FDI flows to MENA countries, which is positive and significant at 5% in the fourth model. The impact of human capital, trade, infrastructure and investment profiles were not significant.

Models 5 and 6 use oil production relative to oil reserves as the main measure of natural resources. In the fifth model, the Hausman Test for chi2 (6) is 13.68 and significant at 5%, and, in the sixth model, the Hausman Test for chi2 (6) is 27.43 and significant at 5%. Therefore, the Hausman test recommended using fixed-effects results in oil production relative to oil reserves estimation as a proxy for natural resources.

In Table 3.6 in the fifth and sixth model, with oil production relative to oil reserves as a proxy for natural resources, the results indicated that oil production relative to oil reserves is negative and insignificant. GDP is a constant positive and significant at 5% in both models 5 and 6. Inflation is positive and significant at 5% in the sixth model. This result corroborates the earlier evidence from Asiedu (2002) and Addison and Heshmati (2003).

However, human capital does not have any significant results. This result supported the earlier findings of Onyeiwu (2003). On the effect of institutional variables, the coefficient of the infrastructure determinant does not have any significant result. This was consistent with the earlier evidence shown by Onyeiwu and Shrestha (2004). In addition, trade does not show any statistically significant results.

3.5.6 Effects of Oil Production, Oil Reserves, and Oil Relative_ Production, Random Effects (RE)

As pointed out in the preceding sections, equation (3.1) is re-estimated such that oil production, oil reserves and oil relative_ production are replaced with fuel and oil rents. The results using the random-effects estimation technique are shown in Table 3.7 for the alternative measure of natural resources. In all the tables, models 1 and 2 represent results where oil production is used as a measure of natural resources, whereas models 3 and 4 represent results where oil reserves is used as a measure of natural resources. Models 5 and 6 represent results where oil relative_ production is used as a measure of natural resources.

Table 3.7 presented random-effects GLS estimate results without interaction between investment profile as a proxy for institutional quality and oil as a proxy for natural resources. In the first model in Table 3.7 with oil production as a proxy for natural resources, the Hausman Test result for chi2 (6) is 11.29 and significant at 10%, and in the second model with oil production as a proxy for natural resources, the Hausman Test for chi2 (6) is 16.25 and significant at 5%. This means that the Hausman Test recommended using fixed-effects results in oil production estimation as a proxy for natural resources.

In the third model in Table 3.7 with oil reserves as a proxy for natural resources, the Hausman Test for chi2 (6) is 6.92 and insignificant, so the Hausman Test recommended using random-effects results. In contrast, in the fourth model, Table 3.7 with oil reserves as a proxy for natural resources, the Hausman Test for chi2 (6) is 11.98 and significant at 10%. This means that the Hausman Test recommended using fixed-effects results in oil reserves estimation as a proxy for natural resources.

In the fifth model in Table 3.7 with oil production relative to oil reserves as a proxy for natural resources, the Hausman Test result for chi2 (6) is 13.68 and significant at 5%. In the sixth model with oil production relative to oil reserves as a proxy for natural resources, the Hausman Test for chi2 (6) is 27.43 and significant at 5%. Therefore, the Hausman Test recommended using fixed-effects results in oil production relative to oil reserves estimation as a proxy for natural resources.

Depending on the results from the random-effects GLS estimation in Table 3.7, in the first model oil production is negative and significant at 10%. For example, an increase

in oil production by 1% reduces FDI inflows by 0.01%. Trade openness is positive and significant at 5%. These results suggest that countries with larger GDP are more likely to be successful in attracting foreign direct investment (e.g., Jadhav, 2012; Blonigen, 2005; Hisarciklilar et al., 2006). The coefficient of the GDP constant are significant at 5% and 1% in model 1 and model 2. This result corroborates the earlier findings (by Abdul Mottaleb and Kalirajan, 2010; Asiedu, 2002, 2006; Onyeiwu and Shrestha, 2004).

Moreover, the main result in Table 3.7 shows that inflation has a positive sign and is significant at 10% in the first model, and in the second model is significant at 5%. Trade is positive and significant in the first model at 5%. On the other hand, human capital, investment profile, and infrastructure do not show any significant results. In the third and fourth models, oil reserves are negative and significant at 5% only in the fourth model. Trade is significant at 10% and GDP constant at 1%. In contrast, inflation is positive and significant at 5%. Still, human capital, investment profiles, and infrastructure do not appear to have any significant results. The results indicated that trade was significant at 5% in model 5, and significant at 10% in the sixth model. The GDP constant is positive and significant at 1%. Inflation has an incorrect sign and is significant at 5% in the sixth model. Oil production relative to oil reserves, human capital, infrastructure, and investment profile proved to be statistically insignificant.

The results from fixed effect and random effect confirmed that natural resources trade, GDP constant**,** and inflation are the main determinants of FDI in MENA countries. However, the different types of natural resources have different effects on foreign direct investment in MENA countries. For instance, fuel exports attract foreign direct investment to MENA countries. In contrast, natural resources such as oil rents, oil production, and oil reserves discouraged FDI inflows. These findings provide support for the suggestion that natural resources are not always resource-seeking as Dunning (1981a,b) predicted in his hypothesis. Moreover, applying "Dutch disease" and "resource curse" to the foreign direct investment in MENA region is the hypothesis that a country's energy endowment is negatively associated with FDI.

3.5.7 Effects of Fuel and Oil Rents with Interaction, Fixed Effects (FE)

Table 3.8 presents the estimation results of equation (3.3). These estimations differ from the previous regressions by the inclusion of interaction terms between natural

resources and investment profile. Models 1 and 2 are alternative models in which fuel is used as the measure of natural resources. Models 3 and 4, on the other hand, use oil rents as an alternative measure of natural resources.

The fixed-effects results are reported in Table 3.8 with the interaction between oil as a proxy for natural resources and investment profile as a measure for institutional quality. The Hausman Test for the first model result with fuel for chi2 (7) is 82.09 and significant at 1%, and for the second model with fuel the Hausman Test for chi2 (7) is 58.33, and significant at 1%. In the third model with oil rents, the Hausman Test for chi2 (7) is 15.15 and significant at 5%. In the fourth model with oil rents, the Hausman Test for chi2 (7) is 19.76 and significant at 1%. From these results, the Hausman Test recommended using fixed-effects results.

It should be remembered that different measures of natural resources were used, which were fuel exports and oil rents as a proxy for natural resources. Fuel exports are positive and significant at 1%, but oil rents do not have any statistically significant results. The GDP constant, as expected, had a positive sign and was significant at 1% in the first and second models, and significant at 5% in the third and fourth models. Inflation had a positive sign and was significant at 5% in the second and fourth models and significant at 10% in the third model. Trade, human capital, investment profile and infrastructure did not have any significant results. The interaction between fuel exports and investment profile is negative and significant at 5% in the first and second models, and the interaction between oil rent and investment profile is negative and significant at 10% in the third model.

In models with the interaction term, investment profile does not change sign and significance when the interaction term is included. Natural resources (fuel exports) appears to reinforce this mitigation effect, as the overall effect is statistically significant.

3.5.8 Effects of Fuel and Oil Rents with Interaction, Random Effects (RE)

Table 3.9 presents the estimation results of equation (3.3) by including the interaction terms between natural resources and investment profile. The results in column 1 and 4 are for RE. Models 1 and 2 are alternative models in which the fuel is used as the measure of natural resources. Models 3 and 4, on the other hand, are the models using oil rents as the alternative measure of natural resources.

Table 3.9 provides the results for random effects with the interaction between investment profile as a proxy for institutional quality and oil as a proxy for natural resources. The Hausman Test for the first model result with fuel for chi2 (7) is 82.09 and significant at 1%, and for the second model with fuel the Hausman Test for chi2 (7) is 58.33, and significant at 1%. In the third model with oil rents, the Hausman Test for chi2 (7) is 15.15 and significant at 5%. In the fourth model with oil rents, the Hausman Test for chi2 (7) is 19.76 and significant at 1%. From these results, the Hausman Test recommended using fixed-effects results.

Fuel exports are positive and significant at 1% in both models, while oil rents do not have any significant results. The market size (GDP constant) coefficient estimates are positive and significant at 1% in model 1, model 2 and model 3, and significant at 5% in the fourth model. Inflation is positive and significant at 10% in the second model, and significant at 5% in the fourth model. The estimated coefficient of trade variable is positive and significant at 5% in the first, second, and third models, and significant at 10% in the fourth model. Furthermore, the coefficient of investment profile as a proxy for institutional quality is positive and significant at 1% in the first two models along with fuel. These results indicate that foreign direct investment is attracted by institutional quality.

The interaction between fuel exports and investment profile is negative and significant at 1% in the first and second models. A negative coefficient suggests that fuel exports, as a measure of natural resources, reduce the effectiveness of the investment profile in promoting foreign direct investment inflows to MENA countries (Asiedu and Lien, 2011). In addition, the negative and significant coefficient of the interaction between natural resources and the investment profile is an indication that a strong institution that provides protection for foreign investors can play a substantive role in boosting investors' confidence (Mina, 2012). Obviously, a weak institution can also be a confidence boost, in promoting the terms of bringing in more foreign investments (Ezeoha and Cattaneo, 2012). Clearly, infrastructure and human capital do not have any effect on FDI flows.

In models with the interaction term, the coefficient of investment profile becomes higher and significant when the interaction term is included. Natural resources (fuel

exports) appear to reinforce this mitigation effect, as the overall effect is statistically significant.

3.5.9 Effects of Oil Production, Oil Reserves, and Oil Relative_Production with Interaction, Fixed Effects (FE)

The interaction term between natural resources and investment profile is then added into the same regression. The results using the fixed-effects estimation technique are shown in Table 3.10 of equation (3.3) for the alternative measure of natural resources. Models 1 to 6 are alternative models in which the oil production, oil reserves and oil relative_production are used as the alternative measure of fuel and oil rents. Models 1 and 2 represent results where oil production is used as a measure of natural resources, whereas models 3 and 4 represent results where oil reserves is used as a measure of natural resources. Models 5 and 6 represent results where oil relative_ production is used as a measure of natural resources.

Table 3.10 provides the results of the fixed-effects estimations with the interaction between investment profile as a proxy for institutional quality and oil as a proxy for natural resources. In the first model in Table 3.10 with oil production as a proxy for natural resources, the Hausman Test result for chi2 (7) is 21.47 and significant at 1%, and in the second model with oil production as a proxy for natural resources, the Hausman Test for chi2 (7) is 15.56 and significant at 5%. This means that the Hausman Test recommended using fixed-effects results in oil production estimation as a proxy for natural resources.

In the third model, Table 3.10 with oil reserves as a proxy for natural resources, the Hausman Test for chi2 (7) is 12.26 and significant at 10%, so the Hausman Test recommended using fixed-effects results. In contrast, in the fourth model, Table 3.10 with oil reserves as a proxy for natural resources, the Hausman Test for chi2 (7) is 9.68 and insignificant. This means that the Hausman Test recommended using random-effects results in oil reserves estimation as a proxy for natural resources.

In the fifth model, Table 3.10 with oil production relative to oil reserves as a proxy for natural resources, the Hausman Test for chi2 (7) is 15.20 and significant at 5%. Further, in the sixth model with oil production relative to oil reserves as a proxy for natural

resources, the Hausman Test for chi2 (7) is 27.72 and significant at 1%. This means that the Hausman Test recommended using fixed-effects results in oil production relative to oil reserves estimation as a proxy for natural resources.

Based on the correlation matrix between all variables with the ratio of FDI inward to GDP as the dependent variable, starting with the first and second models, the main explanatory variable in the five proxies used to represent the natural resource endowment is oil production. The coefficient of oil production is negative and significant at 5% in the second model. This is consistent with previous findings (Mina, 2007a, 2009). In the third and fourth models, the fixed-effect results showed that the oil reserves as a proxy for natural resources does not have any significant results. The proxy for infrastructure development, trade, human capital, and investment profile appeared to be insignificant in all models. For the effect of the macroeconomic variables, the inflation coefficient estimated is positive and significant at 10% in the first models, and significant at 10% in the first and second models, and significant at 5% in the second, fourth, and sixth models. Agreeing with our expectation, the GDP constant is positive and significant at 5% in the first, third, fifth and sixth models. They were also significant at 1% in the second and fourth models. This correlated with the inward FDI (Hisarciklilar et al, 2006; Asiedu, 2006).

The coefficients of the interaction term between investment profiles as a proxy for institutional quality and oil production as a proxy for natural resources are insignificant and negative and significant by 10% in the first model. A negative coefficient indicated that oil production reduces the effectiveness of the investment profile in attracting FDI flows to MENA countries (Asiedu and Lien, 2011).

In addition, the interaction term between oil reserves and investment profile is negative and significant at 10% in the third model.

The fifth and sixth models results included oil relative_ production as a proxy for natural resources. The outline shows that oil relative is insignificant. Inflation is positive and significant at 5% in the sixth model. Still the GDP constant is significant at 5% and has the expected positive sign. Trade, human capital, infrastructure, and investment profile did not appear to have any significant results. The interaction term between oil relative_ production and investment profile is negative and significant at 10% in the sixth

model. Asiedu and Lien (2011), suggest that the negative sign undermines the positive effects of the investment profile on foreign direct investment in MENA countries. Furthermore, the negative sign plays a substantive role in enhancing foreign direct investment (Mina, 2012; Ezeoha and Cattaneo, 2012).

3.5.10 Effects of Oil Production, Oil Reserves, and Oil Relative_ Production with Interaction, Random Effects (RE)

In Table 3.11, attention is estimated to the models involving the interaction term between natural resources and investment profile for equation (3.3) for the alternative measure of natural resources. The results used the random-effects estimation technique, and models 1 to 6 are alternative models in which oil production, oil reserves and oil relative_ production are used as the alternative measure of fuel and oil rents. Models 1 and 2 represent results where oil production is used as a measure of natural resources, whereas models 3 and 4 represent results where oil reserves are used as a measure of natural resources. Models 5 and 6 present results where oil relative_ production is used as a measure of natural resources.

Table 3.11 compared the results of the random-effects GLS estimates with the interaction between investment profile as a proxy for institutional quality and oil as a proxy for natural resources. In the first model in Table 3.11 with oil production as a proxy for natural resources, the Hausman Test result for chi2 (7) is 21.47 and significant at 1%, and in the second model with oil production as a proxy for natural resources, the Hausman Test for chi2 (7) is 15.56 and significant at 5%. This means that the Hausman Test recommended using fixed-effects results in oil production estimation as a proxy for natural resources.

In the third model, in Table 3.11, with oil reserves as a proxy for natural resources, the Hausman Test for chi2 (7) is 12.26 and significant at 10%, so the Hausman Test recommended using fixed-effects results. In contrast, in the fourth model, Table 3.11, with oil reserves as a proxy for natural resources, the Hausman Test for chi2 (7) is 9.68 and insignificant. This means that the Hausman Test recommended using random-effects results in oil reserves estimation as a proxy for natural resources.

In the fifth model, Table 3.11 with oil production relative to oil reserves as a proxy for natural resources, the Hausman Test for chi2 (7) is 15.20 and significant at 5%. n

addition, in the sixth model with oil production relative to oil reserves as a proxy for natural resources, the Hausman Test for chi2 (7) is 27.72 and significant at 1%. This means that the Hausman Test recommended using fixed-effects results in oil production relative to oil reserves estimation as a proxy for natural resources.

Our empirical evidence in Table 3.11 has shown that oil production has a negative influence on FDI inward at 1% in the second model. For example, in model 1 an increase in oil production by 1% decreased FDI inflows by about 0.01%. Trade openness is positive and significant at 5%. Increasing trade openness by 1% increased foreign direct investment in MENA countries by 2.30%. This finding supported the earlier evidence by Asiedu (2002). In addition, the GDP constant is positive and significant at 1% in models 1 and model 2, respectively. The positive coefficient of inflation is confirmed by, for example, Jadhav (2012). The positive and significant influence of inflation at 10% and 5% on FDI inflows is because the effect of inflation on the current consumption reduces the cost of investment (Ezeoha and Cattaneo, 2012). The coefficients of human capital and infrastructures are insignificant. The investment profile is positive and significant at 5% in the second model. This result shows that an improved institutional quality will increase foreign direct investment in the MENA countries. This supports the findings of Busse and Hefeker (2007), Mina (2009), Mohamed and Sidiropoulos (2010) and Boubakri et al. (2013).

Further results in Table 3.11 find that the interaction between oil production and the investment profile is negative and significant at 1% in the first model, and significant at 10% in the second model. The interaction between oil production and investment profile does not have any significant results.

There was an insignificant result for FDI inflows when oil reserves were used. With the expectation of being one of the determinants of FDI inflows, a proxy for market size is positive and significant at 1% in both models 3 and 4. The coefficient of trade openness is positive and is mostly insignificantly correlated with FDI inflow. Inflation has a positive sign and significant effects on FDI inflows at 5% in model 4. Still, human capital and infrastructure, and investment profile did not show any significant results. Interaction between oil reserves and investment profile is negative and insignificant.

In models 5 and 6, the main results showed that oil relative_ production had a negative sign and was insignificant, whereas trade openness is positive and significant at 5%. This is consistent with a theory that countries which have an open system attract more FDI inflows to the region.

The GDP constant is positive and significant at 1% in model 5. Inflation is positive and significant at 5% in model 6. Interaction between oil relative_ production and investment profile is positive and insignificant. In a similar manner, human capital, investment profile, and infrastructure did not appear to have any significant results.

In models with the interaction term, the coefficient of investment profile becomes higher and significant when the interaction term is included. Natural resources (oil production) appears to reinforce this mitigation effect, as the overall effect is statistically significant.

The results from fixed effects and random effects methods confirm that the fuel exports, trade openness, GDP constant, investment profile, and inflation are determinants of inward FDI in MENA countries. In addition, oil as a proxy for natural resources alters the positive effect of the investment profile on FDI inflows to the MENA region.

The results from fixed effect and random effect methods including the interaction term confirmed that natural resources trade, GDP constant**,** inflation, and investment profile are the main determinants of FDI in MENA countries. However, the different types of natural resources have different effects on foreign direct investment in these countries. For instance, fuel exports encourage FDI to MENA countries but natural resources such as oil production discouraged FDI inflows. These findings provide support for the argument that natural resources are not always resources seeking as Dunning (1981) predicted in his hypothesis. Moreover, applying "Dutch disease" and "resource curse" to foreign direct investment in the MENA region is the hypothesis that a country's energy endowment is negatively associated with FDI.

3.5.11 GMM Results

System GMM-estimation is shown in Table 3.12. The point estimates reveal that almost all variables included are statistically significant. The Hansen over-identification test is satisfactory and does not reject the null hypothesis that instruments are valid equal

to 1.00. The test for the first and second order residual autocorrelation in the first model estimators AR (1) and AR (2) errors indicate that we should reject the null hypothesis of no evidence of serial correlation in the first order residual, but we can accept the null hypothesis in the second order residual.

The coefficient of the second lag of the dependent variable FDI inward is negative (Boubakri et al., 2013) and statistically significant in all the models, an indication that IFDI is persistent (Asiedu et al., 2009). This suggests that current inward FDI is negatively correlated with future IFDI (Asiedu and Lien, 2011).

The explanation for the negative sign of the second lag of the dependent variable is that countries that have experienced high IFDI in the past might be more aware of the negative consequences of high inward FDI and therefore be more opposed to repeated episodes. The increased IFDI causes such countries to maintain lower and stable inward FDI. Hence, high past inward FDI implies low and stable current inward FDI.

Trade openness is positively correlated with inward FDI and is significant at 1% in both models. This is consistent with the theory that countries which have open and transparent economic systems attract foreign direct investment (Khadaroo and Seetanah, 2009; Boubakri et al., 2013; Cleeve, 2008).

In addition, the choice of dynamic GMM as a preferred panel estimator is confirmed by the data, suggesting that the results have good statistical properties. The lagged dependent variable is instrumented using their lagged values in the differenced equation and their once lagged first differences in the level equation.

The impact of market size measured as GDP constant is positive and significant at 10% in the first model, and highly significant at 1% in the second model. In addition, the coefficient of inflation is positive and significant at 5% in the second model (Ezeoha and Cattaneo, 2012). Human capital, infrastructure, and investment profile do not have any significant results. On the effects of the oil variables as a proxy for natural resources, fuel exports are seen to enhance foreign direct investment inflows in a positive and significant way, at 5% in model 1, and at 10% in model 2. This result is consistent with the earlier evidence from Asiedu (2006) and Mohamed and Sidiropoulos (2010). Oil rents have

negative effects and are significant at 5% in both models. Oil production and oil reserves do not have any significant results.

Alternatively, oil production relative to oil reserves is negative and significant at 10% in the first model, and significant at 5% in the second model, supporting the hypotheses by Rogmans and Ebbers (2013) and Asiedu and Lien (2011).

In general, across the GMM estimation method above, the estimation coefficient of the lagged inward FDI is dynamic and persistent. In addition, trade openness, GDP constant, inflation and fuel exports are regarded as determinants of inward FDI in MENA countries, whereas oil rents and oil production relative to oil reserves discourage FDI inflows into MENA countries.

3.5.12 GMM Results with Interaction

Table 3.13 reports the results involving the interaction term into the regression. The estimates are run by system GMM estimator for equation 3.15.

In the first model, the Hansen over-identification test shows the validity of the instruments used in the estimations although the value is equal to 1.00, which is an indication of high instruments. The test for the first and second order residual autocorrelation AR (1) and AR (2) errors in the second model indicate that we reject the null hypothesis of no evidence in the first-order serial correlation and second-order correlation.

In model 2, the Hansen over-identification test is satisfactory and does not reject the null hypothesis that instruments are valid. The test for the first and second order residual autocorrelation in the first model estimators AR (1) and AR (2) errors indicate that we should reject the null hypothesis of no evidence of serial correlation in the first order residual, but we can accept the null hypothesis in the second order residual.

Some interactive terms were tested between oil as a proxy for natural resources and investment profile as an institutional quality in the dynamic system GMM regression, and the results are shown in Table 3.13.

Starting with the dependent variable, the coefficient of the second lag of the dependent variable IFDI is negative (Boubakri et al., 2013) and statistically significant at 1% in all

the models, an indication that IFDI is persistent (Asiedu et al., 2009). This suggests that current inward FDI is negatively correlated with future inward FDI (Asiedu and Lien, 2011).

Furthermore, the choice of dynamic GMM as a preferred panel estimator is confirmed by the data, suggesting that the results have good statistical properties. The lagged dependent variable is instrumented using their lagged valued in the differenced equation and their once lagged first differences in the level equation.

Trade openness is positive and significant at 1%. GDP constant has a correct sign and is significant at 10% and 1% in the first and second models, respectively. Inflation is positive and significant at 5% in the second model. Human capital and infrastructure do not show any significant results. Investment profile as a measure of institutional quality is positive and significant at 1% in both models. This implies that investment profile leads to increased FDI inflows into the MENA region. Fuel exports as a proxy for natural resources encourage FDI inflows to the MENA region at 1%. Still, oil rents as an alternative for fuel discourage foreign direct investment to the MENA region. Oil relative_ production is positive and significant at 10% in both models; this result corroborates the earlier finding by Mina (2007a). In addition, this result agrees with Dunning's (1980) hypothesis that oil resources attract natural resource seeking foreign direct investment

The coefficient of the interactive term between fuel exports and investment profile is negative and significant at 1% in both models. A negative coefficient indicated that fuel reduces the effectiveness of the investment profile in attracting FDI flows to MENA countries (Asiedu and Lien, 2011). Furthermore the negative and significant coefficient of the interaction between natural resources and investment profile is an indication that a strong institution that provides protection for foreign investors can play a substantive role in boosting investors' confidence (Mina, 2012). The interactive term between oil rents and investment profile is positive but insignificant.

The interaction term between oil production and investment profile is positive and significant at 5% in the second model. The positive and significant coefficient of the interaction between natural resources and investment profile is an indication that a strong institution that provides protection for foreign investors can play a complementary role

in boosting investors' confidence (Mina, 2012). In addition, a positive effect may show that oil production relies on the efficiency of institutional quality to positively impact FDI inflows (Ezeoha and Cattaneo, 2012).

The interaction term between oil reserves and investment profile is negative and insignificant in all models. However, the interaction term between oil production relative to oil reserves and investment profile is negative and significant at 5% in both models.

In models with the interaction term, the coefficient of investment profile becomes higher and significant when the interaction term is included. Natural resources (oil rents) appears to reinforce this mitigation effect, as the overall effect is statistically significant.

The results of system GMM estimation including interaction term confirm that the estimation coefficient of the lagged inward FDI is dynamic and persistent. In addition, fuel exports, trade openness, GDP constant, investment profile, and inflation are regarded as determinants of inward FDI in MENA countries. On the other hand, oil rents and oil production relative to oil reserves discourage FDI inflows into MENA countries. Moreover, oil as a proxy for natural resources undermines the positive effect of investment profile on FDI inflows to the MENA region. These results confirm previous findings.

Comparing the fixed-effect and random-effect estimates (Table 3.4 to Table 3.11) and the estimates using the system GMM estimator (Table 3.12 and Table 3.13), we can conclude that the system GMM estimator is the more appropriate and consistent estimator. Despite the importance of natural resources as location determinants or in the new theory of trade, MENA countries still retain abundant natural resources (such as oil) that are off limits to foreign investors

This is the main novelty of our chapter, where we find two different patterns in MENA countries, which approve the location dimension of the OLI paradigm. The results imply that MENA countries benefit from the location dimension; and from the new theory trade dimension such as market size, and trade with FDI are complementary, while in contrast reject the new theory trade dimension such as natural resources in MENA countries is not supported.

3.6 Conclusion

This study looked at the empirical determinants of foreign direct investment, using panel data from 17 MENA countries over the period 1960–2012. Fixed effects and random effects were generalized using a least-square estimation technique. In addition, we performed dynamic system GMM estimations to account for endogeneity and country-specific effects. The methodology by Mina (2007a,b) was followed for modeling GCC countries.

A number of macroeconomic conditions were performed, such as the real exchange rate and real interest rate which much of the literature used, but none of these were found to result in any significant findings. Regarding poolability of data, the unrestricted model uses different parameters across time or across regions, but with the same behavioral equation. Both rich and poor countries are included in the same model in the panel data for MENA countries. This work was conducted using both fixed and random effects, but the Hausman test recommends using fixed effects in most estimators.

The main findings of the chapter indicated that the different types of natural resources have different effects on foreign direct investment in MENA countries. For instance, fuel exports attract FDI to them, but measures of natural resources such as oil rents, oil production, and oil reserves, oil production relative to oil reserves discouraged FDI inflows. This means that natural resources are not always resource seeking as Dunning (1981a,b) or the new theory of trade predicted. Moreover, applying "Dutch disease" and "resource curse" to foreign direct investment in the MENA region is the hypothesis that a country's energy endowment is negatively associated with FDI.

Regarding the impact of explanatory variables, the outcome of the study showed that trade openness and institutional quality are important determinants of IFDI, depending on the models used.

The GDP constant as a proxy for market size of the host countries is the most important factor which influenced the attraction of inward foreign direct investment to MENA countries. This is supported by the market size hypothesis.

Inflation also had a positive impact on foreign direct investment inflows into the MENA region. In addition, empirical evidence showed that the estimated coefficients of

human capital and infrastructure do not have any influence on foreign direct investment inflows.

This chapter is probably the first to study the empirical assessment of the direct impact of interaction term on FDI. Light was shed on some interactions between oil as a proxy for natural resources and investment profile as a measure for institutional quality. It was found that the interaction term between natural resources and investment profiles had a negative effect on inward FDI into MENA countries. These results suggest that natural resources undermine the positive effects of investment profiles on foreign direct investment flows.

Due to autocorrelation and endogeneity problems of independent variables, the Arellano-Bond GMM dynamic estimator was used, as the recent literature showed that this was applied in others research. The results pointed out the lagged dependent variables as an instrument are valid for the Hansen test for over-identifying restrictions, and there are no autocorrelations for order 2.

Regarding the impact of the main variables, the results of the study showed that natural resources, namely fuel exports, and oil production relative to oil reserves, encourage foreign direct investment inflows into the MENA region. In addition, the effects of explanatory variables on FDI inflows found that trade openness, GDP constant as a proxy for market size, high inflation, and investment profile as a measure of institutional quality are the main determinants of FDI inflows into the MENA economies.

The interaction term between natural resources and investment profile found that the effect of investment profile on foreign direct investment depended upon the type of natural resource. The interaction between fuel exports and oil production relative to oil reserves had a negative effect on inward FDI. This supported the view that fuel exports and oil relative_ production reduced the effectiveness of the investment profile in promoting foreign direct investment inflows. In contrast, the interaction between oil production and investment profile had a positive effect on FDI inflows. This result indicated that maybe oil production depends on institutional quality in MENA countries.

It could be interesting to combine the two main results, checking which effects are predominant. Furthermore, this analysis corroborates the findings in previous literature highlighting the importance of oil as a proxy for natural resources and the location

determinants of foreign direct investment into MENA countries. In the future, an attractive research proposal could be to apply these results to the specific different types of location determinants of FDI inflows.

Table 3.1: Variables, Definitions, and Data Sources

Variables	Definitions
Dependent Variable	
FDIIN	Foreign direct investment, net inflows (% GDP)
Explanatory Variables	
TRADE	Trade (% of GDP).
Ln TRADE	Trade (% of GDP) in natural logarithmic form.
GDP	Real GDP (2000 US$) constant.
Ln GDP	Real GDP (2000 US$) constant in natural logarithmic form.
INFRASTRUCTURE	Telephone lines (per 100 people).
INFLATION	Consumer prices (annual %).
HUMAN CAPITAL	School enrollment, secondary (% gross).
FUEL	Fuel exports (% of merchandise exports).
Ln FUEL	Fuel exports (% of merchandise exports), in natural logarithmic form.
OIL RENTS	Oil rents (% of GDP).
OIL PRODUCTION	Crude oil production (thousands of barrels per day).
OIL RESERVES	Crude oil reserves (billion barrels).
OIL (RELATIVE_PRODUCTION)	Oil production in millions of barrels per day relative to oil reserves in millions of barrels.
INSTITUTION QUALITY	Investment profile(12 points, a score of 4 points equates to very low risk and a score of 0 points equates to very high risk)
INTERACTION1	Investment Profile * FUEL
INTERACTION2	Investment Profile * OIL RENTS
INTERACTION3	Investment Profile * OIL PRODUCTION
INTERACTION4	Investment Profile * OIL RESERVES
INTERACTION5	Investment Profile * OIL (RELATIVE-PRODUCTION)

Sources: All data (1960-2012) from world development indicators (WDI).
Oil production and Oil reserved from the Energy Information Administration (2006) data (1980-2009).
Oil relative_production calculation based on Energy Information Administration (2006) data (1980-2009).
Institution- Investment Profile from ICRG data (1984-2009).
Note: Ln (natural logarithm form).

Table 3.2: Summary Statistics on the FDIIN and its Determinants

Variable	Mean	Std. Dev	Min	Max
FDIIN	1.633	3.193	-8.295	23.53
INFLATION	9.694	28.16	-21.67	448.5
FUEL	54.49	40.76	.0005	193.037
Ln FUEL	2.69	2.72	-7.55	5.26
OIL RENTS	23.69	22.23	0	113.39
INFRASTRUCTURE	8.791	8.083	.0317	37.12
OIL PRODUCTION	1399.59	2139.52	-1.463	11545.7
OIL RESERVES	39.73	63.844	0	267.02
OIL (relative_production)	.00037	.0019	-.004	.0285
GDP	4.37e+10	4.92e+10	5.40e+08	2.80e+11
Ln GDP	23.83	1.32	20.10	26.35
TRADE	72.30	27.005	13.77	154.64
Ln TRADE	4.20	.394	2.62	5.04
HUMAN CAPITAL	55.19	26.53	0	111.18
Institution (Investment Profile)	6.98	2.33	1.083	11.5

Note: All variables are defined in the methodology.
Note: Negative sign in (FDIIN) WIR indicates that at least one of the three components of FDI is negative (equity capital, reinvested earnings or intra-company loans) and is not offset by positive amounts of the other components. These are instances of reverse investment or disinvestment.
Note: Negative sign in (OILPRODUCTION) International Energy Statistic-Notes that negative refinery processing gain data values indicate a net refinery processing loss.
Note: Ln (natural logarithm form).

Table 3.3: Correlation Coefficient Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1)	1											
(2)	0.48	1										
(3)	0.08	-0.26	1									
(4)	-0.09	-0.31	0.08	1								
(5)	0.11	0.32	0.23	-0.26	1							
(6)	0.30	0.45	0.27	-0.15	0.70	1						
(7)	0.36	0.30	0.16	-0.45	0.31	0.42	1					
(8)	-0.23	-0.21	0.31	0.11	0.40	0.31	0.16	1				
(9)	-0.08	0.10	0.37	-0.02	0.62	0.46	0.29	0.78	1			
(10)	0.08	-0.01	0.85	0.03	0.42	0.39	0.21	0.52	0.64	1		
(11)	0.05	0.10	0.73	-0.04	0.56	0.44	0.21	0.46	0.70	0.94	1	
(12)	-0.05	-0.07	0.01	-0.08	-0.15	-0.25	0.08	-0.26	-0.22	-0.14	-0.12	1

Note: Variables are (1) FDIIN, (2) Trade, (3) GDP, (4) Inflation (5) Infrastructure, (6) Human capital (7) Investment profile (8) Fuel, (9) Oil rents, (10) Oil production, (11) Oil reserves, (12) Oil (relative_ production)..

Table 3.4: Dependent Variable: Inward FDI Percentage of GDP, Panel Analysis, Country Fixed-Effects (Model Model Based on Correlation Matrix). Impact of Fuel and Oil Rents

Regressor	(1)	(2)	(3)	(4)
Ln TRADE	1.782	2.032	2.067	1.534
	(0.166)	(0.292)	(0.182)	(0.408)
Ln FUEL	1.610***	1.324***		
	(0.000)	(0.000)		
OIL RENTS			-0.067	-0.048
			(0.369)	(0.434)
Ln GDP	4.030***	4.406***	5.687**	5.081**
	(0.001)	(0.001)	(0.033)	(0.010)
INFLATION	0.076*	0.069**	0.078	0.0898**
	(0.097)	(0.035)	(0.103)	(0.036)
INFRASTRUCTURE		-0.001		-0.0434
		(0.981)		(0.644)
HUMAN CAPITAL	-0.011		-0.052	
(Education)	(0.534)		(0.229)	
INSTITUTION	0.020	-0.023	0.234	0.144
(Investment profile)	(0.902)	(0.872)	(0.383)	(0.535)
CONSTANT	-106.2***	-117.35***	-141.36**	-128.05**
	(0.001)	(0.000)	(0.031)	(0.010)

Table 3.4(Continued)

Collinearity diagnostics (VIF)				
TRADE	2.91	2.56	2.95	2.25
FUEL	1.60	1.78		
OIL RENTS			1.53	1.53
GDP constant	2.13	1.88	2.30	1.84
INFLATION	1.42	1.35	1.49	1.50
INFRASTRUCTURE		1.62		1.72
HUMAN CAPITAL (Education)	1.76		1.94	
INSTITUTION (Investment profile)	1.68	1.61	1.68	1.65
Mean VIF	1.92	1.80	1.98	1.75
N. Observations	176	229	194	266
N. Countries	13	14	14	15
F test	98.03*** (0.0000)	29.61*** (0.0000)	5.97*** (0.0035)	22.59*** (0.0000)
Hausman test	42.19*** (0.0000)	74.38*** (0.0000)	11.96* (0.0628)	20.15*** (0.0026)

Notes: p-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1%

Note: Ln (natural logarithm form).

Table 3.5: Dependent Variable: Inward FDI Percentageof GDP, Panel Analysis, Country Random-Effects (Model Model Based on Correlation Matrix). Impact of Fuel and Oil Rents

Regressor	(1)	(2)	(3)	(4)
LnTRADE	3.719*	3.854**	4.228**	3.218*
	(0.052)	(0.044)	(0.016)	(0.070)
Ln FUEL	1.075***	0.690		
	(0.001)	(0.102)		
OIL RENTS			-0.000	-0.085*
			(0.145)	(0.099)
Ln GDP	1.639**	1.541**	3.259**	1.887**
	(0.025)	(0.035)	(0.015)	(0.035)
INFLATION	0.0659	0.0591**	0.0695	0.092**
	(0.123)	(0.039)	(0.115)	(0.031)
INFRASTRUCTURE		0.0357		0.0395
		(0.604)		(0.404)
HUMAN CAPITAL	0.009		-0.0023	
(Education)	(0.470)		(0.410)	
INSTITUTION	0.243	0.48	0.392	0.375
(Investment profile)	(0.290)	(0.220)	(0.223)	(0.175)
CONSTANT	-58.91***	-56.30***	-93.77**	-59.38**
	(0.000)	(0.000)	(0.015)	(0.035)

Table 3.5 (Continued)

N. Observations	176	229	194	266
N. Countries	13	14	14	15
Wald Chi2	58.10***	71.81***	57.41***	21.41***
	(0.0000)	(0.0000)	(0.0000)	(0.0015)
Hausman test	42.19***	74.38***	11.96*	20.15***
	(0.0000)	(0.0000)	(0.0628)	(0.0026)

Notes: p-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1%

Note: Ln (natural logarithm form).

Table 3.6: Dependent Variable: Inward FDI Percentage of GDP, Panel Analysis, Country Fixed-Effects (Model Model Based on Correlation Matrix). Impact of Oil Production, Oil Reserves, and Oil Relative_ Production.

Regressor	(1)	(2)	(3)	(4)	(5)	(6)
Ln TRADE	2.210*	0.507	1.240	0.429	0.754	0.390
	(0.070)	(0.791)	(0.314)	(0.827)	(0.509)	(0.848)
OIL (production)	-0.002**	-0.0004				
	(0.045)	(0.239)				
OIL (reserves)			-0.046	-0.016*		
			(0.105)	(0.066)		
OIL (relative_ production)					-109.99	-105.63
					(0.316)	(0.338)
Ln GDP	5.953**	5.441**	5.575**	5.138**	5.384**	5.132**
	(0.027)	(0.013)	(0.031)	(0.010)	(0.033)	(0.012)
INFLATION	0.0787*	0.088**	0.0713	0.083**	0.067	0.077**
	(0.086)	(0.027)	(0.118)	(0.025)	(0.148)	(0.028)
INFRASTRUCTURE		-0.0360		-0.028		-0.051
		(0.687)		(0.745)		(0.601)
HUMAN CAPITAL	--0.039		-0.047		-0.046	
(Education)	(0.313)		(0.247)		(0.255)	
INSTITUTION	0.213	0.120	0.206	0.107	0.214	0.103
(Investment profile)	(0.397)	(0.585)	(0.431)	(0.616)	(0.429)	(0.636)
CONSTANT	-147.26**	-132.54**	-135.30**	-124.94**	-129.98**	-125.04**
	(0.024)	(0.013)	(0.029)	(0.011)	(0.031)	(0.013)

Table 3.6 (Continued)

Collinearity diagnostics (VIF)						
TRADE	3.17	2.43	3.16	2.40	2.91	2.22
OIL (production)	2.21	2.25				
OIL (reserves)			1.90	2.05		
OIL (relative_ production)					1.16	1.04
GDP constant	3.47	3.28	3.06	2.84	2.09	1.65
INFLATION	1.56	1.45	1.52	1.45	1.49	1.45
INFRASTRUCTURE		1.54		1.55		1.60
HUMAN CAPITAL (Education)	1.85		1.88		2.12	
INSTITUTION (Investment profile)	1.67	1.62	1.70	1.64	1.71	1.63
Mean VIF	2.32	2.09	2.20	1.99	1.91	1.60
N. Observations	194	266	190	262	189	261
N. Countries	14	15	14	15	13	14
F test	4.59**	20.14***	10.31***	13.84***	5.04***	16.51***
	(0.0102)	(0.000)	(0.0003)	(0.0000)	(0.0085)	(0.0000)
Hausman test	11.29*	16.25**	6.92	11.98*	13.68**	27.43**
	(0.0797)	(0.0125)	(0.3285)	(0.0625)	(0.0334)	(0.0001)

Notes: p-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1%

Note: Ln (natural logarithm form).

Table 3.7: Dependent Variable: Inward FDI Percentage of GDP, Panel Analysis, Country Random-Effects (Model Model Based on Correlation Matrix). Impact of Oil Production, Oil Reserves, and Oil Relative_ Production.

Regressor	(1)	(2)	(3)	(4)	(5)	(6)
Ln TRADE	2.638**	1.466	2.256*	1.354	3.548**	2.40*
	(0.044)	(0.388)	(0.074)	(0.427)	(0.016)	(0.098)
OIL (production)	-0.001*	-0.0006				
	(0.099)	(0.158)				
OIL (reserves)			-0.0370	-0.027**		
			(0.112)	(0.029)		
OIL (relative_ production)					-161.03	-98.01
					(0.209)	(0.299)
Ln GDP	4.640**	3.003***	4.019***	2.88***	1.404***	0.564
	(0.011)	(0.009)	(0.009)	(0.003)	(0.000)	(0.161)
INFLATION	0.071*	0.088**	0.063	0.083**	0.054	0.072**
	(0.0.088)	(0.018)	(0.117)	(0.012)	(0.165)	(0.024)
INFRASTRUCTURE		0.0297		0.040		0.010
		(0.708)		(0.611)		(0.870)
HUMAN CAPITAL	-0.093		-0.029		-0.009	
(Education)	(0.321)		(0.329)		(0.597)	
INSTITUTION	0.285	0.292	0.298	0.258	0.437	0.384
(Investment profile)	(0.313)	(0.258)	(0.320)	(0.301)	(0.214)	(0.173)
CONSTANT	-118.88**	-78.91**	-103.21***	-75.21***	-50.04***	-25.51*
	(0.010)	(0.013)	(0.009)	(0.007)	(0.001)	(0.094)
N. Observations	194	266	190	262	189	261
N. Countries	14	15	14	15	13	14
Wald Chi2	30.13***	26.61***	34.85***	48.74***	47.46***	36.37***
	(0.000)	(0.0002)	(0.000)	(0.000)	(0.000)	(0.0004)
Hausman test	11.29*	16.25**	6.92	11.98*	13.68**	27.43**
	(0.0797)	(0.0125)	(0.3285)	(0.0625)	(0.0334)	(0.0001)

Notes: p-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1% . **Note:** Ln (natural logarithm form).

Table 3.8: Dependent Variable: Inward FDI Percentage of GDP, Panel Analysis, Country Fixed-Effects (Model Model Based on Correlation Matrix). Impact of Fuel and Oil Rents with Interaction.

Regressor	(1)	(2)	(3)	(4)
Ln TRADE	1.955	2.358	0.414	1.242
	(0.143)	(0.215)	(0.696)	(0.389)
Ln FUEL	1.740***	1.441***		
	(0.000)	(0.000)		
OIL RENTS			0.134	0.007
			(0.149)	(0.942)
Ln GDP	4.131***	4.475***	5.917**	5.146**
	(0.001)	(0.001)	(0.021)	(0.011)
INFLATION	0.079	0.0706**	0.093*	0.091**
	(0.102)	(0.046)	(0.089)	(0.035)
INFRASTRUCTURE		-0.006		-0.051
		(0.865)		(0.611)
HUMAN CAPITAL	-0.011		-0.053	
(Education)	(0.497)		(0.176)	
INSTITUTION	0.112	0.063	0.459	0. 226
(Investment profile)	(0.169)	(0.539)	(0.147)	(0.544)
INTERACTION1	-0.0577**	-0.0447**		
(Investment profile*Fuel)	(0.020)	(0.017)		

Table 3.8 (Continued)

INTERACTION2 (Investment profile*Oil Rents)			-0.018* (0.059)	-0.005 (0.676)
CONSTANT	-109.69*** (0.001)	-118.9*** (0.000)	-142.40** (0.021)	-129.22** (0.011)
N. Observations	176	229	194	266
N. Countries	13	14	14	15
F Test	476.00*** (0.0000)	74.34*** (0.0000)	4.48*** (0.0096)	98.97*** (0.0000)
Hausman test	82.09*** (0.0000)	58.33*** (0.0000)	15.15** (0.0341)	19.76*** (0.0061)

Notes: p-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1%.

Note: Ln (natural logarithm form).

Table 3.9: Dependent Variable: Inward FDI Percentage of GDP, Panel Analysis, Country Random-Effects (Model Model Based On Correlation Matrix). Impact of Fuel and Oil Rents with Interaction.

Regressor	(1)	(2)	(3)	(4)
Ln TRADE	4.679**	4.729**	3.161**	3.168*
	(0.036)	(0.022)	(0.033)	(0.053)
Ln FUEL	1.172***	0.927***		
	(0.000)	(0.003)		
OIL RENTS			0.055	-0.052
			(0.460)	(0.509)
Ln GDP	1.287***	1.250***	3.356***	1.755**
	(0.005)	(0.009)	(0.006)	(0.032)
INFLATION	0.0699	0.0615*	0.081	0.093**
	(0.157)	(0.073)	(0.111)	(0.035)
INFRASTRUCTURE		0.032		0.038
		(0.614)		(0.638)
HUMAN CAPITAL	0.014		-0.0250	
(Education)	(0.290)		(0.338)	
INSTITUTION	0.519***	0.499***	0.583	0. 442
(Investment profile)	(0.000)	(0.000)	(0.120)	(0.308)
INTERACTION1	-0.124***	-0.107***		
(Investment profile*Fuel)	(0.000)	(0.000)		

Table 3.9 (Continued)

INTERACTION2 (Investment profile*Oil Rents)			-0.014 (0.102)	-0.003 (0.774)
CONSTANT	-54.48*** (0.000)	-53.107*** (0.000)	-93.52*** (0.008)	-56.603** (0.036)
N. Observations	176	229	194	266
N. Countries	13	14	14	15
Wald Chi2	651.38*** (0.0000)	171.49*** (0.0000)	62.57*** (0.0000)	32.46*** (0.0000)
Hausman test	82.09*** (0.0000)	58.33*** (0.0000)	15.15** (0.0341)	19.76*** (0.0061)

Notes: p-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1%.

Note: Ln (natural logarithm form).

Table 3.10: Dependent Variable: Inward FDI Percentage of GDP, Panel Analysis, Country Fixed-Effects (Model Model Based on Correlation Matrix). Impact of Oil Production, Oil Reserves, and Oil Relative_ Production with Interaction.

Regressor	(1)	(2)	(3)	(4)	(5)	(6)
Ln TRADE	1.291	0.0448	1.029	0.405	0.887	0.0416
	(0.210)	(0.809)	(0.429)	(0.835)	(0.468)	(0.840)
OIL (production)	0.001	-0.0009**				
	(0.482)	(0.012)				
OIL (reserves)			0.019	-0.021		
			(0.243)	(0.208)		
OIL (relative_ production)					311.66	271.46
					(0.372)	(0.365)
Ln GDP	5.902**	5.707***	5.65**	5.192***	5.457**	5.255**
	(0.002)	(0.005)	(0.022)	(0.006)	(0.035)	(0.017)
INFLATION	0.083*	0.084**	0.085*	0.0812**	0.068	0.078**
	(0.082)	(0.038)	(0.093)	(0.037)	(0.155)	(0.029)
INFRASTRUCTURE		-0.040		-0.028		-0.054
		(0.645)		(0.741)		(0.599)
HUMAN CAPITAL	-0.046		-0.051		-0.045	
(Education)	(0.225)		(0.194)		(0.251)	
INSTITUTION	0.474	0.032	0.396	0.0789	0.236	0.114
(Investment profile)	(0.145)	(0.916)	(0.203)	(0.800)	(0.411)	(0.610)
INTERACTION3	-0.0003*	-0.00004				
(Investment profil*production)	(0.074)	(0.407)				
INTERACTION4			-0.007*	-0.0004		
(Investment profile*reserves)			(0.082)	(0.831)		
INTERACTION5					-69.616	-61.39*
(Investment profile*relative_production)					(0.351)	(0.344)

Table 3.10: (Continued).

CONSTANT	-144.76** (0.018)	-137.76*** (0.007)	-137.59** (0.021)	-125.87*** (0.008)	-132.49** (0.035)	-128.16** (0.017)
N. Observations	194	266	190	262	189	261
N. Countries	14	15	14	15	13	14
F test	13.30*** (0.0001)	33.17*** (0.000)	9.70*** (0.0003)	38.68*** (0.0000)	44.79*** (0.0000)	38.00*** (0.0000)
Hausman test	21.47*** (0.0031)	15.56** (0.0164)	12.26* (0.0923)	9.68 (0.2072)	15.20** (0.0188)	27.72*** (0.0001)

Notes: p-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1% .

Note: Ln (natural logarithm form).

Table 3.11: Dependent Variable: Inward FDI Percentage of GDP, Panel Analysis, Country Random-Effects (Model Model Based on Correlation Matrix). Impact of Oil Production, Oil Reserves, and Oil Relative_ Production with Interaction

Regressor	(1)	(2)	(3)	(4)	(5)	(6)
Ln TRADE	2.305*	1.357	2.089	1.281	3.656**	2.38
	(0.069)	(0.421)	(0.112)	(0.460)	(0.020)	(0.112)
OIL (production)	0.001	-0.001***				
	(0.574)	(0.007)				
OIL (reserves)			0.024	-0.030		
			(0.418)	(0.010)		
OIL (relative_ production)					181.96	-48.31
					(0.506)	(0.782)
Ln GDP	4.312***	3.366***	4.004***	3.053***	1.411***	0.610
	(0.006)	(0.000)	(0.004)	(0.001)	(0.000)	(0.155)
INFLATION	0.073*	0.084**	0.073	0.0824**	0.055	0.072**
	(0.089)	(0.031)	(0.101)	(0.026)	(0.169)	(0.025)
INFRASTRUCTURE		0.022		0.036		0.011
		(0.767)		(0.641)		(0.867)
HUMAN CAPITAL	-0.031		-0.032		-0.009	
(Education)	(0.279)		(0.273)		(0.592)	
INSTITUTION	0.482	0.205**	0.459	0.231	0.454	0.385
(Investment profile)	(0.167)	(0.557)	(0.177)	(0.507)	(0.212)	(0.188)
INTERACTION3	-0.0002	0.00003				
(Investment profile*production)	(0.219)	(0.446)				
INTERACTION4			-0.006	-0.0003		
(Investment profile*reserves)			(0.129)	(0.882)		

Table 3.11: (Continued)

INTERACTION5 (Investment profile*relative_production)					-55.55 (0.388)	-8.10 (0.848)
CONSTANT	-111.61*** (0.006)	-86.27** (0.002)	-52.55*** (0.004)	-78.69* (0.003)	-50.79*** (0.002)	-26.54 (0.101)
N. Observations	194	266	190	262	189	261
N. Countries	14	15	14	15	13	14
Wald Chi2	27.90*** (0.0002)	220.48*** (0.000)	52.70*** (0.0000)	144.68*** (0.0000)	100.69*** (0.0000)	432.33*** (0.0000)
Hausman test	21.47*** (0.0031)	15.56** (0.0164)	12.26* (0.0923)	9.68 (0.2072)	15.20** (0.0188)	27.72*** (0.0001)

Notes: p-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1% .

Note: Ln (natural logarithm form).

Table 3.12: System GMM, 1980-2009. Dependent Variable: Inward FDI Percentage of GDP.

	MODEL 1	**MODEL 2**
FDIIN Lag1	-0.055 (0.786)	-0.117 (0.304)
Lag2	-0.504*** (0.000)	-0.476*** (0.000)
Ln TRADE	11.693*** (0.003)	12.234*** (0.002)
Ln FUEL	0.733** (0.030)	0.666* (0.093)
OILRENTS	-0.212** (0.013)	-0.190** (0.034)
OIL (production)	0.001 (0.627)	0.001 (0.854)
OIL (reserves)	-0.009 (0.741)	-0.016 (0.484)
OIL (relative_ production)	-352.11* (0.080)	-357.11** (0.035)
LnGDP	2.084* (0.067)	2.585*** (0.006)
INFLATION	0.160 (0.118)	0.170** (0.026)
INFRASTRUCTURE		0.021 (0.692)
HUMAN CAPITAL (Education)	0.008 (0.497)	
INSTITUTION (Investment profile)	0.532 (0.114)	0.472 (0.131)
CONSTANT	-101.25** (0.021)	-114.73*** (0.003)
Number of Observation	169	221

Number of groups	12	13
Wald Chi2	3219.80*** (0.000)	16890.77*** (0.000)
A-B AR(1) test	-2.17** (0.030)	-2.28** (0.023)
A-B AR(2) test	1.62 (0.106)	1.04 (0.296)
Hansen test	0.00 (1.000)	0.00 (1.000)

Notes: This table reports dynamic panel GMM –system estimation. The AR (1) in the first differences rejects the null correlation and AR (2) accepts the null of no correlation, in Hansen statistic test for the validity of the over-identifying restrictions. In the estimation, collapse version of the instrument matrix is used, to limit the number of instruments. P-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1%
Note: Ln (natural logarithm form).

Table 3.13: System GMM, 1980-2009. Dependent Variable: Inward FDI Percentage of GDP. With Interaction**.**

	MODEL 1	**MODEL 2**
FDIIN Lag1	0.026 (0.910)	-0.126 (0.252)
Lag2	-0.484*** (0.000)	-0.455*** (0.000)
Ln TRADE	10.260*** (0.009)	12.108*** (0.005)
Ln FUEL	1.380*** (0.000)	1.648*** (0.000)
OIL RENTS	-0.090 (0.353)	-0.216*** (0.002)
OIL (production)	-0.001 (0.743)	-0.001 (0.142)
OIL (reserves)	-0.013 (0.814)	0.039 (0.377)
OIL (relative_ production)	415.44* (0.070)	273.70* (0.071)
Ln GDP	2.126* (0.057)	2.805*** (0.002)
INFLATION	0.149 (0.144)	0.166** (0.045)
INFRASTRUCTURE		0.021 (0.678)
HUMAN CAPITAL (Education)	0.016 (0.286)	
INSTITUTION (Investment profile)	0.817*** (0.003)	0.626*** (0.009)
INTERACTION1 (Investment profile *Fuel)	-0.170*** (0.002)	-0.179*** (0.000)

INTERACTION2 (Investment profile*Oil Rents)	-0.004 (0.725)	0.008 (0.481)
INTERACTION3 (Investment profile*production)	0.001 (0.497)	0.001** (0.036)
INTERACTION4 (Investment profile*reserves)	-0.001 (0.857)	-0.007 (0.105)
INTERACTION5 (Investment profile*relative_production)	-120.17** (0.031)	-99.85** (0.012)
CONSTANT	-98.06** (0.024)	-119.93*** (0.003)
Number of Observation	169	221
Number of groups	12	13
Wald Chi2	1458.73*** (0.000)	68359.35*** (0.000)
A-B AR(1) test	-2.02** (0.043)	-2.17** (0.030)
A-B AR(2) test	1.72* (0.085)	0.86 (0.393)
Hansen test	0.00 (1.000)	0.00 (1.000)

Notes: This table reports dynamic panel GMM –system estimation. In the Model 1 the AR (1) and AR .(2) in the first differences rejects the null of no correlation
But in Mode 2 the AR (1) in the first differences rejects the null correlation and AR (2) accepts the null of no correlation. Hansen statistic test for the validity of the over identifying restrictions. In the estimation, .collapse version of instrument matrix is used, to limit the number of instruments
P-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1%**.**

Note: Ln (natural logarithm form).

APPENDIX A

Table A.1: List of MENA Countries in the Sample

Algeria	Libya
Djibouti	Morocco
Egypt	Oman
Iran	Qatar
Iraq	Saudi Arabia
Jordan	Syria
Kuwait	Tunisia
Lebanon	United Arab Emirates
	Yemen

CHAPTER 4

EXTENDING DUNNING'S INVESTMENT DEVELOPMENT PATH (IDP): HOME COUNTRY DETERMINANTS OF OUTWARD FOREIGN DIRECT INVESTMENT FROM DEVELOPING COUNTRIES

4.1 Introduction

Outward foreign direct investment (OFDI) has played a crucial role in developing countries. During the past two decades, a review of data sources shows that the outward foreign direct investment is growing rapidly from developing and transition economies, and the most important investment is being made in the service sector. The share of developing economies in global OFDI has fluctuated between 8 percent and 15 percent over the past 25 years (World Investment Report, 2006) (hereafter UNICTAD, 2006). Outward foreign direct investment was only increased from Latin America, Caribbean, and West Asia in 2005.

The most important aspect of globalization in the world economy is Transnational Corporations (TNCs). Developing and transition economies accounted for one quarter of the total number of TNCs in the world. Due to the increased number of TNCs through cross-border Mergers and Acquisitions (M&As) from developing countries, the number of parent companies has risen quickly, especially in Brazil, Hong Kong (China), India and Korea.

Developing countries have now become internationalized, increasing their competitiveness and performance in foreign markets with TNCs through outward foreign direct investment, which is one of the ways to protect profitability and capital value - by establishing operations abroad. To make a decision to invest overseas, certain questions must be answered, such as where developing and transition economies should invest, and when or on what scale, especially for new or small TNCs.

Aside from the main types of competitive advantages we mention above, developing-country TNCs vary widely in terms of country origins, their level of maturity, position in the value chain and strategies (UNICTAD, 2006). The implication of this variety is that the drivers of internationalization manifest themselves in a wide variety of ways

(UNCTAD, 2006). The drivers are factors that trigger a company's internationalization or further expansion. There are a number of ways to classify these drivers, one of which is in terms of home country drivers (push factors), host country drivers (pull factors), and "policy" factors in both home and host countries.

Home country drivers (push factors), refer to conditions that cause companies to move abroad, and consist of four main types: market and local business conditions, costs of production (including constraints in factor inputs), trade conditions and home government policies. In connection with market push factors, numerous developing countries have a limited home market in terms of scale and opportunities to expand. The effect of this on a firm may be intensified by such factors as the existence of trade barriers in actual or potential markets (e.g. inducing companies to invest overseas to bypass those barriers), a lack of international linkages with customers in the target market or home-based industrial customers moving their production overseas.

A number of host country drivers "pulling" TNCs to invest in particular economies mirror the drivers classified according to the motives of foreign investors: market-seeking, non market-seeking, creative assets, efficiency-seeking and other motives. Consequently, market pull factors are likely to be the foremost determinants of FDI in particular host economies. In the case of developing countries, markets that are large or growing will be the most attractive, but considerations of market size will, of course, depend on the type of product. Some product markets might be relatively large even in "small economies" (e.g. because of per capita incomes in the case of consumer goods).

Developing and transition economies' TNCs prefer to invest in developing rather than developed countries, as they have similar levels of consumption and similar institutions. Moreover developing countries have limited local markets or intense competition, and rising costs of production in home economies seem likely to be invested in neighboring or developing and transition countries, depending on the motivations and strategies behind their decision.

Developing countries can obtain benefits from OFDI, such as knowledge, and technology. In addition, developing countries can improve their ability, competitiveness, export performance, can gain more experience, and have a higher national income and better employment opportunities (WIR, 2006). However, it may pose several risks in the

home economy. It could reduce domestic investment, with less added to the capital stock and the loss of jobs.

Most of the literature studies host countries determinants (e.g. Stoian and Filippaios, 2008; Verma and Brennan, 2011; Anwar et al., 2008; Buckley et al., 2007; Chow, 2012; Zhang and Daly, 2011; Kumar, 2007; Wang et al., 2012; Barry et al., 2003; Kalotay and Sulstarova, 2010; Liu et.al., 2005; Kolstad and Wiig, 2012).

On the contrary, studies focusing on the determinants of OFDI home or source countries are fairly thin (e.g. Kyrkils and Pantelidis, 2003; Wei and Zhu, 2007; Filippaios and Papanastassiou, 2008; Cheung et al., 2012; Mishra and Daly, 2007; Stoian, 2013). The empirical literature focusing on outward foreign direct investment from developing and transition economies is limited (e.g. Das, 2013; Kayam, 2009).

In this chapter I address the gap in the literature by looking at the home country determinants from developing countries and make an important contribution under Dunning's Investment Development Path (IDP) theory on outward FDI.

The aim of this chapter is to investigate the home country determinants of outward FDI from developing countries by extending Dunning's IDP theory. There is not a large amount of literature in regard to the determinants of OFDI from source countries. Moreover, the empirical literature reviews of outward foreign direct investment are limited. For that purpose, OFDI for a panel of 109 developing countries between 1960 and 2012 was examined. We first estimate the full sample (109) of developing countries, then we estimate for the sub-sample (103) excluding those countries which have a significant amount of foreign direct investment from developing and transition economies (Brazil, China mainland, Hong Kong (China), Macau (China), India and Russia). The estimates are run by the Fixed Effects (FE), Random Effects (RE), and the Generalized Method of Moments system (GMM) method.

The results clearly demonstrate that business conditions, level of economic development, exports, communications, the financial development sector, and strong currencies play a crucial role in spurring outward foreign direct investment from developing countries. Findings also suggest that the IDP theory and the theory based on

strength of currency and exchange rate best explained outward FDI activities from developing countries.

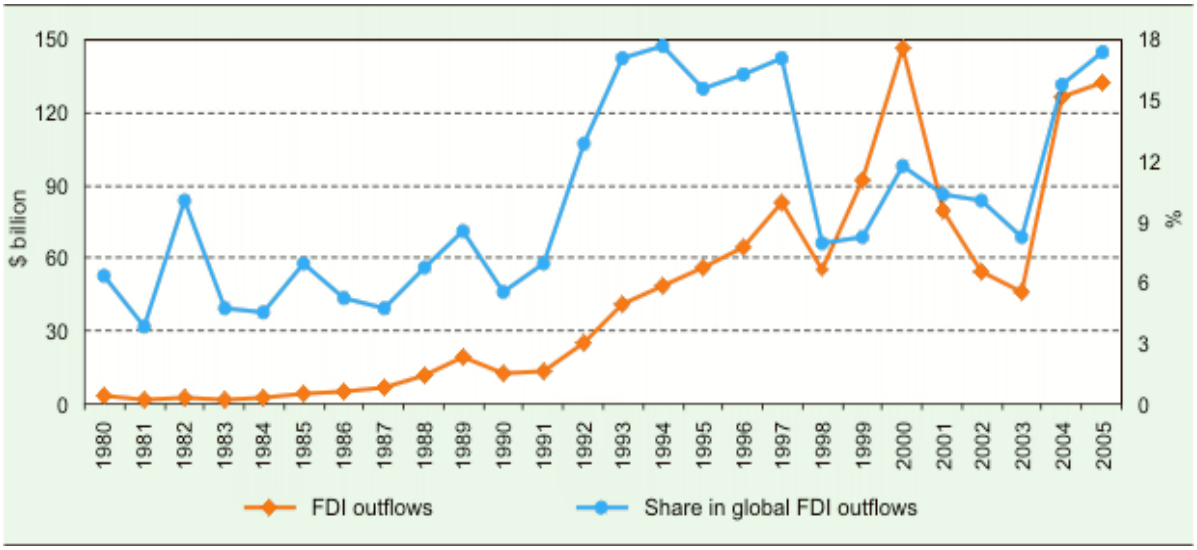
The paper is organized in six parts. Section 2 presents an outline of trends in outward foreign direct investment. Section 3 analyses the determinants of outward foreign direct investment and empirical evidence. Section 4 illustrates the data employed to build the key variables of our analysis and describes the model and briefly explains the methodology employed in this study. Section 5 discusses the results. Section 6 discusses the robustness check with some excluded countries. Conclusions are provided in section 7.

4.2 Recent Trends in Outward FDI (OFDI) from Developing Countries

Recent years have seen a rise in OFDI from developing and transition economies in absolute terms as well as relative terms. According to the world investment report of 2006, outward from developing and transition economies account for about 17 percent of the world's outward foreign direct investment. The share of those economies has fluctuated between 4 percent and 18 percent in global OFDI (Figure 4.1).

The most important OFDI from developing and transition economies is in the service sector; the total value is recorded as 15 percent in trade, construction at 12 percent, business activities at 14 percent, transport and hotels at 9 percent and restaurants, storage and communication at 8 percent.

Figure 4.1: FDI Outflows from Developing and Transition Economies, 1980–2005.



***Source*:** UNCTAD, FDI/TNC database (www.unctad.org/fdistatistics).

Cross-border M&As by TNCs arise from developing and transition economies as a source of outward foreign direct investment. This accounted for 4 percent to 13 percent in value terms and between 5 percent and 17 percent in terms of deals. It is concentrated in the north and the south, which rose from $9 to $43 billion between 2003 and 2005.

The geographical composition of OFDI will be changed over time; in 2005 China recorded the fourth largest outflow of FDI came from developing and transition economies. The main drivers are trade, natural resources, and business activities. In addition, over the past decade the number of parent companies increased by 450 percent from 2,700 to more than 14,800 in Brazil, Hong Kong (China), India and Korea. In contrast, outflow foreign direct investment rose by 7 percent ($15 billion) for a fourth consecutive year in South-East Europe and the Commonwealth of Independent States (CIS), but in the same period the growth rate of parent companies was only 47 percent.

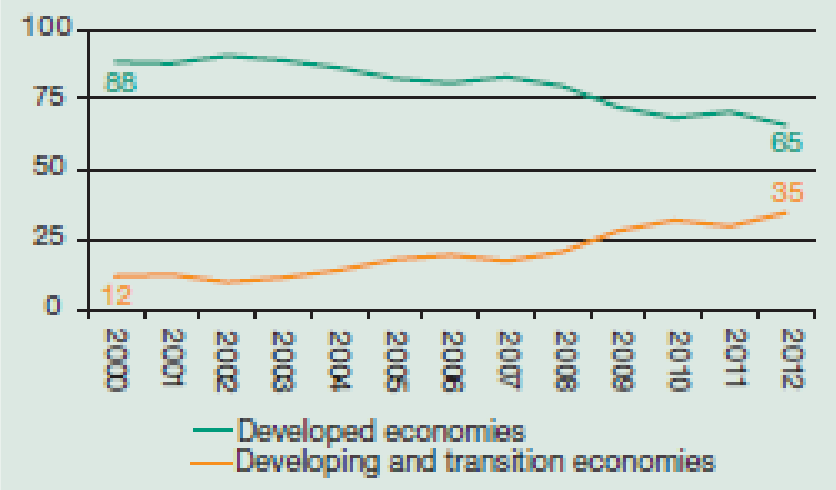
On the other hand, while there was a dramatic increase of OFDI from South, East and South-East Asia, and Oceania in 2004, which quadrupled to reach the second highest level ever, there was a decline of 11 per cent in 2005 but it still remained relatively high ($68 billion) as a result of an 83 percent increase in the value of cross-border M&As (UNCTAD, 2006). The main sources of outward FDI from Asian developing countries are Hong Kong (China), China, Taiwan, Singapore, and Republic of Korea.

Since oil prices and foreign exchange reserves have increased in many developing countries, this has made those countries the most significant sources of OFDI, particularly in West Asia. For instance, Kuwait, Saudi Arabia, and United Arab Emirates increased OFDI from $7 billion in 2004 to $16 billion in 2005. Latin America and the Caribbean took up 19 percent ($33 billion) in 2005 while Central America and the Caribbean recorded 44 percent ($7 billion). Outward FDI from South America rose by 5 percent ($12 billion).

In 2005, Russia was still the leader in developing country accounting for 86 percent of the total; indeed, Russia recorded the highest levels of investment abroad. Moreover, the oil price and improvement in their natural resources boosted Russia's TNCs.

Outflows of FDI from Africa declined strongly by 44 percent to $1.1 billion from $1.9 billion. The main reason for this was the slump in outward FDI from South Africa by 72 percent ($1.34 billion). Outward FDI from Africa was recorded at 0.1 percent, while outflows only from developing countries were 0.9 percent. The top six African countries in terms of outflows of FDI in 2005 which were reported as being 81 percent were Nigeria, Libyan Arab Jamahiriya, Morocco, Liberia, Egypt, and South Africa.

Figure 4.2: Share of major economic groups in FDI outflows, 2000–2012.



***Source*:** UNCTAD, FDI/TNC database (www.unctad.org/fdistatistics).

In 2009, the outflows from developing countries totaled $229 billion, which represented a fall of 23% over the previous year and ended the upward trend that had developed over the previous five years. The results were less severe in developing and transition economies, whose share increased from 19 per cent in 2008 to 25% in 2009, reinforcing their global position as emerging sources of FDI.

In 2010, the outward FDI from developing and transition economies reached $388 billion, with their share in global outflows increasing to 29% (from 16% in 2007, before the financial crisis). Further analysis of this general increase reveals significant differences between countries. Key to the strong growth in FDI outflows were investors from South, East and South-East Asia and Latin America. Outflows from Hong Kong (China) and China – the largest FDI sources – reached historical peaks of $76 billion and $68 billion, respectively, which represented an increase of more than $10 billion each. Boosted by strong domestic economic growth, the big outward investor countries from Latin America – Brazil, Chile, Colombia and Mexico – increased their overseas acquisitions, taking advantage of investment opportunities (particularly in developed countries) that have arisen in the wake of the global economic crisis.

Large-scale divestments and redirection of outward FDI from government-controlled entities to support declining domestic economies (due to the global economic crisis) caused outflows from major investors in West Asia to fall significantly. FDI outflows from transition economies increased to a record total of $61 billion (representing growth of 24 per cent). Following the pattern of previous years, most of the outward FDI ventures were carried out by Russian TNCs, followed by TNCs from Kazakhstan. In 2010, there were six developing and transition economies amongst the top 20 investors UNCTAD's World Investment Prospects Survey 2011–2013 (WIPS), demonstrating the increasing significance of developing and transition economies as investors, a trend that is likely to continue in the foreseeable future (UNCTAD, forthcoming a). TNCs in developing and transition economies are now investing in other emerging markets, due to stronger recovery and healthier economic outlook. In 2010, 70 per cent of FDI projects (cross-border M&A and Greenfield FDI projects) from developing and transition economies were invested within the same regions. TNCs (in particular the large state-owned enterprises) from the BRIC countries – Brazil, the Russian Federation, India and China – have gained in significance as major investors in recent years following rapid economic

growth in their home countries, and strong financial resources and incentive to acquire resources and strategic assets overseas.

4.3 The Determinants of FDI Outflows from Developing Countries: Empirical Evidence.

As I mention above, the empirical literature on OFDI is fairly thin and focuses on outward investment from the largest firms in such places as China (Liu et al., 2005; Zhang and Daly, 2011; Kolstad and Wiig,, 2012; Ramasamy et al., 2012; Buckley et al., 2007; Wang et al., 2012), Russia (Kalotay and Sulstarova, 2010), and India (Verma and Brennan, 2011; Kumar, 2007; Nunnenkamp et al., 2012). Theoretical research on the determinants of outward FDI has been remarkable in recent years, but empirical analysis is scarce. Thus, there is very little empirical evidence on the determinants of outward FDI in developing countries.

The world investment of the UNCTAD in 2006 report on home country drivers and determinants of outward foreign direct investment identifies four main types that influence firms to move abroad: trade and market, production costs, local business conditions, and home government policies and the macroeconomic framework. So, rising costs of production and limited size of local markets in the source economy and competition from foreign firms and local firms will push companies out of their home countries.

Since the release of the 2006 World Investment Report (UNICTAD, 2006), there has been little research on outward investment from developing countries and significant data limitations. The following section will be devoted to the determinants of outward foreign direct investment from developing countries.

4.3.1 Level of Economic Development

As reported by the Investment Development Path theory, the outward foreign direct investment depends on the country's level of economic development, measured by the country's GDP per capita. The literature regarding the country's level of economic development and outward FDI basically attempts to focus on the relationship between these two variables; for instance, Liu et al. (2005) showed that GDP per capita should be

included in the Investment Development Path theory as an accompanying factor. Similarly, Ramasamy et al. (2012) showed the effect of GDP per capita on outward foreign direct investment by constructing a Poisson count data regression model. The results showed positive and significant outcomes for GDP per capita on outward FDI.

In a more recent study, Das (2013) found that the level of economic development is an important determinant of outward foreign direct investment. In an attempt to prove the IDP theory, Stoian (2013) investigated home country determinants of foreign direct investment outflows from post-communist economies, his results showing a high level of economic development hence a high outward FDI. The negative effect of GDP per capita on outward foreign direct investment was agreed. In addition, Kayam (2009) believed in the economic well-being of home country consumers, and he concluded that GDP per capita is not stationary and provided mixed results in his estimation.

Consistent with the IDP theory, the level of economic development is expected to have a positive impact on outward FDI from developing countries because these countries have more incentive for expansion of internationalization.

4.3.2 Trade Openness

The relations between trade factor and outward FDI have been widely studied in many empirical papers as one of the main determinants of outward foreign direct investment. The relationship between source country trade and outward foreign direct investment depends to a large extent on the incentive of a country's TNCs. If the motivation is natural resources, the outward FDI promotes the import of natural resources and exports of the inputs needed for extraction. If the TNCs seek efficiency or cost decreases, outward FDI could enhance exports as well as imports, particularly in intra-firm trade. Their extent and pattern rely on the geography of TNCs' integrated international production activities.

Additionally, the relationship between source country trade and outward foreign direct investment is dependent on industry characteristics, for instance the tradability of services and goods produced by that industry. Where tradability is finite or non-existent, there will be few if any measurable direct trade effects.

It is only in tradable goods and services that the question of whether outward FDI enhances or displaces the exports of the home country assumes relevance, in spite of the fact that it is important to note that FDI in tradable services – as an important area for FDI from developing countries – can contribute to raising exports of tradable products from home countries (UNICTAD, 2006).

Buckley et al. (2007) found that the relationship between exports and imports between the home and host countries encouraged FDI outflows. In contrast, Zhang and Daly (2011) argued that exports from the home country enhanced outward FDI, but imports had negative and insignificant effects. Consequently, working on outward FDI from China, Liu et al. (2005) predicted that China's FDI outward would not be significantly affected by exports and the relationship between them was ambiguous. Das (2013) indicated that trade encouraged outward FDI from developing countries. Moreover, trade allowed domestic firms to learn about foreign markets and obtain skills and knowledge related with operating internationally.

Kyrkilis and Pantelidis (2003) followed the work of Das (2013). Their work mentioned the idea that through internationalization firms have opportunities for gaining knowledge about foreign markets, and entering into foreign markets through foreign investment rather than exports. Kayam (2009) expected that trade would provide good opportunities for MNCs of the developed world to learn about foreign markets before investing abroad. This study found mixed results for this variable on outward FDI. China's outward FDI is attracted to countries with a high number of exports from China (Zhang and Daly, 2011). Nunnenkamp et al. (2012) used different models which in their research to examine trade as one of the determinants of outward FDI in India; they concluded that the coefficient of trade is insignificant in all models. Exports should have a positive impact on outward FDI.

4.3.3 Business Conditions

The business conditions factor, which has been examined in previous literature, is one of the main determinants of outward foreign direct investment. Evidence suggests that an increase in competition from both local and foreign companies is the main factor for pushing companies out of their home countries and that causes them to become

transnational corporations (TNCs). Kayam (2009) declared that foreign direct investment inflows paid more attention to increasing competitiveness in local markets and pushed it to become transnational corporations (TNCs), thus enhancing outward foreign direct investment. Stoian and Filippaios (2008) illustrated that the most developed theory clarifying both inward FDI and outward FDI together, was develope by extending Dunning's Investment Development Path (1981a,b, 1986, 1988a,b), and is Dunning's eclectic paradigm Ownership–Location–Internalization (Dunning, 1977, 1998a,b, 2001).

Furthermore, Stoian (2013) found that inward FDI enhanced outward FDI, suggesting that companies have ownership advantages and exploit these through investing abroad. Using bilateral and multilateral inward FDI of the host country, Zhang and Daly (2011) found that inward FDI promoted outward FDI from China.

In line with the above findings, Nunnenkamp et al. (2012) present gravity model specifications using different methods into the impact of inward FDI on outward FDI. The author concludes that the inward FDI was positive and significant in some specifications, but they were no longer significant in other estimations. Amal et al. (2009) present panel data between 1995 and 2007 in three countries in Latin America (Brazil, Chile, and Mexico) and found that stock inward FDI in lagged form is positive and significant. They suggest that foreign investments by enterprises in Latin American countries may well substitute exports.

In contrast, Liu et al. (2005) suggested that inward foreign direct investment does not affect outward foreign direct investment in China. Additionally, they stated that decisions on investment in China need internalization rather than ownership advantages from multinationals re-locating. Buckley et al. (2007) indicated that host country inward FDI does not have a significant effect on outward FDI from China.

In this study it is expected that outward FDI will be positively associated with inward FDI.

4.3.4 Production Costs (CELL)

The literature regarding production costs and outward FDI basically attempts to focus on the relationship between these two variables. The World Investment Report (2006)

showed that rising costs in home economies are the most important driving force to push firms from home countries. Banga (2007) agreed with that, showing lower availability of infrastructure leads to higher infrastructure costs and higher outward FDI.

In other words, good communication between countries enhances control of foreign affiliates (Kayam, 2009). Kayam (2009) examined the effect of infrastructure on outward foreign direct investment from developing and transition economies. To do so, the work examined these countries in four different groups: Africa, America, Asia and Transition. It was found that infrastructure is the main driving force of FDI outflows. The effect of production costs on outward FDI had both positive and negative effects. In spite of the lack of availability of CELL this can push outward foreign direct investment from developing countries, and better CELL could encourage outward FDI between countries.

4.3.5 Macroeconomic Conditions

In the theory of the determinants of outward foreign direct investment, there is a specific risk related to FDI outflows from home countries as well as exchange rate fluctuation. Home currency appreciation reduces the nominal competitiveness of exports, increasing that motive for choosing FDI as a mode of serving markets (Kyrkilis and Pantelidis, 2003). Das (2013) and Kyrkilis and Pantelidis (2003), among others, suggested that an appreciation of currency tends to favour outward FDI.

For a comparison between the two, Das (2013) found that a negative exchange rate had an insignificant effect on outward foreign direct investment, but Kyrkilis and Pantelidis (2003) found mixed results of the effects of the exchange rate on outward FDI. Wei and Zhu (2007) presented an empirical estimation based on Poisson regression; their results showed that the exchange rate is not significant when attracting outward FDI. According to research by Stoian (2013), although the home country currency exchange rate is against dollars, one can find that the exchange rate has a significant negative effect on outward FDI.

For the host country, Buckley et al. (2007), among others, accepted that a low or undervalued exchange rate encouraged exports but discouraged outward foreign direct investment. Their study found that a host country's official annual average exchange rate against RMB (fixed in dollars) was insignificantly positive. On the other hand, Zhang and

Daly (2011) also used the official annual average exchange rate of the host country, but did not find any significant results on outward FDI in China.

The hypothesis is that an appreciation of real effective exchange rate increases FDI outflows from developing countries. In other words**,** FDI theories based on strength of currency and exchange rate effects predicted that firms from countries with strong currencies tend to be sources of FDI (home countries), whereas countries with weak currencies tend to be hosts or recipients of FDI.

4.3.6 Financial Development Sector

There is very little empirical evidence on the effect of financial sectors on outward foreign direct investment. Das (2013) uses the panel data, random-effect estimator and a large number of developing countries covering the period of 1996 to 2010 to examine home country determinants of outward FDI from developing countries. The author performed a number of additional variables such as domestic credit to private sectors and manufacturing value added, nevertheless none of these sectors were statistically significant. The financial sector is expected to positively correlate with outward foreign direct investment in developing countries.

From the literature reviewed above, we can safely conclude that previous studies failed to reach a consensus on the true effects of determinants of outward foreign direct investment from developing countries. There is therefore room to explore the subject further through this empirical paper.

4.4 Empirical Model and Data

4.4.1 Data Specifications

In order to test the hypothesis about the determinants of foreign direct investment outflows from developing countries inspired by the IDP theory, in this study, we combined the basic IDP theory, OLI paradigm, with additional variables that were considered to be related in some literature reviews. As already mentioned in the second chapter, refer to the IDP theory for a detailed explanation of this theory.

In this study, a large unbalance in the panel data was generated, consisting of 109 developing countries and conducted between 1960 and 2012. The dataset is unbalanced

due to missing observations largely on the exchange rate variable. The choice of the 109 developing countries is based on data available, and all the countries were included in each regression (Appendix B.1 shows the list of countries). The estimation is based on a full sample of 109 developing countries, and a sub-sample of 103 developing countries excluding from the full sample those countries which have a significant amount of foreign direct investment from developing and transition economies (Brazil, China mainland, Hong Kong (China), Macau (China), India and Russia). (Appendix B.2 shows the list of countries excluded).

To the best of our knowledge, there are not many previous studies which have placed these determinants on outward foreign direct investment (OFDI) in developing countries. In addition, most studies focus on host country determinants not as source country determinants (Chow, 2012; Zhand and Daly, 2011; Kolstad and Wiig, 2012). Only a few studies in the literature explained the main determinants in developing countries. The main variable in this study is outward FDI, defined in some of the literature as net outflows as a percentage of GDP (Das, 2013).

In the baseline model, the explanatory variables pertaining to the home country are grouped according to local business conditions; exports in natural logarithm form ; level of economic development in natural logarithm form, production costs; the macroeconomic framework in natural logarithm form , and financial sectors. The proxies were used to represent financial sectors in supporting outward FDI. They were domestic credit to private sectors as a percentage of GDP; manufacturing, value added as a percentage of GDP. Das (2013) performed all these variables, but did not find any of these variables statistically significant. The choice of variables and proxies is guided by the literature, and according to the IDP theory.

Among the explanatory variables is business conditions, defined as net inflows of foreign direct investment as a percentage of (GDP) gross domestic product. Inward FDI is one of the most common control variables in empirical outward FDI; IDP theory suggests that inward FDI enhances outward FDI. As a result of spill-over from FDI, domestic companies improve their ownership advantages and exploit these new ownership advantages through OFDI (Stoian and Filippaios, 2008). A positive coefficient is expected.

Openness to international trade is essential to outward FDI, and it helps to enhance OFDI. Empirically, for instance, Stoian and Filippaios (2008), Das (2013), and Kyrkilis and Pantelidis (2003) have shown that international openness is an important determinant of outward FDI. They measured trade openness as a ratio of sum of exports and imports as a percentage of GDP. Stoian (2013) measured trade openness as home country trade and foreign exchange liberalization reforms. Kayam (2009), for example, uses exports (million $) and imports (million $). Export of goods and services as a percentage of GDP in natural logarithm form are included in all specifications in this study following Banga (2007), who identified it as another important control variable in OFDI regressions. An export-oriented economy allows domestic companies to learn about foreign markets and operate internationally, and leads to companies to change their mode of internationalization from exporting to investing abroad (Kogut, 1983). Hence, a positive relationship with outward FDI is expected.

Additionally, for market size, the previous literature uses various indicators. Kyrkilis and Pantelidis (2003) use the Gross National Product (GNP). Some use GDP constant (e.g., Banga, 2007; Kayam, 2009; Stoian and Filippaios, 2008; Filippaios and Papanastassiou, 2008), whereas some use GDP growth (e.g., Banga, 2007; Filippaios and Papanastassiou, 2008). The most used measure in the literature for the level of economic development and more appropriate and relevant to IDP theory is gross domestic product per capita (e.g., Stoian, 2013; Zhang and Daly, 2011) in constant and natural logarithm form (GDP per capita). Most developing countries have a small market size and engaging in outward foreign direct investment is the best opportunity for growing and expanding through investing overseas. Market size depends on the type of products; some product markets might be relatively large even in small economies (for instance, because of per capita income in the case of consumer goods) (Unctad, 2006). These firms will not be driven to find foreign markets and domestic markets may not have an incentive to seek markets abroad to expand. Therefore, a positive coefficient is expected. In the regression, the logarithm of real GDP per capita is used in line with previous literature.

We also include a proxy for production costs to measure the CELL of a country using other control variables. The importance of production costs as a key determinant for OFDI and development has long been discussed in the literature (Kayam, 2009). The previous

literature uses three different indicators. First, Banga (2007) uses transport and communication as a ratio of GDP, and electricity consumed as a ratio of GDP as a proxy for production costs. Second, cellular subscribers per 1000 people is used (Kayam, 2009). Following the previous literature review different proxy for infrastructure are included as a regressor in the estimations, but results appear insignificant. Following Kayam (2009), in this model we used Cell measured as telephone lines per 1000 people as a proxy for production costs. A positive relationship with outward FDI is expected.

The literature on the macroeconomic framework uses different proxies to measure exchange rate. One main approach is to use the exchange rate against US dollars (e.g., Stoian, 2013). Some studies use other measures like inflation consumer price index (e.g., Wei and Zhu, 2007; Kayam, 2009), while some studies use other measures such as the interest rate (e.g., Kyrkilis and Pantelidis, 2003). In this study, we introduce the real effective exchange rate index in the natural logarithmic form as a control variable in this model, as in Das (2013); Kyrkilis and Pantelidis (2003); and Wei and Zhu (2007). Another macroeconomic determinant of outward FDI is the interest rate (Kyrkilis and Pantelidis, 2003). The uses of the interest rate in these models were not significant. A positive relationship with OFDI is expected.

The study also performed a number of iterations by including additional variables such as financial sectors. Financial sectors are defined as the domestic credit to private sectors as a percentage of GDP; manufacturing, value added as a percentage of GDP. Das (2013) did not find any of these variables statistically significant. A positive coefficient is expected.

The choice of variables and proxies is guided by the literature, and according to IDP theory. Data for the test hypothesis is from the World Bank (2011) World Development Indicators (WDI). The real effective exchange rate is available for only for 47 countries, less than half of the 109 developing countries. Annual data has been considered (Appendix B.3 shows the list of countries which have data for exchange rates).

In empirical estimations, the expected signs of the coefficients of all explanatory variables are positive. The definitions of these variables and sources of their data are contained in Table 4.1. Table 4.2 contains the descriptive statistics on these baseline variables, and Table 4.3 shows the correlation coefficient matrix.

4.4.2. Econometric Methodology and Model Specification

The baseline estimation models used in this study are based on literature reviews related to economic analysis using Dunning's eclectic paradigm approaches and their dynamic variant known as the Investment Development Path (IDP). In general, an attempt has been made to include all the variables that have been found to be relevant by the empirical literature as described in detail in Section 4.4.1.

As pointed out in the introduction sections, there are a number of ways to classify these drivers, one of which is in terms of home country drivers (push factors), host country drivers (pull factors), and "policy" factors in both home and host countries. In this chapter, we focus on the home country drivers, which are push factors from developing countries to move abroad.

In order to estimate the determinants of explanatory variables on outward foreign direct investment, a baseline model (equation (4.1)) is formulated as

$$FDIOUT_{it} = \alpha + \beta_1 FDIIN_{it} + \beta_2 EXPORTS_{it} + \beta_3 GDP\ pc_{it} + \beta_4 CELL_{it} +$$

$$\beta_5 DOMESTIC_{it} + \beta_6 MANUFACT_{it} + \beta_7 EXCHANGERATE_{it} + \mu_{it} \quad (4.1)$$

Where, FDIOUT is net outflows as a percentage of GDP and is the dependent variable. The independent variables are FDIIN, which is net inward FDI as a percentage of GDP; EXPORTS is exports of goods and services as a % GDP in natural logarithm form; GDP pc is gross domestic product per capita as a proxy for level of economic development in natural logarithm form; CELL is telephone lines (per 100 people) as a proxy for infrastructure and communications; DOMESTIC is domestic credit to private sectors as a percentage of GDP; MANUFACT is manufacturing, value added as a percentage of GDP; EXCHANGERATE is currency strength denoted by the real effective exchange rate index in natural logarithm form; α and β are parameters; and μ_{it} is an error term. The subscripts I and t represent country and time, respectively. Further, $i = 1, \ldots, N$; $t = 1, \ldots, T$.

The error term μ consists of country- and time-specific effects, as follows:

$$\mu_{it} = \nu_i + \gamma_t + \varepsilon_{it} \quad (4.2)$$

Where, ν_i denotes the country-specific effects that are time invariant, for example geographical and demographic factors may be correlated with explanatory variables. γ_t is the time-specific fixed effects and is capable of picking up the impact of any crisis that has affected any of the countries in the sample. ε_{it} by assumption is an independently and identically distributed component with zero mean and variance $(0, \sigma^2)$ over time and across countries.

We employ a four-stage regression strategy or fourth models in all estimations with the aim to identify the significance of level of economic development, business condition, trade openness, production costs, financial sectors and macroeconomic condition, following Stoian (2013). Firstly, we begin the estimation of the baseline model by testing the significance of economic development and business condition for standard determinants of outward foreign direct investment containing only IDP variables (model 1). Then we add exports with production cost variables into the regression (model 2). Third, we analyze the significance further by adding the financial sectors variables (model 3). Finally, we add exchange rate variable into the regression (model 4). This strategy is expected to provide sufficient robust evidence on the significance of the determinants of OFDI from developing countries. Consistent with the extant literature (e.g., Das, 2013; Kalotay and Sulstaroval, 2010), the four models' parameter estimations use fixed-effects and random-effects generalized least squares methods. The decision to treat the effects as fixed or random was based on the Hausman specification test. Alternatively, robust check methods were also used for all estimations.

Estimating the above equation by least squares will raise the issue of potential endogeneity among the variables of interests. This may be due to the correlation of the explanatory variables. One of the most common ways is to use a dynamic estimation technique to control for endogeneity problems. Pooled Ordinary Least Square (OLS) make the estimator biased and produce inconsistent results due to the presence of the lagged dependent variables and country fixed effects, whereas dynamic models also yield biased estimates.

To deal with the bias problem in dynamic panel data models, Generalized Method of Moments (GMM) estimators have been developed. The first-difference GMM proposed by Arellano and Bond (1991) has been the most common approach in estimating a dynamic panel data model. Arellano and Bond (1991) developed the first-differenced GMM, and this method corrects for heterogeneity, omitted variables bias and endogeneity of the regressors, resulting in consistent estimates of the variables even with the presence of measurement errors. The problem with the first-difference GMM estimator is that lagged levels of the variables are poor instruments if the variables are close to a random walk.

Taking into account all the possible problems described in the first-difference GMM estimator, we apply the most suitable method, which is the GMM estimator introduced by Arellano and Bover (1995), Blundell and Bond (1998). The system GMM allows us to estimate a regression equation in differences and in levels simultaneously, where each equation used its own set of internal instruments. The system GMM estimator uses two sets of equations as instruments, that is the level equation is instrumented by lagged differences and difference equation is instrumented by the lagged levels. Furthermore, in order to reduce the number of instruments, the instrument set is collapsed.

We use a dynamic panel approach with the system GMM estimator in this chapter, which has two advantages, as illustrated in the previous chapters.

The equation (4.1) is modified to take the suggested dynamics into account, specifically; lagged dependent variable is included in the model as follows:

$$FDIOUT_{it} - FDIOUT_{it-1} = (\alpha - 1) FDIOUT_{it-1} + \beta X_{it} + \mu_{it} \quad (4.3)$$

$$\mu_{it} = \nu_i + \gamma_t + \varepsilon_{it} \quad (4.4)$$

Where, $i = 1,\ldots,N$; $t = 1,\ldots,T$

Equation (4.3) can be rewritten as:

$$FDIOUT_{it} = \alpha\, FDIOUT_{it-1} + \beta\, X_{it} + \nu_i + \gamma_t + \varepsilon_{it} \quad (4.5)$$

For all $i = 1, \ldots, N$; $t = 1, \ldots, T$

Where, $FDIOUT_{it}$ is the dependent variable; and X_{it} is the vector of explanatory variables; ν_i is the unobserved country-specific effects; γ_t is the time- specific effects; ε_{it} is an independently and identically distributed component with zero mean and variance $(0, \sigma^2)$ over time and across countries; and subscripts i and t denote country and time periods, respectively.

In order that the dynamic panel model includes lagged values of the dependent variables as regressors, the model introduces an endogeneity problem by construction, since correlated with the differenced error terms $E[FDIOUT_{i,t-1}, \varepsilon_{i,t}] \neq 0$. This is because $FDIOUT_{it-1}$ depends on ε_{it-1} which is a function of ν_i and γ_t is competent in μ_{it}.

In this regard, it is possible to wipe out the unobserved country-specific effect by the difference of equation (4.5) as follows;

$$\Delta FDIOUT_{it} = \alpha\, \Delta FDIOUT_{it-1} + \beta\, \Delta X_{it} + \Delta\gamma_t \quad (4.6)$$

The system GMM overcomes the bias problems of the difference GMM estimator by taking both equations in level ((4.5)) and in differences (4.6) together. The estimator assumes that the country-specific effects are uncorrelated with the first difference of the dependent variable and the independent variables. Therefore, along with the usual assumptions of the difference in GMM, system GMM has two extra moment conditions, which are that the original error term, ε_{it}, is serially uncorrelated, and that the explanatory variables are weakly exogenous. The following are moment conditions:

$$E[FDIOUT_{i,t-s}(\varepsilon_{i,t} - \varepsilon_{i,t-1})] = 0 \quad \text{For } s \geq 2;\ t = 3, \ldots, T \quad (4.7)$$

And

$$E[X_{i,t-s}(\varepsilon_{i,t} - \varepsilon_{i,t-1})] = 0 \quad \text{For } s \geq 2;\ t = 3, \ldots, T \quad (4.8)$$

The consistency of the GMM estimator depends on the absence of serial correlation and the validity of lagged values as instruments. To test for autocorrelation, we apply the

Arellano and Bond test of autocorrelation (Roodman, 2009). The test has the null hypothesis of no autocorrelation and tests whether the differenced error term is correlated. The test rejects the null hypothesis for AR (1) but should not reject the null for AR (2). A Hansen test of over-identifying restrictions is employed to test the validity of the over-identification restrictions. The null hypothesis of this test is that the instruments are exogenous. This test has a Chi-square distribution with j-k degrees of freedom; j being the number of instruments and k the number of regressors. As a final step, standard errors are corrected for small sample bias based on the two-step covariance matrix attributed to Windmeijer (2005), as for one-step estimator, standard errors permit heteroskedasticity in ε_{it}. The estimator is consistent with the presence of endogenous variables and suitable instruments.

In view of the above, the study first estimates an equation (4.1) using panel fixed-effect and random-effect models. The Hausman specification test is performed in order to assess the suitability of the fixed-effect models against random-effect models. The Hausman test is motivated by the fact that the fixed effect and the random effect should not be different for the case where μ_i is uncorrelated with the regressors. Second, following the empirical work (particularly from e.g., Liu et al. 2005; Wei et al., 2007; Filippaios and Papanastassion, 2008), we resort to the dynamic panel data estimation. The dynamic model combines both equations in level (4.5) and in differences (4.6), which are estimated using the dynamic system GMM estimator as robustness checks.
Finally, the study uses cluster-robust standard error to control for possible heteroskedasticity and autocorrelation within firms.

In order to include the exchange rate in the baseline model theoretically, it is to be noted that data for real effective exchange rate was not available for the entire developing countries sample. Furthermore, the exchange rate was not available for the entire period, due to a loss of country information and, therefore, we considered two specifications were used for the system GMM estimation.

These estimations are conducted to check the robustness of the result and to be compared with the existing literature.

4.5 Results

4.5.1 Empirical Results

This section presents the estimation results for equations (4.1) and (4.5), which permit us to test the main research hypotheses. In order to ascertain the sensitivity of the main results, a series of robustness checks is also carried out. As we mention before, the estimation is conducted for two samples: the full sample of 109 countries, and the developing countries sub-sample of 103 countries.

The results of the determinants of OFDI from developing countries, which permit us to test the main research hypotheses, are reported in Tables 4.4 and 4.5 for the full sample and the results for the sub-sample are reported in Tables 4.9 and 4.10. To begin with, like many previous researchers in this field, I run a panel data Fixed-Effects (FE) and Random-Effects (RE) regression. As pointed out in the preceding sections, in this study we employ a four-stage regression strategy or four models in all estimations. Model 1 represents results using only the IDP variable, business condition and the country's level of economic development, measured by the country's GDP per capita. Model 2 presents results using exports with production cost variables in the regression with IDP variables, whereas Model 3 adds financial sectors into the regression. Finally, Model 4 presents results where macroeconomic condition (exchange rate) is used in the regression.

The results of the fixed- and random-effects estimators are represented in the all four estimations as in our previous analysis. The Hausman test, in the first three models, suggests that the fixed-effects model should be preferred to the random-effects model, whereas in the fourth model exchange rate was added to the Hausman test, which then indicated the appropriateness of the random effects.

Table 4.6 reports the results using the full sample dataset, and Table 4.11 reports the results using the sub-sample using the system GMM method. The robust Windmeijer (2005) finite-sample corrected standard errors are reported in all the Models. Employing the Hansen test of over-identifying restriction the present study finds that the over-identifying instruments are valid. The serial correlation test does not reject the absence of 2nd order serial correlation, which is the most important to detect autocorrelation in levels. The present study also finds that the lagged dependent variable is positive and

significant in Model 1, and is negative and significant in Model 2 in both full-sample and sub-sample regressions.

In all regressions, a series of robustness checks is also carried out to ensure that the estimates are not biased and efficient. As far as the results are concerned, the fixed-effect, random-effect, and system GMM results are meant for robustness check and comparison with earlier studies.

4.5.2Descriptive Statistics

Descriptive statistics for the main variables are presented in Table 4.2. It can be seen that the negative sign of outward FDI and inward FDI (which refer to the components of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments) and the rest of the net outflows are divided by GDP. This series shows the net inflows in the reporting economy from foreign investors and divided by GDP, and shows net outflows of investment from the reporting economy to the rest of the world and divided by GDP (The World Bank Indicators, 2006). The average outward FDI is 1.34% with an overall standard deviation of 4.40%. The average inward FDI is 2.84% with an overall standard deviation of 4.76%. The average exports in natural logarithm are 3.30%, and the average natural logarithm of GDP per capita is 7.36%. Summary statistics for other control variables are presented in Table 4.2, and it can be seen that all the variables have good variation both within and between countries hence favoring the use of dynamic panel estimation.

Table 4.3 presents the correlation matrix of the main variable. It is observed that inward FDI, exports, GDP per capita, cell domestic credit to private sectors, and manufacturing value added are positively correlated with outward FDI. The exchange rate is positively correlated with outward FDI and cell, whereas it is negatively related to the rest of variables. There is high correlation between CELL and GDP per capita. This suggests that it may be more difficult to estimate the effect of CELL independently of GDP per capita.

4.5.3 Fixed-Effects Results (FE)

Table 4.4 presents the fixed-effects estimation results of equation (4.1). The Hausman Test for the first model or specification for chi2 (2) is 117.14 and significant at 1%; for the second model or specification, the Hausman Test result for chi2 (4) is 60.98, and significant at 1%. For the third model or specification, the Hausman Test for chi2 (6) is 34.85 and significant at 1%. All three results from the Hausman Test recommended using fixed-effects results. On the other hand, in the fourth model or specification with an exchange rate, the Hausman Test for chi2 (7) is 9.27 and insignificant, meaning that random effect is preferred.

The fixed effects estimated are as shown in Table 4.4, with inward FDI as a proxy for business conditions in all regressions; it is correctly signed and significant at 5% in the four models. In model 1, for example, an increase in inward FDI by 1% increases outward FDI by about 0.20%. This finding is consistent with the theory and supports the earlier evidence (from Nunnenkamp et al, 2012; Kayam, 2009) that the majority of outward FDI to developing countries is indeed motivated by inward FDI. We can see that GDP per capita, which represents a measure of level economic development, has a positive and significant effect at 1% in the first model, and is significant at 10% in the second and fourth models, which corroborated the theoretical expectation (Das, 2013).

The influence of exports on outward FDI is positive and significant at 5% in the second model, and significant at 10% in the third model. The coefficient turns negative in model 4 with the exchange rate, but is statistically insignificant. This is consistent with the earlier evidence by Zhang and Daly (2011).

Similar to the influence of the CELL is a proxy for infrastructure which has a positive influence on outward FDI and is significant at 1% in the second model, positive and significant at 5% in the third model. The sign of the coefficient has been always been positive and significant, indicating good communications between countries and an outward foreign direct investment increase. On the other hand, rising costs of production lead to a push of outward FDI from developing countries. Consistent with results (by Kayam, 2009; Banga, 2007), the coefficient of CELL is positive and significant in the equation on outward FDI. Financial sectors and exchange rate do not appear to have any significant results, similar to the results of Das (2013).

4.5.4 Random-Effects Results (RE)

The random-effects estimation results for equation (4.1) are shown in the Table 4.5. The Hausman Test results are presented in Table 4.5. For the first model or specification, the Hausman Test for chi2 (2) is 117.14 and significant at 1%; for the second model or specification, the Hausman Test for chi2 (4) is 60.98, and significant at 1%. For the third model or specification, the Hausman Test for chi2 (6) is 34.85 and significant at 1%. All three results from the Hausman Test recommended using fixed-effects results. On the other hand, in the fourth model or specification with an exchange rate, the Hausman Test for chi2 (7) is 9.27 and insignificant, meaning that random effect is preferred.

The results show inward FDI as a proxy for business conditions in all regressions; it is correctly signed and significant at 5% in the fourth model. This result is similar with fixed effects. The coefficients on the level of economic development GDP per capita are significant at 5% in the first model and significant at 10% in the fourth model with the expected positive sign. In addition, exports are positive and significant at 1% in models 2 and 3, and significant at 10% in model 4. The coefficient of CELL is positive and significant at 5% in the second model, and significant at 1% in the third model. For the financial sector, domestic credit to private sectors as a percentage of GDP has coefficients which are positive and significant at 5% in the third model. These results suggest that greater financial development in developing countries leads to more FDI outflows.

On the other hand, manufacturing value added as a percentage of GDP. Which was another financial sector used in this regression, showed the coefficient to be had a negative and statistically significant effect on OFDI in the third model at 5%. At this point, this finding suggests that greater financial development in developing countries leads to less FDI outflows.

The exchange rate as a proxy for currency strength is positive and significant in model 4, and this result was predicted by Aliber's (1970, 1971) FDI theories based on strength of currency and exchange rate effects theory. He proposes that firms belonging to countries with strong currencies are able to financially support their foreign investment on better terms than firms belonging to countries with weak currencies. The finding broadly provides support for a number of theoretical predictions (Das, 2013; Kyrkilis and Pantelidis, 2003).

The results in column 1 and 4 for FE and RE show that the business conditions hypothesis, GDP per capita, exports, and CELL, domestic credit to private sectors, and exchange rate are regarded as determinants for outward FDI in developing countries. In contrast, manufacturing value added discouraged outward foreign direct investment from developing countries. The negative significance of the financial sector shows that greater financial development in developing countries leads to lower FDI outflows.

4.5.5 GMM Results

The comparison of the combination of the explanatory variables is reported in Table 4.4 and Table 4.5, and the system GMM dynamic estimation results are presented below in Table 4.6. As pointed out in the preceding sections, two specifications were used for the system GMM estimation. In the first model, the Hansen over-identification test is satisfactory and does not reject the null hypothesis that instruments are valid. The test for the first and second order residual autocorrelation in the first model estimators AR (1) and AR (2) errors indicate that we should reject the null hypothesis of no evidence of serial correlation in the first order residual, but we can accept the null hypothesis in the second order residual.

In model 2, attention is given to the models involving exchange rate terms. The Hansen over-identification test shows the validity of the instruments used in the estimations, although the value is close to 1.00, which is an indication of high instruments. As for the test for the first and second order residual autocorrelation AR (1) and AR (2) errors in the second model, this indicates that we cannot reject the null hypothesis of no evidence of the first-order serial correlation. In addition, we accept the null hypothesis of the second-order serial correlation in the error terms. The AR (2) is the most important because it detected autocorrelation. The system GMM estimator is consistent under the absence of second-order serial autocorrelation and the presence of valid instruments.

In this chapter, we utilize the lagged values of the endogenous variable as instruments because of the difficulties finding suitable external instruments. The coefficient on the lagged OFDI is significant at the 10% level in model 1 with the expected positive signs, but in the second model it is negative and significant at 1%. Confirming that, on the whole, lagged outward FDI is persistent and suggests that current outward FDI is positively correlated with future outward FDI in the first model, whereas current outward

FDI negatively correlated with future outward FDI in the second model. The results corroborate this study's expectations and the findings of Nunnenkamp et al. (2012) and Stoian (2013). In addition, the choice of dynamic GMM as a preferred panel estimator is confirmed by the data, suggesting that the results have good statistical properties. The lagged dependent variable OFDI is endogenous and is instrumented using the lagged value in the differenced equation and the once lagged first differences in the level equation.

As before, the coefficients of inward FDI as a proxy for business conditions are positive and significant in both models at 10 per cent. Exports can also enhance the outward FDI in both models at 10%, agreeing with Zhang and Daly (2011) and Buckley et al. (2007). GDP per capita as a proxy for level of economic development was insignificant in model 1, and turned to significant in the second model at 10% with the exchange rate (Das, 2013). This supported the hypothesis of the IDP theory, and was consistent with the evidence by Liu et al. (2005) and Ramasamy et al. (2012). This finding can also be seen as showing there isno impact of CELL, DOMESTIC, and MANUFACT. The interactive impact of the exchange rate on outward FDI is positive and statistically significant at 5%, as has been shown theoretically (Das, 2013; Kyrkilis and Pantelidis, 2003).

Depending on GMM results, lagged outward foreign direct investment, business conditions, exports, GDP per capita, and an appreciation of real effective exchange rate promote outward FDI in developing countries.

Comparing the fixed-effect and random-effect estimates (Table 4.4 and Table 4.5) and the estimates using the system GMM estimator (Table 4.6), we can conclude that the fixed-effect and random-effect estimates are the more appropriate and consistent estimators. Because the results are more significant and support IDP theory, the findings suggest that the Investment Development Path (IDP) theory and strength of currency and exchange rate theory best explained outward FDI activities from developing countries.

4.6 Robustness Check - Exclusion of BRIC Results

To examine the robustness of our findings, we re-estimated the baseline model for a sub-sample of 109 countries, only for 103 developing economies excluding BRIC (Brazil, Russia, India, mainland China, Hong Kong (China) and Macau (China)), which have significant amounts of foreign direct investment from developing and transition economies. Employing fixed-effects (FE), random-effects (RE) and dynamic panel data system GMM for all estimations, the results are reported in Tables 4.9 to 4.11.

Table 4.7 and Table 4.8, respectively, provide the summary statistic and a correlation coefficient matrix. The correlation matrix shows that there are no problems with data.

4.6.1 Descriptive Statistics

Table 4.7 presents descriptive statistics for the main variables excluding BRIC countries. The average of FDI outward is 0.96% with an overall standard deviation of 3.30%, excluding BRIC (Brazil, Russia, India, mainland China, Hong Kong (China) and Macau (China)), which have significant amounts of foreign direct investment from developing and transition economies, which lowers the mean of outward FDI dramatically from 1.342 in all-sample to 0.96 percent in sub-sample. The average inward FDI is 2.78% with an overall standard deviation of 4.59%. The average exports in natural logarithm are 3.31%, and the average natural logarithm of GDP per capita is 7.33%. Summary statistics for other control variables are presented in Table 4.7, and the additional control variables display good variation in the sample, hence favoring the use of dynamic panel estimation.

Table 4.8 shows that inward FDI, exports, GDP per capita, CELL domestic credit to private sectors, and manufacturing value added are positively correlated with outward FDI. The exchange rate is negatively related to outward FDI and CELL, whereas it is positively correlated with the rest of variables. There is high correlation between cell and GDP per capita. This suggests that it may be more difficult to estimate the effect of cell independently of GDP per capita.

4.6.2 Fixed-Effects Results (FE)

Table 4.9 represented fixed-effects results. Results for the Hausman Test are represented in Table 4.9. For the first model or specification, the Hausman Test result for chi2 (2) is 10.75 and significant at 1%; for the second model or specification, the Hausman Test for chi2 (4) is 8.29, and significant at 10%. For the third model or specification, the Hausman Test for chi2 (6) is 12.46 and significant at 10%. All three results from the Hausman Test recommended using fixed-effects results. In contrast, in the fourth model or specification with an exchange rate, the Hausman Test for chi2 (7) is 10.18 and insignificant, meaning that random effect is preferred.

The results in Table 4.9 are different from those reported in Table 4.4, the main results showing that inward FDI is positive and significant at 10% only in the first three models, and is positive and significant at 5% in the fourth model. The country's level of economic development, measured by the country's GDP per capita, is positive and significant at 10% in the fourth model. An increase in GDP per capita by 1% increases outward FDI by about 0.88% from developing countries. The results show no statistically significant effect of exports, cell financial sectors and exchange rate on outward FDI.

4.6.3 Random-Effects Results (RE)

Table 4.10 represents the random-effects results. As I mention above, the results for the Hausman Test are represented in Table 4.10. For the first model or specification, the Hausman Test result for chi2 (2) is 10.75 and significant at 1%; for the second model or specification, the Hausman Test for chi2 (4) is 8.29, and significant at 10%. For the third model or specification, the Hausman Test for chi2 (6) is 12.46 and significant at 10%. All three results from the Hausman Test recommended using fixed-effects results. However, in the fourth model or specification with an exchange rate, the Hausman Test for chi2 (7) is 10.18 and insignificant, meaning that random effect is preferred.

The same results for business conditions (inward FDI) are positive and significant at 10% in models 1, 2 and 3, and significant at 5% in the fourth model. GDP per capita is significant at 1% only in the first model. Exports are positive and significant at 1%, 10%, and 5% in the second, third and fourth models, respectively. The impact of the exchange

rate on outward FDI is positive and statistically significant at 5%. Clearly, cell and financial sectors do not have any effect on outward FDI.

The results in column 1 and 4 for FE and RE show that the business conditions hypothesis that GDP per capita, exports and appreciation of real effective exchange rate are regarded as determinants for outward FDI in developing countries.

4.6.4 GMM Results

Table 4.11 shows the system GMM dynamic panel data after excluding BRIC countries, which accounted for the largest outward foreign direct investment in all the developing countries. As discussed in Section 4.4.2, we considered two specifications for the system GMM estimation.

The finding is that outward FDI in the lagged form is positive and significant at 1% in the first model, but has a negative sign and is significant at 1% in the second model. In the second model, inward FDI is positive and significant at 10%. Additionally, exports are positive and significant at 10%. Exchange rate is positive and statistically significant at 5%.

The system GMM estimator is consistent under the absence of second order serial autocorrelation and the presence of valid instruments. For the validity of the instruments, we conduct the Hansen test of over-identifying restrictions, from which we should not reject the null hypothesis that the instruments are uncorrelated with the error term. We compute two tests for autocorrelation, AR (1) and AR (2), for first order and second order serial correlation in the disturbances. We should reject the null hypothesis of the absence of first order serial correlation AR (1) and accept the null hypothesis of the absence of second order serial correlation AR (2) in the first model. For the second model, we cannot reject the null hypothesis of no evidence of the first-order serial correlation AR (1). In addition, it accepts the null hypothesis of the second-order serial correlation in the error terms AR (2).

According to the GMM results, the lagged outward foreign direct investment, inward FDI, exports, and an appreciation of real effective exchange rate encouraged outward FDI from developing countries.

4.7 Conclusion

This study empirically examines the home country determinants of outward foreign direct investment in 109 developing countries over the period 1960–2012. The model benefited from the IDP, Dunning's eclectic paradigm theory, and the theoretical framework. In absolute terms, and in relative terms, OFDI from developing and transition economies has seen a rise. As far as it is understood, very few papers have studied outward foreign direct investment from developing and transition economies.

This study has attempted to utilize fixed-effects and random-effects models, and robust panel estimation methods to determine the main factors influencing the outward foreign direct investment in developing countries. The results of the estimation from countries accounting for the largest outward foreign direct investment are largely in consonance with the IDP hypothesis. The main findings of the chapter show the impact of explanatory variables, business conditions, gross domestic product per capita, exports, communications or production costs, domestic credit to the private sector, and an appreciation of real effective exchange rate are important determinants of outward FDI. On the other hand, manufacturing value added as a proxy for the financial sector discouraged outward foreign direct investment.

The hypotheses based on the IDP theory and on theory based on strength of currency and exchange rate best explained outward FDI activities from developing countries. Furthermore, the results of this study are robust enough to study determinants of outward foreign direct investment from developing countries as the home countries' determinants.

The impact of outward foreign direct investment is shown in the sub-sample, excluding countries with a significant amount of foreign direct investment from developing and transition economies. The results outline that business conditions, gross domestic product per capita, exports, and appreciation of real effective exchange rate are important determinants of outward FDI.

This study has attempted to utilize a dynamic GMM estimation method to deal with endogeneity problems, and the GMM results proved to be quite consistent with the IDP hypothesis. Thus, the evidence indicated that lagged outward foreign direct investment is

dynamic in all models. Business conditions, gross domestic product per capita, exports, and the exchange rate are the main determinants of outward foreign direct investment from developing countries.

Table 4.1: Variables, Definitions, and Data Sources

Variables	Definitions
Dependent Variable	
FDIOUT	Foreign direct investment, net outflows (% GDP)
Explanatory Variables	
FDIIN	Foreign direct investment, net inflows (% GDP)
EXPORTS	Exports goods and services % GDP
Ln EXPORTS	Exports goods and services % GDP in natural logarithmic form
GDP pc	Real GDP per capita (2000 US$) constant
Ln GDP pc	Real GDP per capita (2000 US$) constant in natural logarithmic form
CELL	Telephone lines (per 1000 people)
DOMESTIC	Domestic credit to private sectors as a percentage of GDP
MANUFACT	Manufacturing, value added as a percentage of GDP
EXCHANGERATE	Real effective exchange rate index as a proxy for currency strength
Ln EXCHANGERATE	Real effective exchange rate index as a proxy for currency strength in natural logarithmic form

.**Sources**: All data from World Development Indicators (WDI), (1960-2012)

Note: Ln (natural logarithm form).

Table 4.2: Summary Statistics on the FDIOUT and its Determinants, All Samples.

Variable	Mean	Std. Dev	Min	Max
FDIOUT	1.342	4.407	-16.805	43.040
FDIIN	2.841	4.768	-28.624	53.810
EXPORTS	34.925	28.002	2.090	523.463
Ln EXPORTS	3.306	.716	.737	6.260
GDP pc	3851.1	7618.54	85.51	82192
Ln GDP pc	7.362	1.266	4.448	11.316
CELL	8.747	12.262	0	105.81
DOMESTIC	28.975	25.859	.815	202.12
MANUFACT	14.290	7.846	0	45.665
EXCHANGE-RATE	124.70	68.137	37.553	1417.443
lnEXCHANGE-RATE	4.759	.323	3.625	7.256

Note: All variables are defined in the methodology.
Note: Negative sign in FDIOUT(WIR) indicate net outflows of investment from the reporting economy to the rest of the world and is divided by GDP.
Negative sign in FDIIN (WIR) indicates that at least one of the three components of FDI is negative (equity capital, reinvested earnings or intra-company loans) and is not offset by positive amounts of the other components. These are instances of reverse investment or disinvestment**.**
Note: Ln (natural logarithm form).

Table 4.3: Correlation Coefficient Matrix, All Samples.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	8)
(1)	1							
(2)	0.50	1						
(3)	0.73	0.52	1					
(4)	0.70	0.45	0.77	1				
(5)	0.38	0.35	0.37	0.56	1			
(6)	0.37	0.16	0.37	0.38	0.34	1		
(7)	0.30	0.04	0.31	0.20	0.41	0.47	1	
(8)	0.02	-0.06	-0.06	-0.05	0.15	-0.16	-0.09	1

Note: Variables are (1) FDIOUT, (2) FDIIN, (3) EXPORTS, (4) GDP pc, (5) CELL, (6) DOMESTIC, (7) MANUFACT, (8) EXCHANGERATE.

Table 4.4: Dependent Variable: Outward FDI Percentage of GDP, Panel Analysis, Country Fixed Effects 1960–2012. All Sample.

Regressor	**(1)**	**(2)**	**(3)**	**(4)**
FDIIN	0.205** (0.044)	0.185** (0.047)	0.212** (0.038)	0.153** (0.034)
Ln GDP pc	5.720*** (0.000)	2.772* (0.091)	1.041 (0.704)	3.524* (0.072)
Ln EXPORTS		2.897** (0.010)	2.518* (0.057)	-0.095 (0.899)
CELL		0.131*** (0.005)	0.134** (0.017)	0.039 (0.353)
DOMESTIC			0.035 (0.175)	-0.014 (0.495)
MANUFACT			-0.075 (0.275)	0.029 (0.674)
LnEXCHANGERATE				-0.012 (0.991)
CONSTANT	-45.159*** (0.000)	-34.237*** (0.000)	-19.836** (0.236)	-27.469** (0.018)
N. Observations	657	637	569	256
N. Countries	97	95	89	38
F test	16.71*** (0.000)	31.59*** (0.000)	48.00*** (0.000)	8.12*** (0.000)
Hausman test	117.14*** (0.000)	60.98*** (0.000)	34.85*** (0.000)	9.27 (0.233)

Notes: p-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1%.
Note: Ln (natural logarithm form).

Table 4.5: Dependent Variable: Outward FDI Percentage of GDP, Panel Analysis, Country Random Effects 1960–2012. All Sample.

Regressor	**(1)**	**(2)**	**(3)**	**(4)**
FDIIN	0.268** (0.011)	0.216** (0.013)	0.224** (0.017)	0.163** (0.037)
Ln GDP pc	1.771** (0.011)	-0.015 (0.969)	-0.574 (0.256)	0.627* (0.068)
Ln EXPORTS		2.891*** (0.000)	2.489*** (0.000)	0.773** (0.049)
CELL		0.134** (0.030)	0.118*** (0.008)	-0.001 (0.946)
DOMESTIC			0.037** (0.033)	0.002 (0.751)
MANUFACT			-0.135** (0.011)	0.034 (0.431)
LnEXCHANGERATE				1.818** (0.017)
CONSTANT	-14.169** (0.011)	-12.366*** (0.000)	-6.028** (0.022)	-16.553*** (0.001)
N. Observations	657	637	569	256
N. Countries	97	95	89	38
Wald Chi2	9.36*** (0.0093)	24.05*** (0.0001)	46.56*** (0.000)	40.09*** (0.000)
Hausman test	117.14*** (0.000)	60.98*** (0.000)	34.85*** (0.000)	9.27 (0.233)

Notes: p-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1%.

Note: Ln (natural logarithm form).

Table 4.6: System GMM, 1960–2012. Dependent Variable: Outward FDI Percent of GDP. All Sample.

	Model 1	Model 2
FDIOUT (lagged)	0.394*	-0.334***
	(0.086)	(0.000)
FDIIN	0.125*	0.190*
	(0.085)	(0.054)
LnEXPORTS	2.016*	1.753*
	(0.085)	(0.061)
LnGDP pc	-2.585	0.788*
	(0.247)	(0.074)
CELL	0.170	-0.026
	(0.192)	(0.386)
DOMESTIC	0.027	0.010
	(0.181)	(0.190)
MANUFACT	-0.085	0.082
	(0.243)	(0.127)
LnEXCHANGERATE		3.162**
		(0.037)
Constant	10.446	-28.199***
	(0.401)	(0.007)
Number of Observation	474	216
Wald Chi2	40.36***	29.41***
	(0.000)	(0.000)
A-B AR(1) test	-1.79*	-1.59
	(0.073)	(0.111)
A-B AR(2) test	0.39	0.20
	(0.698)	(0.844)
Hansen test	58.35	26.33
	(0.195)	(0.953)

Notes: This table reports dynamic panel GMM–system estimation. The AR (1) in the first differences rejects the null correlation and AR (2) accepts the null of no correlation in Mode 1. But in Model 2 accept the null correlation the AR (1) in the first differences and AR (2) no correlation. Hansen statistic test for the validity of the over-identifying restrictions. In the estimation, collapsed version of instrument matrix is used, to limit the number of instruments.
P-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1%**.**

Note: Ln (natural logarithm form).

Table 4.7: Summary Statistics on the FDIOUT and its Determinants, (Sub-Sample Excludes BRIC –Brazil, Russia, India, and China).

Variable	Mean	Std. Dev	Min	Max
FDIOUT	.965	3.037	-16.805	30.329
FDIIN	2.783	4.590	-28.624	53.810
EXPORTS	34.167	25.573	2.090	523.463
Ln EXPORTS	3.314	.672	.737	6.260
GDP pc	3670.8	7483.32	140.25	82192.93
Ln GDP pc	7.338	1.233	4.943	11.316
CELL	8.203	11.659	0	105.815
DOMESTIC	27.334	23.316	.815	167.536
MANUFACT	13.948	7.512	0	45.665
EXCHANGE-RATE	124.71	68.564	37.553	1417.443
lnEXCHANGE-RATE	4.759	.323	3.625	7.256

Note: All variables are defined in the methodology.

Note: Negative sign in FDIOUT (WIR) indicates net outflows of investment from the reporting economy to the rest of the world and are divided by GDP.

Negative sign in FDIIN (WIR) indicates that at least one of the three components of FDI is negative (equity capital, reinvested earnings or intra-company loans) and is not offset by positive amounts of the other components. These are instances of reverse investment or disinvestment**.**

Note: Ln (natural logarithm form).

Table 4.8: Correlation Coefficient Matrix, (Sub-Sample Excludes BRIC – Brazil, Russia, India, and China).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	8)
(1)	1							
(2)	0.52	1						
(3)	0.75	0.51	1					
(4)	0.70	0.45	0.78	1				
(5)	0.36	0.39	0.40	0.58	1			
(6)	0.40	0.18	0.41	0.42	0.34	1		
(7)	0.33	0.07	0.39	0.26	0.40	0.39	1	
(8)	0.01	-0.05	-0.06	-0.05	0.13	-0.18	-0.11	1

Note: Variables are (1) FDIOUT, (2) FDIIN, (3) EXPORTS, (4) GDP pc, (5) CELL, (6) DOMESTIC, (7) MANUFACT, (8) EXCHANGERATE.

Table 4.9: Dependent Variable: Outward FDI PercentageOf GDP, Panel Analysis, Country Fixed Effects 1960–2012. (Sub-Sample Excludes BRIC – Brazil, Russia, India, and China).

Regressor	**(1)**	**(2)**	**(3)**	**(4)**
FDIIN	0.145* (0.076)	0.143* (0.082)	0.165* (0.075)	0.151** (0.035)
Ln GDP pc	-2.376 (0.494)	-2.495 (0.478)	-3.062 (0.482)	3.880* (0.092)
Ln EXPORTS		0.950 (0.137)	0.338 (0.621)	-0.076 (0.924)
CELL		0.027 (0.479)	0.014 (0.742)	0.035 (0.428)
DOMESTIC			0.005 (0.754)	-0.015 (0.475)
MANUFACTURING			-0.015 (0.794)	0.038 (0.603)
LnEXCHANGERATE				-0.037 (0.975)
CONSTANT	18.930 (0.484)	15.941 (0.543)	22.574 (0.475)	-30.190** (0.028)
N. Observations	609	589	524	242
N. Countries	91	89	83	36
F test	2.24 (0.1123)	1.55 (0.1947)	0.80 (0.5718)	7.51*** (0.000)
Hausman test	10.75*** (0.0046)	8.29* (0.0815)	12.46* (0.0525)	10.18 (0.1788)

Notes: p-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1%.

Note: Ln (natural logarithm form).

Table 4.10: Dependent Variable: Outward FDI Percentage of GDP, Panel Analysis, Country Random Effects 1960–2012. (Sub-Sample Excludes BRIC – Brazil, Russia, India, and China).

Regressor	**(1)**	**(2)**	**(3)**	**(4)**
FDIIN	0.150* (0.079)	0.140* (0.093	0.163* (0.086)	0.164** (0.037)
Ln GDP pc	0.620*** (0.003)	0.390 (0.157)	0.350 (0.210)	0.572 (0.102)
Ln EXPORTS		1.435*** (0.007)	1.168* (0.054)	0.893** (0.024)
CELL		0.0002 (0.985)	-0.003 (0.814)	-0.006 (0.812)
DOMESTIC			-0.004 (0.547)	0.003 (0.658)
MANUFACT			0.005 (0.804)	0.038 (0.435)
LnEXCHANGERATE				1.852** (0.017)
CONSTANT	-4.683*** (0.003)	-8.070*** (0.000)	-6.708*** (0.001)	-16.795*** (0.001)
N. Observations	609	589	524	242
N. Countries	91	89	83	36
Wald Chi2	15.88*** (0.0004)	24.76*** (0.0001)	20.04*** (0.0027)	36.94*** (0.0000)
Hausman test	10.75*** (0.0046)	8.29* (0.0815)	12.46* (0.0525)	10.18 (0.1788)

Notes: p-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1%.

Note: Ln (natural logarithm form).

Table 4.11: System GMM, 1960–2012. Dependent Variable: Outward FDI Percent of GDP. (Sub-Sample Excludes BIRC – Brazil, India, Russia, and China).

	Model 1	Model 2
FDIOUT (lagged)	0.566***	-0.330***
	(0.001)	(0.000)
FDIIN	0.073	0.185*
	(0.288)	(0.058)
Ln EXPORTS	1.397	1.864*
	(0.187)	(0.052)
Ln GDP pc	-1.913	0.666
	(0.499)	(0.126)
CELL	0.105	-0.034
	(0.462)	(0.211)
DOMESTIC	0.012	0.013
	(0.502)	(0.122)
MANUFACT	-0.018	0.101
	(0.694)	(0.120)
LnEXCHANGERATE		3.031**
		(0.042)
Constant	8.030	-27.379***
	(0.624)	(0.008)
Number of Observation	437	204
Wald Chi2	67.44***	25.32***
	(0.000)	(0.001)
A-B AR(1) test	-1.77*	-1.61
	(0.078)	(0.108)
A-B AR(2) test	1.20	0.21
	(0.229)	(0.830)
Hansen test	59.40	28.45
	(0.170)	(0.914)

Notes: This table reports dynamic panel GMM–system estimation. The AR (1) in the first differences rejects the null correlation and AR (2) accepts the null of no correlation in Mode 1. But in Model 2 accept the null correlation the AR (1) in the first differences and AR (2) no correlation. Hansen statistic test for the validity of the over-identifying restrictions. In the estimation, collapsed version of instrument matrix is used, to limit the number of instruments.
p-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1%.

Note: Ln (natural logarithm form).

APPENDIX B

Table B.1: List of Developing Countries in the All Sample (109 Countries)

Albania
Algeria
Angola
Argentina
Armenia
Aruba
Azerbaijan
Bahrain
Bangladesh
Barbados
Belarus
Belize
Benin
Bermuda
Bolivia
Bosnia and Herzegovina
Botswana
Brazil
Brunei
Bulgaria
Burkina Faso
Cambodia
Cameroon
Cape Verde
Central Africa Republic
Chad
Chile
China
Colombia
Comoros
Congo
Costa Rica
Croatia
Cote d'Ivoire
Egypt
El Salvador
Fiji
Gabon
Georgia
Guatemala
Guinea
Guinea Bissau
Honduras
Hong Kong, China
India
Indonesia
Iraq
Jamaica
Jordan
Kazakhstan
Kenya
Kiribati
Korea
Kuwait
Kyrgyz Republic
Lebanon
Lesotho
Libya
Macau, China
Macedonia
Malawi
Malaysia
Mali
Mauritania
Mauritius
Mexico
Moldova
Mongolia
Morocco
Mozambique
Namibia
Nepal
Niger
Nigeria
Oman
Pakistan
Papua New Guinea
Paraguay
Peru
Philippines
Romania
Russia
Rwanda
Samoa
Saudi Arabia
Senegal
Serbia
Seychelles
Sierra Leone
Singapore
Solomon Islands
South Africa
Sri Lanka
Sudan
Swizerland
Thailand
Togo
Tonga
Trinidad and Tobago
Tunisia
Turkey
Uganda
Ukraine
Uruguay
Vanuatu
Venezuela
Vietnam
Zambia
Zimbabwe

Table B.2: List of Developing Countries in the Exclude Sample (103 Countries)

Albania
Algeria
Angola
Argentina
Armenia
Aruba
Azerbaijan
Bahrain
Bangladesh
Barbados
Belarus
Belize
Benin
Bermuda
Bolivia
Bosnia and Herzegovina
Botswana
Brunei
Bulgaria
Burkina Faso
Cambodia
Cameroon
Cape Verde
Central Africa Republic
Chad
Chile
Colombia
Comoros
Congo
Costa Rica
Croatia
Cote d'Ivoire
Egypt
El Salvador
Fiji
Gabon
Georgia
Guatemala
Guinea
Guinea Bissau
Honduras
Indonesia
Iraq
Jamaica
Jordan
Kazakhstan
Kenya
Kiribati
Korea
Kuwait
Kyrgyz Republic
Lebanon
Lesotho
Libya
Macedonia
Malawi
Malaysia
Mali
Mauritania
Mauritius
Mexico
Moldova
Mongolia
Morocco
Mozambique
Namibia
Nepal
Niger
Nigeria
Oman
Pakistan
Papua New Guinea
Paraguay
Peru
Philippines
Romania
Rwanda
Samoa
Saudi Arabia
Senegal
Serbia
Seychelles
Sierra Leone
Singapore
Solomon Islands
South Africa
Sri Lanka
Sudan
Swizerland
Thailand
Togo
Tonga
Trinidad and Tobago
Tunisia
Turkey
Uganda
Ukraine
Uruguay
Vanuatu
Venezuela
Vietnam
Zambia
Zimbabwe

Table B.3: List of Developing Countries with Data for Exchange rate (Real Effective Exchange Rate Index (2005=100)), From (WDI).

Algeria
Armenia
Bahrain
Belize
Bolivia
Bulgaria
Cameroon
Central Africa Republic
Chile
China
Colombia
Costa Rica
Croatia
Cote d'Ivoire
Fiji
Gabon
Georgia
Kiribati
Lesotho
Macedonia
Malawi
Malaysia
Mexico
Moldova
Morocco
Nigeria
Pakistan
Papua New Guinea
Paraguay
Philippines
Romania
Russia
Samoa
Saudi Arabia
Sierra Leone
Singapore
Solomon Islands
South Africa
Togo
Tonga
Trinidad and Tobago
Tunisia
Uganda
Ukraine
Uruguay
Venezuela
Zambia

CHAPTER 5

CROSS-BORDER PORTFOLIO INVESTMENT FROM DEVELOPING ECONOMIES AND TOP MAJOR PARTNERS, USING THE GRAVITY MODEL

5.1 Introduction

During the 1990s, capital flows increased significantly to developing countries as a source of investment with the removal of restrictions on foreign investors' entry into local economies. As a consequence, a number of developing countries initiated sweeping liberalization in their local economic systems to attract foreign portfolio investment. The volume of cross-border portfolio investment increased for both developing and industrial economies, indicating the high degree to which developing countries had become integrated into the global economy and thus how vulnerable they were to any financial shock. There were also an increased number of academics and policy makers who were interested in research into portfolio investment.

Portfolio investments have long been known to be extremely volatile. Indeed, sharp reversals of portfolio flows in times of national or global crisis have emphasized earlier lessons about the high volatility of these flows. As rising numbers of developing countries receive more of these flows, they risk becoming much more exposed to financial shocks.

Portfolio investment is defined as cross-border transactions and positions involving equity or debt securities. In contrast, FDI involoves the acquisition of less than 10 percent of the shares and the non-resident investor would not have an effective voice in the management. Regarding foreign direct investment, while production technology and know-how are brought in along with the capital, in portfolio investment the sole contribution is capital. Portfolio investment items are classified as follows in the International Investment Position (IIP): equity securities and debt securities.

Securities are represented by a foreign company or a foreign government when seeking funds. The most significant source for the private sector is the restricted internal credit market and the ability to create investment funds from foreign capital investment which provides the source of finance.

In spite of the increasing volume of cross-border portfolio investment in both developed countries and still developing economies, the lack of capital to finance local investment and the removal of restrictions on foreign investors to attract foreign portfolio investment in their local economies is an important source of finance for the private sector.

In view of the above, this study seeks to address the following questions. First, why do developing countries prefer to invest outside their own region rather than in developing countries within their own region? Second, what are the main determinants of portfolio investment assets from the developing countries and the top major partners recipients of portfolio investment throughout the world? The answers to these questions are particularly significant as they help us to understand why foreign portfolio investment in developing countries is concentrated outside of their region rather than in developing countries within their own region, for which there are many reasons. Firstly, diversifying their portfolio might help to explain why developing investors prefer to access the major financial centers from a long distance. Secondly, in contrast to the standard classical economic theory which predicts that capital should flow from rich countries to poor countries, due to the effect of diminishing returns, where the marginal returns are higher and poor countries have lower levels of capital per worker (e.g., Lane and Milesi-Ferretti, 2007)

Many explanations have been put forward in addressing the Lucas Paradox (Lucas, 1990) that capital does not flow from developed countries to developing countries despite the fact that developing countries have lower levels of capital per worker. For instance, capital may flow upwards as rich economies with larger market sizes are connected with superior diversification opportunities and low transaction costs (e.g., Martin and Rey, 2004).

This chapter focuses on developing countries as the main rationale. This is with the knowledge that this has not been previously addressed for all the explanatory variables applying to developing economies with the top five partners in the world. The financial asset sector has been extensively applied, particularly in developed and emerging markets with developing economies as a source country (e.g., Hattari and Rajan, 2011; Aggarwal et al., 2012; Peter, 2012; Abid and Bahloul, 2011; Lee et al., 2012). Single country studies have been conducted by Choi et al. (2014) and Daly and Vo (2013) in respect of the United

States and Australia's financial asset sectors, respectively. However, less attention has been paid to financial assets in developing countries. Selected developing countries have often been considered as part of major studies with a further set of economic and financial control as source countries not highlighted (e.g., Garcia-Herrero et al., 2009).

In this chapter, I contribute to the literature and gravity model from 2001 to 2012 in order to answer those questions above. The panel estimates are based on a dataset of portfolio investment assets from the Coordinated Portfolio Investment Survey (CIPS), a yearly survey of 37 developing sources in 79 host countries. This will be controlled for standard gravity factors (for example, size, and distance). In order to capture the effects of the portfolio investment, other additional explanatory variables have been included, such as a further set of economic and financial controls in source and destination countries, which are an important factor in the analysis of the determinants of FPI (such as risk premium, market capitalization, and bilateral trade).

Furthermore, a time trends dummy has been included to take account of factors such as the world business cycle and global capital market shock. In addition, also included are the source country characteristics, the fixed-effects estimates to capture the home-economy specific effects that are associated with unobservable, but important, time-constant factors such as common language and contiguity (e.g., Hahm and Shin, 2009; Lee et al., 2012; Choi et al., 2014).

Three estimations, the ordinary least squares (OLS), fixed effects (FE), and random effects (RE) estimations to determinants of portfolio investment assets from the developing countries and the top major partners over the world have been employed. The pooled (OLS) technique has been extensively applied to the study of capital flows, particularly in asset holdings (e.g., Choi et al., 2014; Papaioannou, 2009; Aggarwal et al., 2012; Abid and Bahloul, 2011; Portes and Rey, 2005.), and the fixed effects estimation has been applied in asset holdings (e.g., Hattari and Rajan, 2011; Lee et al., 2012). The random effects estimation has also been applied in asset holdings (e.g., Hahm and Shin, 2009; Lee et al., 2012; Choi et al., 2014).

This study employs three techniques, pooled OLS, fixed effects and random effects, in all estimations. The findings in this chapter show significant positive effects of the

market size for both source and host countries on cross-border investment, and supported the Lucas paradox that capital flows from developing to developed countries. Populations for both source and host countries have been positively correlated with portfolio investment clarifying that larger countries export and import more portfolio investment as the major source and host countries. It is also found that risk premium for source and host had negative effects, as expected, but had a positive effect with the source country fixed effects and source country time fixed effects, in contrast with expectations. In this chapter the results also show that the effects of market capitalization of listed companies on portfolio investment were positive and significant for source countries, and had a negative effect in some regressions, which was an unexpected sign, but had positive effects on host countries.

Furthermore, it was found that trade in a level had positive effects and trade in a lagged one-year cycle had an explanatory variable which gave insignificant effects. The distance had a positive effect on portfolio investment assets because of the diversification motive, while it turned negative and significant when it included source country effect and source country year effects. Contiguity had a positive effect, which suggested that developing investors tended to invest more in countries that share a border. Common language has a positive effect indicating that investors tended to invest in countries which shared the same language.

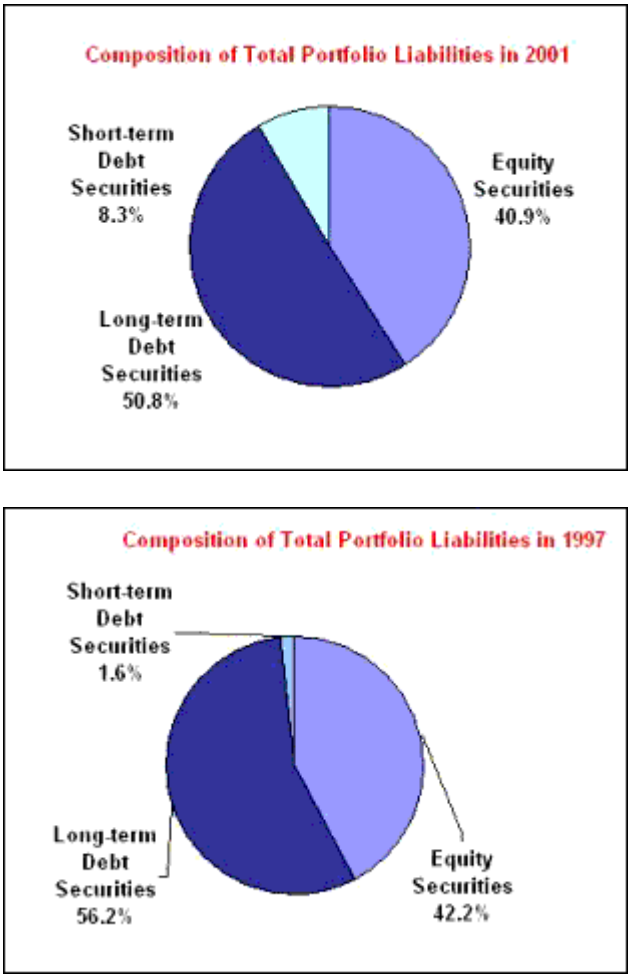
The remainder of this chapter is organized as follows. The next section presents some background surveys about coordinating portfolio investment. Section 5.3 will then introduce the empirical evidence. Section 5.4 describes the empirical methodology and present data. Regression results are reported in Section 5.5. Finally, Section 5.6 summarizes the findings and concludes the paper.

5.2 Coordinated Portfolio Investment Survey, 2001 to 2012

According to the Coordinated Portfolio Investment Survey (CIPS), cross-border holdings of portfolio investment reached US$12.5 trillion in the 67 participating economies in 2001. Reflected in the survey, US$5.1 trillion was in equity securities and US$7.4 trillion in debt securities. Comparing data between 1997 and 2001, there is a significant shift towards short term debt securities in 2001, from 1.6 percent of the total

portfolio investment in 1997; in 2001 the share of short term debt rose to 8.3 percent (Figure 5.1).

Figure 5.1: Comparing Data for Portfolio Investment between 1997 and 2001



Source: IMF World Economic Outlook, September 2002

The CIPS survey results also pointed out that the total stock of portfolio liabilities had more than doubled from US$6.1 trillion in 1997 to US$12.5 trillion in 2001. Note that, if the reported countries were classified into developed and developing countries, the results showed that stocks of portfolio investment in developed countries had grown much faster than stock in developing ones (Table 5.1). Indeed, there has been a net outflow of portfolio investment during the period 1997–2001 in more than 50 developing countries. As a result, the share of developing countries in total portfolio liabilities has gone down quite significantly since 1997.

Table 5.1: Portfolio Liabilities and Share in Total Portfolio Liabilities

	Portfolio Liabilities (in US$ Trillion)		Share in Total Portfolio Liabilities (%)	
Year	1997	2001	1997	2001
Developed Countries	11.92	11.92	91.13	94.95
Developing Countries	0.63	0.63	8.87	5.05
Total	12.55	12.55	100.00	100.00

Source: IMF World Economic Outlook, September 2002

The sudden reversal and decrease in portfolio investment is noteworthy for the following reason: since the late 1980s the financial systems of most developing economies have moved from a bank-based system to a more stock market-based system.

Figure 5.2: Total Portfolio Investment Assets, Millions, US Dollars 2001-2015.

Source: IMF World Economic Outlook, 2013

The total value of holdings of portfolio investment assets declined from $39.1 trillion in 2007 to $30.7 trillion in 2008. This decrease of 22 percent brought portfolio investment assets to below their 2006 level, when the total value of portfolio investment assets was $33.0 trillion, and represented a sharp reversal from 2007 when the total value of portfolio investment assets increased by 19 percent.

The total value of equity securities in 2008 showed the sharpest decline from $17.1 trillion in 2007 to $9.8 trillion, or a 43 percent decline (compared to a 20 percent increase in 2007). The drop was not disproportionate when compared to outside indicators, because 2008 was a period when share prices fell sharply on nearly all major exchanges.

The total value of debt securities declined by 5 percent, from $21.9 trillion in 2007 to $20.8 trillion in 2008 (compared to a 17 percent increase in 2007). This resulted from a 3.4 percent increase in the value of short term debt securities, and the value of long term debt securities which declined by 6 percent in 2008.

The value of holdings of portfolio investment assets of the top-ten countries- the US, France, the UK , Japan, Germany, Luxembourg, Ireland, Netherlands, Italy, and Switzerland - remained unchanged from 2007. In contrast, the ranking of the largest to the smallest holder changed in 2008 as France moved ahead of the UK as the second largest holder, and Japan ahead of Germany and Luxembourg as the fourth largest holder of these securities. Luxembourg became the sixth largest holder, whereas Germany's position remained unchanged in fifth.

For the first time since the series began, the top ten holders of portfolio investments declined in 2008. The reduction was highest in the US (41 percent) followed by the UK (29 percent), Luxembourg (28 percent), and Italy and the Netherlands (23 percent each). Japan had the lowest decrease in holdings (4 percent decline), whereas all the other top ten holders recorded a double digit percentage decline in their holdings.

Despite the sharp decline in its holdings, the US continued to be the largest holder of equity securities, and held more than three times those of the UK, the second largest holder of these securities. As regards long-term debt securities, Japan became the largest holder and Germany became the third largest holder. Furthermore, the rank order of holders of short term debt securities changed significantly in 2008. Luxembourg became

the largest holder of these securities in 2008, while it was the third largest in 2007. Ireland remained as the second largest holder; France became the third largest holder, while it was the fourth largest in 2007. In addition, the US became the fourth largest, whereas it was the largest holder in 2007. The reason for the changes in rankings from 2007 to 2008 reflected absolute falls in the level of holdings of short-term debt securities by the US and Ireland, and sharp increases in the level of such holdings by Luxembourg and France.

Based on the Coordinated Portfolio Investment Survey (CIPS), cross-border holdings of portfolio investment reached US$40.1 trillion in 76 economies in 2010, and fell by 3.1 percent in 2011 to US$38.9 trillion in 73 economies. This decrease reflected a decline in the value of equity holdings, reflecting lower equity prices in a number of economies.

In 2012, cross-border holdings of securities in the 78 economies increased by 10.7 percent to US$43.6 trillion from US$39.3 trillion, compared to 2011. This resulted from an increase in the value of equity securities (17.7 percent) and of long-term debt securities (8.0 percent). The higher value of equities reflected an improvement in prices observed in some economies in 2012. Holdings of short-term debt securities declined by 2.9 percent in 2012.

5.3. Literature Review of the Gravity Model: Empirical Evidence

The paper version of the gravity model is for different types of international trade and is a gravity equation widely used to explain international finance such as equity market integration, international mergers and acquisitions (M&A), intra-bank credit flows, foreign direct investment (FDI), and foreign portfolio investment (FPI).

5.3.1. The Gravity Model And FPI

In this section, we briefly review the literature on the gravity model for Foreign Portfolio Investment (FPI), the pioneering study which was done by Portes and Rey (1998), who then applied the gravity model for the panel data of bilateral cross-border purchases of equity flows between 14 countries in three regions of the world in which there was a major equity market (Asia, Europe, United States) between 1989 and 1996. They made a comparison between the equity and trade in manufactures. They concluded

that the distance in the natural logarithmic form is negative and significant, but it is lower in equity than for trade flows. In addition, they reported that the effect of population in the natural logarithmic form of cross-border equity for both sources and recipients was negative and significant as expected.

A year later Portes and Rey (1999) provided empirical evidence for 14 countries and panel data examining bilateral gross cross-border equity flows for 1989–1996. They found that distance in the natural logarithmic form is negative and significant, GDP representing market size from both sources and recipients in the natural logarithmic form was positive and significant and they suggested that both GDP for sources and recipient had a well-determinate coefficient. Openness is represented by population of both sources and recipients and was negative and significant as expected. In another estimation in their study, they substituted capitalization for GDP and found it had a positive sign and was significant. Further, for openness they used another proxy, that is the ratio of total trade to GDP and found that in the source country it was positive and significant, but insignificant and wrongly signed for the destination country.

In another study, Portes and Rey (2000) estimated bilateral cross-border transactions in portfolio equities in 14 major markets (Europe, Asia, United States) between 1989 and 1996. Their results reported that gross asset flows depended on market size in both source and host country, and distance as a proxy for information symmetric had a significant negative impact on transactions. They also introduced a common language dummy in their sample and found it was significant with the expected sign.

Consequently, Portes et al. (2001) use a gravity model for three different types of securities: corporate equities, corporate bonds, and government bond flows. They outlined that distance had negative and significant effects on equities and bond transactions in purchases plus sales. However, they found that distance did not have any significant result on government. The dummy language was not significant in equity and bond, but international transactions in government bonds were influenced by languages.

Portes and Rey (2005) examined panel data for the determinants of cross-border equity flows between 14 major markets (Europe, Asia, United States) for the period 1989 to 1996. They found that the natural logarithm form of market size, bilateral trade**,** and

distance as a proxy for information asymmetries was one of the most important determinants of bilateral gross cross-border equity holdings.

A recent work by Lee et al. (2012) on the determinants of cross-border portfolio investment among APEC economies, using a gravity model, showed that APEC members have higher investment between themselves rather than with non-members. They found that a natural logarithm form of per capita GDP of source and destination economies was positive and significant, and suggested that richer economies are the major sources and the major recipients of equity investment. In addition, they found that the natural logarithmic form of population of source economies was negative and significant, but the natural logarithm form of population of destination economies was positive and significant, but turned to negative with country-pair effects. They suggested that larger economies are the major recipients of equity investment. For bilateral trade volume in lagged form, they found that it was positive and significant. They concluded that foreign equity investment among APEC members was greater with countries that enjoyed the trade. At the same time, however, they found that a natural logarithm form of distance had a significant negative coefficient, suggesting that APEC economies invest more in neighbouring countries rather than those further away. Another finding was that the contiguity was negative and significant, suggesting that APEC members tended to purchase less from economies sharing a border. It was also found that a common language was positive and significant, suggesting that APEC members tended to invest more in countries sharing the same language.

Balli et al. (2011) examined the determinants of cross-border portfolio investment, focusing on the difference between total foreign investment holdings, bond holdings, and debt holdings to the GCC economies, with 35 sources as host countries for the period 2001 to 2006. They found that GDP per capita did not have any significant results in total investment holdings, but was positive and significant in bond holdings and debt holdings. They also concluded that trade had a positive sign and was statistically significant to explain a portfolio investment in the GCC region. Distance was negative and statistically significant in explaining portfolio investment to the GCC region, but did not show any statistically significant results with debt holdings. Moreover, they found an insignificant effect of common languages on the total investment and bond holdings, while it had a positive effect and significance on debt holdings.

Hahm and Shin (2009) investigated the pattern of bilateral cross-border asset holdings for 1997 to 2003 in more than 200 destination countries and territories. They showed that the effects of economic development, measured by per capita GDP of a source country, had a significantly negative coefficient, while per capita GDP of the destination country had a positive coefficient for all forms of cross-border asset holdings. Further, the results indicated that a common language, border, and bilateral trade in goods had a correct sign and significance. The coefficient of distance as a proxy for information cost had mixed results and significance.

Garcia-Herrero et al. (2009) presented a gravity model for the determinant of foreign portfolio holdings for both equity and bond for 42 economies from 2001 to 2005. They showed that trade between the source and the destination country had positive effects on cross-border equity and bond holding. In another finding in their study, they outlined that the geographical distance discouraged financial exposure, the common languages and the border being the key determinants of cross-border holding as expected.

Aviat and Coeurdacier (2007) used a simultaneous gravity model to complement bilateral asset holding and bilateral trade in goods. They showed that a natural logarithm form of trade in goods and asset holdings was complementary and these reinforced each other. Furthermore, they pointed out that natural logarithm forms and common languages are a major determinant. Chong et al. (2011) developed the gravity model of international finance for panel data of 23 countries for the period 1995 to 2003. They found that distance was negative and significant impact on asset, clarifying that greater distance tends to lead to the stock market in closest proximity to move at random. Furthermore, they found that contiguous and common language did not affect any significant results.

Choi et al. (2014) examined the gravity model of the determinants of international financial transactions. This study used cross-country panel data on bilateral portfolio investment between the United States and 38 countries for the period 1990 to 2008. They outlined that the distance between the United States and partner country had a significant negative coefficient, while the language dummy was positive and significant as expected. Aggarwal et al. (2012) adopted panel data from the International Monetary Fund's (IMF) Coordinated Portfolio Investment Survey (CPIS) of foreign equity and debt portfolio across 147 originating and 50 destination countries between 2001 and 2007. They

outlined that the geographic distance variable had significant and negative effects on cross-border foreign portfolio investment (FPI) holdings of both equity and debt. The common language dummy had significant positive effects on both equity and debt.

Abid and Bahloul (2011) also applied the gravity equation of total portfolio investment over the period 2001 to 2005 for 30 investing and 43 receiving countries. They outlined that the logarithm of GDP as a measure of market size was positive and significant for both the investing and receiving country; the geographical distance variable had a negative coefficient and significance. In addition, bilateral trade in goods between countries was an important determinant of bilateral asset holdings. Shin and Yang (2012) adopted a gravity model to investigate the complementarities between financial assets and trade in assets between 1983 and 2004. They found that for per capita GDP for both source and destination economies there was a significant positive impact on financial assets, and the coefficient of per capita GDP for source economies was larger than for destination economies. This indicated that developed economies would make more and larger financial investment. Furthermore, they found that trade asset was positive and statistically highly significant and pointed out that financial transactions and trade boost each other. In addition, they found that distance was negative and significant effect on asset, while common language dummy and share border dummy were significantly positive impact on asset. At the end of their estimation, they used instrument variable estimation. They concluded that the coefficient of some variables such as distance, border, and common language changed the sign from previous estimations.

A study by Coeurdacier and Martin (2009) investigated the determinants of bilateral equity holdings on cross-country data on a Swedish data set. They concentrated on the effect of the euro for the determinants of international asset trade in equity, bonds, and banking assets, using panel data for 27 source countries and 61 destination economies. They found that GDP as a proxy for market size for destination countries, trade between countries, and market capitalization over GDP for destination countries was positive and significant for most regressions. The estimated coefficients on distance and common language dummy were significant with the expected sign.

Chintrakarn (2007) re-examined the determinants of cross-border equity flows: a dynamic panel data reassessment, applying a dynamic gravity model for 14 source and

destination countries for the period 1989 to 1996. The study pointed out that lagged asset flows had positive and significant correlation with present asset flows, this result revealing that lagged asset flow acted as a proxy for familiarity and unobservable network effects. Furthermore, the study found that distance had the correct sign, and the lagged bilateral trade of manufacturing goods between countries was negative and insignificant.

A comparison was made between gross bilateral foreign direct investment, trade, and portfolio investment flows and using gravity models for three-way comparisons of developed to developed country (North-North), developed to developing country (North-South), and developing to developed country (South-North) flows. Guerin (2006) found that the effect on FPI, economic development per capita GDP of the host country and the population of the host country were positive and significant in all groups. Distance was significant and a negative impact on FPI was only found in North-North, but the coefficient of sharing a border was only positive and significant in North-South. Additionally, a common language dummy was significant and positive in all groups.

Using bilateral panel data and a gravity model over the period 2000–2007 (48 sources and 57 host countries), a study by Hattari and Rajan (2011) compared the determinants of different types of capital flows (FDI, equity FPI, and M&As). The results for the impact of the explanatory variables on FPI showed that the population of the source country was positive and significant, the population of the host country, and GDP per capita variable for the source country were negative and significant effects on capital flows, but GDP per capita for the host country was insignificant effect. Other control variables, such as market capitalization as a share of GDP in the source country did not show any significant results, but in the host country they were negative and significant effect on capital flows . Another control variable was the risk premium in the source country, which was positive and significant, but in the host country was negative and statistically significant. A common language was positive and significant. On the other hand, the coefficient of distance and contiguous dummy was negative and statistically significant impact on flows.

Alexandra Peter (2012) analysed the relation between trade openness, bilateral trade, and asset holdings in a three-country stochastic general equilibrium model. This work used a cross-section for the end of 2001 and 2007 holdings of foreign equity and debt portfolio across 74 originating and 236 destinations from the Coordinated Portfolio

Investment Survey (CPIS), and OLS estimations. The results concluded that the GDP per capita and stock market capitalization in logarithm form for source countries had positive effects and significance. Distance in logarithmic form was negative and significant and common language dummy was positive and significant. Bilateral trade in logarithmic form had a positive and significant effect, these results meaning that two countries that trade more with each other also hold higher shares of each other's assets.

Martin and Rey (2004) presented a two period model where a gravity equation of international trade in assets was revealed. They assumed incomplete asset markets, iceberg costs in financial markets and endogenous asset creation. The main finding of their model was that gross flows of asset trade between two countries should depend inversely on transaction costs (exchange rate transaction costs and information costs, banking commissions and variable fees) between two countries and be proportionate to market size.

5.3.2. The Gravity Model and Intra-Bank Credit Flow

In recent years, there are have been a series of research papers addressing the question 'has the euro fostered financial integration in Europe?' In theory, therefore, the euro has been affected the cost of transactions inside the eurozone.

5.3.2.1. The Effect of Euro On Cross-Border Banking

The gravity model presented by Blank and Buch (2007) looked at the impact of the euro on intra-EU banking assets and liabilities from 10 reporting countries and all OECD recipient countries, in the pre-euro period, 1995–1998. and the Post-Euro period, 1999–2005. Their results showed a positive and significant euro effect for assets as well as for liabilities, but less strong. For EU countries only (Sub-Sample) this became less small coefficient and significant for assets, and turned to be insignificant for liabilities. Other interesting results were that domestic GDP, foreign GDP, volume of bilateral trade, and the common language dummy were positive and significant, while the distance between two countries as a proxy for trade cost and information had a negative sign and significance. Aviat and Coeurdacier (2007) used cross-section data of banks' foreign assets, and they concluded that the distance had a negative impact on asset holdings;

whereas trade was positively correlated with international bank assets and mutually determined.

In another study of the effect of the euro on the financial integration in Europe, Coeurdacier and Martin (2009) analysed the euro's effects on the determinants of banking assets. Their evidence showed that the euro had a positive effect, and also trade, GDP as a proxy for market size, market capitalization, and common language were positive and significant, but distance was negative as expected and significant.

In contrast, however, the effects of the euro on cross-border portfolio investment had only a few studies, such as Coeurdacier and Martin (2009), who found that the euro was positive and significant. This meant that it would be cheaper for all countries to buy eurozone assets, with lower transaction costs inside the eurozone leading to euro countries purchasing less equity from outside the eurozone.

5.3.2.2. International Banking

Hahm and Shin (2009) investigated the complementarities among different forms of financial integration (bank loans, short and long-term debts, and portfolio equity holdings) from 1997 to 2003 for 36 reporting countries and destination countries and more than 200 territories. They showed that short and long-term debts and portfolio equity holdings had a significant positive coefficient, which meant complementarities between portfolio asset holdings and bank loans. The effect of economic development, per capita GDP of source country, and per capita GDP of destination country had a positive coefficient for bank loans. Additionally, the results indicated that common language and borders had mixed results and a significant coefficient. For distance as a proxy for information cost was significant and showed the expected sign, as well as bilateral trade in goods.

Similarly, Shin and Yang (2012) adopted a gravity model to investigate the complementarities between financial assets and trade in the assets between 1983 and 2004**.** From the results of the impact of controlling variables on a bank loan, they concluded that per capita GDP for source and destination countries, bilateral trade, border and common language were positive and statistically significant effect. In contrast, distance had mixed results and significance.

Papaioannou (2009) studied the determinants of bilateral bank inflows from 19 sources in 50 host countries from 1984 to 2000. Her estimation showed that the coefficient of GDP per capita in the source countries was negative and insignificant, whereas the coefficient of GDP per capita in natural logarithmic form in the recipient countries was positive and significant. Her results lined up with the Lucas paradox that bank capital tends to flow to rich not poor countries. Her estimation showed that the coefficient population in natural logarithm forms in both the source and host counties was positive and significant. She explained that larger countries import and export more bank capital. In addition, her results indicated that distance in the natural logarithmic form was negative and significant effect. Her results showed that the presence of low performance institutions was the most important barrier to foreign bank capital.

5.3.3. The Gravity Model and Bilateral Trade

Although the focus of this chapter is an empirical analysis of portfolio investment, it is not trivial to understand the issue concerning bilateral trade. Shin and Yang (2012) also adopted a gravity model to investigate the complementarities between financial assets and trade in assets between 1983 and 2004**.** In the standard gravity model they found that per capita GDP for source and destination countries was statistically significant and had mixed results depending on methodology. In addition, a gravity model did well for the trade impact through distance, border, and common language. Furthermore, they investigated whether financial integration enhanced trade integration. They added financial asset holdings as explanatory variables and they found that their coefficient was positive and significant. These results illustrated that financial integration boosted trade integration.

Portes and Rey (1998) used panel data for manufacturing trade between 14 countries, and their results outlined that the population for the source country was negative and highly significant as they expected, but the population of the destination country had the incorrect sign and significance effect. In addition, they mentioned that the estimated coefficient on the natural logarithm form of population on sources exceeded on distention, for that source country population appeared to have significant strong influence on equity. The effects on manufacturing trade were inspired by the seminal work of Portes and Rey

(2000, 2005), who found that market size was as expected, and natural distance as a proxy for information asymmetries strongly hindered bilateral trade due to the negative impact of distance on bilateral trade.

Aviat and Coeurdacier (2007) used a simultaneous gravity model to complement bilateral asset holding and bilateral trade in goods. They showed that distance as a proxy for information asymmetries had a negative effect on trade in goods. Wong (2008) examined how well the gravity models described different forms of cross-border flows through explanatory variables. This study outlined that the gravity model fitted well for trade, and bilateral trade was lower if two countries were further apart. He suggested that bilateral trade was high with countries that shared a border or common language.

Using a gravity model in the comparison between gross bilateral foreign direct investment, trade, and portfolio investment flowing between a three-way comparison of developed to developed country (North-North), developed to developing country (North-South), and developing to developed country (South-North), Guerin (2006), found that the effect on trade, economic development per capita GDP of the host country and the population of the host country was positive and significant in all groups. Distance was significant and there was a negative impact on trade in North-North and North-South, and the coefficient of sharing a border was the only positive and significant in all groups. In addition, a common language dummy was significant and positive in different ways.

5.3.4. The Gravity Model and International Mergers and Acquisitions (M&A)

The relationship between a standard gravity model and cross-border mergers and acquisitions has been widely studied in many empirical papers; Wong (2008) examined how well the gravity model describes different forms of cross-border flows through explanatory variables. He used the OLS estimation, Heckman two-step, and the maximum likelihood estimator. His study outlined that in the order of missing values in merger and acquisition (M&A) flows, a gravity model worked less satisfactorily. The coefficient of distance, border, and dummy common language were statistically significant and supported the gravity hypothesis. Shen and Lin (2011) investigated a driving financial institution to gain cross-border mergers and acquisitions in eight Asian economies, before and after the financial crisis in 1997, for the period 1990 to 2006. They reported that

distance had a negative effect on both periods. This reflected that the greater the distance, the higher the transaction cost which then reduced mergers and acquisitions. GDP growth rate as a proxy for the market opportunity hypothesis was negative and significant pre-crisis, but was positive post-crisis. The common language dummy as a proxy for information cost hypothesis was significantly negative in both periods; trade in goods was significantly positive and supported the hypothesis in both periods.

Hyun and Kim (2010) presented a gravity model and Tobit models for panel data covering 101 countries between 1989 and 2005. In addition, they applied the same methods for sub-samples of data between OECD and OECD, between OECD and non-OECD, and between non-OECD and non-OECD. The main results concluded that the natural logarithm form of the real GDP as a proxy for market size, volume trade between two countries, and a common language dummy were highly significant and had a positive sign. In contrast, distance between two countries had a negative effect on cross-border mergers and acquisitions.

Hattari and Rajan (2011) compared the determinants of different types of capital flows (FDI, equity FPI, and M&As). They used bilateral panel data and a gravity model over the period 2000–2007 (48 sources and 57 host countries). The results for the impact of the explanatory variables on M&As showed that the population of source and the host country were positive and significant, but GDP per capita for both source and host country was statistically negative. The estimated coefficient for a common language and contiguous dummy were statistically significant and had a positive effect. On the other hand, the coefficient of distance was negative and statistically significant.

Di Giovanni (2005) estimated a gravity model for the period 1990–1999. Using financial variables and other institutional factors, this work found that the stock market capitalization to GDP ratio in destination countries in a lagged form had a strong positive correlation with cross-border M&A. The distance coefficient was negative and significant, common language dummy was always positive and largely significant. As he expected, large countries as measured by real GDP tended to invest more in each other. Furthermore, bilateral trade was significant and had a positive sign, which suggested that M&As are more likely between countries that trade more.

5.3.5. The Gravity Model And Foreign Direct Investment (FDI)

Evidence found by Abbott and Vita (2011) implied a dynamic within a system of generalized methods panel data from 27 OECD and non-OECD high income countries between 1980 and 2003. They concluded that the coefficient of each of these explanatory variables, such as bilateral trade, per capita GDP for host and destination country, and common language dummy, were positive and statistically significant. On the other hand, distance appeared to have an insignificant impact on foreign direct investment. Using bilateral panel data and a gravity model over the period 2000–2007 (48 sources and 57 host countries), Hattari and Rajan (2011) compared the determinants of different types of capital flows (FDI, equity FPI, and M&As). The results for the impact of the explanatory variables on FDI concluded that the populations of source and host countries and GDP per capita of the host country were positive and significant. A common language and contiguous dummy were positive and significant. On the other hand, the coefficient of distance and GDP per capita of source country was negative and statistically significant.

Guerin (2006) estimated a gravity model to examine the determinants of gross bilateral foreign direct investment, trade, and portfolio investment flows among both developed and developing economies. A three-way comparison of developed to developed country (North-North), developed to developing country (North-South), and developing to developed country (South-North) flows was undertaken. The results for FDI showed that distance was significant and had a negative impact on FDI only in North-North and the coefficient of sharing a border was only positive and significant in North-South. A common language dummy was significant and positive in different ways. For economic development per capita GDP of the host country it was positive and significant in North-South and South-North. The population of the host country variable was statistically positive and significant for North-North, and North-South countries.

5.4. Data and Methodology

5.4.1. Data Description

The study uses panel data consisting of 37 developing countries investing and 79 receiving from the period 2001 to 2012. Appendix C–1 gives a list of the source countries, and Appendix C–2 a list of the host countries included in each regression.

A study looked at the aggregate equity securities and debt securities, short term and long term, between source countries i and host country j (e.g. Abid and Bahloul, 2011; Lee et al., 2012; Peter, 2012; Balli et al., 2011). Data was obtained from the International Monetary Fund's (IMF) coordinated Portfolio Investment Survey (CIPS), and converted in real terms using the U.S. GDP deflator (Papaioannou, 2009; Garcia-Herrero et Al., 2009). Data for U.S. GDP deflator was also provided by the World Bank (2014) World Development Indicators Database (WDI).

The gravity model regressed FPI on a set of standard explanatory variables, these were variables which denoted relative market size and wealth, population and market risks, market capitalization and trade openness. In addition, the model was enhanced with a set of dummies, denoting variable proxies for familiarity as a contiguous common language. Details on the selection of data sources and parameters for each of the variables in the model are described in the following subsections. The choice of variables and proxies was guided by the literature. Table 5.2 shows variables, definitions, and data sources.

5.4.1.1. Gross Domestic Product Per Capita Constant

The variable GDP per capita denoted relative wealth and market size of the host and source countries in natural logarithm form (e.g. Lee et al., 2012; Hattari and Rajan, 2011; Papaioannou, 2009; Peter, 2012), and was expected to have had a positive effect on FPI. This suggested that richer economies were major sources and recipients of portfolio investment. It was obtained from the World Bank (2014) and the WDI database.

5.4.1.2. Population

This variable in natural logarithm form illustrated that larger economies are mainly sources and recipients of portfolio investment (e.g. Lee et al., 2012; Hattari and Rajan,

2011; Peter, 2012), and was expected to be positively related to FPI. It was also obtained from the World Bank (2014) WDI database.

5.4.1.3. Risk Premium on Lending (Lending Rate Minus Treasury Bill Rate, %)

Risk premium on lending is the interest rate charged by banks on loans to private sector customers minus the "risk free" treasury bill interest rate at which short-term government securities are issued or traded in the market (e.g. Hattari and Rajan, 2011). In some countries this spread may be negative, indicating that the market considers its best corporate clients to be lower risk than the government. The terms and conditions attached to lending rates differ by country, however, limiting their compatibility (The World Bank Definition). This variable was expected to be negatively affected on FPI, reflecting that markets with a comparatively lower risk premium attract more FPI. It was provided by the World Bank (2014) and the WDI database.

5.4.1.4. Market Capitalization of Listed Companies (% Of GDP)

Market capitalization (also known as market value) is the share price times the number of shares outstanding. Listed domestic companies are the domestically incorporated companies listed on the country's stock exchange at the end of the year. Listed companies do not include investment companies, mutual funds, or other collective investment vehicles (World Bank Definition) (e.g., Hattari and Rajan, 2011; Portes and Rey, 1999; Peter, 2012; Coeurdacier and Martin, 2009). According to Lane and Milesi-Ferretti (2004), it was suggested that richer countries and those with a more developed financial market might have higher incentives to invest in assets of other countries. The variable was expected to have a positive effect, and was obtained from the World Bank (2014) World Development Indicators Database (WDI).

5.4.1.5. Trade Openness

The variables used to capture investment are alternatively the ratio of bilateral trade and one-year lagged volume of trade in goods. Following Daly and Vo (2013), the total ratio of bilateral trade is measured as the sum of exports and imports between sources and destination countries relative to the destination country's GDP. Bilateral exports and imports from the IMF, Direction of Trade Statistics, and GDP destination country's data were taken from the World Development Indicators Database (World Bank, 2014).

The one-year lagged volume of trade in goods is given as an explanatory variable in the model (Lee et al., 2012; Hahm and Shin, 2009). Those two variables were expected to be positively related, reflecting that trade and FPI were complementary, and negatively related if FPI and trade were substitutable.

Empirical work by Merton (1987) proposed that rational investors invested more in the securities they knew about. If investors behaved in this way, it would be expected that investors would invest more in securities that are known to them abroad. Trade links can be considered as a factor to proxy for information cost in investigating the home bias puzzle. The increasing trade association between one country and another can be considered as a reduction in information cost as investors can obtain the information at a cheaper cost. For instance, investors are better able to attain accounting and regulatory information on foreign markets through trade. Increased trade openness is one of the main factors influencing globalization and erosion of home bias.

5.4.1.6. Distance

Distance is measured as the natural logarithmic form to capture the circle of distance (in kilometers) from the capital cities of the host and source countries (e.g. Daly and Vo, 2013; Lee et al., 2012; Hattari and Rajan, 2011). The distance variable was to be interpreted as a proxy for transaction costs as well as transportation costs and information asymmetries. If distance was used as a proxy for information cost, then greater knowledge could be obtained from greater distances and there would be more FPI between close or neighbouring countries. This variable was expected to have a positive impact on home bias. Furthermore, if investors were looking to diversify their portfolio and wanted to buy more securities in distant countries from those business cycles which had a low or negative correlation with their own country's cycle, then the distance would have had a positive effect on assets because of the diversification motive (Portes and Rey, 1999 and 2005; Martin and Rey, 2004).

On the other hand, distance would have had a negative effect, reflecting investors' decisions to access foreign markets through trade rather than FPI, and this was because the larger the distance between countries, the greater the transaction costs and information asymmetry between them. Distance could be found to be a barrier to information flow and not a good proxy for transportation cost, the time difference between countries preventing direct communication (Portes and Rey, 2005; Aviat and Coeurdacier, 2007).

Data for distance come from Centre d' Etudes Prospective et d' Information's Internationals (CEPII)'s.

This variable was expected to have a positive effect on FPI, reflecting that the investors in developing countries preferred to invest outside their region for diversification motives.

5.4.1.7. Proxies for Familiarity (Language And Contiguous Dummies)

Language provides a new series for a Common Official Language (COL), which equals one if an origin/destination country pair share a common official language, and zero otherwise (e.g. Lee et al., 2012; Hattari and Rajan, 2011). It was expected that it would have positive effects (i.e. common language lowers costs of doing business), implying that countries sharing a common language were seen to have a higher portfolio investment.

Contiguous (border) low cost of doing business equals one if an origin/destination country pair shares a border, and zero otherwise. The sign of the coefficients was expected to be positive. The countries tended to purchase more equities from their border-sharing economies. These two dummies were provided by Centre d' Etudes Prospective et d' Information's Internationals (CEPII)'s (e.g. Lee et al., 2012; Hattari and Rajan, 2011).

5.4.2. The Gravity Model

The main questions to address in this chapter are: why do developing countries tend to invest outside their own region rather than in developing countries within the region? Secondly, what are the main determinants of portfolio investment assets from the developing countries and the top major partners recipients of portfolio investment across the world? In this subsection, we describe the model specification and econometric methodology used to study the relationship between the explanatory variables as the main determinants of cross-border portfolio investment in developing countries in order to answer the main questions.

Traditionally, gravity models have been widely used and do well in describing international trade in goods. In addition, there have been some recent papers explaining international asset portfolios and the gravity model fits the data well. This paper is very

much related to recent papers that have used a financial gravity equation in their research, particularly Portes et al. (2001), Portes and Rey (2005) and Aviat and Coeurdacier (2007).

In order to estimate the effect of explanatory variables on cross-border portfolio investment, a baseline gravity model (equation 5.1) is formulated as:

$$\text{Ln Asset}_{ijt} = \alpha_0 + \beta_1 \ln \text{GDP pc}_{it} + \beta_2 \ln \text{GDP pc}_{jt} + \beta_3 \ln \text{pop}_{it} + \beta_4 \ln \text{pop}_{jt} + \beta_5 \ln \text{Distance}_{ij} + \beta_6 \text{Contig}_{ij} + \beta_7 \text{Comonlang}_{ij} + \varepsilon_{ijt} \quad (5.1)$$

Four additional variables are also employed in this paper: a further set of economic and financial controls, in order to check the robustness of the results as well as to ascertain to what extent other factors may impact on the composition of equities. Equation 5.1 is rewritten to include risk premium, market capitalization of listed companies, bilateral trade in level and bilateral trade in lagged form, as shown below:

$$\text{Ln Asset}_{ijt} = \alpha_0 + \beta_1 \ln \text{GDP pc}_{it} + \beta_2 \ln \text{GDP pc}_{jt} + \beta_3 \ln \text{Pop}_{it} + \beta_4 \ln \text{Pop}_{jt} + \beta_5 \ln \text{Distance}_{ij} + \beta_6 \text{Contig}_{ij} + \beta_7 \text{Comonlang}_{ij} + \beta_8 \text{Riskprem}_{it} + \beta_9 \text{Riskprem}_{jt} + \beta_{10} \text{Mark}_{it} + \beta_{11} \text{Mark}_{jt} + \beta_{12} \text{Trade}_{ijt} + \varepsilon_{ijt} \quad (5.2)$$

Where, i and j indicate the "source" and "host" country, respectively; t denotes time (2001–2012). The dependent variable is bilateral cross-border assets holding (equity securities and debt securities in short term and long term) between source country i and host country j; GDP pc_{it} and GDP pc_{jt} are gross domestic product per capita in natural logarithm form of economies i and j, respectively. Pop_{it} and Pop_{jt} are population in natural logarithm form of economies i and j, respectively. $Riskprem_{it}$ and $Riskprem_{jt}$ are Risk premium on lending of economies i and j, respectively. $Mark_{it}$ and $Mark_{jt}$ are market capitalization of listed companies of economies i and j, respectively. $Trade_{ijt}$ is total ratio of bilateral trade (exports + imports) between sources and destination countries relative to the destination country's GDP. $Distance_{ij}$ is the bilateral geographical distance in natural logarithm form. $Comonlang_{ij}$ and $Contig_{ij}$ are dummies that indicate the partner countries who share a common language and geographic border. ε_{it} is an error term.

As pointed out in the preceding sections, the regression results were obtained with year-specific effects, source-country fixed effects, and also included source country year fixed effects in order to control unobservable country-specific effects invariant over the time. Equation (5.2) is rewritten to include all those dummies in estimations.

$$\text{Ln Asset}_{ijt} = \alpha_0 + \beta_1 \ln \text{GDP pc}_{it} + \beta_2 \ln \text{GDP pc}_{jt} + \beta_3 \ln \text{Pop}_{it} + \beta_4 \ln \text{Pop}_{jt} + \beta_5 \ln \text{Distance}_{ij} + \beta_6 \text{Contig}_{ij} + \beta_7 \text{Comonlang}_{ij} + \beta_8 \text{iskprem}_{it} + \beta_9 \text{Riskprem}_{jt} + \beta_{10} \text{Mark}_{it} + \beta_{11} \text{Mark}_{jt} + \beta_{12} \text{Trade}_{ijt} + \alpha_t + \alpha_{it} + [\alpha_t + \alpha_{it}] + \varepsilon_{ijt} \quad (5.3)$$

Where, α_t in regression is a vector of year-specific effects; α_{it} is a vector of source-country fixed effects; $[\alpha_t + \alpha_{it}]$ are vectors of source country year fixed effects.

Following the evidence from the papers of Choi et al. (2014), Lee et al. (2012), Abid and Bahloul (2011), Hahm and Shin (2009), it was suggested that the estimated gravity model using pooled OLS or/and fixed effects or/and random effects estimations was applied to the models with a vector of year-specific effects; a vector of source-country fixed effects; and a vector of source country year fixed effects. These estimations are conducted to check the robustness of the result and to be compared with the existing literature.

5.5 Results

5.5.1 Empirical Results

Table 5.3 presents descriptive statistics of the data, while Table 5.4 shows a correlation coefficient between the variables and portfolio investment. With regard to the explanatory variables, there is no evidence of multicollinearity. The main results are described in Tables 5.5–5.8. In each table, eight regressions are reported with various combinations of explanatory variables, and estimation methods. Models 1, 5 and 9 show the baseline results obtained from the estimation of equation (5.1). Models 2 to 4, 6 to 8 and 10 to 12, on the other hand, are the models use a further set of economic and financial controls from the estimates of equation (5.2).

We begin the empirical analysis with three different methods, the results of pooled OLS (ordinary least squares) are utilized in models 1 to 4, FE (fixed effects) are listed in models 5 to 8, while the results of the RE (random effects) are listed in models 9 to 12. Both were an estimation of fixed effects and random effects, but fixed effects were omitted, unlike in the fixed effects model time invariant variables; for instance, distance, contiguous, and common language can be included in the random effects model. To account for heteroskedasticity, we undertake the analysis using robust standard errors.

5.5.2 Descriptive Statistics

Table 5.3 reports the summary statistics for the variables. Looking at Table 5.3, the average FPI between countries' natural logarithm is 4.35% with an overall standard deviation of 3.10%. The average GDP pc i natural logarithm is 8.39% with an overall standard deviation of 1.17%. The average GDP pc j in natural logarithm is 9.98%, and the average natural logarithm of population i is 16.47%, and the average natural logarithm of population j is 16.68%. Summary statistics for other control variables are presented in Table 5.2.

Table 5.4 presents the correlation matrix of the variables. It is observed that GDP per capita for source and destination countries, population for destination countries, and trade, market capitalization of listed companies in the source and destination country are positively correlated with FPI between countries as expected. However, population for source countries is wrongly signed. It is not surprising that the correlation coefficients between risk premium in the source and destination countries are all negative as expected. There is high correlation between GDP per capita in source country and market capitalization of listed companies in the source countries. This suggests that it may be more difficult to estimate the effect of GDP per capita independently of market capitalization. With regard to the remaining variables, there is no evidence of multicollinearity.

5.5.3. Results of the Determinants of Cross-Border Portfolio Investment

The estimation results of equations (5.1) and (5.2) for the base gravity model for bilateral cross-border asset holdings is reported in Table 5.5. The results show that GDP per capita for source countries had a positive effect on cross-border investment and significance for all three methods. The significant positive coefficient of GDP per capita

of source economies in OLS (models 1 to 4), FE (models 5 to 8), and RE (models 9 to 12) suggested that richer economies are major sources of portfolio investment. The most interesting results are the positive and significant ones on GDP per capita in the destination country for OLS (models 1 to 4), FE (only model 5), and RE (models 9 to 12). These findings suggested that richer economies are major recipients of investment holding. This clarifies the Lucas paradox that capital investment tends to flow to rich not poor economies. These findings broadly provide support for a number of studies (e.g., Porter and Rey, 2005; Lee et al., 2012).

The coefficient of population of source economies has the expected sign, which is positive and statistically significant in OLS (models 1 to 4), FE (is only significant in model 5), and RE in (models 9 to 12). As expected, the population for destination contraries has a significant positive effect on assets for all three methods, in OLS (models 1 to 4), FE (models 5 to 8), and RE (models 9 to 12), illustrating that the larger economies are major sources and recipients of investment holdings, consistent with the empirical evidence (Papaioannou, 2009; Peter, 2012).

Distance, as a proxy for transaction, transportation cost, and information asymmetries, had a significant positive effect on assets only in OLS (model 1), as expected. These positive effects on investment holdings were because of the diversification motive; those countries may want to buy more portfolio investment in distant countries whose business cycles have a low or negative correlation with their own country's cycle (e.g., Portes and Rey, 1998, 1999, 2000, 2005). The dummy language can be another source of information asymmetry and was positive and significant in both OLS (models 1 to 4) and RE (models 9 to 12), consistent with Aggarwal et al. (2012), Porter and Rey (2000), Lee et al (2012). These results also showed that the developing countries' members invested more in countries which shared the same language (e.g., Lee et al., 2012). The estimates also showed that contiguous had positive and significant results only in OLS (models 2 and 4). These results were in line with Hahm and Shin (2009); moreover, the results confirmed that information asymmetry was an important determinant of cross-border asset holdings, and which the results also showed concerning the power of the gravity model. This could be attributed to the possibility that investors in developing countries may tend to invest more with countries that share a border and have the same language.

Next, the significance of financial control involving the risk premium on lending and market capitalization of listed companies in the source and host countries in the regression in OLS (models 2 to 4), FE (models 6 to 8), and in RE (models 10 to 12) was analysed. The coefficient of risk premium in the source country is negative and significant in OLS (models 2, 3, 4) and in RE (models 10 and 11), but when analysed by FE, the variable changes sign (models 6, 7, 8), consistent with Hattari and Rajan (2011). The positive results in terms of incurring sunk costs overseas were lower. This finding may be related to the source country and ought to lead to greater outflows due to the issue of an uncertainty aversion due to sunk costs; the relative risk of incurring sunk costs overseas was lower, as Hattari and Rajan (2011) suggested. On the contrary, there is no significant association between risk premium in the destination country and cross-border investment.

The coefficient of market capitalization of listed companies in the source country was positive and significant only in OLS estimations (models 2 to 4); this finding provides support for a number of previous studies, such as Portes and Rey (1999), and Peter (2012). In addition, Lane and Milesi-Ferretti (2004) suggested that richer countries with a more developed financial market might have a higher incentive to invest in securities of other countries. However, when analyzed by FE, the variable changes sign (models 6, 7, 8), it has a negative sign and is statistically significant.

The coefficient of market capitalization of listed companies in the destination country is positive and significant only in OLS estimations (models 2 to 4). This supported the finding that the greater the capital markets of the destination country, the more the need to make cross-border investment, consistent with the previous findings by Coeurdacier and Martin (2009).

Finally, bilateral trade between source and destination countries relative to the destination country's GDP (models 3, 7 and 11) was added. Its coefficient was positive and significant in both OLS and RE regressions, suggesting that portfolio investment by developing members is greater and with which they enjoy greater trade integration (Lee et Al., 2012; Abid and Bahloul, 2011). In addition, the positive effect proposes that portfolio investments were more likely between countries that traded more. Moreover, the significance statistic of distance in the determinants portfolio investment become insignificant when trade was added as an independent variable, which revealed that distance may not directly influence financial flows (Shin and Yang, 2006). As noted

earlier, bilateral trade volume (lagged) was used in models 4, 8 and 12, and its coefficient was insignificant.

Overall, the R^2's indicated that the models explained through OLS estimations 33 per cent of the variation in portfolio investment in model 1 and 62 per cent of the variation in portfolio investment in models 2,3, and 4. Moreover, FE estimation explained about 13 per cent of the variation in portfolio investment in model 5 and about 25 per cent in models 6, 7, and 8. Moreover, they explained 32 per cent of the variation in portfolio investment in model 9, and in models 10, 11, and 12 about 57 per cent in RE estimations.

5.5.4. Results of the Determinants of Cross-Border Portfolio Investment using Year Dummy Effects

In what follows, this paper seeks to take account of certain factors, for example, the world business cycle and the global capital market shock. This employed a time trends dummy. Hence, the results obtained with year-specific effects for foreign portfolio investment holdings are reported in Table 5.6 and using the equation (5.3).

These estimations were similar to the previous regressions in Table 5.5. The effects of GDP per capita for source countries and destination economies on cross-border investment were, again, positive and significant in OLS (models 1 to 4,) and RE (models 9 to 12) were exceptions. On the other hand, when analysed by FE, the variable had insignificant effects on assets (e.g., Porter and Rey, 2005; Lee et al. 2012).

The coefficient on population of source economies has the expected sign, which is positive and statistically significant in the OLS regression (models 1 to 4), and is only significant in the RE regression (model 9), illustrating that the larger economies are major sources of investment holdings. In contrast, it has a negative effect on portfolio investment in the FE regression (models 5 to 8). These results were in line with Lee et al. (2012) and Hattari and Rajan (2011). This result is not expected as among the developing economies included were source economies such as China and India.

The results also show that the coefficients of the population for destination countries are significantly positive as expected for all three methods, in OLS (models 1 to 4), FE (models 5 to 8), and RE (models 9 to 12), which clarify that the larger economies are

major recipients of investment holdings, consistent with the empirical evidence (Papaiouannou, 2009; Peter, 2012).

Other variables, risk premium and market capitalization of listed companies in the source and host countries, were controlled. The coefficient of risk premium in the source country remained significantly negative only for OLS (only in model 4); this correspondeds to models 2, 3, 4 and 7 in Table 5.5. Similarly, the coefficient of risk premium in the destination country was insignificant for OLS (models 2 and 4).

The effects of market capitalization of listed companies in the source country were highly significant and positive in OLS (models 2 to 4); but, when analyzed by FE, the variable changes sign (models 6, 7, 8), becoming negative and statistically significant. This was consistent with models 2, 3, 4, 6, 7 and 8 in Table 5.5. On the other hand, the coefficients in the destination country were highly significantly positive only in OLS (models 2, 3, 4), being consistent with models 2, 3, and 4 in Table 5.5.

The coefficients of distance as a proxy for transaction cost, transportation cost, and information asymmetries, were positive and statistically highly significant, as shown only in OLS in model 1, and it was the expected sign. The dummy language can be another source of information asymmetry, and was positive and significant in OLS (models 1 and 4), and in RE (models 9 to 12). In addition, contiguous was found to be positive and significant effect in the OLS (models 2, 3 and 4), and RE estimations (models 10 and 12).

Bilateral trade was positive and significant for OLS (model 3); and for RE (model 11). Moreover, the significance of distance in the determinants portfolio investment disappears when trade is added as an independent variable, which revealed that distance may not directly influence financial flows. As well as this, bilateral trade volume (lagged) was insignificant in all methods.

Overall, the R^2's indicated that the models explained in OLS estimations 38 per cent of the variation in portfolio investment in model 1 and 66 per cent of the variation in portfolio investment in models 2, 3, and 4. Moreover, the FE estimation explained about 13 percent of the variation in portfolio investment in model 5 and about 16 per cent in models 6, 7, and 8. Additionally, they explained 38 per cent of the variation in portfolio investment in model 9, also in the models 10, 11, and 12 about 61 per cent in RE estimations.

5.5.5. Results of the Determinants of Cross-Border Portfolio Investment using Source Country Fixed Effects

Following Hahm and Shin, 2009; Lee et al., 2012; and Choi et al., 2014, the source country fixed effects dummy was employed in order to control unobservable country-specific effects invariant over the time. The estimation results for equation (5.3) including dummy are shown in Table 5.7.

The effect of GDP per capita for source and destination countries was, again, as expected. GDP per capita for source countries was positive and significant for all methods. The coefficients of GDP per capita for destination countries are positive and significant in both OLS regression (models 1 to 4) and RE (models 9 to 12), while in FE estimation (only model 5). The coefficient on population of source economies has the expected sign, which is positive and statistically significant in OLS (models 1 to 4), FE (is only significant in model 5), and RE (models 9 to 12). It can also be seen that the coefficient of the population for destination economy was positive and significant in all three methods.

In relation to the control variables, it was observed that the risk premium on lending turned to a positive coefficient and significance for source economies for OLS (models 2, 3 and 4), FE (models 7 and 8), and RE (models 10 11, and 12), consistent with Hattari and Rajan (2011). To compare this with the results in Table 5.5 and Table 5.6, the risk premium on the lending results in Table 5.6 with the inclusion of year dummy effects in terms of incurring sunk costs overseas was lower. This finding may be related to the source country and ought to lead to greater outflows due to the issue of an uncertainty aversion due to sunk costs; the relative risk of incurring sunk costs overseas was lower, as Hattari and Rajan (2011) suggested. Likewise, the risk premium on lending in the destination economy had a positive significant coefficient only in FE (model 6). These results supported the idea that investors in developing countries invested in host countries, even if that country had a high risk.

As before, the coefficient of market capitalization of listed companies in the source country was positive and significant only in OLS estimations (model 2), whilst the variable changes sign in OLS (models 3 and 4), FE (models 6, 7, and 8), and RE (model

11), becoming negative and statistically significant. The coefficient of market capitalization of listed companies in the destination country is positive and significant only in OLS estimations (models 3 to 4).

From Table 5.7 it can be seen that, in all the models estimated, bilateral trade was seen as an insignificant effect on assets, and bilateral trade volume (lagged) is insignificant in all the models.

Turning to the variables related with transaction costs, it was found that distance turned to a significant negative coefficient in OLS (models 1 to 4), and RE (models 9 to 11). The negative correlation between distance and asset holdings could also be an indication of information asymmetry. This result implied that as two countries were located farther apart, distance increased and investment holdings would be reduced. In addition, consistent with the previous findings by Daly and Vo (2013), this negative effect indicated that investors in developing countries seemed to be underweight their portfolios towards countries with a short distance. As expected, dummy language had a significant positive effect on assets only for OLS (models 2, 3 and 4), whilst its coefficient was insignificant in models 9 to 12 for RE estimation.

The estimates also showed that contiguous had positive and significant results only in OLS (models 2, 3 and 4). These results were in line with Hahm and Shin (2009). These results confirmed that information asymmetry was an important determinant of cross-border asset holdings, which the results also showed concerning the power of the gravity model. This could be attributed to the possibility that investors in developing countries may tend to invest more with countries that share a border and have the same language.

The R^2's indicated that the models explained in OLS estimations 59 per cent of the variation in portfolio investment in model 1 and 75 per cent of the variation in portfolio investment in models 2, 3, and 4. Moreover, FE estimation explained about 13 per cent of the variation in portfolio investment in model 5 and about 25 per cent in models 6 and 7. Model 8 explained 24 per cent. In addition, they explained 59 per cent of the variation in portfolio investment in model 9, and in models 10, 11, and 12 about 74 per cent in RE estimations.

5.5.6. Results of the Determinants of Cross-Border Portfolio Investment using Source Country Year Effects

It was also interesting to note that these estimations differ from the previous regressions by involving the year-specific effects and source country-specific effects; Table 5.8 reported the results for equation (5.3).

Turning to the major issue of the effect of GDP per capita in source countries and destination country on assets, GDP per capita in the source country, unexpectedly, insignificantly affects assets, as evidenced in all three methods. This is consistent with Papaioannou (2009). On the other hand, the coefficients of GDP per capita in the destination country are positive and statistically highly significant in OLS (models 1 to 4), and RE (models 9 to 12) as expected.

In addition, the population variable for source economy had a negative coefficient sign and significance in all three methods. In contrast, the coefficient on population for the destination economies, as expected, was significantly positive for all three methods.

For the control variables, the risk premium on lending in the source and destination economy was insignificant in three of the analyses.

The coefficient of market capitalization of listed companies in the source country appeared to have a significant negative effect on asset in OLS estimations (models 2 to 4) and FE (models 6 to 8). However, the coefficient of market capitalization of listed companies in the destination country remains positive and significant only in OLS estimation in models 2 to 4. The results are similar to those presented in previous sections (Tables 5.3–5.5).

Turning to the variables related with transaction costs, it was found that distance turned to a significant negative coefficient, with the same results in Table 5.7 in OLS estimation (models 1 to 4) and RE estimation (models 9 to 12). Dummy language could be another source of information asymmetry and was positive and significant only in the OLS (models 2, 3, and 4). In models 2, 3 and 4, the estimates also showed that contiguous had positive and significant effects, these results being in line with Hahm and Shin (2009). These results confirmed that information asymmetry was an important determinant of cross-border asset holdings, and in the power of gravity model.

As indicated previously, this chapter employs bilateral trade in level and bilateral trade in lagged form. The results showed that there is no significant association between both those variables and assets in the three analyses.

The gravity model in OLS regression captured 62% of the variation in portfolio investment in model 1, and captured 77% of the variation in portfolio investment in models 2, 3 and 4. Moreover, it captured in FE estimation 31% of the variation in portfolio investment in model 5, and captured 16% of the variation in portfolio investment in models 6, 7 and 8. For RE regression, it captures 62% of the variation in portfolio investment in model 9, and captured 76% of the variation in portfolio investment in models 10, 11, and 12.

5.6. Conclusion

The current chapter aimed to answer the following questions: why do developing countries prefer to invest outside the region?, and what were the main determinants of portfolio investment assets between developing countries and the top major partners across the world? To answer these questions, the focus of attention has been on using panel data on bilateral gross cross-border investment flows from 37 developing countries and 79 host countries, which were the top five recipients of portfolio investment in the world from 2001 to 2012. The methodology used was composed of the gravity model, the pooled OLS method, and fixed effects and random effects estimation used to determine the portfolio investment in the developing countries. The basic gravity variables were considered as a set of control variables, these variables being the GDP per capita, population, distance, contiguous, and the common language dummy. Then several other further sets of economic and financial controls to international investments were added as well as variables in the basic model: risk premium, market capitalization of listed companies, bilateral trade, and bilateral trade in lagged form. Adding further control variables does not change our results. The surprising finding from this study is that distance has a positive effect on investment holdings because of the diversification motive. In addition, another surprising finding from this chapter is that market capitalization of listed companies in source and destination economies has a very small effect on asset holdings.

The pooled OLS was applied and the results found that the market size for both source and destination economies had positive effects. This was consistent with the fact that, even in developing countries where gross domestic product per capita is, for example, robust, bilateral portfolio investment was advanced. Moreover, the results showed the importance of population, risk premium in source economies only, market capitalization of listed companies, bilateral trade in level, distance, contiguous, and common language dummy in determining asset holdings.

The results of the fixed effects estimation found that GDP per capita has a positive effect for source and destination economies, whereas population has a negative effect for source economies. Risk premium in source economies had a positive effect, whilst market capitalization of listed companies in source economies had a negative effect. Further, using the random effects estimation, the importance of GDP per capita, population, risk premium only in source economies, market capitalization of listed companies in source economies, bilateral trade level, distance, contiguous, and the common language dummy was found. On the other hand, the results show no statistically significant effect of bilateral trade in lagged form on asset holdings.

The omission of the corruption factor in the estimation that explain why developing countries prefer to invest out side the region may that factor discourages the liquidity and portfolio investment into the countries. Moreover, FPI is adversely affected by corruption, because it increases the order execution risks for investors and the cost of equity capital for corporations.

The findings of this paper had two main policy implications. First, the Lucas paradox supported the evidence that developing investors preferred to invest outside the region instead of in developing markets. Second, for optimal diversification, they preferred to buy equities in distant countries. It would be interesting to combine the three main results, checking which effect is predominant in the decision to invest.

Table 5.2: Variables, Definitions, and Data Sources

Variables	Definitions
Dependent Variable	
FPI_{ij}	bilateral cross-border assets holding (equity securities and debt securities in short term and long term) between source country i and host country j
Explanatory Variables	
GDP pc _i	Real GDP per capita (constant 2005US) in sources country i
Ln GDP pc _i	Real GDP per capita (constant 2005US) in sources country i, in natural logarithm form
GDP pc _j	Real GDP per capita (constant 2005US) in host country j
LnGDP pc _j	Real GDP per capita (constant 2005US) in host country j, in natural logarithm form
POP_ i	Population in sources country i
Ln POP_ i	Population in sources country i, in natural logarithm form
POP_ j	Population in host country j
Ln POP_ j	Population in host country j, in natural logarithm form
RISK_i	Risk premium on lending in source country i (prime rate minus treasury bill rate, %)
RISK_j	Risk premium on lending in host country j (prime rate minus treasury bill rate, %)
MARK_i	Market capitalization of listed companies in source country i (% of GDP)
MARK_j	Market capitalization of listed companies in host country j (% of GDP)
TRADE_ij	Total ratio of bilateral trade (exports + imports) between source and destination countries relative to the destination country's GDP
TRADE_ij (lagged)	Total ratio of bilateral trade (exports + imports) between source and destination countries relative to the destination country's GDP (one-year lagged)

Variables	Definitions
Explanatory Variables	
$DIST_{ij}$	The geographical distances (miles) between source and host countries.
Ln $DIST_{ij}$	The geographical distances (miles) between source and host countries in natural logarithm form.
CONTIG	Dummy variable, which equals one if an origin/ destination country pair shares an official language, and zero otherwise.
COMLANG	Dummy variable, which equals one if an origin, destination country pair shares a border, and zero otherwise.

Sources: Data for international portfolio investment (2001-2012) are obtained from the International Monetary Fund's (IMF) coordinated Portfolio Investment Survey (CIPS).

Data for GDP pc, Population, Risk, and Market capitalization (2001-2012) from World Development Indicator (December 2014).

Bilateral trade (2001-2012), Bilateral exports and imports from International Monetary Fund, Direction of Trade Statistics, and GDP destination country's data is taken from the World Development Indicators Database (World Bank, 2014).

Distance, Contiguous, and common an official language (2001-2012) from Centre d' Etudes Prospective et d' Information's Internationals (CEPII)'s.

Table 5.3: Summary Statistics on the FPI and the Gravity Model

Variable	Mean	Std. Dev	Min	Max
RFPI $_{ij}$	2703.506	14280.34	2.80e-06	390241.3
Ln RFPI $_{ij}$	4.354091	3.102632	-12.78695	12.87452
GDP pc $_{i}$	8861.53	13321.14	348.78	81531.6
Ln GDP pc $_{i}$	8.399	1.170	5.854	11.308
GDP pc $_{j}$	31518.08	19149.81	249.06	87716.73
Ln GDP pc $_{j}$	9.985	1.119	5.517	11.381
Population $_{i}$	9.93e+07	2.41e+08	62504	1.24e+09
LnPopulation $_{i}$	16.477	2.377	11.042	20.935
Population $_{j}$	9.83e+07	2.14e+08	43317	1.35e+09
LnPopulation $_{j}$	16.681	2.413	10.676	21.023
Market $_{i}$	61.405	70.032	0.334	606.001
Market $_{j}$	98.290	79.661	0.334	606.001
Risk $_{i}$	6.867	8.641	-2.916	44.978
Risk $_{j}$	4.749	8.002	-7.051	53.083
Contig	0.053	0.224	0	1
Comlang	0.265	0.441	0	1
Dist	6667.59	4547.63	60.770	19217.88
Ln Dist	8.445	1.005	4.107	9.863
Trade $_{ij}$	0.0117	0.0412	0	0.564
TRADE_ij (lagged)	0.0117	0.0412	0	0.564

Note: All variables are defined in the methodology (Ln meaning in natural logarithm form).
Note: Ln (natural logarithm form).

Table 5.4: Correlation Coefficient Matrix

	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**
(1)	1												
(2)	0.53	1											
(3)	0.15	0.04	1										
(4)	-0.16	-0.43	-0.01	1									
(5)	0.19	0.08	0.31	-0.05	1								
(6)	-0.05	0.07-	0.02	0.45	0.01	1							
(7)	-0.08	-0.07	-0.46	0.04	0.16	-0.06	1						
(8)	0.55	0.64	0.15	-0.22	0.09	-0.10	-0.12	1					
(9)	0.01	0.07	0.20	0.03	-0.16	-0.09	-0.11	0.16	1				
(10)	0.02	0.22	-0.24	-0.08	-0.21	-0.07	0.01	0.19	0.25	1			
(11)	0.26	0.10	0.33	0.08	0.54	0.08	0.04	0.23	-0.19	-0.34	1		
(12)	0.03	0.13	-0.10	0.04	-0.03	0.01	-0.01	0.07	0.02	0.69	-0.26	1	
(13)	0.32	0.35	-0.09	0.19-	-0.13	-0.19	-0.10	0.45	0.28	0.27	-0.07	0.11	1

Note: Variables are (1) RFPI ij, (2) GDP PC $_i$, (3) GDP pc $_j$, (4) Population $_i$ (5) Population j, (6) Risk $_i$ (7) Risk $_j$ (8) Market $_i$ (9) Market $_j$, (10) Trade $_{ij}$, (11) Dist (12) .Contig, (13) Comlang

Table 5.5: Determinants of Cross-Border Portfolio Investment

Regressor	OLS (1)	OLS (2)	OLS (3)	OLS (4)	FE (5)	FE (6)	FE (7)	FE (8)	RE (9)	RE (10)	RE (11)	RE (12)
Ln GDP pc _i	1.513*** (0.000)	1.318*** (0.000)	1.259*** (0.000)	1.327*** (0.000)	4.119*** (0.000)	4.575*** (0.000)	4.623*** (0.000)	4.437*** (0.000)	2.534*** (0.000)	2.792*** (0.000)	2.675*** (0.000)	2.786*** (0.000)
Ln GDP pc_ j	0.693*** (0.000)	0.717*** (0.000)	0.781*** (0.000)	0.641*** (0.000)	1.559** (0.015)	0.595 (0.732)	0.985 (0.596)	1.123 (0.544)	0.927*** (0.000)	0.954*** (0.002)	0.957*** (0.001)	0.939*** (0.006)
Ln POP_ i	0.246*** (0.000)	0.286*** (0.000)	0.265*** (0.000)	0.280*** (0.000)	3.744*** (0.001)	0.790 (0.448)	0.753 (0.473)	1.242 (0.226)	0.625*** (0.000)	0.846*** (0.000)	0.794*** (0.000)	0.828*** (0.000)
Ln POP_j	0.342*** (0.000)	0.686*** (0.000)	0.701*** (0.000)	0.0662*** (0.000)	1.333** (0.034)	7.509*** (0.000)	7.610*** (0.000)	6.990*** (0.000)	0.462*** (0.000)	0.704*** (0.000)	0.721*** (0.000)	0.701*** (0.000)
RISK_i		-0.019** (0.024)	-0.017** (0.043)	-0.020** (0.033)		0.048** (0.034)	0.051** (0.028)	0.051** (0.036)		-0.0213* (0.092)	-0.020* (0.099)	-0.015 (0.270)
RISK_j		0.0017 (0.253)	0.018 (0.245)	0.012 (0.461)		0.011 (0.859)	0.015 (0.819)	0.005 (0.939)		0.006 (0.889)	0.004 (0.925)	-0.002 (0.951)
MARK_i		0.009*** (0.000)	0.008*** (0.000)	0.009*** (0.000)		-0.002* (0.092)	-0.002* (0.057)	-0.002* (0.094)		0.001 (0.304)	0.001 (0.250)	0.001 (0.304)
MARK_j		0.002*** (0.005)	0.001** (0.047)	0.002** (0.030)		-0.001 (0.521)	0.001 (0.611)	-0.001 (0.633)		-0.002 (0.171)	-0.002 (0.108)	-0.002 (0.210)
TRADE_ij			5.967*** (0.000)				-6.356 (0.337)				6.575* (0.077)	

Table 5.5 (Continued)

TRADE_ij (lagged)				-1.472 (0.358)				-4.098 (0.584)				1.245 (0.665)
Ln DIST	0.154*** (0.003)	-0.025 (0.829)	0.043 (0.720)	0.055 (0.659)					0.068 (0.661)	-0.140 (0.683)	-0.055 (0.871)	-0.057 (0.874)
CONTIG	0.213 (0.297)	1.584*** (0.000)	0.609 (0.106)	1.688*** (0.000)					-0.175 (0.757)	0.287 (0.703)	-0.426 (0.561)	0.456 (0.570)
COMLANG	1.232*** (0.000)	1.282*** (0.000)	1.253*** (0.000)	1.222*** (0.000)					1.248*** (0.000)	1.895*** (0.000)	1.797*** (0.000)	1.797*** (0.000)
CONSTANT	-27.165*** (0.000)	-31.966*** (0.000)	-32.550*** (0.000)	-31.313*** (0.000)	-131.38*** (0.000)	-185.32*** (0.000)	-190.75*** (0.000)	-188.27*** (0.000)	-45.806*** (0.000)	-54.564*** (0.000)	-53.776*** (0.000)	-54.72*** (0.000)
Number of Observations	3530	838	838	794	3530	838	838	794	3530	838	838	794
Number of Country	375	115	115	109	375	115	115	109	375	115	115	109
R^2(within)					0.2395	0.3337	0.3354	0.3272	0.2293	0.2715	0.2642	0.2715
R^2(between)					0.0284	0.2311	0.2271	0.2050	0.3420	0.5202	0.5332	0.5098
R^2(overall)	0.3311	0.6221	0.6271	0.6132	0.0218	0.2553	0.2491	0.2371	0.3162	0.5622	0.5737	0.5543

Notes: subscript "i" stands for source economy and "j" for destination economy.

p-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1%. **Note:** Ln (natural logarithm form).

Table 5.6: Determinants of Cross-Border Portfolio Investment with Year Dummy Effects

Regressor	OLS (1)	OLS (2)	OLS (3)	OLS (4)	FE (5)	FE (6)	FE (7)	FE (8)	RE (9)	RE (10)	RE (11)	RE (12)
Ln GDP pc _i	1.408*** (0.000)	1.057*** (0.000)	1.001*** (0.000)	1.044*** (0.000)	0.461 (0.396)	-0.730 (0.622)	-0.725 (0.628)	-0.798 (0.605)	1.310*** (0.000)	1.459*** (0.000)	1.375*** (0.000)	1.384*** (0.000)
Ln GDP pc_ j	0.654*** (0.000)	0.714*** (0.000)	0.783*** (0.000)	0.641*** (0.000)	0.900 (0.146)	1.297 (0.477)	1.306 (0.495)	1.735 (0.373)	0.540*** (0.001)	0.664** (0.035)	0.673** (0.028)	0.663* (0.073)
Ln POP_ i	0.186*** (0.000)	0.164** (0.016)	0.145** (0.033)	0.151** (0.041)	-2.377** (0.026)	-5.052*** (0.004)	-5.048*** (0.004)	-4.519** (0.013)	0.132** (0.048)	0.196 (0.178)	0.160 (0.281)	0.151 (0.328)
Ln POP_j	0.331*** (0.000)	0.688*** (0.000)	0.704*** (0.000)	0.673*** (0.000)	0.898** (0.034)	5.758*** (0.004)	5.762*** (0.004)	5.280** (0.014)	0.302*** (0.000)	0.617*** (0.000)	0.634*** (0.000)	0.609*** (0.001)
RISK_i		-0.006 (0.457)	-0.004 (0.595)	-0.007** (0.430)		0.032 (0.193)	0.032 (0.195)	0.035 (0.184)		0.012 (0.390)	0.012 (0.394)	0.017 (0.262)
RISK_j		0.016 (0.294)	0.016 (0.280)	0.010 (0.500)		-0.026 (0.691)	-0.026 (0.692)	-0.033 (0.637)		-0.011 (0.764)	-0.013 (0.730)	-0.016 (0.697)
MARK_i		0.010*** (0.000)	0.010*** (0.000)	0.010*** (0.000)		-0.002* (0.068)	-0.002* (0.068)	-0.002* (0.094)		0.001 (0.178)	0.002 (0.143)	0.001 (0.230)
MARK_j		0.003*** (0.000)	0.002*** (0.004)	0.003*** (0.001)		-0.001 (0.656)	-0.001 (0.661)	-0.001 (0.946)		-0.001 (0.893)	-0.002 (0.734)	0.001 (0.867)
TRADE_ij			6.048*** (0.000)				-0.139 (0.976)				5.901* (0.091)	

Table 5.6 (Continued)

TRADE_ij (lagged)				-0.811 (0.589)				1.290 (0.872)				3.907 (0.182)
Ln DIST	0.1855*** (0.000)	-0.026 (0.810)	0.040 (0.718)	0.040 (0.737)					0.197 (0.157)	0.178 (0.559)	0.248 (0.415)	0.202 (0.531)
CONTIG	0.291 (0.137)	1.716*** (0.000)	0.721* (0.052)	1.806*** (0.000)					0.084 (0.876)	1.634* (0.041)	0.970 (0.209)	1.742** (0.037)
COMLANG	1.238*** (0.000)	1.161*** (0.000)	1.137*** (0.000)	1.149*** (0.000)					1.098*** (0.000)	1.666*** (0.001)	1.577*** (0.002)	1.680*** (0.002)
CONSTANT	-25.498*** (0.000)	-27.400*** (0.000)	-28.098*** (0.000)	-27.643*** (0.000)	-14.390 (0.442)	-18.625 (0.698)	-18.876 (0.703)	-23.310 (0.654)	-21.074 (0.000)	-30.308*** (0.000)	-29.992*** (0.000)	-29.117*** (0.000)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	3530	838	838	794	3530	838	838	794	3530	838	838	794
Number of Country	375	115	115	109	375	115	115	109	375	115	115	109
R^2(within)					0.3432	0.4293	0.4293	0.4253	0.3385	0.3943	0.3935	0.3966
R^2(between)					0.1060	0.1624	0.1624	0.1543	0.3631	0.5786	0.5932	0.5696
R^2(overall)	0.3894	0.6655	0.6706	0.6567	0.1333	0.1689	0.1690	0.1552	0.3867	0.6151	0.6263	0.6083

Notes: subscript "i" stands for source economy and "j" for destination economy.
p-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1%. **Note:** Ln (natural logarithm form).

Table 5.7: Determinants of Cross-Border Portfolio Investment with Source Country Effects

Regressor	OLS (1)	OLS (2)	OLS (3)	OLS (4)	FE (5)	FE (6)	FE (7)	FE (8)	RE (9)	RE (10)	RE (11)	RE (12)
Ln GDP pc _i	4.520*** (0.000)	6.276*** (0.000)	6.360*** (0.000)	6.316*** (0.000)	4.119*** (0.000)	4.575*** (0.000)	4.623*** (0.000)	4.437*** (0.000)	4.508*** (0.000)	5.823*** (0.000)	5.893*** (0.000)	5.702*** (0.000)
Ln GDP pc_ j	0.732*** (0.000)	0.929*** (0.000)	0.913*** (0.000)	0.870*** (0.000)	1.559** (0.015)	0.595 (0.732)	0.985 (0.596)	1.123 (0.544)	0.660*** (0.000)	0.792*** (0.003)	0.785*** (0.004)	0.791** (0.013)
Ln POP_ i	4.319*** (0.000)	2.860*** (0.000)	2.902*** (0.000)	2.471*** (0.004)	3.744*** (0.001)	0.790 (0.448)	0.753 (0.473)	1.242 (0.226)	4.492*** (0.000)	3.035*** (0.004)	3.082*** (0.004)	3.244*** (0.002)
Ln POP_j	0.324*** (0.000)	0.781*** (0.000)	0.779*** (0.000)	0.800*** (0.000)	1.333** (0.034)	7.509*** (0.000)	7.610*** (0.000)	6.990*** (0.000)	0.301*** (0.000)	0.774*** (0.000)	0.774*** (0.000)	0.787*** (0.000)
RISK_i		0.053** (0.030)	0.055** (0.023)	0.052** (0.040)		0.011 (0.859)	0.051** (0.028)	0.051** (0.036)		0.046** (0.037)	0.047** (0.033)	0.048** (0.037)
RISK_j		0.023 (0.122)	0.024 (0.112)	0.018 (0.234)		0.048** (0.034)	0.015 (0.819)	0.005 (0.939)		0.001 (0.825)	0.007 (0.812)	0.004 (0.910)
MARK_i		0.003** (0.034)	-0.003** (0.026)	-0.003** (0.033)		-0.002* (0.092)	-0.002* (0.057)	-0.002* (0.094)		-0.002 (0.102)	-0.002* (0.079)	-0.002 (0.138)
MARK_j		0.001 (0.109)	0.001* (0.074)	0.001* (0.082)		-0.001 (0.521)	-0.001 (0.611)	-0.001 (0.633)		-0.001 (0.310)	-0.001 (0.378)	-0.001 (0.508)
TRADE_ij			-2.505 (0.112)				-6.356 (0.337)				-2.510 (0.535)	

Table 5.7 (Continued)

TRADE_ij (lagged)				-0.724 (0.552)				-4.098 (0.584)				-0.389 (0.869)
Ln DIST	-0.466*** (0.000)	-0.560*** (0.000)	-0.607*** (0.000)	-0.539*** (0.000)					-0.437*** (0.000)	-0.561* (0.067)	-0.613* (0.056)	-0.531 (0.115)
CONTIG	-0.236 (0.192)	0.820** (0.032)	1.193** (0.012)	0.771* (0.051)					-0.398 (0.303)	0.768 (0.368)	1.031 (0.266)	0.723 (0.410)
COMLANG	0.121 (0.222)	0.612*** (0.002)	0.616*** (0.002)	0.687*** (0.003)					0.183 (0.390)	0.687 (0.114)	0.701 (0.106)	0.642 (0.187)
CONSTANT	-117.72*** (0.000)	-107.91*** (0.000)	-108.66*** (0.000)	-106.34*** (0.000)	-131.38*** (0.000)	-185.32*** (0.000)	-190.75*** (0.000)	-188.27*** (0.000)	-122.02*** (0.000)	-109.84*** (0.000)	-110.62*** (0.000)	-112.45*** (0.000)
Source country effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	3530	838	838	794	3530	838	838	794	3530	838	838	794
Number of Country	375	115	115	109	375	115	115	109	375	115	115	109
R^2(within) R^2(between) R^2(overall)	0.5972	0.7522	0.7528	0.7468	0.2395 0.0284 0.0218	0.3337 0.2311 0.2553	0.3354 0.2271 0.2491	0.3272 0.2050 0.2371	0.2344 0.7088 0.5948	0.2963 0.7967 0.7424	0.2972 0.7958 0.7431	0.2965 0.7915 0.7375

Notes: subscript "i" stands for source economy and "j" for destination economy.
p-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1%. **Note:** Ln (natural logarithm form).

Table 5.8: Determinants of Cross-Border Portfolio Investment with Source Country Year Effects

Regressor	OLS (1)	OLS (2)	OLS (3)	OLS (4)	FE (5)	FE (6)	FE (7)	FE (8)	RE (9)	RE (10)	RE (11)	RE (12)
Ln GDP pc _i	0.640 (0.159)	0.304 (0.838)	0.395 (0.790)	0.518 (0.739)	0.461 (0.396)	-0.730 (0.622)	-0.725 (0.628)	-0.798 (0.605)	0.491 (0.360)	-0.709 (0.615)	-0.757 (0.597)	-0.662 (0.651)
Ln GDP pc_ j	0.729*** (0.000)	0.935*** (0.000)	0.924*** (0.000)	0.877*** (0.000)	0.900 (0.146)	1.297 (0.477)	1.306 (0.495)	1.735 (0.373)	0.620*** (0.000)	0.768*** (0.005)	0.769*** (0.005)	0.775** (0.015)
Ln POP_ i	-2.185*** (0.005)	-3.626** (0.020)	-3.562** (0.022)	-3.829** (0.019)	-2.377** (0.026)	-5.052*** (0.004)	-5.048*** (0.004)	-4.519** (0.013)	-2.174** (0.040)	-4.259** (0.014)	-4.298** (0.014)	-3.912** (0.030)
Ln POP_j	0.325*** (0.000)	0.788*** (0.000)	0.787*** (0.000)	0.809*** (0.000)	0.898** (0.034)	5.758*** (0.004)	5.762*** (0.004)	5.280** (0.014)	0.289*** (0.000)	0.784*** (0.000)	0.785*** (0.000)	0.806*** (0.000)
RISK_i		0.035 (0.148)	0.037 (0.129)	0.035 (0.175)		0.032 (0.193)	0.032 (0.195)	0.035 (0.184)		0.029 (0.221)	0.029 (0.234)	0.032 (0.197)
RISK_j		0.021 (0.154)	0.022 (0.146)	0.017 (0.280)		-0.026 (0.691)	-0.026 (0.692)	-0.033 (0.637)		-0.004 (0.907)	-0.004 (0.900)	-0.006 (0.858)
MARK_i		-0.002* (0.092)	-0.002* (0.081)	-0.002* (0.098)		-0.002* (0.068)	-0.002* (0.068)	-0.002* (0.094)		-0.002 (0.105)	-0.002 (0.113)	-0.002 (0.138)
MARK_j		0.001** (0.036)	0.001** (0.029)	0.001** (0.019)		-0.001 (0.656)	-0.001 (0.661)	-0.001 (0.946)		-0.001 (0.813)	-0.001 (0.789)	0.001 (0.886)
TRADE_ij			-1.768 (0.245)				-0.139 (0.976)				0.982 (0.763)	

Table 5.8 (Continued)

TRADE_ij (lagged)				-0.562 (0.600)				1.290 (0.872)				0.178 (0.923)
Ln DIST	-0.466*** (0.000)	-0.571*** (0.000)	-0.604*** (0.000)	-0.557*** (0.000)					-0.416*** (0.000)	-0.589** (0.041)	-0.569* (0.050)	-0.584* (0.067)
CONTIG	-0.205 (0.247)	0.799** (0.034)	1.063** (0.029)	0.747* (0.056)					-0.348 (0.375)	0.681 (0.441)	0.578 (0.548)	0.630 (0.486)
COMLANG	0.131 (0.178)	0.580*** (0.004)	0.583*** (0.003)	0.656*** (0.004)					0.195 (0.363)	0.576 (0.205)	0.571 (0.209)	0.548 (0.275)
CONSTANT	28.372* (0.051)	30.129 (0.335)	28.867 (0.345)	50.455 (0.191)	-14.390 (0.442)	-18.625 (0.698)	-18.876 (0.703)	-23.310 (0.654)	28.357 (0.146)	58.074* (0.093)	58.863* (0.090)	51.875 (0.150)
Source country year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	3530	838	838	794	3530	838	838	794	3530	838	838	794
Number of Country	375	115	115	109	375	115	115	109	375	115	115	109
R^2(within) R^2(between) R^2(overall)	0.6286	0.7736	0.7740	0.7682	0.3432 0.1060 0.1333	0.4293 0.1624 0.1689	0.4293 0.1624 0.1690	0.4253 0.1543 0.1552	0.3416 0.7162 0.6260	0.4095 0.8115 0.7639	0.4097 0.8114 0.7633	0.4087 0.8046 0.7589

Notes: subscript "i" stands for source economy and "j" for destination economy.

p-value in parentheses, *significant at 10%, **significant at 5%, ***significant at 1%. **Note:** Ln (natural logarithm form).

APPENDIX C

Table C.1:List of Source Countries (37 Developing Countries).

Argentina	Hong Kong, China	Netherlands Antilles
Aruba	India	Pakistan
Bahrain	Indonesia	Philippines
Barbados	Kazakhstan	Romania
Bermuda	Korea	Russia
Bolivia	Kuwait	Singapore
Brazil	Lebanon	South Africa
Bulgaria	Macau, China	Thailand
Chile	Malaysia	Turkey
Colombia	Mauritius	Ukraine
Costa Rica	Mexico	Uruguay
Egypt	Mongolia	Vanuatu
		Venezuela

Table C.2: List of 79 Host Countries

Netherlands	El Salvador	Australia
New Zealand	Egypt	Austria
Nicaragua	France	Argentina
Panama	Finland	Brazil
Philippines	Germany	Belize
Portugal	Greenland	Belarus
Russian	Guatemala	Bangladesh
Saudi Arabia	Greece	Belgium
Sweden	Hong Kong	Bahamas
Switzerland	Hungary	Bahrain
Singapore	India	Bermuda
Sri Lanka	Israel	Curacao
Swaziland	Italy	Cyprus
South Africa	Japan	Cuba
Spain	Jamaica	Cayman Islands
Qatar	Jersey	Czech Republic
Taiwan	Jordan	China
Thailand	Korea	Chile
Turkey	Luxembourg	Colombia
Trinidad and Tobago	Latvia	Canada
Ukraine	Mexico	Croatia
United States	Mauritius	Central African Republic
United Kingdom	Macedonia	Denmark
United Arab Emirates	Madagascar	Ireland
Uruguay	Malaysia	Indonesia
Virgin Islands, Britsh	Moldova	
Virgin Islands,US	Netherlands Antilles	

CHAPTER 6

CONCLUSIONS

6.1 Summary of the thesis

This thesis presents an overview of theories underlying foreign direct investment and cross-border portfolio investment, and three topics in economics, namely: inward FDI, outward FDI and cross-border portfolio investment. The main conclusions for the three different empirical chapters are summarized below.

In Chapter 2, I present theoretical studies on foreign direct investment and cross-border portfolio investment. It is clear from the review that in the economic literature an enormous number of theories exist that explain the reasons for the movement of international capital. The theories provide an explanation for a firm's decision to move abroad. Some of the theories are a corollary to the new-classical trade theories under a perfect market set up, but other theories have been developed from the imperfect market conditions. In fact, no single theory can explain international investment.

In spite of their different approaches, these theories are agreed in their view that a firm moves abroad to obtain benefits in the form of location, firm-specific or internationalization of markets. Furthermore, these theories articulate the fact that government policies on the domestic economy play a vital role in encouraging international investment by firms.

Some theories have also proposed a link between regional trade agreements and foreign direct investment. Nevertheless, it is important to note here that the majority of theories are in the context of first world multinationals. In the recent past, the growing importance of third world multinational companies has required the modification of these theories in order to incorporate such features as labour disputes in the home country, the role of diaspora, lower expatriate costs, and familiarity with local conditions in other countries.

In Chapter 3, I examine the effect of oil and the main location determinants of foreign direct investment for 17 MENA countries from 1960 to 2012 using the dynamic panel fixed effects and random effects with system GMM estimator. The study finds that the

different types of natural resources have different effects on foreign direct investment in MENA countries. For instance, fuel exports encourage the attraction of foreign direct investment to MENA countries. In contrast, natural resources such as oil rents, oil production, and oil reserves, oil production relative to oil reserves discouraged the attraction of more FDI inflows. This means that natural resources are not always resource seeking as Dunning (1981) predicted in his hypothesis. Moreover, applying "Dutch disease" and "resource curse" to the foreign direct investment in the MENA region is the hypothesis that a country's energy endowment is negatively associated with FDI. I found that trade openness, GDP constant as a proxy for market size, high inflation, and investment profile as a measure of institutional quality are the main determinants of FDI inflows into the MENA economies.

Our work also sheds light on some interactions between oil as a proxy for alternative natural resources and investment profile as a measure for institutional quality. This is probably the first paper that studies the empirical assessment of the direct impact of interaction term on FDI. It was found that the interaction term between natural resources and investment profiles had negative effects on inward FDI into MENA countries, proposing that natural resources undermine the positive effects of investment profiles on foreign direct investment flows.

In Chapter 4, I investigated the home countries' determinants of outward foreign direct investment from 109 developing countries between 1960 and 2012. This study extends Dunning's Investment Development Path (IDP). In addition, estimates for a sub-sample of 103 developing countries excludes from full sample those countries which have a significant amount of foreign direct investment from developing and transition economies (Brazil, mainland China, Hong Kong (China), Macau (China), India and Russia). Employing the dynamic panel technique with system GMM estimator, I find that business conditions, gross domestic product per capita, exports, communications or production costs, domestic credit to the private sector, and an appreciation of real effective exchange rate are important determinants of FDI outward. However, manufacturing value added as a proxy for financial sector discouraged outward foreign direct investment. In the theoretical section, we suggest in-depth analysis to further investigate the validity and reliability of the Investment Development Path (IDP) theory especially for the developing countries. The results suggest that the Investment Development Path (IDP) theory and a theory based on strength of currency and exchange rate best explained outward FDI

activities from developing countries. Empirically, more studies should focus on determinants of outward FDI and the impact of the main variables included in the IDP theory, which may provide additional support for this finding. Although the results in Chapter 4 provide important policy implications for developing countries, there are still limitations, because in Chapter 4, we focus on developing countries and data quality is an important issue to consider. In many developing countries, data quality is poor and missing for some periods and this may affect the accuracy of the results. Thus, there is very little empirical evidence of the determinants of outward FDI on developing countries. The exclusion of countries from specific regions does change our main result. In contrast, communications or production costs and domestic credit to the private sector are not significant variables.

In Chapter 5, I provide a gravity panel data set on bilateral gross cross-border investment flows from 37 developing countries and 79 host countries, which are the top five recipients of portfolio investment in the world from 2001 and 2012, using ordinary least squares (OLS), with fixed effect and random effect estimator. On the theoretical section, we suggest in-depth analysis to further investigate the validity and reliability of the standard classical economic theory which predicts that capital should flow from rich countries to poor countries, due to the effect of diminishing returns, where the marginal returns are higher and poor countries have lower levels of capital per worker. On the other hand, many explanations have been put forward for consider the Lucas paradox (Lucas, 1990) that capital does not flow from developed countries to developing countries despite the fact that developing countries have lower levels of capital per worker. For example, capital may flow upwards as rich economies with larger market sizes are connected with superior diversification opportunities and low transaction costs. Empirically, more studies should focus on bilateral gross cross-border investment flows and studying the impact of determinants between developing countries may provide additional support for this finding.

The study utilizes a broader number of financial development indicators than previous studies investigating the financial development effect. The study shows that the effect of population in the source economies, risk premium in source economies, and market capitalization of listed companies in the source countries on asset holdings differs according to the methodologies used.

The study finds that the effect of GDP per capita for source and destination economies, population in the source and destination economies, market capitalization of listed companies in the source and destination countries, bilateral trade in level, contiguous, and the common language dummy does not help to reduce asset holdings. It is also found that risk premium for source and host had negative effects as expected, whereas it had a positive effect with the source country fixed effects and source country time fixed effects, in contrast with expectations. On the other hand, the risk premium in the destination economies are insignificant only where source country effect appears to be positive and significant. In this chapter the results also show that the effects of market capitalization of listed companies on portfolio investment was positive and significant for source countries, and have a negative effect in some regressions, which was an unexpected sign, but had positive effects on host countries. Surprisingly, both market capitalizations of listed companies in source and destination economies have a very small effect on asset holdings. In addition, it was found that trade in a level had positive effects and trade in a lagged one-year cycle was an explanatory variable which had insignificant effects. Moreover, distance has a positive effect on investment holdings because of the diversification motive, but it turns negative and significant when source country effect is included and with source country year effects.

6.2 Limitations

This thesis is limited by the following points:

- The analysis in Chapter 3 is based on MENA countries and it estimates all of those countries, which may have an effect on the results, together in one model. Moreover, the estimation have ignored that there are some rich countries, in OPEC, and that there are some Non-OPEC and poor contries. In further reseach, the best thing to do is to compare between exporter and importer countries in MENA region.

- In chapter 4, a number of observations are lost, this is due to the fact that the real effective exchange rate was not available for the entire developing countries. Also, the estimation excluded BRIC countries that has a significant amout of outward

FDI, thus, the results did not apper to be very significant, as the data became restricted for developing countries only.

- The estimation ignored the effect of political risk, such as, corruption in chapter 5. The effect of political risks might be one reason for the developing countries to prefer to invest outside the region. In further reseach, the best thing to do is to estimate the gravity model for cross-border investment by including corruption in our model.

- In spite of high risks in destination countries in chpter 5, developing countries invest more in those countries for diversifaication portfolio.

References

Abdel-Rahman, A-M.M. (2007). Determinants of foreign direct investment in the Kingdom of Saudi Arabia. Available at: http://www.erf.org.eg/CMS/uploads/pdf/1185355285_T-B_Abdel_Mahmoud_Abdel_Rahman.pdf

Abbott, A.J. and Vita, G.D. (2011). Evidence on the impact of exchange rate regimes on bilateral FDI flows. *Journal of Economic Studies*, 38(3), pp. 253–274.

Abdul Mottaleb, K. and Kalirajan, K. (2010). Determinants of foreign direct investment in developing Countries: A comparative Analysis. *Margin: The Journal of Applied Economic Research,* 4(4), pp. 369–404.

Abid, F. and Bahloul, S. (2011). Selected MENA countries' attractiveness to G7 investors. *Economic Modeling*, 28(5), pp. 2197–2207.

Addison, T. and Heshmati, A. (2003). The new global determinants of FDI flows to developing countries. *WIDER, Number, Discussion paper* No. 2003/ 45.

Agarwal, J.P. (1980). Determinants of foreign direct investment: A survey. *Weltwirtschaftliches Archiv, Bd*., 116. pp. 739–773

Aggarwal, R., Kearney, C. and Lucey, B. (2012). Gravity and culture in foreign portfolio investment. *Journal of Banking and Finance*, 36(2), pp. 525-538.

Alam, A. and Ali Shan, S.Z. (2013). The determinants of foreign direct investment in OECD member countries. *Journal of Economic Studies*, 40(4), pp. 515–527.

Ali, F.A., Fiess, N. and Macdonald, R. (2010). Do institutions matter for foreign direct investment? *Open Econ Rev*, 21, pp. 201–219.

Altomonte, C. and Guagliano, C. (2003). Comparative study of FDI in Central and Eastern Europe and the Mediterranean. *Economic Systems*, 27, pp. 223–249.

Aliber, R. Z. (1970). A theory of direct foreign investment. In C. P. Kindleberger (ed.). The international corporation: A symposium. Cambridge, Mass: M.I.T. Press, 1970 (pp. 17–34).

Aliber, R. Z. (1971). 'The multinational enterprise in a multiple currency world'. In J. H. Dunning (ed.). The multinational enterprise. London: Allen and Unwin, 1971 (pp.49–56).

Amal, M., Raboch, H. and Tomio, B.T. (2009). Strategies and determinants of foreign direct investment (FDI) from developing countries: Case Study of Latin America. *Latin American Business Review*, 10, pp. 73–94.

Ang, J.B. (2008). Determinants of foreign direct investment in Malaysia. *Journal of Policy Modeling*, 30, pp. 185–189.

Anderson, J. E. (1979). A theoretical foundation for the gravity equation. *The American Economic Review,* 69(1), pp. 106–116.

Anwar, A., Hasse, R. and Rabbi, F. (2008). Location determinants of Indian outward investment: How multinationals choose their investment destinations? *Copenhagen Business School*, Denmark.

Arellano, M. and Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies*, 58 , pp.277–297.

Arellano, M. and Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*, 68, pp.29–51.

Aharoni, y. (1966). The foreign investment decision process. In Y. Aharoni. The foreign investment decision process. Ann Arbor ; London : *University Microfilms International*, 1979.

Asiedu, E. (2002). On the determinants of foreign direct investment to developing countries: Is Africa different? *World Development*, 30(1), pp. 107–119.

Asiedu, E. (2006). Foreign direct investment in Africa: The role on natural resources, market size, government policy, institutions and political instability. *The world economy*, 29(1), pp. 63–77.

Asiedu, E. and Lien, D. (2011). Democracy, foreign direct investment and natural resources. *Journal of International Economics*, 84(1), pp. 99–111.

Asiedu, E., Jin, Y. and Nandwa, B. (2009). Does foreign direct aid mitigate the adverse effect of expropriation risk on foreign direct investment? *Journal of International Economics*, 78, pp. 268–275.

Assuncas, S., Forte, R. and Texeira, A.A.C. (2011). Location determinants of FDI: A literature review. FEP Working Papers, 433.

Aviat, A. and Coeurdacier, N. (2007). The geography of trade in goods and asset holdings. *Journal of International Economics*, 71(1), pp. 22–51.

Balli, F., Louis, R.J. and Osman, M. (2011). The patterns of cross-border portfolio investments in the GCC region: do institutional quality and the number of expatriates play a role? *Journal of Economics and Finance*, 35(4), pp. 434–455.

Baltagi, B.H. (2010). Economic analysis of panel data. CPI Antony Rowe, Chippenham, Wilshire. 4th edition.

Bandera, V.N. and White, J.T. (1968). U.S. direct investment and domestic markets in Europe. Economic International, 21, pp. 117–133. IN I. A. Moosa (ed.), Foreign direct investment theory, evidence and practice. New York: *Palgrave Macmillan*, 2002.

Banga, R. (2007). Drivers of outward foreign direct investment from Asian Developing Economies, Available at: http://www.unescap.org/tid/artnet/pub/tipub2469_chap7.pdf

Barry, F., Gorg, H. and Mcdowell, A. (2003). Outward FDI and the investment development path of a Late-industrializing economy: Evidence from Ireland. *Regional Studies*, 37(4), pp. 341–349.

Behrens, K., Mion, G., Murata, Y. and Suedekum, J. 2009. Trade, wages and productivity. CEP Discussion Paper, 942.

Benassy-Quere, A., Coupet, M. and Mayer, T. (2007). Institutional determinants of foreign direct investment. *The world economy*,30(5),pp. 764-782.

Bergstrand, J. H. (1990). The Heckscher-Ohlin-Samuelson model, the linder hypothesis and the determinants of bilateral Intra-Industry trade. *The Economic Journal*, 100(403), pp. 1216–1229.

Bevan, A.A. and Estrin, S. (2004). The determinants of foreign direct investment into European transition economies. *Journal of Comparative Economics*, 32, pp. 775–787.

Birsan, M. and Buiga, A. (2009). FDI determinants: case of Romania. *Transit Studies Review*, 15(4), pp.726–736.

Blank, S. and Buch, C.M. (2007). The Euro and Cross-Border Banking: Evidence from bilateral data. *Comparative Economic Studies*, 48(3), pp. 389–510.

Blonigen, B.A. (2005). A review of the empirical literature on FDI determinants. *Atlantic Economic Journal,* 33, pp. 383–403.

Blundell, R. and Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87, pp.115-143.

Botric, V. and Skuflic, L. (2006). Main determinants of foreign direct investment in the Southeast European Countries. *Transition Studies Review*, 13(2), pp. 358–377.

Boubakri, N., Cosset, J-C., Debab, N. and Valery, P. (2013). Privatization and globalization: An empirical analysis. *Journal of Banking & Finance*, 37, pp. 1898–1914.

Brainard, S.L. (1993). An empirical assessment of the factor proportions explanation of Multinationals Sales. NBER Working Paper 4583. Cambridge, MA: Massachusetts Institute of Technology Sloan School.

Brainard, S.L. (1997). An empirical assessment of the Proximity–Concentration Trade-off between Multinational Sales and trade. *American Economic Review*, 87(4), pp. 520–544.

Buckley, P.J., Clegg, L.J., Cross, A.R., Liu, X., Voss, H. and Zheng, P. (2007). The determinants of Chinese outward foreign direct investment. *Journal of International Business Studies*, 38(4), pp. 499–518.

Buckley, P.J. and Casson, M. (1976). The Future of the Multinational Enterprise. In P.J. Buckley and M. Casson (ed). The future of the Multinational Enterprise. Basingstoke: Macmillan, 2nd ed, 1991

Buckley, P.J. and Casson, M. (2009). The internalization theory of the multinational enterprise: A review of the progress of a research agenda after 30 years. *Journal of International Business Studies*, 40 (9), pp. 1563–1580.

Busse, M. and Hefeker, C. (2007). Political risk, institutions and foreign direct investment. *European Journal of Political Economy*, 23, pp. 397–415.

Cameron, A.C. and Trivedi, P.K. (2009). Microecometrics uing stata. Stata Press, 4905 Lakeway Drive, College Station, Texas 77845.

Castro, F.B. (2000). Foreign direct investment in the European periphery. The competitiveness of Portugal. PhD Thesis. Electronic copy available at: http://etheses.whiterose.ac.uk/2612/1/Castro_FB_LUBS_PhD_2000.pdf

Caves, R.E. (1971). International corporations: the industrial economies of foreign investment. *Economica*, 38(149), pp. 1–27.

Caves, R.E. (1982). Multinational Enterprise and economic analysis. Cambridge University Press. Electronic copy available at: https://books.google.co.uk/books?id=U_wS5OmiRaYC&pg=PT73&lpg=PT73&dq=multinational+enterprise+and+economic+analysis&source=bl&ots=yv19jOvgKn&sig=oOXfkOBvFQIbhcDaqmegQilrQvM&hl=en&sa=X&ved=0CFoQ6AEwCWoVChMIi6bK9-vpxwIVS10UCh2BMgtj#v=onepage&q=multinational%20enterprise%20and%20economic%20analysis&f=false

Centre d' Etudes Prospective et d' Information's Internationals (CEPII)'s. Available at: http://www.cepii.fr/CEPII/en/bdd_modele/presentation.asp?id=6

Cheng, L.K. and Kwan. Y.K. (2000). What are the determinants of the location of foreign direct investment? The Chinese experience. Journal of International Economics 51, pp. 379–400.

Cheung, Y.W., Haan, J.D., Qian, X. and Yu, S. (2012). China's outward direct investment in Africa. *Review of International Economics*, 20(2), pp.201–220.

Chintrakarn, P. (2007). The determinants of cross-border equity flows: a dynamic panel data reassessment. *Applied Financial Economics Letters*, 3(3), pp. 181–185.

Choi, C., Rhee, D.E. and Oh, Y. (2014). Information and capital flows revisited: The internet as a determinant of transactions in financial assets. *Economic Modeling*, 40, pp. 191–198.

Chong, T.T., Wong, W.K. and Zhang, J. (2011). A gravity analysis of international stock market linkages. *Applied Economics Letters*, 18(13–15), pp. 1315–1319.

Chow, P.C.Y. (2012). The effect of outward foreign direct investment on home country's exports: A case study on Taiwan, 1989–2006. The Journal of Trade & Economic Development, 21(5), pp. 725–754.

Cleeve, E. (2008). How effective are Fiscal incentives to attract FDI to Sub-Saharan Africa? *The Journal of Developing Area*, 42(1), pp. 135–153.

Clegg, J. (1987). Multinational Enterprise And world competition: A comparative study of the USA, Japan, the UK, Sweden and West Germany. Basingstoke: Macmillan in association with the Graduate School of European and International Studies, University of Reading.

Coase, R.H. (1937). The nature of the firm. *Economica*, 4(16), pp. 386–405.

Coeurdacier, N. and Martin, P. (2009). The geography of asset trade and the euro: Insider and Outsider. *Journal of the Japanese and International Economies*, 23(2), pp. 90-113.

Coordinated Portfolio Investment Survey (2014), IMF published, Press Release No. 14/125. February 11, 2003. Available at http://data.imf.org/?sk=B981B4E3-4E58-467E-9B90-9DE0C3367363.

Coordinated Portfolio Investment Survey (2001), IMF published, Press Release No. 03/17. February 11, 2003. Available at https://www.imf.org/external/np/sec/pr/2003/pr0317.htm.

Coordinated Portfolio Investment Survey (2011), IMF published, Press Release No. 12/438. November 15, 2012. Available at https://www.imf.org/external/np/sec/pr/2012/pr12438.htm.

Coordinated Portfolio Investment Survey (2012), IMF published, Press Release No. 13/444. November 13, 2013. Available at http://www.imf.org/external/np/sec/pr/2013/pr13444.htm.

Coordinated Portfolio Investment Survey (2013), IMF published, Press Release No. 14/125. March 25, 2014. Available at http://www.imf.org/external/np/sec/pr/2014/pr14125.htm.

Coordinated Portfolio Investment Survey, 2002 to 2007. Kevin Madden, Office for National Statistics. *Economic and Labour Market Review*, 3(11) November 2009.

Corden, W.M. and Neary, J.P. (1982). Booming sector and de-industrialisation in a small open economy. *The Economic Journal*, 92(368), pp. 825–848.

Culem, C.G. (1988). The Locational determinant of direct investment among industrialised countries. *European Economic Review*, 32(4), pp. 885–904.

Cushman, D.O. (1987). The effects of real wages and labor productivity on foreign direct investment. *Southern Economic Journal*, 54(1), pp. 174–185.

Cuyvers, L., Soeng, R., Plasmans, J. and Bulcke, D.V.D. (2011). Determinants of foreign direct investment in Cambodia. *Journal of Asian Economics*, 22, pp. 222–234.

Daly, K. and Vo, X.V. (2013). The determinants of home bias puzzle in equity portfolio investment in Australia. *International Review of Financial Analysis*, 27, pp. 34–42.

Das, K.C. (2013). Home country determinants of outward FDI from developing countries. *The Journal of Applied Economic Research*, 7(1), pp. 93–116.

Deardorff, A.V. (1995). Determinants of bilateral trade: Does Gravity Work in a Neoclassical World? *NBER Working Paper*, 5377.

Denisia, V. (2010). Foreign direct investment theories: An overview of the main FDI theories, *European Journal of Interdisciplinary Studies,* 3, pp. 53–59. Electronic copy available at: http://ssrn.com/abstract=1804514

Dhakal, D., Mixon, F. Jr and Upadhyaya, K. (2007). Foreign direct investment and transition economies: empirical evidence a panel data estimator. *Economic Bulletin*, 6(33), pp.1–9.

Di Giovanni, J. (2005). What drives capital flows? The case of cross-border M&A activity and financial deepening. *Journal of International Economics*, 65(1), pp. 127–149.

Dunning, J.H. (1977). Trade, location of economic activity and the multinational enterprise. In Ohlin, B., Hesslborn, P.O., and Wijkman, P.M. (Eds), the international allocation of economic activity: proceedings of a Nobel Symposium held at Stockholm. London: Macmillan, 1977 (pp. 395–418).

Dunning, J.H. (1979). Explaining changing patterns of international production: in defence of the eclectic theory. *Oxford Bulletin of Economics and Statistics*, 41(4), pp. 269–295.

Dunning, J.H. (1980). Toward an eclectic theory of international production: some empirical tests. *Journal of International Studies*, 11(1), pp. 9–31.

Dunning, J.H. (1981a). Explaining the international direct investment position of countries: Towards a dynamic or developmental approach. *Weltwirtschaftliches Archiv, Bd*, 117(1), pp. 30-64.

Dunning, J.H. (1981b). International production and the multinational enterprise. Allen & Unwin, London.

Dunning, J.H. (1986). The investment development cycle revisited. *Weltwirtschaftliches Archiv, Bd,* 122(4), pp. 667–676.

Dunning, J.H. (1988a). The eclectic paradigm of international production: A restatement and some possible extensions. *Journal of International Business studies*, 19(1), pp. 1–31

Dunning, J.H. (1988b). Explaining international production. *Routledge.*

Dunning, J.H. (1993). Multinational enterprises and the global economy, Addison-Wesley Publishing Company: Reading, MA.

Dunning, J.H. (1998a). Location and the multinational enterprise: A neglected factor? *Journal of International Studies*, 29(1), pp. 45–65.

Dunning, J.H. (2000). The eclectic paradigm as an envelope for economic and business theories of MNE activity. *International Business Review*, 9, pp. 163–190.

Dunning, J.H. (2001). The Eclectic (OLI) paradigm of international production: Past, present and future. *International Journal of the Economics of Business*, 8(2), pp. 173–190.

Dunning, J.H., and Narula, R. (1998b). Foreign direct investment and governments: catalysts for economic restructuring. USA and Canada: Routledge.

Energy Information Administration. (2006). Statistics retrieved September 7, 2006, at http://eia.dog.gov/emeu/international/contents.html.

Erdal, F. and Tatoglu, E. (2002). Locational determinants of foreign direct investment in an emerging market economy: evidence from Turkey. *Multinational Business Review*, 10(1).

Ezeoha, A. and Cattaneo, N. (2012). FDI flows to Sub-Saharan Africa: The impact of finance, institutions, and natural resource endowment. *Comparative Economic Studies*, 54, pp. 597–632.

Faeth, I. (2009). Determinants of foreign direct investment – a tale of nine theoretical models. *Journal of economic surveys*, 23(1), pp. 165–196.

Feils, D.J. and Rahman, M. (2011). The impact of regional integration on insider and outsider FDI. *Management International Review*, 51, pp.41–63.

Filippaios, F. and Papanastassion, M. (2008). US outward foreign direct investment in the European Union and the implementation of the single market: Empirical evidence from a Cohesive Framework. *Journal of Common Market Studies, 64*(5), pp.969–1000.

Flowers, E.B. (1976). Oligopolistic reaction in european direct investment in United States. *Journal of International Business Studies*, 7(2), pp. 43–55.

Frankel, J. and Rose, A.K. (1998). The endogeneity of the optimum currency are criteria. *Economic Journal*, 108(449), pp. 1009–1025.

Frenkel, M., Funke, K. and Stadtmann, G. (2004). A panel analysis of bilateral FDI flows to emerging economies. *Economic Systems*, 28, pp. 281–300.

Froot, K.A. and Stein, J.C. (1991). Exchange Rates and Foreign Direct Investment: An Imperfect Capital Markets Approach. *The Quarterly Journal of Economics*, 106(4), pp. 1191–1217.

Garcia-Herrero, A., Wooldridge, P. and Yang, D.Y. (2009). Why don't Asians Invest in Asia? The determinants of Cross-Border Portfolio Holdings. *Asian Economic Papers*, 8(3), pp. 228–246.

Giesen, K. and Schwarz, C. (2011). Trade, wages, FDI and productivity. *RUHR Economic Papers,* 251.

Goswami, G.G. and Haider, S. (2014). Does political risk deter FDI inflow? An analytical approach using panel data and factor analysis. *Journal of Economic Studies*, 41(2), pp. 233–252.

Groh, A.P. and Wich, M. (2012). Emerging economies' attraction of foreign direct investment. *Emerging Markets Review*, 13, pp. 210–229.

Guerin, S.S. (2006). The role of geography in financial and economic integration: A comparative analysis of foreign direct investment, trade and portfolio investment flows. *The World Economy*, 29(2), pp. 189–209.

Hahm, J.H. and Shin, K. (2009). Complementarity among international asset holding. *Journal of the Japanese and International Economies*, 23(1), pp. 37–55.

Hasen, B.T. and Gianluigi, G. https://www.ljmu.ac.uk/AFE/AFE_docs/cibef1109.pdf

Hattari, R. and Rajan, R.S. (2011). How different are FDI and FPI flows? Distance and capital market integration. *Journal of Economic Integration*, 26(3), pp. 499–525.

Heckscher, E.F. and Ohlin, B. Heckscher-Ohlin trade theory. (1919,1933). In E. E. Leamer (ed.), The Heckscher- Ohlin model in theory and practice (Princeton, N.J.: international finance section, *Department of Economics*, Princeton University, 1995.

Heckscher, E.F. and Ohlin, B. Heckscher-Ohlin trade theory.(1919,1933). translated, edited, and introduced by Flam, H., and Flanders, M.J. Cambridge, Mass., MIT Press, 1991.

Helpman, E. (1984). A simple theory of trade with multinational corporations. *Journal of Political Economiy*, 29(3), pp. 451–471.

Helpman, E. (1985). Multinational corporations and trade structure. *Review of Economic Studies*, 52(3), pp.443–458.

Helpman, E., Melitz, M.J., and Yeaple, S.R. (2003). Export versus FDI. *NBER Working Paper Series*, 9439, pp. 1–46.

Helpman, E., Melitz, M.J., and Yeaple, S.R. (2004). Export versus FDI with Heterogeneous Firms. *The American Economic Review*, 94(1), pp. 300–316

Helpman, E. and Krugman, P.R. (1985). Market structure and foreign trade: increasing returns, imperfect competition and the international economy. Brighton: Wheatsheaf Books.

Hirsch, S. (1976). An International trade and investment theory of the firm. *Oxford Economic Papers, New Series*, 28(2), pp. 258–270.

Hisarciklilar, M., Kayam, S.S. and Kayalica, O.. (2006). Locational drivers of FDI in MENA countries: A Spatial Attempt. *MPRA Paper*, 2085(07).

Hymer, S.H. (1960). The international operations on national firms: A study of direct foreign investment. PhD Thesis, Cambridge, Mass: MIT Press, MA, United States. (Also published under same title in 1976). Available at: http://dspace.mit.edu/handle/1721.1/27375.

Hyun, H.J. and Kim, H.H. (2010). The determinants of cross-border M&As: The role of institutions and financial development in the gravity model. *The World Economy*, 33(2), pp.292–310.

International Monetary Fund (2014). Direction of trade statistics. Available at https://stats.ukdataservice.ac.uk/Index.aspx?DataSetCode=DOTS

International Monetary Fund's (IMF) Coordinated Portfolio Investment Survey (CIPS). Available at http://data.imf.org/regular.aspx?key=60587804

Jadhav, P. (2012). Determinants of foreign direct investment in BRICS economies: analysis of economic, institutional and political factors. *Procedia – Social and Behavioral Science,* 37, pp 5–14.

Janicki, H.P. and Wunnava, P.V. (2004). Determinants of foreign direct investment: empirical evidence from EU accession candidates. *Applied Economics*, 36, pp. 505–509.

Jorgenson, D.W. (1963). Capital theory and investment behavior. *The American Economic Review*, 53(2), pp. 247–259.

Kalotay, K. and Sulstarova, A. (2010). Modeling Russian outward FDI. *Journal of International Management*, 16, pp.131–142.

Kayam, S.S. (2009). Home market determinants of FDI outflows from developing and transition economies. *Munich Personal RePEc Archive,* 16781(13).

Kehal, H.S. (2004), Foreign investment in developing countries. New York: Palgrave Macmillan.

Kemp, M.C. (1964). The pure theory of international trade. Englewood Cliffs, N.J.: Prentice-Hall.

Khadaroo, J. and Seetanah, B. (2009). The role of transport infrastructure in FDI: Evidence from Africa using GMM Estimates. *Journal of Transport Economics and Policy*, 43(3), pp. 365–384.

Kimino, S., Saal, D.S. and Driffield, N. (2007). Macro determinants of FDI inflows to Japan: An analysis of source country characteristics. *The world economy*, 30(3), pp.446-469.

Kim, J.M. and Rhe, D.K. (2009). Trends and determinants of South Korean outward foreign direct investment. *The Copenhagen Journal of Asian studies*, 27(1).

Kindleberger, C.P. (1969). American business abroad, Six lectures on direct investment. New Haven and London Yale University Press.

Knickerbocker, F.T. (1973). Oligopolistic reaction and multinational enterprise. Boston mass: Division of research, Harvard University Graduate School of Business Administration.

Kogut, B. (1983). Foreign direct investment as a sequential process. Available at: https://www0.gsb.columbia.edu/faculty/bkogut/files/Chapter_in_kindleberger-Audretsch_1983.pdf.

Kojima, K. (1973). A macroeconomic approach to foreign direct investment. *Hitotsubashi Journal of Economics*, 14(1), pp. 1–12.

Kojima, K. (1975). International trade and foreign investment: Substitutes or complements. *Hitotsubashi Journal of Economics*, 16(1), pp. 1–12.

Kojima, K. (1985). Japanese and American direct investment in Asia: A Comparative Analysis. *Hitotsubashi Journal of Economics*, 26(1), pp. 1–35.

Kojima, K. and Ozawa, T. (1985). Towards a theory of industrial restructuring and dynamic comparative advantage. *Hitotsubashi Journal of Economics*, 26(2), pp. 135–145.

Kok, R. and Ersoy, B.A. (2009). Analyses of FDI determinants in developing countries. *International Journal of Social Economics*, 36.

Kolstad, I. and Wiig, A. (2012). What determines Chinese Outward FDI? *Journal of World Business*, 47, pp. 26–34.

Kumar, N. (2007). Emerging TNCs: trends, patterns and determinants of outward FDI by Indian enterprises. Transnational Corporations, 16(1).

Kyrkilis, D. and Pantelidis, P. (2003). Macroeconomic determinants of outward foreign direct investment. *International Journal of Social Economics*, 30(7), pp. 827–836.

Lane, P. and Milesi-Ferretti, G.M. (2004). International investment patterns. *IMF Working Paper 04/134.*

Lane, P. and Milesi-Ferretti, GM. (2007). The external wealth of nations mark II: Revised and extended estimates of foreign assets and liabilities, 1970–2004. *Journal of International Economics,* 73(2), pp. 223–250.

Latorre, M.C. (2008). Multinationals and foreign direct investment: Main theoretical strands and empirical effects, Cuadernos de Trabajo, Escuela Universitaria de Estadística, 6. Available at: http://estudiosestadisticos.ucm.es/data/cont/docs/12-2013-02-06-CT06_2008.pdf

Leamer, E. E. (1974). The commodity composition of international trade in manufactures: An empirical analysis. *Oxford Economic Papers*, 26(3), pp. 350–374.

Leamer, E.E., and Stern, R.M. (1970). Quantitative international economics. Boston: Allyn and Bacon

Leamer, E.E. (1995). The Heckscher-Ohlin model in theory and practice. Princeton, N.J.: International Finance Section, Department of Economics, Princeton University,

Lee, H.H., Huh, H.S. and Kim, W.J. (2012). Cross-border portfolio investment in the APEC region. *Japan and the World Economy*, 24(1), pp. 44–56.

Linnemann. H. (1966). An econometric study of international trade flows. Amsterdam: North-Holland Publishing Company Amsterdam.

Lipsey, R.E. (2002). Home and host country effects of FDI. Working Paper NO. 9293. National Bureau of Economic Research, 1050 Massachusetts Avenue. Cambridge, MA 02138.

Lizondo, J.S. (1991). Foreign direct investment, in international monetary fund, determinants and systematic consequences of international capital flows, IMF Occasional Papers No. 77 (Washington DC): 68–82.

Liu, X., Buck, T. and Shu, C. (2005). Chinese economic development, the next stage: outward FDI. *International Business Review*, 14, pp. 97–115.

Love, J. H. and Lage-Hidalgo, F. (2000). Analysing the determinants of US direct investment in Mexico. *Applied Economics*, 32(10), pp. 1259–1267.

Lucas, R.B. (1993). On the determinants of foreign direct investment: Evidence from East and Southeast Asia. *World Development*, 21(3), pp. 391–406.

Lucas, R.E. (1990). Why doesn't capital flow from rich to poor countries? *American Economic Review*, 80(2), pp. 92–96.

MacDougall, G.D.A. (1960). The benefits and costs of private investment from abroad: A theoretical Approach. *Bulletin of the Oxford University Institute of Economics and Statistics*, 22(3), pp. 189–211.

Magee, S.P. (1981). The appropriability theory of the multinational corporation. *Annals of the American Academy of Political and Social Science*, 458(1), pp. 123–135.

Markowitz, H.M. (1991). Portfolio selection: Efficient diversification of investments. Cambridge, Mass.; Oxford: Blackwell, 2nd ed.

Markusen, J.R. (1984). Multinational, multi-plant economies and the gains from trade. *Journal of International Economics*. 16(3), pp. 105–226.

Martin, P. and Rey, H. (2004). Financial super-markets: size matters for asset trade. *Journal of International Economics*, 64(2), pp. 335–61.

Martin, S. (1991). Direct foreign investment in the United States. *Journal of Economic Behavior and Organization*, 16(3), pp. 283–293.

Mauro, P. (1995). Corruption and Growth. *The Quarterly Journal of Economics,*110(3), pp.681-712.

Medvedev, D. (2012). Beyond trade: The impact of preferential trade agreements on FDI inflows. *World Developmen*t, 40 (1), pp. 49–61.

Megginson, W.L., You, M. and Han, L. (2013). Determinants of sovereign wealth fund cross-border investments. *The Financial Review*, 48(4), pp. 539–572.

Merton, R.C. (1987). A simple model of capital market equilibrium with incomplete information. *Journal of Finance*, 42(3), pp. 483–510.

Mina, W. (2007a). The location determinants of FDI in the GCC countries. *Journal of Multinational Financial Management,* 17, pp. 336–348.

Mina, W. (2007b). Are the GCC FDI location determinants favorable? *Economic discussion paper*No. 2007-23.

Mina, W. (2009). External commitment mechanisms, institutions, and FDI in the GCC countries. *Journal of International Financial Markets, Institutions and Money,* 19(2), pp. 371–386

Mina, W. (2012). The institutional reforms debate and FDI flows to the MENA region: The best ensemble. *World Development,* 40(9), pp. 1798–1809.

Mishra, A. and Daly, K. (2007). Effect of quality of instituions on outward foreign direct investment. *Trade and Economic Development*, 16(2), pp. 231–244.

Mohamed, S.E., and Sidiropoulos, M.G. (2010). Another look at the determinants of foreign direct investment in MENA countries: An empirical investigation. *Journal of Economic Development*, 35(2), pp. 75– 94. Available at: http://www.jed.or.kr/full-text/35-2/5.pdf

Moore, M.O. (1993). Determinants of German manufacturing direct investment: 1980–1988. *Weltwirtschaftliches Archiv*, 129(1), pp. 120–138.

Moosa, I.A. (2002). Foreign direct Iinvestment theory, evidence and practice. New York: Palgrave Macmillan.

Moosa, I.A. (2009). The determinants of foreign direct investment in MENA countries: an extreme bounds analysis. *Applied Economics Letters*, 16(15), pp. 1559–1563.

Mundell, R.A. (1957). International trade and factor mobility. *The American Economic Review*, 47(3), pp. 321–335.

Mundell, R.A. (1960). The monetary dynamics of international adjustment under fixed and flexible exchange rates. *The Quarterly Journal of Economics,* 74(2), pp. 227–257.

Naude, W.A. and Krugell, W.F. (2007). Investigating geography and institutions as determinants of foreign direct investment in Africa using panel data. *Applied economics*, 39, pp. 1223–1233.

Nayak, D. and Choudhury, R.N. 2014. A selective review of foreign direct investment theories. Working Paper 143, Bangkok, ESCAP. Available at: http://artnet.unescap.org/pub/awp143.pdf

Naylor, R. and Santoni, M. (2003). Foreign direct investment and wage bargaining. *Journal of International Trade and Economic Development,* 12, pp. 11–18.

Nonnemberg, M.B. and Mendonca, J.C.D. (2004). The determinants of foreign direct investment in developing countries. *Instituto de Pesquisa Econômica Aplicada Avenida Antônio Carlos*, 51.

Noorbakhsh, F., Paloni, A. and Youssef, A. (2001). Human capital and FDI inflows to developing countries: New empirical evidence. *World Development*, 29(9), pp. 1593–1610.

Nunnenkamp, P., Andres, M.S., Vadlamannati, K.C. and Waldkirch. A. (2012). What drives India's outward FDI? *South Asian Journal of Macroeconomics and Public Finance*, 1(2), pp. 245–279.

Ohlin, B. (1933). Interregional and international trade. Cambridge: Harvard University Press, 1967.

Onyeiwu, S. (2003). Analysis of FDI flows to developing countries: Is the MENA region different? Available at: http://www.mafhoum.com/press6/172E11.pdf

Onyeiwu, S. and Shrestha, H. (2004). Determinants of foreign direct investment in Africa. *Journal of Developing Societies*, 20(1-2).

Paez, L. (2011). Liberalizing financial services and foreign direct investment: developing a framework for commercial banking FDI. New York: Palgrave Macmillan.

Pain, N. (1993). An econometric analysis of foreign direct investment in the United Kingdom. *Scottish Journal of Political Economy,* 40(1), pp. 1–23.

Papaioannou, E. (2009). What drives international financial flows? Political, institution and other determinants. *Journal of Development Economic*, 88(2), pp. 269–281.

Petrochilos, G. (1989). Foreign direct investment and the development process: The case of Greece. Aldershot: Avebury.

Peter, A. (2012). Bilateral trade, openness, and asset holdings. *Open Economies Rev*iew, 23(4), pp. 713–740.

Pitelis, C.N. and Sugden, R. (1991). The nature of the transnational firm. Routledge, New Fetter Lane, London.

Portes, R. and Rey, H. (1998). The euro and international equity flows. *Journal of the Japanese and International Economies,* 12(4), pp. 406–423.

Portes, R. and Rey, H. (1999). The determinants of cross-border equity flows. *National Bureau Of Economic Research Working paper* No. 7336 (September).

Portes, R. and Rey, H. (2000). The determinants of cross-border equity flows: The Geography of information. *Center for International and Development Economic Research*. Avaliable at: http://escholarship.org/uc/item/51w4v95p

Portes, R., Rey, H. and Oh, Y. (2001). Information and capital flows: The determinants of transactions in financial assets. *European Economic Review*, 45(4–6), pp. 783–796.

Portes, R. and Rey, H. (2005). The determinants of cross-border equity flows. *Journal of International Economics*, 65(2), pp.269–296.

Portes, R. and Rey, H. (2006). Globalizaton and emerging markets: With or without crash? *The American Economic Review*, 96 (5), pp.1631–1651.

Poyhonen, P. (1963). A tentative model for the volume of trade between countries. *Weltwirtschaftliches Archiv*, 90, pp. 93–100.

Prachowny, M. F. J. (1972). Direct investment and the balance of payments of the United States: A portfolio approach. In F. Machlup, W. S. Salant., and L. Tarashis, (eds), International mobility and movements of capital. New York : National Bureau of Economic Research; London : distributed by Columbia University Press, 1972.

PRS Group, (2009). International country risk guide (ICRG): the political risk dataset.

Ragazzi, G. (1973). Theories of the determinants of direct foreign investment. International monetary fund, Staff Papers, 20(2), pp. 471–498.

Ramasamy, B., Yeung, M. and Laforet, S. (2012). China's outward foreign direct investment: Location choice and firm ownership. *Journal of World Business*, 24, pp. 17–25.

Reuber, G. L., Crokell, H., Emersen, M. and Gallais-Hamonno, G. (1973). Private foreign investment in development. Oxford: Clarendon Press and OECD.

Riedel, J. (1975). The nature and determinants of export-oriented direct foreign investment in a developing country: A case study of Taiwan. *Weltwirtschaftliches Archiv*, 111(3), pp. 505–528.

Rogmans, T. and Ebbers, H. (2013). The determinants of foreign direct investment in the Middle East North Africa region. *International Journal of Emerging Markets*, 8(3), pp. 240–257.

Roodman, D. (2009). How to do xtabond2: An introduction to difference and system GMM in Stata. *Stata Journal*, 9(1), pp.86–136.

Root, F.R. and Ahmed, A.A. (1979). Empirical determinants of manufacturing direct foreign investment in developing countries. *Economic Development and Cultural Change*, 27(4), pp. 751–761.

Rugman, A.M. (1980). IN Moosa, Imad A., (ed.), Foreign direct investment theory, evidence and practice. New York: Palgrave Macmillan.

Savage, R. and Deutsch, K.W. (1960). A statistical model of the gross analysis of transaction flows. *Econometrica*, 28(3), pp. 551–572.

Schneider, F. and Frey, B.S. (1985). Economic and political determinants of foreign direct investment. *World Development*, 13(2), pp.161–175.

Sekkat, K. and Varoudakis, M.A.V. (2007). Openness, Iinvestment climate, and FDI in developing countries. *Review of Development Economics*,11(4), pp. 607–620.

Shen, C.H. and Lin, M.R. (2011). The determinants of cross-border consolidation in eight Asian countries: before and after the Asian financial crisis. *Journal of Multinational Financial Management,* 21(2), pp. 89–105.

Shin, K. and Yang, D.H. (2012). Complementarities between bilateral trade and financial integration. *Korea and the World Economy*, 13(1), pp. 39–68.

Shirazi, A., Rodrigues, G. and Karnik, A. (2008). Determinants of foreign direct investment in MENA countries: an empirical analysis. University of Wollongong in Dubai, UAE, Available at: http:// http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1168&context=dubaipapers

Solomon, B. and Ruiz, I. (2012). Political risk, macroeconomic uncertainty, and the patterns of foreign direct investment. *The International Trade Journal*, 26(2), pp. 181–198.

Stal, E. and Cazurra, A.C. (2011). The investment developing path and FDI from developing countries: The role of pro-market reforms and institutional Voids. *Latin American Business Review,* 12, pp. 209–231.

Stevens, G V.G. (1969). Fixed investment expenditure of foreign manufacturing affiliates of U.S. firms: Theoretical models and empirical evidence. *Yale Economic Essays*, 9 (1), pp. 137–198.

Stoian, C. (2013). Extending Dunning's investment development path: The role of home country institutional determinants in explaining outward foreign direct investment. *International Business Review*, 22, pp., 615–637.

Stoian, C. and Filippaios, F. (2008). Dunning's eclectic paradigm: A holistic, yet context specific framework for analyzing the determinants of outward FDI evidence from international Greek investments. *International Business Review*, 17, pp., 349–367.

Tcha, M. (1998). Labor disputes and direct foreign investment: The experience of Korea in transition. *Economic Development and Cultural Change*, 46(2), pp. 305–327.

Teece, D.J. (1981). The multinational enterprise: market failure and market power consideration. *Sloan Management Review*, 22(3), pp. 3–17.

Teece, D, J. (1985). Multinational enterprise, internal governance, and industrial organization. *American Economic Review*, 75(2), pp. 233–238.

Thompson, R.S. (1985). Risk reduction and international diversification: an analysis of large UK multinational companies. *Applied Economics*, 17(3), pp. 529–541.

Tinbergen, J. (1965). Shaping the world economy. Suggestions for an international economic policy. *Revue Economique*, 16(5), pp. 840. New York: The Twentieth Century Fund.

Tobin, J. (1958). Liquidity preference as behavior towards risk. *The Review of Economic Studies,* 25(2), pp. 65–86.

Tsai, P.L. (1994). Determinants of foreign direct investment and its impact on economic growth, *Journal of Economic Development*, 19 (1), pp. 137–163.

UNCTAD. (2006). World investment report: FDI from developing and transition economies: Implications for development, United Nations Conference on Trade and Development. United Nations, New York and Geneva.

UNCTAD. (2007). World investment report: Transition corporations, extractive industries and development, United Nations Conference on Trade and Development. United Nations, New York and Geneva.

UNCTAD (2010). World investment report: Investning in Law-Carbon Economy. United Nations, New York and Geneva.

UNCTAD (2011). World investment report: Non-Equity Modes of International Production and Development. United Nations, New York and Geneva.

UNCTAD (2012). World investment report: Towards a new generation of investment policies. United Nations, New York and Geneva.

UNCTAD (2013). World investment report: Global value Chains: Investment and Trade For Develpment. United Nations, New York and Geneva.

Verma, R. and Brennan, L. (2011). The investment development path theory: evidence from India. *International Journal of Emerging Markets*, 6(1), pp. 74–89.

Vernon, R. (1966). International investment and international trade in the product cycle. *Quarterly Journal of Economics*, 88(2), pp. 190–207.

Wang, C., Hong, J., Kafouros, M. and Boateng, A. (2012). What drives outward FDI of Chinese firms?. Testing the explanatory power of three theoretical frameworks. *International Business Review*, 21, pp. 425–438.

Wei, S.Z.C. and Zhu,Z. (2007). A revisit to the outward FDI determinants: further evidence from count panel data model with fixed effects. *Applied Economics Letters*, 14, pp. 809–812.

Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics*, 126, pp. 25–51.

Wong, W.K. (2008). Comparing the fit of the gravity model for different cross-border flows. *Economies Letters*, 99(3), pp. 474–477.

World Bank. (2011). World development indicators (edition: April 2011). Available from Online (WDI), at http://ukdataservice.ac.uk/help/get-in-touch.aspx

World Bank. (2014). World development indicators database (edition: April 2014). Available at https://stats.ukdataservice.ac.uk/#

Yang, J.Y.Y., Groenewold, N. and Tcha, M. (2000). The determinants of foreign direct investment in Australia. *Economic Record*, 76 (232), pp. 45–54.

Zhang, X. and Daly, K. (2011). The determinants of China's outward foreign direct investment. *Emerging Market Review*,12, pp. 389–398.