

THE EFFECT OF CHINA'S OUTWARD FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH

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I hereby declare that the dissertation is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UTAR or other institutions.

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SUBMISSION OF DISSERTATION

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Yours truly,

(Too Yuen Xian)

Table of Contents

APPROVAL SHEET	ii
DECLARATION	iii
SUBMISSION OF DISSERTATION.....	iv
Table of Content	v
Table of Figure.....	viii
Table of Table	viii
Abstract	ix
 CHAPTER 1 INTRODUCTION	 1
1.1 Overview of Foreign Direct Investment.....	1
1.1.1 Foreign Direct Investment	1
1.1.2 Inward Foreign Direct Investment	3
1.1.3 Outward Foreign Direct Investment	5
1.2 The Trend of China's Foreign Direct Investment	7
1.3 Key Stages in the development of China's Outward FDI Policy.....	11
1.4 Problem statement	14
1.5 Research Objectives	18
15.1 General Objectives	18
1.5.2 Specific Objectives	18
1.6 Significance of Study	19
1.7 Outline of research	20
CHAPTER 2 LITERATURE REVIEW	21
2.1 Introduction of China's Outward Foreign Direct Investment	21
2.2 Motivations of China's outward FDI	23
2.2.1 Market seeking.....	24
2.2.1 Natural Resoruce seeking	26
2.2.3 Efficiency seeking.....	28
2.2.4 Strategies asset seeking.....	29
2.3 The Effect of FDI	31
2.4 The Impact of China's Foreign Direct Investment.....	35

CHAPTER 3 METHODOLOGY	38
3.1 Introduction	38
3.2 Foreign Direct Investment, Trade Openness and Firm Total Factor Productivity: A Theoretical Framework	39
3.3 The selection of dependent and explanatory variables.....	42
3.3.1 Dependent variable – Economic growth.....	42
3.3.2 FDI outflows	43
3.3.3 Trade openness.....	44
3.3.4 The Interaction of Trade openness and FDI	46
3.3.5 Government spending	47
3.3.6 Inflation.....	48
3.3.7 Capital variable	49
3.3.8 Labor and human capital variables	51
3.4 Generalized Method of Moments (GMM)	53
3.4.1 A Review	53
3.4.2 Generalized Method of Moments (GMM) Panel Data Analysis	55
3.4.3 Advantages of Generalized Method of Movements	58
3.6 Data	59
CHAPTER 4 DATA ANALYSIS	60
4.1 Introduction	60
4.2 Descriptive Statistic.....	60
4.3 Correlation Matrix.....	64
4.4 Selected Countries.....	69
4.5 Developing and Developed Countries.....	75
4.5.1 Developing Countries	76
4.5.2 Developed countries.....	82
4.6 Regions.....	88
4.6.1 Europe	90
4.6.2 Africa	96
4.6.3 Asia	103

4.6.4 Latin America	109
CHAPTER 5 CONCLUSION:	116
5.1 Introduction	116
5.2 Summary and Conclusion	118
5.3 Policy Recommendation	120
5.4 Limitation & Recommendation for Future Studies.....	123
Reference	125

Table of Figure

Figure 1: China's Outward FDI from 1990 to 2009	9
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Table of Table

Table 1: Adjusted geographical distribution of Chinese ODFI stocks, 2010	14
Table 2: Descriptive statistics of GDP, 2003-2009	62
Table 3: Descriptive statistics of China's outward FDI, 2003-2009	63
Table 4: Descriptive statistics of trade openness 2003-2009	63
Table 5: Descriptive statistics of government spending, 2003-2009	64
Table 6: Descriptive statistics of inflation, 2003-2009	64
Table 7: Descriptive statistics of capital, 2003-2009	65
Table 8: Descriptive statistics of labor, 2003-2009	65
Table 9: The correlation matrix of Total countries	66
Table 10: The correlation matrix of Developed countries	67
Table 11: The correlation matrix of Developing countries	67
Table 12: The correlation matrix of Asia	68
Table 13: The correlation matrix of Africa	68
Table 14: The correlation matrix of Europe	69
Table 15: The correlation matrix of Latin America	69
Table 16: GMM Estimation Result of China's Outward FDI and Economic Growth on selected countries	91 70
Table 17: GMM Estimation Result of China's Outward FDI and Economic Growth on Developing Countries	76
Table 18: GMM Estimation Result of China's Outward FDI and Economic Growth on Developed Countries	82
Table 19: GMM Estimation Result of China's Outward FDI and Economic Growth on Europe	90
Table 20: GMM Estimation Result of China's Outward FDI and Economic Growth on Africa	96
Table 21: GMM Estimation Result of China's Outward FDI and Economic Growth on Asia	103
Table 22: GMM Estimation Result of China's Outward FDI and Economic Growth on Latin America	109

THE EFFECT OF CHINA'S OUTWARD FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH

Too Yuen Xian

Abstract

Driven by the rapid expansion in China's trade network and the appetite for natural resources to support economic growth, China has been one of the major sources of foreign direct investment in the world economy. However, there is only a handful of research on the impact of China's Outward Foreign Direct Investment (FDI). This study fills the gap by examining the impact of China's outward FDI on the economic growth. This empirical study employs panel Generalized Method of Moment (GMM) on 91 countries for the period of 2003 to 2009, categorized by the level of income and geographical location. The results indicate that China's outward FDI has significant positive effect on the economic growth of the relevant countries. In particular, the results show that the effect of China's outward FDI on developed countries and developed countries is positive and significant. As for the regional, China's outward FDI has also positive and significant effect on each region such as Europe, Africa, Asia and Latin America.

CHAPTER 1

INTRODUCTION

1.1 Overview of Foreign Direct Investment

1.1.1 Foreign Direct Investment

Foreign direct investment (FDI) is an investment flow in which foreign investors transfer their domestic structures, equipment and organizations inwardly or outwardly from their home countries. FDI is believed to be more efficient and effective than equity investments in firms because in equity investments, investors tend to shift out their investment upon receiving benefits or profits from the host country, which also commonly known as “hot money” (Parris, 2001). Therefore, these investments could bring benefit to the home countries but at the same time, these may cause harm to the host country in which there is a sudden loss of capitals in a short term which is impactful toward host country. FDI works in a different manner than equity investment; it is more durable and directly bring forth prosper to the economy development of both host and home countries. Researchers reassured that FDI works beyond the theoretical basis in which in real life scenario; FDI causes a huge impact to the economic development of host country (De Mello, 1997).

FDI can be divided into outward FDI and inward FDI. Outward FDI means the domestic capital outflow from home country to foreign countries,

whereas inward FDI is the foreign capital inflow from foreign countries to domestic market. Apart from these terms which are generally acknowledged by the world, but different countries would have different opinions or views on the FDI flows as well. For developing countries, FDI flows usually transfer into intermediate production process because foreign investors are much attracted by large volume of cheap labor forces available in these countries. Therefore, foreign investors preferably shifting their labor intensive activities into these low waged countries to enjoy lower operating cost (Marioth et al., 2003) led to an increasing number of investors attracting to inexpensive labors, natural resources, specific skills and others of host countries.

On the other hand, the FDI flows allocate more towards high technology production in developed countries, due to the readily availability of advanced technology and highly skilled labor which become the main attraction to investors. As compared to the developing countries, the technology advancement and overall education level of labors in developed countries are relatively higher due to high competitive of expertise. Therefore, foreign investors will involve in sectors such as manufacturing, oil and gas and other sectors which needs advanced technology and highly skilled and knowledgeable labors to maintain the their production lines. Besides, developed countries also provide high technology facilities and services (high Internet speed, well-developed infrastructure and others) for high technology production in which, developing countries do not have (OECD, 2002).

1.1.2 Inward Foreign Direct Investment

Inward FDI is an important tool which promotes the economy development by improving the domestic production. In 1980s, some countries believed that inward FDI had led to an economic growth in which subsequently, the government started to further attract the inward FDI by implementing different policies such as tax free, free tax zone, incentives and others. The foreign investments obtained could be utilized into their own profitable investments to boost the infrastructure or initiating other activities to improve current economy.

FDI inflow is a crucial in aiding the productivity, bring huge amount of income and setting the direction of the economic growth of host countries. The huge FDI inflow could be the solution for the developing countries that are lack of the initial capital and technology to expand their future economy. While foreign investors shift their plants to host countries, huge amount of domestic labors is needed to operate the production line. This will increase job opportunity and living standard of the host country while reducing the unemployment rate (Aaron, 1999; Jenkins & Thomas, 2002). Next, importing raw materials as production input and exporting end product, tax is levied in which, host countries could have tax revenue from the foreign investors to improve the infrastructure and gross domestic production. FDI is also an important tool to resilient the negative impact from economic crisis. For example, FDI is useful on the East Asian economic crisis for the ASEAN countries (Thomsen, 1999). During economic crisis, governments may use up most of the national reserve to stabilize the economy and avoid economic downturn and end up lack of funding to rebuild their economy after the crisis. In the end, FDI is the only final resource for the government to solve their problems due to insufficient funding.

Researchers have been focusing on the impact of inward FDI since a few decades ago to economic growth as FDI inflows can bring in various huge

positive impacts on different fields such as economic development, technology advancement, management practice transfer, innovation and skill enhancement to host country (Romer, 1993). For example, the high technological multinational enterprises (MNEs) would be shifting their production line to the developing countries because of incentive giving, low labor cost and low rental cost that offered by the host government (Borenstein et al., 1998). Although it seems that the foreign firms could lower their production costs and maximizes their profits, they also transfer their capital, technology and technician to manage the production line in the host country in which these could benefit the host country where citizen and employees could absorb and incorporate new skills like management skills, company structure, language from foreign MNEs, where the firms could improve their productivity effectively and efficiently (Jenkins & Thomas, 2002; UNCTAD, 2007; Zachmann, 2008).

However, some researchers found that FDI inflow brings negative impact on productivity and economy of host country (Aitken & Harrison, 1999; Carkovic & Levine, 2000; Djankov & Hoekman, 1999; Kawai, 1994; Mencinger, 2003). Foreign firm's products will lead to an increased in the competitive pressure in the domestic market. Only those domestic firms which could provide equally or better quality and productivity of the products can compete with foreign firms and maintain their market shares. Nevertheless, most of the large domestic firms which have all the advanced technology and huge amount of funding are capable to improve their products and services, in order to compete with the foreign investors. For small and medium firms, they do not have huge capital, advance technology, and skillful labor to improve their products. They are either shifted into other sectors or left the market to avoid the competition with the foreign investors. Those domestic firms who failed to compete will lose their market share and eventually, forced to quit the market.

1.1.3 Outward Foreign Direct Investment

In the 20th century, outward FDI becomes an important tool to develop the economy of both host and home countries. Many researchers started to study more about the outward FDI as outward FDI gradually becomes an important variable in shaping the economic development. On the other hand, investors transfer their technology and capital into the host country through outward FDI, whilst the host country could maximize these technologies and capital to improve their productivity and to increase their gross domestic product. In contrast, some researchers showed that the outward FDI is a tool to incorporate advanced technology or raw materials from the host country. Van Pottelsberghe and Lichtenberg (2001) found that the outward FDI in research and development (R&D) intensive countries led to home country productivity growth. Globerman et al. (2000) found out that investors could shift the technology and knowledge back to home country through outward FDI, which could bring a huge impact to the home country's productivity and exportation.

On the other hand, outward FDI would bring competition to the host countries deteriorating the host domestic market as shown by others. Lipsey (2002) showed that outward FDI will fear job erosion or worsening of the balance of payment. Besides, outward FDI involves transferring of fund from the home country to host countries, which would affect the reserved funding of the home country negatively. The home country's federal and commercial banks may face insufficient funding for domestic investors to expand their businesses. Domestic investors will eventually lose out the investment opportunity to improve on their businesses and domestic economies. Besides, direct investments also shift the domestic job opportunities to host country and reduce the job opportunities of home countries, which lead to an increased in the unemployment rate in home country.

In the past few decades, the developed countries outflow most of the global FDI and just a small portion of FDI contributed by developing. However, outward FDI of the developing countries had significant impact on growth recently, corresponding to a decline for the outward stock of developed countries. More and more developing countries started to involve in outward FDI because they recognize the importance of investing abroad in order to increase their competitiveness and global position. Most of the FDI from developing countries has been shifted into manufacturing (automotive, electronics), resources sectors (oil exploration and mining) and tertiary activities such as financial, trade related, service and business.

International Monetary Fund (IMF) and United Nations Conference on Trade and Development (UNCTAD) data do allow for a reasonable approximation (UNCTAD, 2006). In 2005, outward FDI of developing countries worth about 133 billion U.S. dollar which made up of 17 percent of the total world outward flows. The total FDI outflow that excluded offshore financial centers recorded around 120 billion U.S. dollar, the highest level ever since. In 2005, the stock value of FDI from developing countries reached 1.4 trillion U.S. dollar (13 percent of the world total flow). In 1990s, there are only six different developing countries involved in outward FDI stocks with more than 5 million U.S. dollar. Hereafter the number of developing countries had exceeded with 25 countries in 2005. The geographical composition of FDI from developing countries has always been shifting over time. Total stock of FDI outflow from developing countries was 23 percent in 1980, increased to 46 percent in 1990 and 62 percent in 2005.

Meanwhile, many countries with large outward FDI, such as Brazil, China, India and Mexico, are considering the potential for future expansion of FDI. South, East and South-East Asia are new sources of FDI for developing countries. South, East and South-East Asia had an outflow of 68 billion U.S. dollar in 2005. Although the overall global outward FDI has decreased about 11

percent from 2004, China's outflows forecasted would have increment in the next few years.

1.2 The Trend of China's Foreign Direct Investment

In December 1978, Communist Party Central Committee of China decided to adopt Deng Xiaoping's program of economic reformation. It brought a drastic change to the economy of China at that particular period and as well as the future economic development of China. The China's development strategy changed from closed economy to open economy, in which it brought great positive impacts to China by changing the trade and foreign direct investment.

The liberalization of China's trade and investment encourage the inflow of foreign equipment and technology. China has experienced a dramatic change in economy and FDI inflows. Government established the general joint venture and special economic zones to attract foreign investors to invest in China and to improve her economic growth. However, pressure from prospective investors has led the government involved more enforcement of laws on foreign investment activities and commercial practices. Although it is not necessarily an easy way for foreign investors to invest in China, China has lowered the restriction level (such as reducing the foreign exchange to create market for it), so that foreign investors do not repatriate their profits and reinvest into domestic markets.

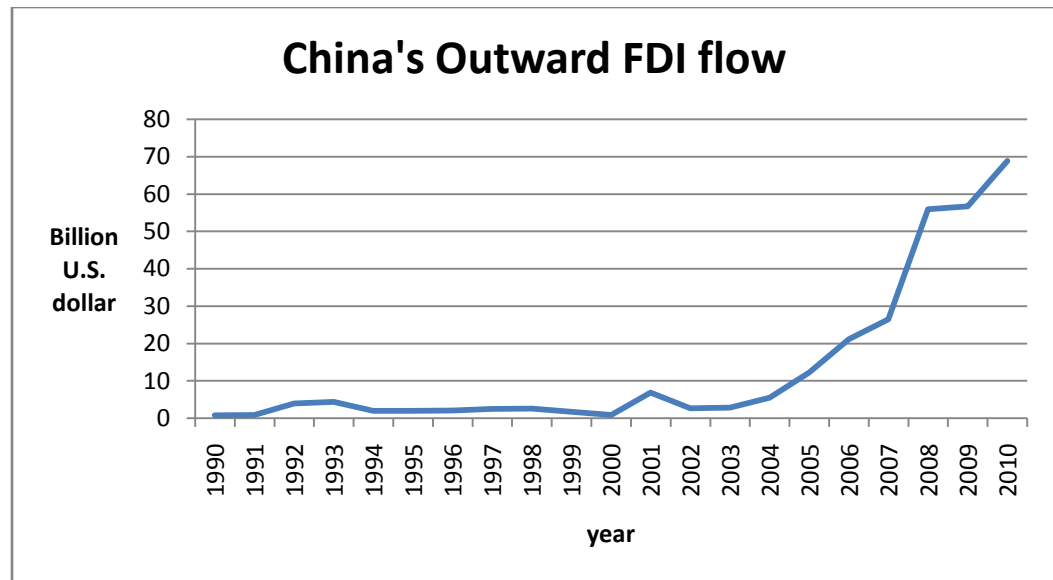


Figure 1: China's Outward FDI flow from 1990 to 2009

Source: UNCTAD (2007) and MOFCOM (2010).

China has transformed from agricultural sector into industrial sector in which this had brought a huge earning in early 1980s. Although the reformation remained around the state-owned enterprises efficiently, the distribution of industrial inputs and outputs grew steadily. In late 1980s, China has opened up her market for the foreign investor to attract foreign capital, technology and management skills. Arising from this, China's government begun to encourage firms to invest abroad and engage in transnational operations. The private firms started to involve actively in evaluating the feasibility of foreign investment in the 1990s, but it was just merely involved for a number of large-sized firms.

From 1982 to 1991, China's outward FDI increased slowly with a low volume of outward FDI of less than one billion U.S. dollar annually. There are few reasons which could be used to explain on the slow increment of China's outward FDI at this early stage. Firstly, China did not open up her market globally and restricted the investment approval procedures as well as tighten up the foreign exchange control. Secondly, due to the poor competitiveness of China's firms, it

affected the domestic investors in which, investing abroad became more difficult due to the quality and productivity of domestic firms are low as compared to foreign products, so it became difficult to invest abroad and to compete with others. Thirdly, only the large firms have a huge capital to invest abroad as compare to other small firms. Most of the large firms in China are SOEs which controlled by the government to invest solely in projects that have high relevance to the national benefits, such as resource-oriented.

In 1990s, China government has set a clear goal to shift their focus into market-based system. The trade and foreign direct investment strategies were eventually be promoted step by step. Therefore, the emergence of China's firms abroad became a new phase in China's integration in the world economy in 2002. During the period of 1991 to 1993, the government implemented outward investment policies that encouraged the foreign investors and this led to an increment in the outward FDI. However, the outward FDI slowed down in 1994 due to the government sought to cool the rate of domestic economic expansion.

Since 1996, outward FDI flows recovered and increased modestly from 1996 to 1998 as a result of the further foreign exchange and trade liberalization, exports of China growth and the handover of Hong Kong. However, the impact of the East Asian financial crisis had slowed down the outward FDI of China in 1999. The government faced re-imposition of foreign exchange controls and the economic slowdown of neighboring countries. In 2001, government implemented the "Go Global" policy which had a drastic positive impact on the outward FDI of China with sharp increment. During this period of time, the growth of outward FDI has affected some commentators in which it ensured that China's firms becoming more important than foreign investors in Asian region and beyond (UNCTAD, 2003). By contrast, the outward FDI of China has decreased on 2002. The global foreign direct investment also faced the downward trend because the economic downturn in the U.S. and in the broad global economy.

In the early 20th century, the China's government has officially established the "Go Global Policy" that has promoted domestic firms to involve in international capital market and invest abroad. The government has encouraged firms for joint ventures and overseas acquisitions through favorable financing and tax benefits. Recently, China's government pointed out that the country would employ more foreign reserves through the China Investment Corporation as to maintain and to increase overseas expansion and acquisition by China's firms.

Between 2003 and 2009, the China's outward FDI has increased dramatically. Many China's firms have gained their competitive power and to compete with other foreign firms and to invest abroad and to expand their market because they are strongly supported by the government. In 2007, Subprime mortgage crisis which occurred in 2007, it has negatively affected the U.S and the global economy. However, the outward FDI of China showed a sharply increased as it did not affect by the crisis as China has a large financial reserve to stabilize any financial issues whereas most of the western countries suffered from the crisis. Although there is an overall depreciation in foreign direct investment globally following the 2009 financial crisis, it did not highly affect the outward FDI of China which is shown just by an increment in lower rates.

There are few key factors which led to the rapid growth of China's outward FDI. Firstly, the contracted value of China's owned outward FDI stock has increased. Outward FDI of China had distributed across 160 countries (MOFCOM, 2007). Secondly, the growth of China's outward FDI is still quite slow as compared to other industrialized countries. However, it is somehow considered favorably to some developing countries. Thirdly, the number of China's multinational enterprises (MNEs) grew from 103 to 501 between 1996 and 2003. The China's owned affiliates abroad have also increased from 1008 in 1991 to 8259 in 2004 (MOFCOM, 2005). Fourthly, China's firms has increased the "number of the world's top one hundred non-financial MNEs from among

developing countries” from three units in 2000 to ten in 2004 (UNCTAD, 2002, 2006).

1.3 Key Stages in the development of China’s Outward FDI Policy

In this section, the China’s government policy and its implementation are discussed. By comparing to other countries, the outward FDI of China is still considered highly controlled, even as the policies have changed from outright prohibition to gradual opening and lastly to determined and active promotion, at least for ‘strategic’ state-owned enterprises. Outward FDI was more or less strongly discouraged by the government until the late 1990s, while government made a sudden change and launched the so-called “Go Global” policy. The phases of China’s outward direct investment policy liberalization are described in section below (Ding, 2000; UNCTAD, 1996; Wong & Chan, 2003; Wu & Chen, 2001; Ye, 1992; Zhang, 2005; Buckley et al., 2007).

China’s Outward FDI policy can be separated into five stages:

Stage one: caution internationalization (1979-1985)

Throughout this period, government has implemented “Open Door” policy to encourage firms to start investing abroad. China’s state-owned enterprises (SOE) have initiated to build up their first international operations. However, private firms have limited access in which only SOEs are allowed to invest abroad. The State Economic had the authority to examine and to approve the overseas investment, irrespective of investment size. Besides, China’s government used a caution approach in order to choose the favoring investment to avoid excessive capital outflow. Before 1984, China did not have any regulation to protect the outward FDI. In order to prevent any regulation problem from happening, *Ministry of Foreign Trade and Economic Cooperation* (MOFTEC)

sets up two different directives for the examination and the approval of proposals to establish non-trading companies abroad. In this first stage, China had approved 189 projects with estimated price of 197million U.S. dollar.

Stage Two: Encouragement from Government (1986-1991)

In this phase, China's government has loosened the restrictive policies to encourage firms to establish foreign affiliates. Government has provided incentives to firms that invest abroad such as sufficient capital, technical and operational know-how and a suitable joint venture partner. Besides, government also drafted the standardized regulations to cover the approval process. Consequently, the process was protected by the regulation and managed to avoid any problem which existed. In the second stage, China had approved 891 projects with a cost of around 1.2 billion U.S. dollar.

Stage Three: Expansion and regulation (1992-1998)

China's firms continued to invest abroad because of the encouragement of the domestic liberalization and the impact of Deng's south tour. However, the East Asian financial crisis erupted in 1997 together with the continuously collapse of companies have brought some negative impacts toward China and slowdown the development of the country. After all, government recognized the problems such as loss control over state assets, capital flight and 'leakage' of exchange rate. In the end, the government has tightened the approval procedures and more rigorous control over the process as a step to ensure the China's capital was invested abroad in a productive manner. Before getting referral final approval from MOFTEC, all the projects were examined by the State Planning Commission and valued at one million U.S. dollar or more. Although the individual outward FDI project activities have decreased, the total outward FDI has increased to the amount of 1.2 billion U.S. dollar.

Stage four: The ‘go global’ policy period

In this period of time, the government has implemented the contradictory policies. Government tried to control the unregulated capital transfer and regularized the outward FDI by shifting to the productive investment. The government has specific incentives given for the outward FDI that invested in certain industries. The incentives were export tax rebates, foreign exchange assistance and direct financial support. Moreover, outward FDI promoted the materials export of China including parts and machinery as well as light industry sectors. This encouragement was listed at the 10th five year plan in 2001 which named as ‘go global’ directive. The total approved outward FDI increased by 1.8 billion U.S. dollar.

Stage five: Post WTO period

In the 11th five year plan, the government continuously emphasized more on “Go Global” policy for the firms and economy. The objective of the plan is to encourage outward FDI to improve the international competitiveness of domestic firms and to strengthen the national economy (Sauvant, 2005; UNCTAD, 2006). However, there is a continuation of the restriction on the outward FDI which the government aimed to prevent illegal capital outflow and loss control on state assets. In 2003, private firms were allowed to invest abroad. China’s firms forced to find new markets abroad because they heightened the domestic competitive pressure. Soon, the China’s authorities changed the pre-investment approval procedures to post-investment registration systems.

1.4 Problem statement

In the past few decades, most of the outward FDI was solely contributed by the developed countries due to the large gap between the FDI flow of the developed and developing countries as most of the developing countries were mainly the recipients of the outward FDI. Recently, the trend of the global FDI flow had changed with the rise of developing countries where the volume of FDI from developing countries had significantly increased to become one of the important foreign investors in the world. In spite of this, most of the researches focused on the FDI impact of the developed countries such as the U.S. with limited studies were done on the FDI impact of developing countries. China is one of the largest developing countries that are worth studying which created sufficient intangible assets to become a FDI contributor. Thus, the purpose of this study is to investigate and to provide an overview on China's outward FDI. All the preliminary data would be contributed as one of the example references on the FDI impact of developing countries as well as the stepping stone for the knowledge expenditure on the impact of China's outward FDI on different income level and regions.

China's outward FDI shifted into wide range of countries like different regions and income level countries. Financial offshore center seriously distorts the geographical distribution of China's foreign direct investment and particularly affected geographical areas of destination are Asia, Europe and Latin America (Schüller *et al.*, 2012).

Table 1: Adjusted geographical distribution of Chinese ODFI stocks, 2010 (\$mns)

	Africa	Asia	Europe	Latin America	North America	Oceania
Value	13042	29089	7137	3377	7829	8607
Percentage	18.7	41.7	10.2	5.0	11.2	12.3

Source: authors estimates, using data from MOFCOM 2010 Statistical Bulletin of China's Outward Foreign Direct Investment.

In 2010, 72% of China's outward FDI have shift to Asia, Hong Kong's share was 87% of overall Asia (MOFCOM, 2010). Besides, 14% of China's outward FDI have shift into Latin America for Caribbean tax havens. For example, the Cayman Islands and the British Virgin Islands was 92%. 5% of China's outward FDI have shift to Europe, the share of Luxembourg was 37%. Based on table 2, developed countries like Europe and North America are the second China's outward FDI receiver among regions which is over 20% of overall China's outward FDI in 2010. Both are just behind Asia but ahead of ahead of Africa, Latin America and Oceania. Therefore, Europe is an appropriate representative of the attractiveness of developed countries to Chinese companies on China's outward FDI, even if other regions such as North America or Japan have their own characteristics and advantages to a lesser extent. In addition, Europe's share in the 2000s has expanded. However, there is not much research on different regions or income level. The purpose of this study is to discuss the impact of China's outward FDI in different income level and different regions.

On the other hand, Asia is the most important character of developing countries to China's outward FDI and followed by Latin America and Sub-Saharan Africa. Some researchers showed that China's foreign direct investment is driven on natural resources seeking to support its own growth. (Sindzingre, 2011; 2013). However, Chinese investors also strongly support on construction and infrastructure sectors (Pairault, 2013) and concentrate on the manufacturing and service sectors for host country. Chinese investors are not only rely on natural resource seeking motives, but they improve on market access for domestic markets of host countries or other markets. They also improve the efficiency of the production line mostly in labor intensive sectors

During the early transformation of China, the China's government has implemented the "Open Door" policy which has attracted large amount of FDI flows into China. As China continued to expand, the inward FDI further increased the FDI flows drastically and attracted numbers of academicians, researchers and

policymakers reviewing on different forms of the China's inward FDI (Fung, Garcia-herrero, Iizaka & Siu, 2005). However, the impact of China's outward FDI has yet been studied particularly. The impact of China towards host countries as China continued to expand it even attracted worldwide interest, concern and controversy yet. Some countries continued to doubt on China's outward FDI due to the lack of the empirical literature reviews to conclude on the positive impact of China's outward FDI.

Literatures had shown the outward expansion of China's firms and the outward FDI case studies, yet limited studies were done on the impact of China's outward FDI toward the host countries (Taylor, 2002; Wong & Chan, 2003; Deng, 2003; 2004; Liu & Li, 2002; Warner et al., 2004; Zhang & Filippov, 2009). Although some researchers reviewed on the China's FDI on specific countries such as Germany (Schuler-Zhou & Schuller, 2009), Italy (Pietrobelli et al., 2010), United Kingdom (Cross & Voss, 2008; Liu & Tian, 2008) and even studies on particular industries particularly automotive sector namely Amighini and Franco (2011), limited studies were done on the impact of China outward FDI toward a number of countries as a group.

Moreover, this research focused on the period from 2003 to 2009 for China's outward FDI because China's outward FDI increased dramatically during this period and became the most important source of FDI for not even developing and also developed countries too. In the 1990s, China's outward FDI remained low and it began at the beginning of the millennium and accelerated in 2004. Outward FDI increased over fortyfold from 2004 to 2010, and is expected to become one of the most important sources of FDI among the world (figure 1). This change was urged by two important policies. First, China has attached with the World Trade Organization in 2001. Second, China government implemented 'go global' policy in late 1990s in order to help outflow investments in a wide-ranging of industries (Salidjanova, 2011). This policy was implemented in 2004 when both the

influential National Development and Reform Commission and China EXIM Bank is strongly support outward FDI in particular areas linked to the needs of the China economic growth. As such, the choice of this period of analysis would better capture the full capacity of growth-impact of China outward FDI on the rest of the world.

In addition, limited data collection of the newly implemented outward FDI was available which some researchers (GLAEconomics, 2004; Amighini et. al. 2011; Gammetoft & Tarmidi, 2011) presumed the overall FDI or projects invested abroad as the pool of data, these data may not be accurate and lack of control over the data quality as these were not the official data generated by the China government. Overall, novelty of this study will be examining the impact of China's outward FDI on the economic growth of the developing and developed countries as well as the impact towards different regions of countries as a group in general by mainly using the China's outward FDI as the source of data.

1.5 Research Objectives

1.5.1 General Objectives

The aim of this study is to investigate the effect of China's outward foreign direct investment (FDI) on host countries for the period of eight years namely from 2003 to 2009.

1.5.2 Specific Objectives

The specific objectives of this study are:

1. To examine the effect of China's outward foreign direct investment on the economic growth in a panel of 91 developed and developing countries.
2. To investigate the impact of China's outward foreign direct investment on the economic growth in different regions.

1.6 Significance of Study

In most of the literature reviews, findings usually focus on the FDI amongst the developed countries. Researchers mainly emphasize on the inward FDI or the impact of inward FDI in developing countries especially China. However, FDI from the developed countries declined led to insufficient FDI for the recipient countries and with the uprising competitive power of China in the global trade and investment, China plays a crucial role in the world economy with the country's outward FDI as a new source of FDI. Besides, China's outward FDI provides low interest rate for the recipient countries, which minimizes their cost and encourages the investment of the countries. Therefore, the first reflection in these phenomena is crucial to determine whether the focus remains the inward FDI or shifting into outward FDI particularly for researchers and policy makers. Hence in this study, it serves as the initial fundamental step to understand China's outward FDI which is the core novelty of this report. In addition, policy makers and foreign governments have limited information about China's outward FDI and fear that China's outward FDI will harm their economies badly. As a result, this study is useful to examine the impact of the China's outward FDI that could help in understanding China's outward FDI on host country

Besides, China's outward FDI is a new topic for the China's government, in which, government did not have any complete rules and regulations, researches and guidelines on the outward FDI policy implementation. Therefore, the significance of this study could be used by the China's governments as a forecast toward the trend or to allocate of the outward FDI on the potential country. Based on the forecast, China could implement effective policy for her future outward FDI to encourage the domestic firms to invest abroad, thus it could help increase the outward FDI on the productive investment. Although the outward FDI recently remained low, it has the potential to grow sharply.

1.7 Outline of research

This study separates into five different chapters. Chapter 1 is to highlight on the overview and also the problem statement encompassing with the issue related in this study, the background as well as the objectives. Chapter 2 will focus more on the literature review with some previous empirical studies on the related issues. Chapter 3 outlines the theoretical framework, econometric models and methodology applied in the study. Chapter 4 presents some discussions and analysis of the empirical results that obtained based on the estimations. Chapter 5 will draw a conclusion on the overall study including policy implications, limitations of the study and recommendations for future studies.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction of China's Outward Foreign Direct Investment

In the early stage of economic transformation, China faced the problem of insufficient capitals as well as technology in the domestic production and economy. However, the situation changed dramatically with the problem solved and the economy has recovered because of the Open Door policy which was implemented by the China's government. This policy encouraged market forces which promoted foreign trade and economic investment.

When come to 1990s, outward FDI was introduced by few researchers (Zhan, 1995; Wang, 2002; Child & Rodrigues, 2005; Buckley et al., 2007; Alon & McIntyre, 2008). Prior to that, the outward foreign direct investment of China just remained at small volume as compared to inward FDI and gross domestic production. China's government and researchers did not concern about the outward FDI because it has less impacts on the China's economy and global market. Most of the researchers involved in the China's inward FDI. However, China's investment trend started to change in 2002 because of the implementation of "Going Global" policy. This policy is very important in the development of China's outward FDI because it started to encourage China's firms to invest

abroad. For example, China's outward FDI raised sharply from 33 billion U.S. dollar in 2003 to 147 billion U.S. dollar in 2008. Rosen and Hanemann (2009) showed that China's outward FDI has reached significant levels to challenge the international investment norms and this has indeed, affected the international relations.

In the middle of 1990s, the researchers started to analyze China's outward FDI by different growth model (Zhan, 1995; Wang, 2002; Child & Rodrigues, 2005; Buckley et al., 2007; Alon & McIntyre, 2008). These studies generally focused on the regulatory framework and the effect of institutional on outward FDI growth, sector patterns, geographical distribution, and the investment motives of China's companies (Zhan, 1995; Wang, 2002; Taylor, 2002; Hong & Sun, 2004; Wu, 2005).

While in the late 1990s, researchers started to concern about China's economy because economy and trade of China increased dramatically and strongly related to the global market. Researchers have focused their studies on specific areas of China's outward FDI. These areas are analysis of the trend and impact of China's outward FDI at the macroeconomic from the viewpoint of host country (Erdener & Shapiro, 2005; Buckley et al., 2007; Buckley et al., 2008; Cross et al., 2007; Cheung & Qian, 2009) and home country (Liu et al., 2005; Morck et al., 2008; Tolentino, 2008) as well as determinants and motivations of China's outward FDI with various strategies at microeconomic level (Wang & Boateng 2007; Buckley et al., 2008; Rui & Yip, 2008; Deng, 2004, 2007).

2.2 Motivations of China's outward FDI

In the early stage, many researchers had focused their studies on the motivation of the outward FDI and factors that pushed China's firms and investments to go abroad. There are four important factors to attract China's firms to invest abroad or to determine the outward FDI. There are market-seeking, natural resource-seeking, efficiency-seeking and strategic asset-seeking FDI. Referring to UNCTAD (2006), the first three factors can directly affect the investment of MNCs from emerging economies in developing countries. However, the remaining factor would take the advantage of their investment in technological advanced countries.

In addition, Dunning (1977, 1993) showed that traditional theory has three main motivations of FDI such as market seeking, efficiency seeking and resource seeking. The traditional theory analyzes the foreign investment from developed country. However, it is more applicable to analyze the specialized motivation on developing countries. Subsequently, Dunning (1993) improved the traditional theory by adding the strategies asset seeking as one of the motivations, as this could cover up all the motivations related to the effect of outward FDI in both developed and developing countries. Dunning (1993) has listed four main motivations that provide the impetus for foreign-owned production (Dunning, 1998; UNCTAD, 2006):

- 1) Resource-acquiring FDI that aims at acquiring and accessing the natural resources in host countries.
- 2) Market-expanding FDI that enlarges the domestic sales and productions in the host and international markets.
- 3) Efficiency-improving FDI that enhances the productivity by minimizing the trading barriers and acquiring the inexpensive production inputs abroad.

4) Strategic asset-seeking FDI that acquires localized advanced technology and knowledge base.

Furthermore, Deng (2004) examined on China's outward FDI and showed that there are five motives of China's outward FDI, which are resources seeking, technology, market seeking, diversification and strategic asset seeking.

2.2.1 Market seeking

The larger host market, the more FDI will be attracted. UNCTAD (1998) showed that market size is a significant determinant of FDI flow. With the regard to market seeking investment, the fundamental problem is market size of host country. However, China's case speculated that outward FDI will be transferred into rich countries to supply market demand is ambiguous because its competitive advantage is low production costs derived from its low labor costs. On the other hand, exports may lead to market seeking investments in developed countries. For developing countries, the market seeking motive is more suitable since labor production costs are low. While the market size increases, it will increase the opportunity for the utilization of resources efficiently and the exploitation of economies of scale and scope via FDI. Host country's GDP is generally recognized as a significant determinant of FDI flows as researchers agreed that there are more opportunities exist for foreign investors if the markets are at a large sized (Chakbarti, 2001). Therefore, FDI flows and market size are positively associated.

Apart from this, many researchers have different opinions on this finding. Some researchers (Taylor, 2002; Zhang, 2003) supported the notion that larger volumes of FDI are expected to be received by larger countries. This is true if the

outward FDI is market seeking, which China's MNEs acquisitions of international companies with an applicable distribution network and brand name in developed countries as necessary steps that aim for a larger share in the market (Cheng & Stough, 2007). This activity may continually be directed towards large markets due to the rise of offensive market-seeking motive driving China's MNEs (Taylor, 2002; Zhang, 2003; Deng, 2004; Buckley et al., 2007).

Buckley et al. (2007) found out that there is a positive relationship between China's outward FDI and market size. The result showed that the market size is a significant determinant of China's outward FDI and will enhance the market seeking theory. On the other hand, Liu et al. (2005) found that the magnitude of China's outward FDI in the long run is affected by market size. Liu and Tian (2008) also showed that the motivation of China's MNEs in UK is market-seeking.

However, Cross et al. (2007) and Buckley et al. (2008) discovered a conflicting finding and concluded that there is a negative relationship between China's outward FDI and market size. On the other hand, Cheung and Qian (2009) found that annual flow of China's outward FDI is not significantly related to market size in developing countries, but there is a positive relationship in developed countries. Cheng and Ma (2008) investigated China's outward FDI by using different dependent variables as well. They found that the annual flow of China's outward FDI is positively related to the host market size, but the stock of China's outward FDI is negatively associated with market size of the host country.

2.2.2 Natural resource seeking

For natural resources, most of the studies have the similar result, which is the positive relationship between natural resource endowments of host country and China's outward FDI. The literature concerns on the China's limited resources accelerate economic growth and high commodity prices as tools of natural resources seeking investments. The natural resources seeking investment located mostly in the developing countries that have rich resources such as Middle East, Latin America and Africa. On the other hand, China also shifts her resource seeking investments into some of the developed countries like Australia and Canada.

The economic growth of China has increased dramatically over the past decade and this has contributed to the insatiable demand for raw materials and other inputs in many sectors. One of the most important motivations for China's outward FDI is to ensure ongoing supply of inputs (Ye, 1992; Zhan, 1995). Many studies suggested that the access of coal and iron along with other natural resources have contributed to China's preference to invest in natural resource rich countries (Cheng & Ma, 2008; Deng, 2004; Hong & Sun, 2006; Morck et al., 2008). Other key sectors include minerals, petroleum, timber, fishery and agricultural products (Cai, 1999; Wu & Sia, 2002).

Buckley et al. (2007) found out that the natural resource endowment of host country is a significant determinant of China's outward FDI. Buckley, et al. (2008), argued that most of the China's investment in some industrialized countries is resource seeking, such as Australia and Canada. Internationalization theory asserts positive association between the natural resources endowment of country and China's outward FDI due to the importance of equity-based control in the exploitation of scarce natural resources (Buckley & Casson, 1976). There is also growing evidence, which focuses on the development of new markets and the

raise of brand awareness. China's enterprises are now investing abroad for offensive market-seeking reason (UNCTAD, 2003)

The substantial amount of China's funds shift into resource-rich locations, like Africa, the Middle East, Asia and Latin America underscored by the emphasis on tapping into natural resources (Gao, 2009). Hong Kong, British Virgin Islands, Cayman Islands and Australia are the four largest China's outward FDI destinations (MOFCOM, 2008). For example, China National Petroleum Corp. (CNPC) purchased Petro Kazakhstan headquartered in Canada on 2005 and co-operate with Sinopec jointly purchased EnCana's (Canada) oil assets in Ecuador (UNCTAD, 2006).

However, Kolstad and Wiig (2009) also showed that the relationship between natural resource-seeking and the institution of the host country are negatively related to each other, namely the more China's investment is attracted by natural resources, the worse it would happen to the institution in the host country. Conversely, the more natural resource of a host country has, the more likely that the China's outward FDI attracted by the poorer institutions. On the other hand, Bhaumik and Co (2009) found that there is a positive relationship but the impact was too small to affect the economic growth. Cross et al. (2007) and Buckley et al. (2008) showed that China's outward FDI is not significant with the endowment of natural resources. Cheung and Qian (2009) found the opposite way of the study of Buckley et al. (2007). He found that the natural resource endowment of host country is not the significant determinant of China's outward FDI.

2.2.3 Efficiency seeking

For efficiency seeking investments, investors seek for lower cost places for their production line to minimize their costs, particularly in the low skilled manufacturing industry. However, the research did not examine this possibility because it is less important for China. Efficiency seeking exists when MNEs with comparative advantages in economies of scale and scope find the low cost location or countries to globalize their business like relocating their production and operation activities (Dunning, 2001). Some MNEs solve the problem of high labor costs with efficiency seeking. For example, Nike has relocated the production line from China to Vietnam because of the labor costs in Vietnam are lower than in China (Gao, 2009). China's MNEs may invest in some developing countries that can provide lower labor resources. Therefore, China's MNEs relocate their mature, low-tech and labor intensive production skills to less developed or developing countries. It is because the wage rate of China is keeping increasing and those countries will provide with abundant and cheaper labor (Cheng & Stough, 2007).

However, Buckley et al. (2008) found that efficiency seeking motive may become more significant in the future. Cheung and Qian (2009) added the ratio of host country wages into their researches on China. They found that the outward FDI is significant with negative coefficient, particularly for developing countries. This means that looking for low labor cost is an important tool for China's outward FDI to less developed countries. China's firms continue to globalize their business into international markets and gain advantages from regional integration. Eventually, efficiency-seeking FDI become more common for China's MNEs (Buckley et al., 2008).

2.2.4 Strategies asset seeking

Strategic assets are not only focus on technology, it also includes the brands, reputation, design, organizational, marketing and managerial skills, process know-how or improved access to establish distribution channel. It is one of the most important reasons for the increment in China's outward FDI is the strategic asset seeking investment motive. China's firms have few ownership advantages and attempt to receive those benefits from FDI.

There are few researchers involved in strategies asset seeking (Kogut & Chang, 1991; 1996; Blonigen, 1997; Belderbos, 2001; Branstetter, 2000). China's outward FDI has been directed to the acquisition of information and knowledge particularly on how to operate internationally (Ye, 1992; Zhan, 1995; Buckley et al., 2007) in the 1980s. Expressed goal of state-directed China's outward FDI has opened up the access to advanced proprietary technology, immobile strategic assets (e.g., brands, local distribution networks) and other capabilities abroad in recent years (Taylor, 2002; Deng, 2003; Zhang, 2003; Warner et al., 2004), through both Greenfield entry and acquisition. China's MNEs would direct such asset seeking outward FDI as an expectation towards the economies with a significant levels of human and intellectual capital, in particular industrialized countries, it would be able to help them to strengthen their competitiveness elsewhere (Dunning, 1998; Dunning, 2006).

China's firms have made many acquisitions, especially in Europe and the U.S., to be involved as a target company that was ailing or insolvent. Recently, many China's firms started to invest abroad because they have intention to improve their disadvantages in terms of technology, skills and knowledge on their productions, to obtain brands, new and advanced management skills and to involve in the local knowledge pools (Amighini et al., 2011; Hong & Sun, 2006; Luo et al., 2010). Besides, Romer (1990) found that the technological change has

become an important factor for long-term economic growth. The technical progress and innovation have strongly affected the expansion of many intermediate goods available in the market. The continuous innovation activities have maximized the return in the long run and have sustained growth in the economy.

Hu (2013) used the ratio of research and development to host countries as proxy and found that there is significant but negative effect of strategic asset seeking motivation. There is no evidence to show that outward FDI of China is strategic asset seeking motivations in, which the studies on outward FDI of China in Europe stress (Cross & Voss, 2008; Liu & Tian, 2008; Pietrobelli et al., 2010), particularly association to the white good sector (Bonaglia et al., 2007) and China's MNCs like TCL, BOE, Haier and Lenovo (Li, 2007; Liu & Buck, 2009). Buckley, et al. (2007) and Kolstad and Wiig (2010) also found that the relationship between Chinese OFDI and strategic asset seeking is positive but insignificant.

2.3 The Effect of FDI

Many researchers argued about the relationship between FDI and economic growth for many years, but the conclusion is yet remained as ambiguous. Brems (1970) used the Solow-type standard neoclassical growth model and found out that FDI affects the financial capital formation and promotes the capital stock as well as the growth of host country. FDI brings a “short run” growth effect to the host country because of the diminishing returns to capital in the neoclassical growth models. The impact of FDI on growth is identical to domestic investment. Besides, FDI is more productive than domestic investment because FDI transfers the new technologies into host country’s production line (Borensztein et al., 1998). The technological transfer by FDI will overcome the impact of diminishing returns to capital and lead a long term growth in the host country. FDI also encourages the existence stock of knowledge by labor training and skill acquisition. This will lead to the long run growth in host country on the endogenous growth models. Therefore, FDI is an important role for economic growth.

Besides, FDI leads growth mainly through capital, technology and knowledge that it shifts to the host country. FDI will raise the existing stock of knowledge in the host country by labor training, skill transfer, and new managerial and organizational practice transfer. Besides, FDI also encourages domestic firms to use more advanced technologies through capital accumulation in the domestic country (De Mello, 1997; 1999).

Besides, Blomström et al (1994) found out that the ratio of FDI inflow to GDP is positively related to the economic growth of host country. Hayami (2001) as well as Todaro and Smith (2003) showed that FDI is positively related to the development of country which are generally noted as filling the gap between

desired investment and domestically mobilized saving, raising the tax revenues and improving the management, technology and labor skills in host countries. These could be an improvement step toward the economy of the country by breaking the vicious cycle of under-development (Hayami, 2001). Although there are few researchers (Lipsey et al, 1994; Epstein, 1999) believed that the subsidies and tax breaks given by the host country in foreign investment have reduced the revenue of the government, foreign investment has potentially brought up improvement on other sectors such as education and infrastructure which would eventually boost up the economic growth of the country thus raising the total welfare of the host country.

Apart from that, FDI is able to enhance the labor productivity and the gross domestic production of the host countries. Blomström (1986) along with Blomström and Persson (1983) have found out that with the extent of foreign presence in the local market, it has positively influenced the labor productivity in domestically owned firms. Blomström and Wolff (1994) proved that as the number of foreign shares in the industry increases, this would lead to higher productivity growth on the domestically owned firms. Globerman (1979) who concerned with the labor productivity over the differences across Canadian industries showed that FDI brought a spillover benefits for local firms. Imbriani and Reganati (1997) who studied about the labor productivity on Italian manufacturing in 1988 have also concluded that foreign shares in employment has a positive correlation with the revenue per employee in local owned firms across all industries.

FDI also bring large impact on the living standard of host country. Some researchers argued that outward FDI can improve the living standard by offering high wage rates to domestic employees. Hence, the overall wage rates of the host country will be improved by outward FDI. Blomström (1986) found that the wage rate of MNCs is 25 percent above than domestic firms in Mexican manufacturing

industries in 1970. Similarly, Hill (1990) and Manning (1998) showed that the wage rate of MNCs is higher than those domestic firms in Indonesia. Lipsey and Sjöholm (2003) used the establishment data for Indonesia and found that the wage rates of MNCs are 50 percent higher than private domestic firms on manufacturing sector in 1996. Ram and Zhang (2002) showed that FDI enhanced the economic growth in the host country. Bengoa and Shancez-Robles (2003) found that FDI affected the Latin America economic growth positively, given free financial markets and economic stability in the host country. Hermes and Lensink (2003) and Alfaro et al. (2004) showed that if host country has a sufficiently developed financial system, FDI can positively affect growth of host countries. Kottaridi and Stengos (2010) showed that the FDI inflows have a non-linear effect on economic growth and normally provide growth in developing countries.

Other than that, some researchers showed that the employees that work in foreign companies may not receive higher payment, but worsen than the local wage rates. It will harm the development of the host country because the living standard of the host country become worse and residents do not have sufficient money to support their normal needs. Girma et al. (2001) study on the wage spillovers to domestic firms in their U.K. firm data set from 1991 to 1996. They found that there is an overall spillover effect on wage levels and a small negative effect on wage growth. Aitken et al. (1996) showed that there were no spillovers or negative spillovers to domestic firms in Mexico and Venezuela.

However, Aitken and Harrison (1999) found that there is a negative effect of outward on productivity of Venezuela in upstream industries, but the downstream industries are positively related to outward FDI. Braconier et al. (2001) has a contrasted result with Navaretti and Castellani (2004). He investigated on the effect of outward FDI on domestic productivity. They found out that the FDI does not have a strong evidence to affect the productivity gains by using the firm and industry level panel data for Sweden. Herzer et al. (2008)

found that no countries have the positive, un-directional effect of FDI on economic growth. Beugelsdijk et al. (2008) also showed that there is no positive relationship between FDI and economic growth in the developing countries. Nicet-Chenaf and Rougier (2009) found that FDI does not lead to economic growth. FDI may only enhance growth indirectly by human capital formation. In the study by Durham (2000), he found that Zimbabwe and Zambia are negatively affected by FDI.

Furthermore, the competitiveness on market has positive impacts on the host country. The domestic firms will improve their products to increase their competitiveness, rather than losing their market shares. However, it is difficult for small firms to compete with the multinational enterprises because MNEs have strong competitiveness power to control the price of the products, whereas, for the small firms can only follow the price fluctuation. The firms that fail to defend themselves in this competition will lose their market shares and take over by the foreign products and firms. Apart from this, domestic firms also worry about the foreign firms pull out their investment from the host country and transfer the profit gained back to home country. The foreign firms do not reinvest their profits into the host country to improve the productivity or infrastructure of the host country. It may harm the host country economy badly because this will affect the host market which has lack of capital flows. Additionally, the FDI may have less impact on the host country, which may be little or has no effect on the economic growth. Durham (2004) found that there is no positive impact of FDI on growth. Carkovic and Levine (2002) used the GMM panel analysis found that FDI does not exert employ an independent influence on economic growth.

Many researchers started to examine on FDI in more specific ways recently. They separated FDI into inward and outward and tested on their impacts. In the early stage, many researchers just focused on the inward FDI, but they had shifted their area from inward to outward in 1990s. Outward FDI becomes an

important factor on the economic development. Many researchers argued about the impact of outward FDI on the economic growth (Globerman et al., 2000; Kokko, 2006). Some researchers found out that outward FDI is negatively or not related to economic growth (Herzer, 2010; Lee, 2009).

2.4 The Impact of China's Foreign Direct Investment

China's outward FDI will create a large number of jobs by transferring funds into the European economy. Greenfield project generated new job opportunities for host counties, and acquisitions is to save company from collapsed (Hanemann & Rosen, 2012). According to a report released by the Rhodium Group in June 2012, 428 greenfield projects in its 2000-2011 provide approximately 15,000 new jobs, excluding employment in small companies which is less than \$1 million. According to the China Ministry of Commerce database, the total employment of all Chinese companies in Europe is around 89,489 at end of 2014. Hanemann also expects that between \$25 billion and \$500 billion in new investments by 2020 will provide a large number of jobs in Europe. China's investment in the EU also support the European countries which are lack of capital and investment needs (Brennan, 2010). The slow economic growth in Europe and the Greek crisis have led to a shortage of capital in many European countries. Therefore, China's foreign direct investment is important, especially during the period of fiscal austerity and austerity (Jiang, 2013).

Foreign direct investment in the EU can enhance productivity and assist European firms enhance market share and competitiveness (Jiang, 2013). For example, after being acquired by China's Sany Heavy Industry, Putzmeister can use Sany's global market network enhance sales of its high-tech concrete pumps. Although China's foreign direct investment in Europe is relatively small, China's

foreign direct investment has attracted widespread attention from European policymakers and the media because of its recent landmark cross-border mergers and acquisitions (Clegg and Voss, 2011). According to Geely's case study, the expansion of Chinese companies into the European market is a process of gradually integrating strategic alliances. Geely tried to catch up with technology through European acquisitions. Chinese companies investing in developed countries are driven by the attractiveness of large markets and asset appreciation. Strategic alliances and acquisitions help Chinese companies improve their international capabilities.

China's investment in Africa involves in different industries, allocating many advanced technologies to promote and help alleviate widespread poverty in Africa by increasing per capita income and improving overall living standards (Cheung, 2012). There is no doubt that China has contributed to Africa's economic growth in terms of trade and infrastructure improvements. China's aids and economic cooperation in Africa do not depend on any particular political or economic conditions, such as democracy, market openness or human rights (Tull, 2006; Yetiv & Luo, 2007). Faced with a shortage of 20 billion U.S. dollars in infrastructure construction due to a shortage of financial resources, this can be supplemented by China's global strategy and infrastructure advantages (Global Times, 2015).

China also invest heavily in construction on Africa, such as roads, bridges, stadiums and even government buildings (Burke, 2013). African Union Headquarters is one of the most important political buildings in Africa and is built entirely by Chinese funds which is estimated over \$200 million (Adisu, 2010). Investments from China are unconditional, which makes it highly valuable and important compared to Western countries (Jafrani, 2012). China also supplies human capital and new technologies to help the development of Africa. Advanced machinery and high-tech products are continuously supplied to Africa, and

Chinese professionals also provide training for the African workforce. In terms of skills transfer and development of human capital, China trained 16,000 African professionals from 2010 to 2014. It is planned to train another 20,000 people between 2015 and 2018 (Ayodele & Sotola, 2014). Former Chinese President Hu Jintao disclosed an expanded aid program in 2012, China will provide 18,000 government scholarships by 2015 and train 30,000 Africans in different sectors (Jing, 2013).

Africa also benefits from concessional loans from China's banks. China's rapid investment also improve local living standards. Chinese products are more suitable for Africa's needs because prices are usually cheap and easily affordable to a large number of people (Lieng, 2012). As a result, competition has intensified, which has lowered the prices of other suppliers. For example, computers were considered expensive product in African countries. However, currently most Africans are able to afford it because China supplies cheap computers. China has helped push prices down to the level of ability of many people. Like other African countries, China's foreign direct investment is focused in sectors where energy, mining, fisheries and forestry are particularly vulnerable (Shinn, 2015).

CHAPTER 3

METHODOLOGY

3.1 Introduction

Total factor productivity is represented as the variable which accounts for changes in economic output not because of changes in factor inputs. This is defined as factor of the economy's "aggregate production function" in the Solow growth model (Solow, 1957):

$$Y = AL^{SL}K^{SK}$$

Where:

Y is output or GDP;

A is Total Factor Production;

K and L are capital and labor inputs accordingly; and

SK and SL are the income shares of capital and labor accordingly.

In the Solow equation, the rise in A (*ceteris paribus*) brings on boost in output. Many economists (Romer, 1986; Greenwood, Hercowitz & Krusell, 1997; Lucas, 1988) define this growth in A as total factor production or technical improvements that acknowledge for gross domestic production growth without any increment in equivalent labor or capital. This could be through any type of improvements in basic technology, for example production methodology improvement (Aghion & Howitt, 1998) or a decline in per unit costs (Harberger, 1998)

3.2 Foreign Direct Investment, Trade Openness and Firm Total Factor Productivity: A Theoretical Framework

To examine the effects of China's outward FDI on the economic growth in developed and developing countries, this study takes the concept of Hu et al.'s approach (2005) for the model. The study posits that economic growth on developed and developing countries, the output emerges according to a production function augmented with many inputs that countries used. For country, i at time, t :

$$Q_{it} = A_{it} K_{it}^{\alpha} L_{it}^{\beta} H_{it}^{\gamma} \quad (1)$$

where Q_{it} is economic growth, A_{it} is total factor productivity, K_{it} is the stock of capital, L_{it} is the stock of labor, and H_{it} is the stock of human capital.

In the approach of Hu *et al.* (2005), he used A_{it} to test the effects of technology transfer to the output. They assumed that the total factor for productivity is a function of country level trade openness with China and firm FDI. Imitation (Glass & Saggi, 1999) through the reverse engineering (Hu *et al.*, 2005) of products and capital goods they realized that is either through FDI or through trade which is one of the ways of technology transfer and allowed by the parameterization of A_{it} .

Besides, the trade openness can capture the idea of knowledge spillovers created by trade possibly (Findlay, 1978; Bin & Wang, 2000; Keller, 2004). Trading normally helps to set up and support the cross-country communications. It will provide the cross-country on the learning of production methods, product

design and organizational methods (Keller, 2004). Those methods can efficiently improve the total factor productivity for firms.

Moreover, trade is an important variable in many studies. For example, World Bank (1993) showed that the countries have moved forward to globalization and more open to the global exchange of goods and services as well as technologies. The more open these countries are, the more significant the growth rate would be. Many researchers believed that the East Asian countries had enjoyed dramatic growth in economic development in the past 50 years because of the countries taking part in the international economy. Ricardo (1817) suggested that trading will bring possible profit to the countries. These profits stem from the specialization in their production by having an international trade. If countries specialize on their comparative advantage, it will improve the resource allocation. Furthermore, it also can improve the efficiency of production because of the resources that used for the production have transferred to country with better productivity. Therefore, there is an improvement on all the trading countries. However, there is only a level-effect in consumption possibilities.

Our specification of total factor productivity (TFP) for firm, i at time, t is:

$$A_{it} = \exp (\delta_0 + \delta_1 \tau_{it} + \delta_2 \varphi_{it} + \delta_3 \tau_{it} * \varphi_{it} + \delta_4 G_{it} + \delta_5 \ln f_{it}) \quad (2)$$

where τ_{it} is China's outward FDI for country, i at time, t , φ_{it} is a measure of country-level trade openness for country i at time t , G_{it} is measure the government spending for country i at time t , $\ln f_{it}$ is the measurement of the inflation for country, i at time, t and β_0 is a constant. The total factor productivity is characterized as A_{it} . The total factor production allows us to capture the effects of trade openness.

This study also includes the government spending and inflation into the total factor production because both also have significant impacts on the productivity of the country. Knight et al. (1993) studied about the economic growth equation of the general form and found that overall economic efficiency (TFP) is significantly and positively affected by the degree of openness to foreign trade and by the level of government investment in the economy. Besides, Li (2006) showed that there is a significant relationship between total factor production and inflation. Therefore, the study includes the government spending and inflation to examine the economic growth of the host country to avoid the miss-specification error existence. Solow (1957), Prescott (1998) and Hall and Jones (1999) found that economic growth are significant affected by the total factor production, with the accumulation of physical and human capital performing only a subsidiary role. Besides, Beck et al. (2000) used more recent dynamic panel data techniques and found that financial development enhances the economic growth mainly by stimulating total factor productivity. We are using quantitative aspect of the manpower because labor mobility is an important tool by which future manpower needs can be estimated. It provides statistical information on how many employees leave and join the organization during a specific time period. The artificial flow rate is calculated by applying a separation method, an alternative method, and a flow method.

As our interest mainly focus on the extent to which outward FDI of China affecting the economic growth on developed and developing countries. Hence, the study substitute the total factor production, A from the equation 2 into the equation 1. In the equation 2, it includes two control variables that are inflation and government spending which have the power to affect the total factor production and the economic growth of the host country. Besides, equation 3 does not include human capital because this is overlapping with the labor variables, as to avoid any overlapping data problem to exist.

$$\ln Q_{it} = \delta_0 + \delta_1 \ln \tau_{it} + \delta_2 \varphi_{it} + \delta_3 \ln \tau_{it} * \varphi_{it} + \delta_4 \ln G_{it} + \delta_5 \ln f_{it} + \alpha \ln K_{it} + \beta \ln L_{it} \quad (3)$$

3.3 The selection of dependent and explanatory variables

As explained in equations 3, few explanatory variables in this study are important to explain the economic growth of host country. These variables had chosen by other researchers and found that the variables are significant with the economic growth in their studies.

3.3.1 Dependent variable – Economic growth

Gross domestic product (GDP) is a very common dependent variable to explain the economy status of host country in the study. Some researchers used GDP as the dependent variable because it can estimate the impact on the economy of host country easily. However, this study uses the log of GDP as the dependent variable and not GDP because GDP gap between large and small country is very large, it might have error occurred in the result obtained. Hence, this study used log the GDP to avoid the error occurred and the result is more convenience and suitable. It is because the different between large and small countries on the log of GDP is less. The panel data set for the proxy of GDP in U.S. dollar can get from World Bank's Development Indicator database.

3.3.2 FDI outflows

This study measures the stock of FDI by using China's outward FDI on each country. Some researchers may use the overall FDI or the project invested abroad to explain on the outward FDI. Besides, there is also empirical studies used the balance of payment or amount investment abroad approved by China as proxy of China's outward FDI. However, these proxies do not exactly estimate the effect of China's FDI. There are limited studies that use China's outward FDI on each host countries as the proxy of China's outward FDI. There are limited researches included China's outward as variable because of the data consist of paucity problem. Prior to that, China started to publish the outward FDI data in the statistical Bulletin of China's outward FDI by MOFCOM of the People's Republic of China. Before 2003, China did not have any standard format or way to recode the data of outward FDI, so the outward FDI data is not available. Eventually, the relatively short sample period makes it difficult to analyze in this research. Therefore, China's outward FDI on each country used as the proxy because it can capture the effect of China's outward FDI on every single host country. Therefore, this study uses China's outward FDI that generated by the government of China seems to be more suitable. The data examine China's outward FDI are focusing on the accuracy of the approved data. The approved outward FDI data are different from the contracted or realize outward FDI data, which exclude investment that unapproved.

The approved data published by the Ministry of Commerce and the Ministry of Foreign Trade and Economic Co-operation in the annual publication "2009 Statistical Bulletin of China's outward Foreign Direct Investment". The Bulletin has reported outward FDI data from 2003 to 2009. Thus, the approved data shows the volume of China outward FDI to each country, in which other databases are not available. The data of China' outward FDI is from Ministry of Commerce (MOFCOM), the department responsible for the approval and

administration of outward FDI in China. Wong and Chan (2003) showed that MOFCOM recodes every approved overseas investment project, including destination country, total volume, industrial sector and others. The panel data set for the proxy of China's outward FDI in U.S. dollar can be obtained from MOFCOM. Subsequently, the study needs to log the outward FDI data because the FDI flow gap between less developed and developed countries are huge to minimize the difference between small and large countries to avoid error exists in the result.

3.3.3 Trade openness

Trade openness is widely used for the researchers to examine the economic growth. The opening of foreign direct investment is attractive to foreign direct investment (Agosin and Machado, 2007). Therefore, tax policies are an important driver of foreign direct investment, they are attracted by lower corporate taxes and higher productivity (Razin and Sadka, 2007 is an OECD country). Similarly, trade policies, such as trade liberalization, play a crucial role in promoting foreign direct investment or other policies such as the establishment of export processing zones. Trade liberalization promotes inward investment: where trade and foreign direct investment can be seen as complementary.

Economic growth depends on foreign direct investment rather than improved productivity (Levine & Renelt, 1992). On the other hand, a study found that with the government intervention, it encourages the domestic investment along with comparative advantages rather than liberalization in which may bring the long run economic growth (Grossman & Helpman, 1991). In addition, trade openness can increase the market size. This will allow the economy to capture the potential benefit from economies of scale and specialization (Ades & Glaeser, 1999; Alesina et al., 2000; Romer, 1989; Bond et al., 2005).

Many studies have been conducted by using different proxy to measure trade openness and different proxy may have different impacts to economic growth. Most of the studies used trade share that is imports plus exports to GDP ratio (Calderon et al, 2006). Trade share has shown a positive and strong relationship along with economic growth (Harrison, 1996). Anderson and Neary (1992) used a 'trade restrictiveness index' to measure the relationship between trade openness and economic growth. This index tried to combine the effects of both tariffs and non-tariffs barriers. However, it is only available for a small sample of countries.

According to Romer (1993), imports to GDP ratio may be a better proxy for trade openness as the restriction on the imports may refer to how a country opens the market to rest of the world. In this study, the import and export per nominal Gross Domestic Product (GDP) is used as the proxy for trade openness because the data set of the export, import and nominal GDP are easily to get and examine the impact of the trade openness well. Although there are many variables can efficiently test on the impact of trade openness, the data set is difficult to find and not readily available for public user. For example, the data of import and export on the bilateral trade with China. The panel data of export and import can be retrieved from World Bank's World Development Indicator database and the nominal GDP obtained from International Monetary Fund.

3.3.4 Interaction between FDI and Trade openness

The relationship between trade and foreign direct investment is considered to be at the heart of this integration process. Therefore, the impact of foreign direct investment on trade has been heatedly debated in the macro-level literature as it provides information on the international specialization and general welfare effects of the country. At the same time, at the micro level, the decision to expand the market includes a combination of trade and foreign direct investment, as well as factors such as economies of scale, trade costs, market access and factor endowments. There is a common question whether trade and foreign direct investment is complements or substitutes. Overall, the new trade theory suggests that foreign direct investment can have both substitutions (Mundell, 1957) and complementarily (Caves, 1982) effect on trade which depends on the circumstances. For example, depend on trade theory, Markusen (1997) and Carr et al. (2001) recognize the complementarily and substitution between foreign direct investment and trade. According to the firm's location theory, Pontes (2004) and Africano and Magalhães (2005) show that when foreign investment is vertical, the complementarily between trade and foreign direct investment can usually be found, which means that multinational companies disperse the production process in countries by lower the costs. Concurrent, when direct investment, foreign direct investment replaced trade. However, the impact of FDI on trade is complicated and can be evaluated from the prospect of the home or host country, as well as from the prospect of inward and outward FDI (Markusen and Venables, 1999).

3.3.5 Government spending

Government plays an important role in economic growth as government expenditure brings a great impact to economic growth. The government activities may directly and indirectly affect the total output which cooperates with private sector. Therefore, government expenditures like provision of public goods and infrastructure, social services and targeted intervention (such as export subsidies) can promote economic growth (Lin, 1994). Most of the developing countries are experiencing upward trend of the public expenditure over the time (Lindauer & Valenchik, 1992). However, the government does not have the ability to raise the revenue to finance high level of expenditures. As a result, most of the countries are facing fiscal deficit. Due to rising in fiscal deficit, the effect of government expenditure and economic growth may be adverse (Kneller et al., 1998). This study also uses the general government final consumption expenditure as the proxy. Meanwhile, the study logs the government spending because the gap between government spending and other variables and government spending between developed and developing countries is large. Log of the government spending can minimize the difference to avoid error exist in the result. The panel data of general government final consumption expenditure in U.S. dollar is taken from World Bank's World Development Indicator database.

3.3.6 Inflation

Inflation is an important factor for economic development and commonly used to examine the economic growth. Jung and Marshall (1985) showed that inflation has a positive effect on growth. They found that with the use of inflationary finance to increase capital formation is an inefficient strategy for economic growth. However, they showed that the inflation is negatively related to the economic growth (Burdekin, et al., 2000).

On the other hand, some researchers related macroeconomic stability with inflation. They consider that if the inflation rate is more stable, it will be more attractive to the foreign investors. For this purpose, inflation rate can be used, requiring a negative relationship but there is a case has a significant and positive result that showed by Buckley et al. (2007). This may be the case, in the event that no countries in the sample show a high inflation rate during the period. A positive relationship may display that the higher inflation rates are linked to the higher economic growth, and led to more outward FDI. For our study, the panel data of inflation is taken from World Bank's World Development Indicator database.

3.3.7 Capital variable

Capital is commonly used in the studies because it can explain many different areas (e.g. economic growth, foreign direct investment, productivity and other). Many researchers widely use the capital variable in their studies (Greene & Villanueva, 1991; Nazmi & Ramirez, 1997). They used substituted investment data (as a proportion of gross domestic production) as the data of capital stock. However, Alexander (1994) found that the substituted investment data has imposed unduly restrictive assumption (fixed capital output ratio) and affected the miss-specified relationships and significant measurement on the errors exists in the studies.

Capital stock is created by employing a standard perpetual inventory model of the following form:

$$K_t = K_{t-1} + I_t - \delta K_{t-1} \quad (5)$$

where K_{t-1} is the capital stock at the time $t - 1$, I_t is the gross investment flow during period of time t , and δ is the rate that depreciation on the stock of capital in the period $t - 1$. In this study, the initial capital stock is estimated by referring to Hall and Jones (1999), Demetriades and Law (2006) method. They generate the initial level of capital stock by using 5 percent depreciation rate and the average growth rate of initial 5 years (1983 - 1987). This study uses the gross fixed capital formation as gross investment flow and I_t , in the assumption, so that it could generated the capital stock, K_t . Gross fixed capital formation is the plant, equipment purchases, land improvement (drains, ditches and others), and construction of infrastructure (railways, roads, schools) are included in the gross fixed capital formation

Under Systems of National Accounts (SNA) in 1993, net acquisitions of valuables are considered as capital formation. Gross fixed capital formation is more preferable as compared to the substitute investment data. It is because the range of substituted investment data is wide and not specific for the capital variable. The panel data of gross fixed capital formation in U.S. dollar is taken from World Bank's World Development Indicator database. Moreover, the study logs the gross fixed capital formation because the capital of each country and region has different size. I need to log the value to minimize the difference between large and small countries to avoid the error exists in the result.

3.3.8 Labor and human capital variables

Some researchers included the human capital variable in their studies. For example, Nelson and Phelps (1966) found that high-level human capital will promote the acceptance of new technologies. Romer (1990) concluded that the growth of human capital stock brings positive effect on new design ideas and goods, in which promotes the endogenous physical capital investment and economic growth. However, some researchers (Temple, 1999; Cohen & Soto, 2001; De la Fuente & Domenech, 2000, 2006) found that there is a contrast toward the significant positive relationship between education improvement and output growth. While, other researches (Benhabib & Spiegel, 1994; Barro & Sala-i-Martin, 1995; Casseli et al, 1996) showed that the schooling improvement does not affect the output growth.

Besides, population growth is also commonly used in the growth literature. Kuznets (1960, 1967) and Simon (1981) suggested that population growth led to the economic growth and large economies countries can be much easier to build out, by using the dissemination of knowledge flows that they generate. However, population growth may positively affect the technology progress and innovation. Some researchers (Dalgaard & Kreiner, 2001; Strulik, 2005) suggested that the population growth affected the economic growth through the direction of technical change. However, Easterlin (1967), Kuznets (1967), Simon (1992), Thirwall (1972), Coale and Hoover (1958), and Blanchet (1991) concluded that there is an insignificant or weak relationship between economic growth rates and population. On the other hand, Dawson and Tiffin (1998) found that there is no long term relationship between the population growth and economic growth in India. Thornton (2001) had the same result with Dawson and Tiffin (1998) by using co-integration analysis and the one-step error correction model. The National Research Council (1986) showed that population size and its

growth have both negative and positive effect on economic growth by using time-series data and cross sectional data from poor countries.

As a result, this study cannot make use of the human capital and labor variables together because both variables are related and redundant. Hence, this study chooses the labor variable rather than human capital variable because human capital variable is difficult to collect, and some countries do not provide the data of education level. It needs a large size of panel data for empirical, but the proxy of the human capital variable (the labor force with secondary education) in World Bank just consist data of few countries and that are not enough for this study. On the other hand, the total labor force is not chosen as the proxy of labor variable due to lack of data. Therefore, the study uses population as the proxy of labor because of the large size of labor is available and the data can easily obtained. Some researchers (Saarela & Finnas, 2003; Beine et al., 2008) used population as proxy for the labor variables in their studies, which is similar with this study. The panel data set for the proxy of labor variable can obtain from IMF (International Monetary Fund). Moreover, this study logs the total labor force data because the population of each country and region are different in size to minimize the gap on large and small countries to avoid the error exists in result.

3.4 Generalized Method of Moments (GMM)

3.4.1 A Review

In last two decades, generalized method of moments (GMM) estimation became an important general framework for conclusion in econometrics. It involves nearly all of the general estimation methods such as ordinary least squares, maximum likelihood, two-stage least squares, instrumental variables. Besides, many researchers (Gallant, 1987; Davidson & McKinnon, 1993; Hamilton, 1994; Hayashi, 1999; Mittelhammer et al, 2000; Ruud, 2000; Wooldridge, 2002) introduced that GMM is an important chapter in all advanced econometric textbooks nowadays. Hansen (1982) formalized the GMM on the being of known function that called “moment function”. He found that the unknown parameters and observable random variables have expectation zero when estimating at true parameter values. The method generalizes the basic method of moments where expectations of unknown parameters are equal to observable random variables. The GMM approach connects perfectly to the economic theory where orthogonality situations that can support as such moment functions usually begin from optimizing behavior of agents. For example, the prediction errors of agents should be orthogonal to structure of the information set, if they create the rational prediction with squared error loss. In GMM framework, the unknown parameters are regarded by arranging the sample averages of these moments functions, the ‘estimating equations’ as near to zero as possible.

For “just identified case”, the framework is significantly common to bargain with the problem in which the number of unknown parameters is equal to the number of moment function. For “over identified case”, the case that the number of moments over than the number of parameters to be estimated. The moment functions usually come from the orthogonality of probably several elements of the information set and prediction errors is especially important in

economics. It is generally reasonable to examine the parameter by creating the sample average of the moments definitely equals to zero in the just-identified case.

However, this is not possible in the over-identified case. Hansen (1982) suggested solution for this case by following corresponding approaches in linear models, like two and three stages least squares. He created a linear combination of the sample average of the moments functions equal to zero, with the dimension of the linear combination to the number of unknown parameters. The unknown parameters affect the optimal linear combination of the moments. Hansen used the initial, probably inefficient, estimated to examine this optimal linear combination. Chamberlain (1987) found that this class of estimators creates the semi-parametric efficient bound given the set of moment barriers. He not only focused on the absolute efficient result, but also as a founder of the following empirical likelihood literature by the methods used. He found that the information matrix-based variance bound for the discrete parameterization is equal to the variance of the GMM estimator if the discrete approximation is enough by using a discrete approximation to the joint distribution of variables.

Since new contributions on GMM, many works have been solved and much still in progress. Mostly, it concentrates on some of the latter work on empirical likelihood-type estimators, in which important early contribution made by other researchers (Hansen et al, 1996), and which carry on to be an area of important research activity. These reviews expanded partly react to the analysis of small-sample properties of the two-step GMM estimator. Some researchers (Altonji & Segal, 1996; Burnside & Eichenbaum, 1996; Pagan & Robertson, 1997) concluded in their studies that the estimators had biases and confidence intervals had poor coverage rates when the degree of over-identification was high. These result are similar to the instrumental variable review done by others (Bekker, 1994; Bound et al, 1995; Staiger & Stock, 1997; Stock et al, 2002) that with many or weak instruments, two-stage least squares can have poor properties.

For description on theoretical finding, it recommends that the new estimators have limited information maximum likelihood (LIML) such as properties and guide to improve large-sample properties, at the some computational expense. Both benefits and damage of these methods are explained in view of this. It is because the study on GMM approaches has grown so much since 1982, but it cannot explain in more details on all areas and particularly for the time series research. Apart from this, many researchers also focused their studies on the non-smooth moment functions. Powell (1984) and Honoré (1992) examined on the quartile-type moment function in the just-identified or over-identified setting. Moreover, some researchers found that the bootstrap can be an important tool to improve coverage rate of confidence intervals in GMM models.

3.4.2 Generalized Method of Moments (GMM) Panel Data Analysis

GMM is an estimation strategy and a tool variable method that should be more efficient because it uses a much richer set of tools. It should not only be associated with situations where the regression quantity contains a lag dependent variable. However, GMM is preferred. For example, OLS cannot estimate dynamic panel models (models with lag dependent variables), in which case OLS is biased. Instead, we use GMM. In fact, in some models, we must include the lag dependent variable as the regression amount (for example, to consider inflation inertia, consumption smoothing, interest rate smoothing, etc.). More generally, whenever we encounter problems with endogenous regressions (which is usually the case), again, you can't use OLS, but we can use GMM.

Normally, one of the main problems happened in the econometric literature is the heteroskedastic error in the estimation of linear regression models. This topic commonly discussed around the cross-sectional and time series studies (Levin & Lin, 1993; Maddala & Wu, 1999; Hsiao et al., 2002; Choi, 2002; Im, et al., 2003; Phillips & Sul, 2003). Heteroskedasticity is ignorance in the estimation.

It would affect the estimators to become inefficient and lead to erroneous inferences (Roy, 2002). Some researchers (Robinson, 1987; Delgado, 1992; Hidalgo, 1992) suggested using nonparametric techniques to solve these problems because such estimators are available even though the functional form is misspecified. Besides, other researcher (Rilstones, 1991) proposed that the study of Monte Carlo to be used to compare the nonparametric estimated generalized least squares (EGLS) estimator with different parametric estimators using both correct and incorrect forms for heteroskedasticity.

The topic of heteroskedasticity in the panel data estimations has not been commonly discussed until early 1990s. There are few studies on the panel data analysis with heteroskedasticity (Mazodier & Trognon, 1978; Baltagi & Griffin, 1988; Randolph, 1988; Li & Stengos, 1994). Baltagi and Griffin used this parametric technique to examine on the presence of heteroskedasticity with the individual specific error component. However, Li and Stengos used a semi-parametric method to test on the heteroskedasticity in the unit-time different error component. Both studies found that the suggested EGLS estimators have the similar asymptotic distribution with the true GLS estimator. Furthermore, Li and Stengos used the Monte Carlo study and found that the limited sample properties of their estimator are more than sufficient. The results are different with the Baltagi and Griffin study, as their suggested procedure needs a large time component for the panel.

On the other hand, Roy (2002) has introduced a semi-parametric estimation step with unknown functional form in the individual specific errors. The suggested step did not need a large time component that is different with this study of Baltagi and Griffin (1988). There are three results showed in the study. Firstly, the researcher generates strong evidence in favor of the efficiency of some standard estimators. There are the suggested EGLS estimators, the iterative EGLS estimator (EGLSB), the standard GLS estimator for a one-way error components

model (GLSH), the within or fixed effects estimator (WITHIN) and the OLS estimator. Secondly, the study of Monte Carlo showed that the relative efficiency suggested the estimator is sufficient but it is very sensitive to the window width selection. Lastly, based on the size performance, all the estimators included more or less with some similar patterns. They do not either have the over-reject or under-reject happen substantially.

As a result, GMM estimation becomes an important innovation in econometrics because it can solve the estimation problems in many different settings. For example, rational expectation models (Hansen & Singleton, 1982; Anderson & Hsiao, 1982; Holtz-Eakin et al, 1988; Abowd & Card, 1989; Arellano & Honoré, 2001), continuous time models (Hansen & Scheinkman, 1995) and semi-parametric models (Powell, 1987). Many studies concentrated on finding a moment condition for improved efficiency (Cragg, 1983; MaCurdy, 2000) and asymptotic efficiency with many moments (Chamberlain, 1987; Newey, 1988, 1993; Newey & Chipty, 2000). GMM also included in the framework for generating tests about parameters of interest (Burguette et al, 1982; Newey & West, 1987; Newey & McFadden, 1994) and specification tests (Newey, 1985; Tauchen, 1985; Eichenbaum & Hansen, 1990). This framework gives a powerful unifying principle for econometrics (Burguette et al., 1982; Newey & McFadden, 1994).

3.4.3 Advantages of Generalized Method of Movements

In this study, it employs the GMM estimation to investigate the effect of China outward FDI on economic growth for a panel data on developed and developing countries. As compared to other panel data estimators, GMM panel data technique is more suitable in this study.

Firstly, Arellano and Bond (1991) found out that all the linear moment restrictions were optimally achieved by GMM estimators and ensured that the assumption with no serial correlation in the errors. The moment restrictions are important in the estimations. The restrictions include lagged dependent variables, no strictly exogenous variables and individual effects. Hansen (1982) showed that the GMM estimators bring consistency for models that are not linear in parameter.

Secondly, some researchers (Liu & Hsu, 2006; Antoniou, et al., 2006) found that the lagged dependent variables in the OLS tests would bring inconsistency, while the lagged dependent variables may be endogenous. They found that the problems of heterogeneity and endogeneity can be solved by GMM estimators and provide unbiased and consistent estimators. Besides, Lee (2007) explained that the consistency and asymptotically normal have showed by GMM estimators. He found that the best GMM estimator might have similar limiting distribution like maximum likelihood estimators.

Thirdly, there are some problems existed in the cross-sectional studies such as endogenous explanatory variables and unobserved heterogeneity. Some studies might ignore the problem of cross-sectional heterogeneity. However, the endogeneity problem of the explanatory variables may be existed in these studies because some variables which cannot be controlled and lead to bias estimations. The GMM panel data approach can be used to solve those problems by utilizing

the cross-sectional and time series variability. For example, Arellano and Bond (1991) used the first-differenced GMM estimator to remove the unobserved country-specific effect and to improve the endogeneity problem.

Fourthly, there are weak correlations between dependent and independent variables in which it may happen in other studies and showed that there is a weak instrument problem. Blundell and Bond (1998) found that when the pooled cross-section regression was employed to measure the autoregressive models on the steadily continuous series from short panel, the problem can happen in a large finite-sample bias. They employed incorporating more informative moment conditions that of the reasonable stationary restrictions to improve the biases problem.

3.5 Data

The data set consists of 91 countries as cross-sectional observations and seven time-series observations from year 2003 to 2009. In total, there are 637 panel observations. Most of the data used in this empirical study are collected from World Development indicator and IMF, World Bank. These data included GDP, exports, imports, population, inflation, government spending and capital. Besides, the trade openness is measured from two different sources namely World Bank indicator and IMF database. The measurement of the trade openness for each country in the sample is the ratio of export and import per nominal GDP to country's gross domestic product (GDP) in US dollar.

CHAPTER 4

DATA ANALYSIS

4.1 Introduction

This chapter discusses about the empirical results of the effect of China's outward FDI on the economic growth of the selected countries by using the GMM estimator. In the first section, the study briefly discusses the descriptive statistics of the variables and correlation matrix among selected countries. Then, it touches on the effect of China's outward FDI on the economic growth of various countries is examined in which 91 of the developing and developed countries are selected based on different amount of gross national per capita within the period of 2003 to 2009 followed by a discussion in the following sections accordingly. Next, the comparison between the developing and developed countries is highly emphasized before the discussion and conclusion are being made. While the third section talks about the third point of view to further examine the relationship between China's outward FDI and economic growth in which selected countries are divided into four regions namely Asia, Africa, Europe and Latin America.

4.2 Descriptive Statistic

The descriptive statistics of the variables used in our estimation are presented in Table 1 to 7. The mean GDP growth of the total countries, developing and developed countries as well as each region from 2003 to 2009 is between 10.0345 and 11.3856. It is also revealed that the mean value of China's outward FDI during the same period is between 7.0917 and 7.8815. Moreover, trade openness and capital are reported to have the mean value index between 0.6303 and 1.1827 and from 9.9553 to 11.3285. For economic growth, Sudan

maintained the minimum GDP in 2003 (8.6834) and U.S. has the highest GDP in 2008 (13.1552). The maximum value of China's outward FDI flowed into Hong Kong is 11.2161 in 2009 while the minimum value is 4.4771 in the Lesotho in 2004. Furthermore, government spending and Inflation are reported to have the mean value index between 9.2560 and from 10.71856 and 2.7564 and 9.3765. Lastly, the mean value of Inflation during the same period is between 8.80307 9.1424.

Table 2: Descriptive statistics of GDP, 2003-2009

	Total Countries	Developed Countries	Developing Countries	Asia	Africa	Europe	Latin America
Mean	10.79214	11.38557	10.50160	10.91023	10.03450	11.31403	10.98810
Maximum	13.15524	13.15524	12.22033	12.70183	11.45662	12.55915	12.21818
Minimum	8.683405	9.268100	8.683405	9.202842	8.683405	9.268100	9.841942
Std. Dev.	0.908736	0.867885	0.777862	0.779893	0.609876	0.836446	0.664473
Observation	637	210	426	189	175	161	77

Table 3: Descriptive statistics of China's outward FDI, 2003-2009

	Total Countries	Developed Countries	Developing Countries	Asia	Africa	Europe	Latin America
Mean	7.532688	7.628127	7.483639	7.881554	7.469696	7.091703	7.363688
Maximum	11.21616	11.21616	9.484103	11.21616	9.484103	9.346425	8.557375
Minimum	4.477121	4.602060	4.477121	5.204120	4.477121	4.602060	5.204120
Std. Dev.	1.029289	1.288086	0.872279	1.100731	0.798678	1.042103	0.877964
Observation	637	210	426	189	175	161	77

Table 4: Descriptive statistics of trade openness 2003-2009

	Total Countries	Developed Countries	Developing Countries	Asia	Africa	Europe	Latin America
Mean	0.924459	1.182694	0.799699	1.095796	0.791253	1.082681	0.630327
Maximum	4.459112	4.459112	2.121004	4.459112	1.861515	2.028499	1.564941
Minimum	0.222990	0.223925	0.222990	0.223925	0.326830	0.478014	0.222990
Std. Dev.	0.602801	0.866402	0.356636	0.922961	0.284023	0.384453	0.312649
Observation	637	210	426	189	175	161	77

Table 5: Descriptive statistics of government spending, 2003-2009

	Total Countries	Developed Countries	Developing Countries	Asia	Africa	Europe	Latin America
Mean	9.977298	10.71856	9.613958	9.928149	9.256029	10.59043	10.08500
Maximum	12.38620	12.38620	11.54123	12.00419	10.77525	11.82151	11.54123
Minimum	7.956143	8.894870	7.956143	8.109019	7.956143	8.864589	8.894870
Std. Dev.	0.928628	0.826772	0.740722	0.836629	0.578575	0.778887	0.701632
Observation n	637	210	426	189	175	161	77

Table 6: Descriptive statistics of inflation, 2003-2009

	Total Countries	Developed Countries	Developing Countries	Asia	Africa	Europe	Latin America
Mean	7.338356	2.756362	9.614794	8.151246	9.376461	4.749474	7.865388
Maximum	80.75014	26.28178	80.75014	59.74039	80.75014	28.58347	34.93376
Minimum	-21.88297	-21.88297	-19.47225	-21.88297	-19.47225	-18.84766	-4.379818
Std. Dev.	8.184450	4.536757	8.626570	8.717657	9.331329	6.258471	7.314871
Observation	637	210	426	189	175	161	77

Table 7: Descriptive statistics of capital, 2003-2009

	Total Countries	Developed Countries	Developing Countries	Asia	Africa	Europe	Latin America
Mean	10.66622	11.32848	10.34118	10.79491	9.955296	11.15585	10.80562
Maximum	13.19506	13.19506	12.29446	12.84659	11.49143	12.55316	12.10401
Minimum	8.376872	9.249779	8.376872	8.376872	8.753220	9.249779	9.465230
Std. Dev.	0.912906	0.815222	0.772569	0.870416	0.595468	0.764353	0.681355
Observation	637	210	426	189	175	161	77

Table 8: Descriptive statistics of labor, 2003-2009

	Total Countries	Developed Countries	Developing Countries	Asia	Africa	Europe	Latin America
Mean	9.018869	8.803069	9.127280	9.142350	8.990149	8.869035	9.026532
Maximum	10.84082	10.29659	10.84082	10.84082	9.834286	9.949403	10.12997
Minimum	7.290963	7.290963	7.858255	7.463648	7.858255	7.290963	7.348372
Std. Dev.	0.652795	0.704613	0.597498	0.741970	0.533473	0.582554	0.741105
Observation	637	210	426	189	175	161	77

4.3 Correlation Matrix

The correlation matrix for the key variables is demonstrated from tables 8 to 14. As expected, GDP growth rate is positively correlated with China's outward FDI, government spending, labor and capital as well as negatively correlated with inflation and trade openness, which indicating that all the six variables do contribute to economic growth of host countries. The results support the existing literature that Chinese outward FDI, government spending, labor and capital are some of the factors affecting economic growth. However, the results showed that the trade openness is negatively correlated with GDP as well as the inflation of developing countries and Latin America is positively related with GDP growth.

Table 9: The correlation matrix of Total countries

	GDP	COFDI	OPENNESS	COFDI* OPENNESS	GOVSPEN	INFLATION	CAPITAL	LABOR
GDP	1.0000							
COFDI	0.3026	1.0000						
OPENNESS	-0.1171	0.1208	1.0000					
COFDI* OPENNESS	0.2325	0.9763	0.3073	1.0000				
GOVSPEN	0.8881	0.2957	-0.1281	0.2395	1.00000			
INFLATION	-0.2055	-0.0159	-0.1730	-0.0462	-0.2784	1.0000		
CAPITAL	0.8896	0.4060	-0.0947	0.3510	0.9657	-0.2727	1.0000	
LABOR	0.4889	0.3235	-0.4472	0.1888	0.4675	0.0943	0.5008	1.0000

Table 10: The correlation matrix of Developed countries

	GDP	COFDI	OPENNESS	COFDI* OPENNESS	GOVSPEN	INFLATION	CAPITAL	LABOR
GDP	1.0000							
COFDI	0.3771	1.0000						
OPENNESS	-0.3738	0.2027	1.0000					
COFDI* OPENNESS	0.2524	0.9782	0.3885	1.0000				
GOVSPEN	0.8666	0.3266	-0.4236	0.2010	1.00000			
INFLATION	-0.1717	-0.1715	-0.0829	-0.1714	-0.1977	1.0000		
CAPITAL	0.8786	0.4589	-0.3382	0.3427	0.9604	-0.2252	1.0000	
LABOR	0.8770	0.3693	-0.3868	0.2444	0.9532	-0.1850	0.9238	1.0000

Table 1: The correlation matrix of Developing countries

	GDP	COFDI	OPENNESS	COFDI* OPENNESS	GOVSPEN	INFLATION	CAPITAL	LABOR
GDP	1.0000							
COFDI	0.2589	1.0000						
OPENNESS	-0.1323	0.0486	1.0000					
COFDI* OPENNESS	0.1666	0.9768	0.1045	1.0000				
GOVSPEN	0.8518	0.3108	-0.1368	0.2239	1.00000			
INFLATION	0.0054	0.0845	-0.0.803	0.0700	-0.0485	1.0000		
CAPITAL	0.8464	0.4271	-0.1256	0.3480	0.9517	-0.0615	1.0000	
LABOR	0.5298	0.3031	-0.2601	0.1835	0.5515	0.0382	0.5725	1.0000

Table 2: The correlation matrix of Asia

	GDP	COFDI	OPENNESS	COFDI* OPENNESS	GOVSPEN	INFLATION	CAPITAL	LABOR
GDP	1.0000							
COFDI	0.1971	1.0000						
OPENNESS	-0.0806	0.4989	1.0000					
COFDI* OPENNESS	0.1127	0.9780	0.6511	1.0000				
GOVSPEN	0.8456	0.2222	-0.0777	0.1399	1.00000			
INFLATION	-0.2523	-0.1934	-0.2133	-0.1954	-0.3446	1.0000		
CAPITAL	0.6873	0.3877	0.0037	0.3122	0.7905	-0.3923	1.0000	
LABOR	0.4932	0.0076	-0.4332	-0.1272	0.4685	0.0877	0.5307	1.0000

Table 3: The correlation matrix of Africa

	GDP	COFDI	OPENNESS	COFDI* OPENNESS	GOVSPEN	INFLATION	CAPITAL	LABOR
GDP	1.0000							
COFDI	0.2702	1.0000						
OPENNESS	-0.3754	-0.2039	1.0000					
COFDI* OPENNESS	0.2133	0.9831	-0.0269	1.0000				
GOVSPEN	0.7459	0.3647	-0.2281	0.3341	1.00000			
INFLATION	-0.0803	0.1049	-0.1588	0.0734	-0.1216	1.0000		
CAPITAL	0.7695	0.5200	-0.2316	0.4944	0.9204	-0.0996	1.0000	
LABOR	0.2967	0.2679	-0.5981	0.1626	0.3718	0.1897	0.3447	1.0000

Table 4: The correlation matrix of Europe

	GDP	COFDI	OPENNESS	COFDI* OPENNESS	GOVSPEN	INFLATION	CAPITAL	LABOR
GDP	1.0000							
COFDI	0.5214	1.0000						
OPENNESS	-0.5909	-0.4729	1.0000					
COFDI* OPENNESS	0.4554	0.9892	-0.3410	1.0000				
GOVSPEN	0.8218	0.6314	-0.4418	0.5942	1.00000			
INFLATION	-0.1356	0.0164	-0.1734	-0.0065	-0.2560	1.0000		
CAPITAL	0.8325	0.6709	-0.4457	0.6377	0.9633	-0.2300	1.0000	
LABOR	0.7260	0.6182	-0.6835	0.5443	0.7564	0.1814	0.7400	1.0000

Table 5: The correlation matrix of Latin America

	GDP	COFDI	OPENNESS	COFDI* OPENNESS	GOVSPEN	INFLATION	CAPITAL	LABOR
GDP	1.0000							
COFDI	0.5475	1.0000						
OPENNESS	-0.6424	-0.1845	1.0000					
COFDI* OPENNESS	0.4049	0.9750	0.0298	1.0000				
GOVSPEN	0.9934	0.5180	-0.6524	0.3679	1.00000			
INFLATION	0.2646	0.0669	-0.2822	0.0154	0.2513	1.0000		
CAPITAL	0.9722	0.6168	-0.5781	0.4933	0.9623	0.1923	1.0000	
LABOR	0.9341	0.4428	-0.6895	0.2838	0.9273	0.2858	0.8656	1.0000

4.4 Selected Countries

Table 6: GMM Estimation Result of China's Outward FDI and Economic Growth on 91 selected countries

Variable	Coefficient	t-Statistic	Prob.
OFDI	0.845505	3.488322	0.0005***
OPENNESS	0.434457	5.290362	0.0000***
OFDI*OPENNESS	-0.967028	-4.008074	0.0001***
GOVSPEN	0.302918	2.173066	0.0304**
INFLATION	0.007374	1.180748	0.2385
CAPITAL	0.546041	3.159446	0.0017***
LABOR	0.255296	2.957461	0.0033***
R-squared	0.809384		
J-statistic	5.50534		
Instrument rank	13		
Sargan Test	0.357361		

* refers to 0.1 significance level

** refers to 0.05 significance level

*** refers to 0.01 significance level

Instrument specification:

C OFDI(-1) OFDI(-2) OPENNESS(-1) OPENNESS(-2) OFDI*OPENNESS(-1)
INFLATION(-1) INFLATION(-2) INFLATION(-3) GOVSPEN(-1) GOVSPEN(-
2) CAPITAL(-1) CAPITAL(-2)

From Table 15, China's outward FDI is significantly affecting the economy of the 91 selected countries with a positive impact. Based on the IMF World Investment Report (1999), it shows that the FDI could promote the development of the host countries' economy in several ways. For example, FDI shifted into the financial sector could be used as loans for domestic firms, creating new job opportunities, improving the availability and public utilities, reducing the consumption goods and investment goods costs, improving exports by increasing efficiency and boosts up the market opportunity. China's outward FDI has

brought up a positive impact on the economy of the host countries. China's investments have improved on the GDP growth of the host countries on top of the job opportunity for host country as well as transferring the technology and expatriation of skilled China's employees to foreign affiliates (Gaulier et al, 2005).

China's FDI became an important source of FDI while other developed countries were significantly harmed by the crisis ended up with scarce resources for foreign countries yet a huge capital is required for their own economy recovery. China's investments have the similar idea with the general theory of FDI, in which FDI could improve the domestic welfare and economic development of host country. In the middle of 2000s, China's outward FDI increased sharply from an annual average of below 3 billion U.S. dollar before 2005 to 20 billion U.S. dollar in 2006 and more than 50 billion U.S. dollar by 2008. During the financial crisis on 2008, the global outward FDI has declined by 15 percent with an exceptional case, in which China's outward FDI has risen sharply and achieved 60 billion U.S. dollar in 2010. It makes China one of the world's top 10 FDI suppliers in the post-crisis years.

Besides, China's firms also become an important role for the China's outward FDI which actively involved in several large scale acquisition activities and Greenfield and joint venture investments have already closed. Calderon, Loayza, and Serven (2004) found that neither in M&A and greenfield investment contribute to the economic growth in both developed and developing countries. For example, Sinopec Shanghai Petrochemical Co.'s (Sinopec) invest 2.5 billion U.S. dollar in five shale oil and gas fields owned by Oklahoma-based Devon Energy Corp. China's Dalian Wanda Group Co has completed the 2.6 billion U.S. dollar acquisition of movie theater operator AMC Entertainment Holdings. Few big manufacturing deals are also in the pipeline for 2012 like ENN Mojave Energy Corp. of 5 billion U.S. dollar solar project in Nevada and 100 million U.S.

dollar copper tubing plant by Golden Dragon Precise Copper Tube Group in Alabama.

China's bank also created and relocated their branches around the world to enhance the productivity and provide support for Chinese investor. China Export and Import Bank (Eximbank) below-market rate loans, direct capital contribution, and subsidies associated with the official aid programs to the Chinese investor and enterprises for their investment in host countries (OCED, 2008). EXIM bank financed 300 millions U.S. dollar to set up a power plant in Vietnam, over 400 millions U.S. dollar for water supply and E-government projects in Ghana, 900 millions U.S. dollar to build up railway and other projects in Nigeria and 1.7 billion U.S. dollar loan agreement to set up a hydropower plant in Ecuador. EXIM bank also provided 1.7 billion loans to Pakistan government to build up a city wide train system, 400 millions U.S. dollar for Ethiopia government for the projects planned under the five-year Growth and Transformation Plan. It also financed 5 billion U.S. dollar to Russia's En+ Group for the development of coal fields and iron ore mining and construction of thermal and hydro power plants.

China Development Bank (CDB) provides financial support to China's enterprise who invests in natural resources abroad to meet its domestic needs and seek for good foreign customers. CDB also had recruited over 140 work teams and expanded into branches or representative offices and was employed in large international energy projects around the world. Industrial and Commercial Bank of China (ICBC) became the second Chinese bank to receive federal approval to set up a branch in New York City in 2011. ICBC provides investment banking services and financial support to Chinese enterprise for both acquisitions and greenfield projects overseas. For example, ICBC supported the acquisition between Wuhan Iron & Steel Group for an iron mine at Madagascar in 2011. ICBC expanded a 500 million U.S. dollar loan to finance construction of the Gibe 3 Dam in Ethiopia. China Export & Credit Insurance Corporation (Sinosure) has

been contributed insurance cover on exports and investments and also equity and liability insurance since 2001. The investment and leasing insurance of Sinosure have 14.2 billion U.S. dollar and helped enterprises acquire 250 billion U.S. dollar in bank financing

Aids budget of China provided 60 percent of the construction cost and the other 40 percent contributed by Chinese company and host government just provided the land. The company would rent out the building or providing services to other business. The host government would take over the building after 50 years. For this mixes aids and investment, it is clearly meant to increase the opportunities for Chinese firms and also providing a long term real estate investment for host government. Chinese government also subsidizing cost of set up the 15 overseas industrial and trade zone around Asia, Africa and other (Brautigam, 2012).

Moreover, Newbery (2012) showed that infrastructure lead to economic growth and China's investment also concerns about the infrastructures and welfare of the host countries. For example, Steinberg (2005) showed that China has provided around 2 billion U.S. dollar on Burmese military, road construction, railroad, ports, dams and airfields throughout the country and also given out around 200 million U.S. dollar to Burma for economic assistance. China's investors collaborated with Thai government on the infrastructure project and built around 100 representative offices and manufacturing plants (Bunyamanee, 2003; Khamtita, 2003).

In addition, the trade openness is highly significant and positively affects the economic growth of selected countries. Some researchers (Learner, 1988; Dollar, 1992; Edwards, 1998; Barro and Sala-i-Martin, 1995; Sachs and Warner, 1995; Greenaway et al., 1998) showed that the more openness in the countries, the

economies tend to grow faster. China firms will try to relocate their firms into host countries or increase the trade between China and host countries as well. However, the interaction of these trade openness and FDI has negative impacts which significantly deteriorate the economic growth of the selected countries. Horst (1972), Svensson (1996), Bayoumi and Lipworth (1997) and Ma et al. (2000) showed that outward FDI is a substitute for trade and harm the economic growth. China firms might substitute host country's exports with FDI by setting up plants abroad. The demand for intermediate products for assembly of final products in foreign factories is borne by the independent supplier of the host country rather than the host country's company, as this is more effective.

Futhermore, the government final consumption expenditure has a significant positive impact on the economic growth of selected countries as well. Higher Government spending on infrastructure like roads, airport and railways can help to remove supply bottlenecks and facilitate higher efficiency. This can also improve long-term economic growth. The government expenditure such as provision of public goods and infrastructure, social services and targeted intervention (such as export subsidies) could help in promoting economic growth (Lin, 1994). The inflation is positively affecting the economic growth of the selected countries, but it is highly insignificant. Iqbal & Nawaz (2009) showed that inflation has positively affected economic growth but statistically insignificant. Actual output is higher than potential output, which will put upward pressure on wages in the labor market. Consecutively, higher wages will result in higher production costs, resulting in higher prices.

Lastly, the gross fixed capital formation has positively impacted the economic growth of selected countries. Theoretically, the gross capital formation has positively affected the economic growth by raising the physical capital stock in the local economy directly (Plossner, 1992) or improving the technology indirectly (Levine & Renelt, 1992). Capital formation urges technological

advances in the economy, through enhancing benefits affiliated with large-scale production and rising specialization in the economy. Population as proxy of Labor has a significant positive impact on the economic growth of selected countries. Simon (1981, 1990) showed that population growth is positively affecting per capita GDP growth in the long run via productivity improvement through new ideas creation and learning-by-doing resulting from raised volume of products. Higher population will have more labor force in market, it will enhance the productivity and market for goods produced in the country.

4.5 Developing and Developed Countries

In this section, the effect of China's outward FDI on the economic growth between developing and developed countries from 2003 to 2009 is being categorized according to World Bank income and analysis category. Countries are divided among income groups according to 2008 Gross National Income (GNI) per capita whilst calculated using the World Bank Atlas method. The groups are listed as low income with less than 975 U.S. dollar; lower-middle income ranging from 976 to 3855 U.S. dollar; upper-middle income from 3,856 to 11, 905 U.S. dollar; and high income with more than 11, 906 U.S. dollar:

Categories	Countries	No. of Countries
Developing countries	Algeria, Argentina, Azerbaijan, Bangladesh, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Cambodia, Chile, Colombia, Congo Republic, Cote d'Ivoire, Ecuador, Egypt, Ethiopia, Gabon, Ghana, Guinea, India, Indonesia, Jordan, Kazakhstan, Kenya, Lesotho, Madagascar, Malaysia, Mauritania, Mauritius, Mexico, Mongolia, Morocco, Mozambique, Nepal, Pakistan, Panama, Papua New Guinea, Peru, Philippines, Romania, Russian Federation, Rwanda, Senegal, South Africa, Sri Lanka, Sudan, Tajikistan, Tanzania, Thailand, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, Uruguay, Uzbekistan, Venezuela, Vietnam, Yemen Republic, Zambia, Zimbabwe	61
Developed countries	Australia, Austria, Bahamas, Belgium, Canada, Czech Republic, Denmark, France, Germany, Hong Kong, Hungary, Ireland, Israel, Italy, Japan, Korea, Latvia, Macao SAR, Malta, the Netherlands, New Zealand, Poland, Qatar, Saudi Arabia, Singapore, Slovak Republic, Sweden, Switzerland, United Kingdom, United States	30

4.5.1 Developing Countries

Table 7: GMM Estimation Result of China's Outward FDI and Economic Growth on Developing Countries

Variable	Coefficient	t-Statistic	Prob.
OFDI	0.461965	1.979146	0.0487**
OPENNESS	0.845396	3.280560	0.0012***
OFDI*OPENNESS	-0.602877	-2.579375	0.0104**
GOVSPEN	0.232417	1.465690	0.1438
INFLATION	0.015277	1.937060	0.0537*
CAPITAL	0.712052	4.234756	0.0000***
LABOR	0.112386	1.689083	0.0923*
R-squared	0.645662		
J-statistic	3.729480		
Instrument rank	10		
Sargan Test	0.292196		

* refers to 0.1 significance level

** refers to 0.05 significance level

*** refers to 0.01 significance level

Instrument specification:

C OFDI(-1) OFDI(-2) OFDI*OPENNESS(-1) OFDI*OPENNESS(-2)
GOVSPEN(-1) INFLATION(-2) CAPITAL(-1) CAPITAL(-2) LABOR(-2)

Based on Table 16, it shows that the China's outward FDI has significant positive impacts on the economic growth of developing countries. Initially, developing countries lack of sufficient funds to improve on their economies in which, extra funds and capital are required through FDI from foreign countries and investors. Although the economies of developing countries are getting better, they would prefer to rely on FDI continuously as FDI does not only provide funds for the local government and investors, it also has an indirect impact like technology transfer, strengthen the relationship between countries and others. The

Secretary General of United Nations (Koffi A Annan) stated that FDI is an important factor in the long-term economic development of the developing countries as FDI provides jobs opportunity, enhances productivity, increases exports and technology transfer (UNCTAD, 2003). Jenkins and Dussel Peters (2009) showed that China's emergence and outward FDI becomes the economic powerhouse of the business organization across the developing countries. China's outward FDI invested on Africa which around 20 million U.S. dollar per year in the early 1990s and reached over one billion U.S. dollar in 2006. Developed countries investors and investment mostly focus on profit maximization, but Chinese outward FDI is totally different and focus on strategic objective explicitly and implicitly (Zafar, 2007).

Due to high inflation and increment of wage rate in China, China's investors reduce the presence of firms in China and break their value chains into segments and outsource labor intensive and technologically simple task. While China's firms increase the cost-reducing foreign investment, this might benefited the developing countries by providing huge China's outward FDI and job opportunities (Kaplinsky, 2012). China's firms normally shifted their production line or labor intensive process into developing countries to minimize their cost of production by accessing the cheap labors and natural resources. China's firms also shifted their labor-intensive manufacturing industries into developing countries, in which needed a number of workers to maintain the production process. This might brought massive job opportunities into developing countries and indirectly improve their living standards. China's outward FDI also has a significant positive impact on the job opportunity of the developing countries.

Chinese outward FDI and investors strongly involve on the M&As and Greenfield investment in developing countries. For example, CNOOC invested on liquefied natural gas with 8.5 billion U.S. dollar in Tangguh, Papua Province and

also invested 5.5 billion U.S. dollar on PT SMART in Indonesia to produce biofuel. Sinopec cooperate with Indonesian government to explore oil production in Tuban. CNPC and Petro China acquired Amerada Hess Indonesia Holding Ltd. to explore oilfield in Jabung, Smatra (Wibowo and Kusuma, 2009). Other than Chinese MNCs, Blanchard (2010) showed that many small and medium-sized enterprises strongly involving on small scale projects, labor intensive production and low technology goods and etc in developing countries around Africa, Latin America, and south America. For example, Guangzhou Number 1 Cigarette Factory build up a cigarette factory in Cambodia, Shanghai Guangdian Company set up a television factory in South Africa, Shanghai Bicycle Group established ventures in Brazil and Ghana, Baosteel invest in steel manufacturing JVs in Brazil.

China's FDI led to technology transfer who is important for developing countries (Zhang et al., 2007; de la Tour et al., 2011). In the past few decades, although most of the developing countries have large resources reserve, they still remained as an oil importers and the net oil import as most of the developing countries did not have the enough capital and technology to access into these natural resources sectors to the extent in which, the import has regularly increased. Thus, there is a need to absorb the advance technology and skill through FDI to make a change via accessing these resources and be an exporter. China's outward FDI also enhanced the competitiveness within the developing countries which is the first step toward competing with other large developed countries (Long, 2005). China's FDI has probably strengthened the local development and has improved on the production fragmentation of the developing countries. For example, China has shifted the normal goods and intermediate products of the processing line into developing countries to enjoy the benefit of the cheap labors and natural resources eventually processing these intermediate goods into final products whilst exporting to other countries. These have extremely changed their competitiveness on manufacturing of developing

countries. Chinese technology is more advanced than other developed countries and Chinese investors can benefit from mixing their technology with local company. For example, Huawei teamed up with Vietnam partners to get involve in telecommunication sector of Vietnam and provided CDMA technologies which cost 6 million U.S. dollar to Vietnam Power Telecom.

Meanwhile, China's outward FDI also focused on the financial services and banking sector of developing countries to provide loans and funding for the local governments and investors. For Example, China's Export-Import Bank provided 71million U.S. dollar to Papua New Guinea (PNG) as concessional loan for the construction of park. On the other hand, it also provided an interest-free loan without conditions to the Angola government which is better than the offer of International Monetary Fund (IMF) loan that tied with the transparency oil revenue accounting (Lombard, 2006). Industrial and Commercial Bank of China set up 12 branches in Indonesia and take over Bank Halim, Indonesian private commercial bank (International Jerald Tribune, 2007). China provided aids and loans around 240 million U.S. dollar for Cambodia between 1997 to 1999 (Frost et al., 2002) and enhancing China position further by provided extra 30 million U.S. dollar in aid on 2003 (ST, 2003). Sinopec also provided 1.9 billion U.S. dollar to Petrobras in Brazil for construction service especially designing and construction part of the GASENE pipeline.

Furthermore, infrastructure investment is an important factor for developing countries to improve on their economic growth by improving the productivity, minimizing the time and cost, increasing the domestic welfare and other benefits. However, the infrastructures level of the developing countries remained low and most of the infrastructures are outdated or spoiled led to a negative impact on the economy, domestic welfare and investment inflow of the countries as the government of developing countries commonly would be shifting

the funds into other areas with less investment in infrastructure. China's government and firms played an important role in infrastructure development by providing different type of supports on infrastructure of the developing countries. For example, Synohyrdo Corporation set up a coal burning electricity power plant with capacity 200 MW in Nanggroe Aceh Darussalam (Krismantari, 2008). China provided a 800 million U.S. dollar loan for few infrastructure projects in Indonesia. The construction of Jatigede dam used around 250 million U.S. dollar loan and the other would be used to set up thermal power plants, road construction and 517 km long double track railway project and etc (Abdussalam, 2007). Chinese government also financed 40 billion U.S. dollar on Silk Road Economic Belt and Maritime Silk Road of China (Tiezzi, 2014).

As a result, the trade openness is positively related to the economic growth of the developing countries. Trade openness is important for developing countries to boost their economies because it could enhance on the export and also as an attraction toward the foreign investors to invest in the developing countries. Harrison (1996) investigated the relationship between openness and economic growth in developing and found that the trade openness has positive and significant impact on the economic growth in short run and long run. More openness developing countries will attract more China's FDI and China's FDI will bring The country with a higher degree of openness has a greater ability to use technologies generated in advanced economies, and this capability leads them to grow more rapidly than a country with a lower degree of openness. The interaction of trade openness and FDI has negative impacts on the economic growth of the developing countries. Rodrik (1998) and Serven (2003) found that there is a negative effect of trade on domestic investment led to harm the economic growth. Higher trade openness might lower down the foreign direct investment from China because China firm will invest into specific sector such as natural resource. China firms will export all the natural resource from developing countries back to China for production. Although China firms increase the export

of host developing country, China firms will not increase their investment once the production line is stable. It might bring any long term impact to host country development.

The general government final consumption expenditure has an insignificant positive impact on the economic growth of developing countries. Josaphat and Oliver (2000) found out that the government spending has an insignificant impact on growth. Government spending from developing countries might not fully utilize by host countries because developing countries might need to provide aids and medical support to citizen which is not affect economic growth of host country. However, the inflation has a significant positive impact on the economic growth. . Mallik and Chowdhury (2001) found that there is a positive impact on inflation on growth. Investors will have easier access for fund from bank due to high inflation rate. So that, investor can improve productivity and output level and on evolution of total factor productivity.

Lastly, gross fixed capital formation has a significant positive impact on economic growth of the developing countries. Jorgenson and Griliches (1967) and Lucas (1988), found that formulation of capital has positive and significant impact on the economic growth and development due to the progress of technological up gradation, innovations and increase in productivity. Capital formation urges technological advances in the economy, through enhancing benefits affiliated with large-scale production and rising specialization in the economy. Population as proxy of Labor has a significant positive impact on the economic growth of selected countries. Ito (1978), Chiarella et al. (2000) and Manfredi and Fanti (2006) showed that labor force affects economic fluctuations and economic growth positively. Higher population will have more labor force in market, it will enhance the productivity and market for goods produced in the country.

4.5.2 Developed countries

Table 8: GMM Estimation Result of China's Outward FDI and Economic Growth on Developed Countries

Variable	Coefficient	t-Statistic	Prob.
OFDI	0.622552	1.743196	0.0834*
OPENNESS	0.160549	1.368910	0.1732
OFDI*OPENNESS	-0.691928	-1.864103	0.0644*
GOVSPEN	-0.528000	-2.280373	0.0241**
INFLATION	0.024768	2.000848	0.0473**
CAPITAL	1.159239	5.708006	0.0000***
LABOR	0.465304	2.697882	0.0078***
R-squared	0.801690		
J-statistic	0.767818		
Instrument rank	9		
Sargan Test	0.849063		

* refers to 0.1 significance level

** refers to 0.05 significance level

*** refers to 0.01 significance level

Instrument specification:

C OFDI(-1) OPENNESS(-1) OFDI*OPENNESS(-1) GOVSPEN(-1)
GOVSPEN(-2) INFLATION(-1) INFLATION(-2) CAPITAL(-1) LABOR(-1)

In Table 3, it shows that China's outward FDI has positively impacted on the economic growth of developed countries significantly. China's investments has created job opportunities for local residents as a new source of capital for local firms, increased domestic welfare, improved on the infrastructure and productivity thus strengthen commercial ties between China and the developed countries such as the U.S. and other countries (Morrison, 2013).

In past decade, China's outward FDI increased significantly, but most of the FDI flow into developing countries. However, Chinese investors have shifts to developed countries in recent years. During global financial crisis, large accumulation of Chinese currency reserves and the sovereign debt crises in developed countries has changed China into a potential savior, apparently a new source of FDI for developed countries. China's FDI destined for developed countries will continue to increase sharply, and developed countries can predict to secure an important share of the one to two trillion U.S. dollar from China's outward FDI. China's FDI became a new crucial source of FDI in the world market to fulfill the shortfall in capital and investment needs for the developed countries (American Chamber of Shanghai, 2010)

Besides, Chinese investors and enterprises have significant positive impact on the economic development of the developed countries by greenfield development and greenfield development. Conyon et al (2002) and Liu and Zhou (2008) found that that M&As and Greenfield have strong positive impact on labor productivity and economic growth. For example, the largest telecommunications equipment manufacturer in China, Huawei based the European Headquarter in the south-east of England in 2004 and joint venture on R&D with a telecommunications company of United Kingdom, BT. They also supply the fiber optic infrastructure and set up R&D center in Bristol. Huawei also joint venture with Global Marine, the specialist submarine communications company to support end to end submarine network service. Other than Huawei, Hangzhou Cron Machinery and Electronics, printing-technology manufacturer create power tools in Düsseldorf by established joint venture with Ryobi. Hony Capital's acquire PizzaExpress with 1.5 billion U.S. dollar. Acquisition of Hilite, a German automotive supplier cost 522 million Euros to Aviation Industry Corporation of China. Sanpower, Chinese conglomerate used 480 million Pound to takeover House of Fraser, UK department store chain. Aviation Industry Corporation of China acquired Hilite, a German automotive supplier by using 522 million Euros and KHD Humboldt Wedag, a German cement plant manufacturer by 285 million

Euros. Lenovo established 2.9 billion U.S. dollar acquisition of Motorola, the handset division of a telecoms firm. Weichai Power has provided 21 million Euros into Moteurs Baudouin, the French engine maker.

The dramatically growth on Chinese investment created many opportunities for well-positioned developed countries firms. In the post financial crisis, global economic growth and FDI showed significantly lower lever, Chinese outward FDI and investors become important role for divesting assets. Joint venture between developed countries' firms and Chinese enterprises helped the process of access to Chinese market. The foreign firms from similar sector also can transfer technology and market knowledge of China back to their business. Greater access into Chinese market becomes an important tool for developed countries to support the growth path and create employment. The combinations of developed countries and Chinese technologies have positive impacts on productivity and innovation development to provide service for different segmentation of new customers (Voss and Clegg, 2012). For the past decades, China's firms merely remained at the low level technology and basic management skill as China's FDI are still situated in the early stage with lack of experience for China's firms to transfer their specific technology which helped developed countries' firms lower their cost of productions and enhanced the productivity. Developed countries' firms started to combine their technology with China recently as it could improve their products or creating new ones to fulfill the need of new and different customer segments.

Arising from this, China's investment has increased the competitiveness of the developed countries in the global market and improved on the consumer welfare of the developed countries by providing low prices, product diversity and selection as well as enhancing the innovation cycles. These advantageous have expanded over the traditional goods trade to product segments that required more effective presence in the consumer markets particularly in services, in which

China's firms have already established a strong global position in various services industries. For example, China's investors invested over 30 million U.S. dollar on a refrigerator plant of Haier in Camden, South Carolina and hired approximately 600 residents in assembly department, R&D and administration. This investment of Haier in U.S has improved and shaped the development from a domestic original equipment manufacturer to a global brand. Haier is now the largest white good producer in the world, exporting luxury refrigerators made in United States to China and other markets. Besides, Lenovo used 1.75 billion U.S. dollar to takeover IBM's personal computer division in 2005 and also provided 10 million U.S. dollar in the R&D facility and fulfillment center in Greensboro, North Carolina. Eventually, Haier and Lenovo became the China's household brands names in the United States.

In addition, China's outward FDI also created mass amount of job opportunity to the developed countries. *Bureau of Economic Analysis* (BEA) data showed that China's firms in United States have hired approximately 2,500 residents in 2008. For official statistics, it did not record the entire investment with some missing data on the investments leading to a higher actual total recent due to dramatic increased in the number of investment leading to an increase of the number of employees to the payrolls significantly. China's investments have a higher ability to be Greenfields, and China's manufacturing investment is concentrated on setting up long-term projects that would provide job opportunities for the local residents. As the acquisition of China's firms is in the low productive local firms, China could still be succeeded in bringing out a restructuring process which might be able to avoid job losses and yet increases the job opportunity for local residents. China's investments safeguard the domestic employment that in the brink of shutdown, and sometimes might lead to job creation while the firms have recovered. For example, Hanemann and :Lysenko (2012) showed that 45000 job opportunities created are associated with Chinese direct investment in developed countries around Europe. Chinese firms created more than 1000 jobs in Piraeus. The acquisition of local know-how and talent was important factor,

Chinese enterprises need many skillful and experienced staff to improve their structures and workforce to ensure successfully in markets abroad, so Chinese investors remained the local employees and just sent few Chinese staff to maintain their operations.

Chinese enterprises concentrate on technology on developed countries in earlier, but now they diversified into different sectors like healthcare, finance, entertainment and media, telecommunication and etc. For example, Chinese enterprises focus on manufacturing sector, specially the Volvo (automotive industry), Pitzmeister (industrial machinery), Huawei (information technology) and financial services. Chinese enterprises also involved strongly in infrastructures projects that provide control over distribution ways in developed countries like highways in Poland, airports in Germany and Cyprus and railways in Slovenia and Hungary (Ying, 2014).

As a result, trade openness has impacted positively on the economic growth of the developed countries; however, it is not impactful. Hanson and Harrison (1999) found out that the result of Sachs and Warner (1995) did not show any relationship between trade openness and economic growth. Although developed countries are more openness, developed countries have high export and also higher import to support the production in host country. So, trade openness might not have significant effect on economic growth in developed countries. The interaction of trade openness and FDI has a significant positive impact on the economic growth of the developed countries. According to “Bhagwati hypothesis”, it showed that FDI has less or even negative impact on the economic growth in an import substitution regime compared to export promotion regime. Some researchers (De Mello, 1999; Lipsey, 2000) also supported this hypothesis and showed that FDI can even have adverse impacts on growth in the trade restrictiveness situation. China's firms invest into developed countries by set up their production line in host country due to lower cost.

However, it may affect the local company and trade because China firms might import materials from China or other countries to support the production line in host country. The product will fulfill the host country market or export. The local company which cannot compete with China firm will lose their market share and even bankrupt. Overall trade of host developed country might not increase due to import of the materials to support the production line.

For developed countries, the government final consumption expenditure has a significant negative impact on the economic growth. Landau (1983) showed that there is an inverse relationship between GDP growth and government consumption expenditure. Developed countries may have negative impact on economy due to government spending through increase tax, leading print money. Besides, developed countries might increase government spending on sector which is not related with economy like military. The inflation has a positive significant impact on the economic growth of the developed countries. Among the first authors to analyse the inflation-growth relationship included Kormendi & Meguire (1985) found that there is a positive relationship between inflation and GDP growth.

Lastly, gross fixed capital formation has a superior positive impact on economic growth of the developed countries. Levine and Zervos (1998) examined the formation of fixed capital and economic development in international growth regression factors and found that the growth of physical capital formation has positive and significant on the economic development. Capital formation urges technological advances in the economy, through enhancing benefits affiliated with large-scale production and rising specialization in the economy. Population as proxy of Labor has a significant positive impact on the economic growth of selected countries. Nafziger (1997) found that population growth enhanced economic growth due to increase productivity. Higher population will have more

labor force in market, it will enhance the productivity and market for goods produced in the country.

4.6 Regions

In this section, the effect of China's outward FDI on the economic growth of each region would be examined from 2003 to 2009. The countries are being categorized into few regions such as Asia, Africa, Europe, Latin America, Oceania and North America. However, North America and Oceania regions are being excluded in this research as the basic requirements for using GMM estimation is having the number of country (N) greater than number of year (Y). In this case, the countries available for both North America and Oceania regions are two and three respectively in which both the number of countries within these regions are restricted by the number of estimation lesser than the time period of seven years. Finally, the separation of regions would follow the "Statistical Bulletin of China's outward Foreign Direct Investment" which was published by Ministry of Commerce and the Ministry of Foreign Trade and Economic Cooperation.

Region	Countries
Asia	Bangladesh, Cambodia, Hong Kong, India, Indonesia, Israel, Japan, Jordan, Kazakhstan, Korea, Macao SAR, Malaysia, Mongolia, Nepal, Pakistan, the Philippines, Qatar, Saudi Arabia, Singapore, Sri Lanka, Tajikistan, Thailand, Turkey, Turkmenistan, Uzbekistan, Vietnam, Yemen Republic.
Africa	Algeria, Botswana, Congo Republic, Cote d'Ivoire, Egypt, Ethiopia, Gabon, Ghana, Guinea, Kenya, Lesotho, Madagascar, Mauritania, Mauritius, Morocco, Mozambique, Rwanda, Senegal, South Africa, Sudan, Tanzania, Tunisia, Uganda, Zambia, Zimbabwe
Europe	Austria, Azerbaijan, Belgium, Bosnia and Herzegovina, Bulgaria, Czech Republic, Denmark, France, Germany, Hungary, Ireland, Italy, Latvia, Malta, the Netherlands, Poland, Romania, Russian Federation, Slovak Republic, Sweden, Switzerland, Ukraine, United Kingdom
Latin America	Argentina, Bahamas, Brazil, Chile, Colombia, Ecuador, Mexico, Panama, Peru, Uruguay, Venezuela

4.6.1 Europe

Table 9: GMM Estimation Result of China's Outward FDI and Economic Growth on Europe

Variable	Coefficient	t-Statistic	Prob.
OFDI	8.733702	1.799381	0.0755*
OPENNESS	3.154804	1.710162	0.0909*
OFDI*OPENNESS	-8.919972	-1.836445	0.0698*
GOVSPEN	-0.898606	-1.501588	0.1369
INFLATION	-0.076750	-1.943175	0.0553*
CAPITAL	0.924952	1.6695233	0.0987*
LABOR	0.988877	1.944922	0.0551*
R-squared	0.433102		
J-statistic	12.63903		
Instrument rank	16		
Sargan Test	0.179631		

* refers to 0.1 significance level

** refers to 0.05 significance level

*** refers to 0.01 significance level.

Instrument specification:

C OFDI(-1) OPENNESS(-1) OPENNESS(-2) OPENNESS(-3)
 OFDI*OPENNESS(-1) OFDI*OPENNESS(-2) OFDI*OPENNESS(-3)
 OFDI*OPENNESS(-4) GOVSPEN(-1) GOVSPEN(-2) GOVSPEN(-3)
 GOVSPEN(-4) INFLATION(-1) INFLATION(-2) INFLATION(-3) CAPITAL(-
 1) CAPITAL(-2) CAPITAL(-3) LABOR(-1) LABOR(-2) LABOR(-3) LABOR(-
 4)

In Table 18, China's outward FDI has a significant positive impact on the economic growth of European region. The effect of China's outward FDI on Europe is greater than other region like Africa, Asia and Latin America. China's outward FDI has the significant impact on the productivity improvement of domestic firms and GDP enhancement of European countries. A number of researchers (Hay et al, 2008) showed that China's outward FDI has brought a positive impact on industries of Germany. In a case study of U.K., China's outward FDI has positively affected the automotive sector. Before it was taken over by the China's firms COSCO, the Greek harbor of Piraeus has merely produced six Twenty-foot Equivalent units per hour as compared to current production of an average of 22 units or even higher. Besides, China's investment also helped many automotive equipment manufacturers in U.K. to survive in the crisis and even sometimes expanded to the world market. China's firms supply funds for European firms and yet they also sent some China's technicians to improve the telecommunication equipment industries in Europe by creating a Vigorous competition for hot domestic producers.

Besides, European countries were strongly supported by China's investment and firms to safeguard against domestic firms from bankruptcy. Mathieu (2006) has studied and analyzed on the acquisition of China's firms with large French firms. For the acquisition of Marionnaud and A.S. Watson Group cases, the French's firms were suffering to continue the business before acquisition. After China's acquisition, its operations grew dramatically by creating new stores and employing new workers to fulfill their business. For the acquisition of Blue Star, it created an R&D center in France that focused on biotechnology for amino acid used in animal food products. In French experience on China's acquisition, it has been adequately favorable that the "Invest in France Agency" is enhancing the job opportunity created by China's firms to increase the perception of opportunity in the French market.

China's firms and government has become more competitive in enhancing the technology capacity. Although the technology level of China is lower as compared to other developed countries, the technology level of China remained high amongst the developing countries. European firms recently have started to combine their technology with China in which could further improve the product, create new products to fulfill the new and yet different customer segments. European firms which normally serve the high level consumers while less concentrate on the low level consumers has changed totally since, China's firms is totally different from European firms in which requiring more effort on the low level consumers. While world economy crisis happened, the high level consumers became lesser and the market size of European firms became smaller. Hence, European firms were in need to combine their technology with China's firms to maintain their quality of products and minimize the cost of production to serve the low level consumers.

Additionally, European firms that are partly or fully acquired by China's firms could easily accessed into China's market, so China's investment could enhance on the European firms market shares by opening new markets in China. For example, Putzmeister acquired by Sany Heavy Industry of China, Germany firms took over the benefits on the global market network from China's firms to enhance their sales of its high-tech concrete pumps. Greater accessibility into China's market could bring a positive impact on the growth trajectory of European firms, since these firms must expand their business and production to fulfill the large market of China leading to job creation in European countries in order to have enough manpower to maintain high productivity.

Few decades ago, most of these European countries are categorized as developed countries and has provided large volume of global FDI for the developing countries. However during crisis, European countries have used up

most of the capital and reserve to stabilize their economy, thus a global FDI is in need to finance their economic recovery activities as they faced debt crisis and economic slowdown. Apart from the limited funding, the global outward FDI has also reduced dramatically from 2.3 trillion U.S. dollar in 2007 to 1.3 trillion U.S. dollars in 2010. Most of the countries are severely harmed by the crisis and led to a decrease in the source of outward FDI dramatically. Even though the global outward FDI and most of developed countries FDI decreased dramatically in the crisis, China's outward FDI grows dramatically and strengthens the importance of China to capital-hungry Europe. China's FDI has fulfilled the shortfall in capital and investment needs for the European countries and became a new important source of FDI in the world market and over passed a number of large developed countries (Hanemann & Rosen, 2012).

Furthermore, employment is an important part for economy development due to full employment could maximize the tax revenue, production and other advantages. However, some case studies showed that China's FDI in European countries did not have much impact on local employment. For example, Shanghai Automotive Industry Corporation and Nanjing Automobile have shifted the production line back to China after the acquisition of MG Rover in order to minimize the production cost of MG Rover by acquiring the lower labor cost in China rather than paying higher wage rate in European countries.

Moreover, there were many successful cases and databases which supported China's outward FDI could bring significant impacts on the employment of European region. While the acquisition of China's firms is on the low productive local firms, they may have succeeded in bringing out a restructuring process which might have avoided job losses yet increased job opportunity for the local residents. China's investments have safeguarded against domestic employment that in the brink of shutdown, and sometimes might lead to job creation while the firms are recovering at risk. For example, Geely's 2010

acquisition of Volvo had save 16,000 domestic jobs, and provided an 11 billion U.S. dollar job-creating investment projects in Sweden and other European countries. After Beijing No.1 Machine Tools took over the Waldrich Coburg (German machinery maker) in 2005, the firm has increased the number of workers from 500 to 800. China's Ministry of Commerce calculations showed that there were around 50000 domestic workers hired by 1,600 China's firms in Europe. Pertaining to Rhodium Groups' report in June 2012, China had created 428 Greenfield projects during 2000 to 2011 and approximately provided 15000 jobs for European countries, not including employment at smaller firms receiving funding lesser than one million investments.

Meanwhile, the trade openness has significantly impacted the economic growth of the European region in a positive way. Murarasu and Bobasu (2015) found that trade openness has positive impact on the GDP growth in European Union. The EU believes that free trade can only be achieved if companies can truly enter the market. Therefore, the EU ensures that its members have access to all markets. The interaction of trade openness and FDI has significant negative impact on the economic growth of the European region. Harrison and McMillan (2003) and Lipsey (2000) found that there are negative effects of FDI on the domestic investment led to negative impact on economic growth. China's firms invest into developed countries by set up their production line in host country due to lower cost. However, it may affect the local company and trade because China firms might import materials from China or other countries to support the production line in host country. The product will fulfill the host country market or export. The local company which cannot compete with China firm will lose their market share and even bankrupt. Overall trade of host developed country might not increase due to import of the materials to support the production line.

Other than that, the government final consumption expenditure is negatively affecting the economic growth of the European region, but it is

insignificant. Devarajan et al (1996) found that government spending has a negative relation to growth however it was statistically insignificant. Narudeen and Usman (2010) found that government total recurrent and capital expenditure had insignificant growth effects. Government spending in Europe countries is not heavily focus on economy. They are more focus on welfare and overall infrastructure that it might have impact on economic growth. The inflation has the significant negative impact on the economic growth of European region. Fischer (1993) and De Gregorio (1993) found that inflation has negative and significant impact on the economic growth by using pooled cross-section time series regressions. Deflation will lower the assets prices as producers are forced to liquidate stocks which surplus. Both consumers and investors are beginning to hold liquid currency reserve to withstand further economic losses. As more saving, less spending, further reducing aggregate demand.

Yet, gross fixed capital formation is positively affecting the economic growth of the European region significantly. Gibescu(2010) found that the level of the between gross fixed capital formation has positive and significant impact on the economic growth, in Romania, Bulgaria, Czech Republic and Poland. Capital formation urges technological advances in the economy, through enhancing benefits affiliated with large-scale production and rising specialization in the economy. Population as proxy of Labor has a significant positive impact on the economic growth of European region. Simon (1996) showed that population growth led to economic growth when he noted that a human being is the vital essential element and resource. Higher population will have more labor force in market, it will enhance the productivity and market for goods produced in the country

4.6.2 Africa

Table 20: GMM Estimation Result of China's Outward FDI and Economic Growth on Africa

Variable	Coefficient	t-Statistic	Prob.
OFDI	4.084818	2.829556	0.0055***
OPENNESS	1.641864	2.723937	0.0074***
OFDI*OPENNESS	-4.213159	-2.966173	0.0037***
GOVSPEN	-0.604090	-2.045457	0.0430**
INFLATION	-0.026195	-2.002266	0.0475**
CAPITAL	1.433522	4.967429	0.0000***
LABOR	0.074460	0,605048	0.5463
R-squared	0.385354		
J-statistic	4.726279		
Instrument rank	11		
Sargan Test	0.316553		

* refers to 0.1 significance level

** refers to 0.05 significance level

*** refers to 0.01 significance level

Instrument specification:

C OFDI(-2) OPENNESS(-1) OFDI*OPENNESS(-1) OFDI*OPENNESS(-2)
GOVSPEN(-1) GOVSPEN(-2) INFLATION(-1) CAPITAL(-1) CAPITAL(-2)
LABOR(-2)

Based on Table 19, China's outward FDI has a significant positive impact on the economic growth of the African region, which larger than Asia and Latin America. Few decades ago, African countries remained as an under-developed with a low living standard and poor economy. African governments continuously tried to improve on their economies yet did not achieve the goals due insufficient fund, capital and technology to improve on their economies and break out from the vicious cycle. Later on, FDI became an important tool for African countries to

solve their problems. In early stage of China's investment abroad, China's firms and government focused their investment on natural resources of Africa. However, researchers showed that China's investment may cause harm to the African economy by shifting the natural resources back to their home country (Adenikinju & Bamou, 2006).

Nonetheless, some researchers have similar point of views with the aids of case studies of China's investment showing that China's FDI in natural resources sectors has improved on the economy of African countries in several ways (Burke & Corkin, 2006; Broadman, 2007; Ajakaiye et al, 2008). Roxburgh et al. (2010) has included the China's FDI as an indication to study on Africa's economy and found out that China's FDI is one of the important drivers on the economic growth of African countries. Cheung et al. (2011) found out that China is strongly related to African economy as trading and economy partner while supported the investment policy of African led to a win-win situation. China's firms have taken over the Chambishi and Luanshya mines in Zambia and overcame the financial crisis. China's investment has definitely encouraged Zambia's financial inflow, enhanced output, improved capacity utilization and job creation. The copper production increased dramatically, and this has led to corresponding enhancement the earnings and exports.

Besides, China's FDI also provided huge job opportunities and development assistances in different sectors of Africa. Few decades ago, China's government and firms strongly invested in the natural resources sectors which required huge manpower in the production line. This has brought a number of job opportunities for the local residents (Idun-Arkhurst & Laing, 2007). In addition, China's government introduced an economic zone concept into African countries due to the significant impact which succeeded in the China's economy. China has supported Africa to create their own special economic zones as it may bring indirect impact like employment and trade in the African region. The special

economic zones created by China have benefited African countries. For example, China's government and firms created and improved the Egypt Suez Cooperation Zone that led to expansion plans and encouraged investors by starting small and medium-sized enterprises (SMEs) to set up business in Egypt (UNCTAD, 2010).

Since 1960s, African states have already been receiving technical supports in engineering, agricultural and medical from China although it is only boosted by the late 1980s. China provided training for 14,600 people in different sectors in Africa (Zhang, 2006) and financial support for training programs in Liberia and Central African Republic to strengthen their capacity of civil service and provided training programs for thousands of African farms in small scale agricultural production and hydro irrigation. Likewise, China's government has provided modern telecommunication equipment for Djibouti, Ethiopia and other Africa countries meanwhile giving training for local entrepreneurs to maintain the equipment. During 2006, China trained 15000 African professionals, sent out 100 senior agricultural professional to Africa and created 10 special agricultural technology demonstration centers. China's government provided scholarships for African students who has an annual increment from 2,000 people in 2006 to 4,000 people in 2009 (Chee, 2006).

Banking and financial sector is also an important sector for the economy development of African countries as this sector is the only channel for FDI to flow into African countries, providing loans for domestic and foreign firms, stabilizing the economy, providing fund for infrastructures or other sectors, etc. However, with the poor banking and financial sectors of African countries, it may have harmed the investment and economy of African countries. In 1985, China has joined with the African Development Fund and African Development Bank Group's (AfDB) and invested 314 million U.S. dollar to the African Development Fund to improve the African infrastructure, education, poverty alleviation and construction. China's government has promised with a 2 million U.S. dollar

technical co-operation contract for further fostering the co-operation between China and AfDB in 1996. For those China's experts who are working on the related projects and transferring advanced technology to Africa, they are being subsidized from the contract. China's government has paid 0.9 million U.S. dollar to assist on 14 projects in eight different African countries (Zhang, 2007).

China has involved in several states owned banks of Africa. One of them is Exim Bank (China Export-Import Bank), which started since 1994 aimed to enhance on China's exportation and FDI specifically in the infrastructure sector such as roads, power plants, pipelines, telecommunications and others (Wang, 2007). Although this bank has a less risk-sensitive profile as compared to private banks, it is yet more willingly to provide investment than western investors. Besides, China Development Bank (CDB) which started in 1994 as well as provided loans to China's firms and launched the China-Africa Development Fund to support China's FDI in Asia. Lastly, the SINOSURE (China Export and Credit Insurance Corporation) operated since 2001 has provided insurance against the risks involved in China's export and foreign investment.

Although China has been taking natural resources from Africa, China government and firms have also provided different types of supports on construction projects and financial assistance on African countries. China's firms and government have provided huge infrastructure assistances for African countries by getting the permit from African governments to access into the natural resources industries. For example, Broadman (2007) found that China's investment in Africa has not been fully utilizing the natural resources but the new South-South trade between China and Africa showed greater opportunity for the African to be involved into global trading. Foster et al. (2008) found that the infrastructure projects are being paid by natural resources during 2001 to 2007. Corkin et al. (2008) found out that there is a strong relationship between resource

rich countries and infrastructure assistance. PetroChina allocated 2.7 billion U.S. dollar in Sudan to assist them for oil industry development in which the funds were used to build a 1,506km oil pipeline, a crude processing plant that could afford an annual capacity of 2.5 million tonnes, and many gas stations (Zhang, 2006).

Furthermore, China also financed 2 billion U.S. dollar on the Merowe hydropower dam that could generate energy power to all African countries for next two decades. China's Sino Hydro Corporation assisted Ghana government to set up a 400 megawatt hydroelectric dam that worth 600 million U.S. dollar. China's government also supported Ethiopia to set up a dam project that worth 300 million US dollar (Joshua, 2006). China's firms build over 80 percent of the main roads in Rwanda (Leggett, 2005) and also given out 2 billion U.S. dollar credit line to support the infrastructure projects in Equatorial Guinea in 2006. In 2012, China's government focused on the infrastructure commitment to provide a rebuild satellite to Nigeria and also aimed to create over 150,000 related job opportunities for Nigerians with estimated savings of 95 million U.S. dollar and 660 million U.S. dollar in the local and regional communications per year consequently (Yin, 2012). Recently, they also received the projects to repair water treatment that worth 15 million U.S. dollar in Beira and Quelimane and the project in Moputo which worth over 30 million U.S. dollar (Thompson, 2005).

Additionally, China has provided debt forgiveness and aid to African countries to improve their infrastructure development, which brought up an important impact onto African countries' political stability. The education and health programs introduced by China have a large positive impact on African economic growth and domestic living standard improvement. China's government not only focused on profits of the African countries, it also concerned about the welfare of these countries. For example, China also provided schools and hospital for patients who are suffering from HIV or AIDS. China has sent medical teams

to 43 African countries with more than 16000 people and helped around 240 million people (Zhang, 2006), around 180 million HIV/AIDS cases (Thompson, 2005). More than 900 China's doctors work in Africa recently (Lyman, 2005). In 2006, China's government has promised to provide 300 million Renminbi for anti-malaria drug, 30 malaria prevention and treatment centers, sent out more than 300 people to Africa and planned to set up over 30 hospitals and 100 schools in 2009 (Chee, 2006). China also financed over 20 million U.S. dollar in Sudan to improve their facilities and infrastructures like hospitals, roads and schools (He, 2006).

Meanwhile, the trade openness has the significant positive impact on the economic growth of the African region. Hammouda (2004) showed that the trade openness and the competitive integration of the African economies into the globalization process and enhance the GDP growth. More openness African countries will attract more China's FDI and China's FDI will bring The country with a higher degree of openness has a greater ability to use technologies generated in advanced economies, and this capability leads them to grow more rapidly than a country with a lower degree of openness. However, the interaction of trade openness and FDI are negatively impacted the economic growth of the African region significantly. Agosin and Machado (2005) studied about the crowds in or crowds out domestic investment in 36 developing countries from Africa, Asia and Latin America crowds between 1971 and 2000. They found that there is a clear crowding out effect in Latin and also in Africa with complete long term crowding out which badly harm the economic growth. Higher trade openness might lower down the foreign direct investment from China because China firm will invest into specific sector such as natural resource. China firms will export all the natural resource from developing countries back to China for production. Although China firms increase the export of host developing country, China firms will not increase their investment once the production line is stable. It might bring any long term impact to host country development.

Moreover, the government final consumption expenditure has a significant negative impact on the economic growth of Africa countries. Barro (1991), and Engen and Skinner (1992) found that there is a negative relationship between large government expenditure and economic growth. African countries facing serious corruption and only harm the economy badly because all the funding will not shift to economy related sector and even infrastructure or residence welfare. Residence will need to pay for high tax to cover the government spending and country will suffer into high debts. The inflation has a significant negative impact on the economic growth of the African region. Dewan and Hussein (2001) found out that inflation was negatively correlated to growth. Deflation will lower the assets prices as producers are forced to liquidate stocks which surplus. Both consumers and investors are beginning to hold liquid currency reserve to withstand further economic losses. As more saving, less spending, further reducing aggregate demand.

Lastly, gross fixed capital formation has the significant positive impact on economic growth of the African region. Gomes (2013) showed that there is a positive and significant relationship between capital formation and growth over the very long run. Capital formation urges technological advances in the economy, through enhancing benefits affiliated with large-scale production and rising specialization in the economy. Population as proxy of Labor has positively affecting the economic growth of the Africa region, but it is highly insignificant. Liddle (2003) showed that there is no relationship between population growth and per capita economic. Population growth might lower down the average area of arable land per worker and the application of the law of diminishing returns; lengthening the adjustment of institutions as possible

4.6.3 Asia

Table 10: GMM Estimation Result of China's Outward FDI and Economic Growth on Asia

Variable	Coefficient	t-Statistic	Prob.
OFDI	1.217061	1.910418	0.0583*
OPENNESS	0.418426	2.336769	0.0210**
OFDI*OPENNESS	-1.212107	-1.908641	0.0585*
GOVSPEN	0.761186	7.935026	0.0000***
INFLATION	0.048822	3.373951	0.0010***
CAPITAL	0.216242	1.728790	0.0863*
LABOR	0.000803	0.006741	0.9946
R-squared	0.512344		
J-statistic	0.001717		
Instrument rank	8		
Sargan Test	0.966948		

* refers to 0.1 significance level

** refers to 0.05 significance level

*** refers to 0.01 significance level.

Instrument specification:

C OFDI(-1) OPENEESS(-2) OFDI*OPENNESS(-1) GOVSPEN(-1)
INFLATION(-1) CAPITAL(-1) LABOR(-2)

Although the effect of China's outward FDI on Asia is smaller than Europe and Africa, it also has significant positive impact on the economic growth of Asian region. Dorothy-Grace Guerrero and Firoze Manji (2008) found out that China would soon be an uprising role to become more competitive on social globally, politically and economically engagements with other countries. China's global participation which normally concentrated on the needs of local countries has improved on the bilateral trade agreements to boost the economic trade and in

developments dramatically. One of the regions that gain the benefits from the current developments in economic standing of China is the Asian region.

Few decades ago, most of the Asian countries belong to developing countries with limited fund to provide loan for the domestic firms resulted in the banking and financial sector of Asian countries remained weak. Gradually, China played an important role for the Asian region. During late 1990s, China has provided around 240 million U.S. dollar to Cambodia, in which, 40 million US dollar in aid and other remained in commercial credit for China's firms (Frost et al, 2002). Moore (2004) showed that the Central Asia mainly focused on China investments to improve its regional economic integration. Although the economic collaboration between China and Central Asian countries remained low, the development of such collaboration has large potential.

Besides, China's FDI could enhance on local productivity and technology to improve on the economy of Asian region. For example, China's automobile giants brought up to 30 million U.S. dollar to Pakistan to improve the manufacturing plants and technology transfer (Dai, 2004). China's government also provided 50 million Renminbi loan for the technical support on the Dushanbe tobacco-rolling plant in 1994. Although these factories are generally encountering the issue of lacking in experience in the early stage, it solved the problem thus improved on the productivity at factory of about 80 cartons per day in 2003. Recently, Xinjiang Production and Construction Corporation had invested 0.5 million Renminbi on the water purification plant in Dushanbe and improved on the productivity of the firms (10 tonnes per day).

In addition, China's FDI has probably strengthened the development and improved on the production fragmentation of Asian region. China shifted the normal goods and other main industrial intermediate products to Asian region

such as Cambodia, Laos and Vietnam to access the cheap labor and natural resources. Hence, these countries solely focused on processing the intermediate goods into finished products while export them to other countries. China's firms shifted their labor-intensive manufacturing industries to Asian region, which is mainly concentrated on the global export market (Drysdale, 2000; Ianchovichina & Maritn, 2003). This transformation has extremely changed their competitiveness of manufacturing in Asian region. While China has a strong competitive advantage in capital, industrial production and technology, Asian region such as Cambodia, Laos, Myanmar and Vietnam clearly have a competitive advantage in agricultural, labor forces and natural resources. Therefore, these economic complementarities are easily being accomplished. This is important for intra-industry trade, in which both are highly connected and linked to the international production chain. Kubny et al (2008) showed that China's outward FDI has positively affected the institutional ASEAN integration process. China's FDI has brought on a great improvement toward these countries by strengthening the local division of labor, enhancing their competitiveness, and enlarging their export markets.

Likewise, China's outward FDI provided huge job opportunities for host countries to continue their production line (Kubny & Voss, 2010; Zhao, 2013). China's FDI also brought indirect impact to the domestic employees and firms. For example, Bloom (1992) showed that the substantial technological transferred in South Korea when the production managers of foreign firms quit their jobs to join the domestic firms. This would lead to an increased in the technology level and improved on the management skill of host countries leading to an increased in the productivity of the host countries. In order to retain their workers, foreign firms paid higher wages to prevent domestic firms from gaining their superior technology (Glass & Saggi, 2002). The wage rate of host countries would increase the wage rate of employees in which they could enjoy the advantages and increase their living standards. Kubny et al. (2008) showed that 63 percent of the local

staff in Vietnam is involved at the top and middle management and engineers in China's firms that located in Vietnam and the wage rate which offered by China's firms to local employees is higher than domestic wage rates.

Moreover, China's FDI also strongly affects the domestic production by providing high technology for host countries (Gaulier et al, 2005; Lemoine & Ünal-Kesenci, 2004). Initially, most of the Asian countries have huge resources reserve, yet remained as oil importer in which the net oil import has been regularly increased due to limited technology and skill to access and to process it. However, the situation was completely changed while China's FDI shifted into Asian countries and it has clearly improved on the energy co-operation between China and Asian region. China's firms and investments provide massive support on the Asian countries, which have large oil and gas reserve to improve their resources sector from being an oil importer to one of the important long term oil and gas exporter. For example, China's investors have sent out specialists to seek for mineral resource, helped Cambodia to attract more tourists and provided training for local on accessing to minerals effectively.

Although China's government firms mainly focused on resources and manufacturing sector, they also strongly involved in the infrastructure sector of Asian region. China's FDI and firms improved the infrastructure of the Asian region by building new highways and railroads, accessing valued mineral resources, enhancing trade relations and improving the electrical grids and hydroelectric resources to improve the host countries' infrastructure level and enhancing the living standard of the host countries. For example, China's firms set up a telecommunication system in the rural areas in Cambodia which cost 1.8 million U.S. dollar (Samean, 2004). China also set up office for the Bank of China, Industrial and Commercial Bank of China and the General Administration

of Civil Aviation of China in Kazakhstan to encourage China's investors to invest in foreign countries as well as provide soft loan for the domestic firms.

Furthermore, China held a potential significant investment in Cambodia, in which China Electric Power Technology Import and Export Corporation has built a hydropower plant that cost 39 million U.S. dollar in the west Phnom Pehn. It helped Cambodia in solving the electric supply problems which eventually attracted other foreign investors to set up their production line in the country. China's government also provided 8 million Renminbi development grant for Tajikistan to set up the telephone switching and code division multiple access equipment in the Tadanjila region. Likewise, although Thai government willing to improve the infrastructure that cost billions of Bath (Gagliardi, 2004), this project is too heavy for Thai government as it required large volume of capital and technology. China's government provided a low interest loan to cover 80 percent of the 135 million U.S. dollar in the construction of the Xeset 2 hydropower plants (Thammavongsa, 2004).

Additionally, trade openness has the significant positive impact on the economic growth of the Asian region. Majeed (2010) trade openness has positive and significant impact in the Asia region. More openness developing countries will attract more China's FDI and China's FDI will bring The country with a higher degree of openness has a greater ability to use technologies generated in advanced economies, and this capability leads them to grow more rapidly than a country with a lower degree of openness. However, the interaction of trade openness and FDI has a significant negative impact on the economic growth of the Asian region. Stevens and Lipsey (1992) showed that if the outward FDI is a substitute to the domestic production and trade openness, it harmed the economic growth. Higher trade openness might lower down the foreign direct investment from China because China firm will invest into specific sector such as natural resource. China firms will export all the natural resource from developing

countries back to China for production. Although China firms increase the export of host developing country, China firms will not increase their investment once the production line is stable. It might bring any long term impact to host country development.

Apart from this, the government final consumption expenditure also has a significant positive impact on the economic growth of the Asian region. Bose et al. (2007) examined the long-run relationship and causality between government expenditure and economic growth. They found that the share of government capital expenditure in GDP has positive and significant impact on the economic growth. Government can implement some project to create massive job opportunities and also improve the infrastructure such as railways, road, university and etc. Other than job creation, the projects also bring long term impact to country. Moreover, Inflation has a significant positive impact as well as on the Asian economic growth. Choi et al. (1996) found that there is a positive relationship between inflation and economic growth. Investors will have easier access for fund from bank due to high inflation rate. So that, investor can improve productivity and output level and on evolution of total factor productivity.

Gross fixed capital formation has a positively effect on the economic growth of the Asian region. Some researchers (E.g., Young 1995, Krugmen 1994, World Bank 1993) showed that rapid capital formation played a major role in the output growth in Asian. Capital formation urges technological advances in the economy, through enhancing benefits affiliated with large-scale production and rising specialization in the economy. Population as proxy of Labor is positively affecting the economic growth of the Asian region, but it is highly insignificant. Kelly (2001) found that the effect of population growth on the economy is insignificant which likely to be small or no impact. Higher population will have

more labor force in market, it will enhance the productivity and market for goods produced in the country.

4.6.4 Latin America

Table 11: GMM Estimation Result of China's Outward FDI and Economic Growth on Latin America

Variable	Coefficient	t-Statistic	Prob.
OFDI	1.205304	2.117351	0.0394**
OPENNESS	0.812937	2.844204	0.0065***
OFDI*OPENNESS	-1.286251	-2.210474	0.0319**
GOVSPEN	0.051510	0.263960	0.7929
INFLATION	0.007748	2.045050	0.0464**
CAPITAL	0.213555	3.890241	0.0003***
LABOR	0.761020	5.064595	0.0000***
R-squared	0.982986		
J-statistic	2.104789		
Instrument rank	9		
Sargan Test	0.349101		

* refers to 0.1 significance level

** refers to 0.05 significance level

*** refers to 0.01 significance level

Instrument specification:

C OFDI(-1) OFDI(-2) OFDI*OPENNESS(-1) GOVSPEN(-1) GOVSPEN(-2)
INFLATION(-1) CAPITAL(-1) LABOR(-1)

In table 21, China's outward FDI has the significant positive impact on the economies of Latin American region. China's outward FDI strongly affects the

economic growth of Latin America countries to promote an increased in employment and quality of life, as well as greater efficiency in the use of raw materials (Napoleoni, 2011; 2012). For example, China's government and firms have provided incentives and budget allocations for science and technology, as well as funding for industrial innovation. Although China's FDI did not have a solid result to conclude whether it acted as a temporary spike or long term trend, the significant rise on China's FDI in Latin American and Caribbean in 2010 has positively impacted on the economy development (ECLAC, 2011).

Besides, China's government and firms have strongly invested in the resources and infrastructure projects not only led to a stronger link between Latin American region and China and also provided positive externalities for the integration of the region (ECLAC, 2011). China's FDI improved on the productivity of the Latin American firms for example, some of the largest and most capital-rich China's firms in the world has invested in mining and hydrocarbon sectors in Latin American region has clearly enhanced the production capacity of these sectors in many Latin America region and created new exploitation areas like copper mining in Peru, the pre-salt oilfields in Brazil and the hydrocarbons sector in Argentina (ECLAC, 2010).

China has been listed as one of the important exporters of capital for Latin America countries during the international economy crisis between 2007 and 2008(Bittencourt et al., 2012). Cravino et al. (2006) showed that the involvement of China into world market as a net creditor had an important positive impact on Latin American region. China's government provided soft loans around 530 million U.S. dollar for China's firms that investing in the Caribbean and given out training for 2,000 Caribbean government employees in 2007. For example, the China Development Bank (CDB) provided 10 years loan that worth 2.6 billion U.S. dollar to restart the freight train system linking Buenos Aires to many central heartland of Argentina. In Rio Negro, the China's Metallurgical Corporation has

allocated 80 million U.S. dollar to restart an iron ore mine and Beidahuang Group of China has invested in irrigation infrastructure that worth 1.4 billion U.S. dollar for a 20 year contract to grow corn, wheat, soy, and dairy on dry land for China's firms.

In addition, the amounts of minerals and energy needed by China have increased dramatically to maintain the high economic growth and trade surplus, which affected China's investors towards Latin American region. This demand has motivated China to become the third largest investors behind United States and the Netherlands, which shifted more than 15 billion U.S. dollar to the region in 2010 (ECLAC, 2011). China's FDI has a significant positive impact on the Latin America in 2010, while China's SOEs invested more than 15 billion U.S. dollar in the region and most of the FDI flow into the natural resource sectors with more than 90 percent of this investment relocated into extractive industries. The urge of China toward minerals and energy investment is generally seen as an advantage to Latin America countries.

Therefore, Latin America countries and firms have been given a chance to change from solely relying on traditional markets to a market in exporting their resources to China and attracted huge China's outward FDI into their own markets. Economic Commission of Latin America and the Caribbean (ECLAC) studies showed that there is an opportunity for Latin America countries to absorb the capital and technology from China. China's firms are predicted to continue investing into the infrastructure development and manufacturing of Latin American region in the medium term.

Despite that, some researchers showed that China's firms in mining sector may harm the welfare of the local country (Kaplan, 2010; Leung, 2011) in which foreign firms have indirectly forced the local government to shift the town that

nearby the mining area to other places resulted in the situation on the mine resident to become worse. However, some researchers (Lum et al., 2009) showed that China's FDI on resource sectors has positively impacted on the economy of the Latin American region. Based on a case study in Peru, Chinalco and Minmetals have allocated their subsidiaries' operations in Peru to an international management team and strengthen the possible economic relation with host communities. Chinalco provided 100 million U.S. dollar to relocate the town of Morococha that has 3,400 residents due to current location was on the operation site of mining. Chinalco brought major wastewater treatment works to improve the earlier mine exploitation problem and started to create a new town to suit around 5,000 people living close to the mining area in which the investment plan has cost around 30 to 40 million U.S. dollar (Sanborn & Torres, 2009).

Additionally, China's government had provided numerous loans and grants on the infrastructure construction in Latin America and Caribbean. China's firms have provided 59 million U.S. dollar to create a motorway and 40 million U.S. dollar for the National Stadium in Bahamas. China's investment also financed 100 million U.S. dollar to build a national stadium in Costa Rica. In Barbados, China's government and firms have financed numerous projects like St. John Polyclinic construction, Sherbourne Conference Center and Empire Theatre and Cheapside Market renovation. Moreover, China also subsidized two main construction firms in Barbados. For Antigua and Barbuda, they received 45 million U.S. dollar soft loan from China to set up a new airport terminal.

Recently, China's government and firms have collaborated on different sectors in Latin American region especially in agriculture and tourism. Although China's FDI has strongly invested in the resource sectors, it also allocated a partial investment in the agriculture sector. Even though the volume of agricultural investments is relatively small, it could bring a significant positive significant impact to the domestic economy of Latin American region as well

(Dussel Peters, 2012). China's government and firms have also supported and managed the largest tourism project in the Caribbean.

For example, China's government and firms built a 400 hectare Baha Mar resort complex in Bahamas that included six hotels with 2,250 rooms, a golf course, the largest casino in Caribbean, a convention center, a water park, 3 spas, 24 restaurants and other facilities or buildings. This project which costs approximately 3.5 billion U.S. dollar is able to expand the Bahamas hotel capacity by twice the amount. The China Exim Bank is the only player to support this project, which provided 2.5 billion U.S. dollar loan in 2010, but the domestic firms owned the complex and the hotel would be controlled by the international hotel chains. Besides, the largest China's construction company, China State Construction Engineering Corporation (CSCEC) has completed the huge construction work. The financial crisis and fallout from real estate in the United States have brought a huge negative impact to tourism projects in Caribbean for financial seeking. Meanwhile, China's state owned bank has become an important player by providing the fund for these projects to keep moving ahead with such an ambitious initiative.

Likewise, the trade openness has a significant positive impact on economic growth of the Latin American region. Romer (1994) found out that trade liberalization in the long run may have promoted the dynamic gains by upgrading technology and lowering prices or better quality intermediate goods to improve on the overall productivity. More openness countries will attract more China's FDI and China's FDI will bring The country with a higher degree of openness has a greater ability to use technologies generated in advanced economies, and this capability leads them to grow more rapidly than a country with a lower degree of openness. The interaction of trade openness and FDI is significantly affecting the economic growth of the Latin American region in a negative way. UNCTAD (1988) showed that immediate effects of trade openness

on the balance of payments may be negative due to FDI create higher imports not only of capital and intermediate products, but also of final consumer products, if MNCs start by providing sales affiliates and distribution networks. Higher trade openness might lower down the foreign direct investment from China because China firm will invest into specific sector such as natural resource. China firms will export all the natural resource from developing countries back to China for production. Although China firms increase the export of host developing country, China firms will not increase their investment once the production line is stable. It might bring any long term impact to host country development.

Furthermore, the general government final consumption expenditure has an insignificant positive impact on the economic growth of Latin American region. Shenggen Fan and Neetha Rao (2003) found that the government spending were statistically insignificant in Latin America. Government spending might not fully utilize by host countries because countries might need to provide aids and medical support to citizen which is not affect economic growth of host country. Muhammad et al (2011) found there inflation rate has positive and significant on the economic growth in the Latin American countries. Lastly, the gross fixed capital formation has a positive significant impact on economic growth of the Latin American region.

Gujarat (2013) showed that the level of capital formation has significant positive effect on changes in real GDP. The population has a significant positive impact on the economic growth of the Latin American region. Capital formation urges technological advances in the economy, through enhancing benefits affiliated with large-scale production and rising specialization in the economy. Kuznets (1967), Lee (1983) and National Academy of Sciences (1986) showed that there is a positive and significant relationship between population growth and

economic growth. Higher population will have more labor force in market, it will enhance the productivity and market for goods produced in the country

CHAPTER 5:

CONCLUSION

5.1 Introduction

On the past few decades, FDI is mainly contributed by the developed countries with a small portion taken by the developing countries in the global market due to the developing countries are FDI recipient as a whole. However, recently the situation has changed dramatically where some of the developing countries started to contribute a larger volume of the FDI and even surpassed some of the volumes of the developed countries eventually became an important player in the global outward FDI. The most important player of the outward FDI amongst the developing countries is China and surpassed Japan, Canada, Spain, Italy and other developed countries. As the China's trade and economy boosted up in 1990s, China became significantly more important in the global trading and investment. In the end, with the dramatic increase in the China's outward FDI in the early 2000s, countries regardless of the income level have started to absorb and started to focus on the China's outward FDI. Although China has become the important contributor in global outward FDI, limited studies and researches done on the China's outward FDI without the consistency and impactful outcomes.

As China's outward FDI listed as a share of GDP indicator, developing countries and developed countries obtained huge inflow of China's outward FDI. This indicator is important toward the economies of the developing countries and developed countries being the host countries in which China's outward FDI has positively impacted their economy development by mean of domestic

productivity enhancement, technology transfer, job opportunities creation, infrastructures improvement and others significantly. Regrettably, these potential benefits are not being fully utilized by the developing countries and developed countries as well as the individual region due to variation in the economy situation of the individual country.

In this conclusion, three sections would be covered by firstly summarizing all the empirical results and the economic interpretation followed by a thoroughly discussion on the policy implications based on the empirical and economic study of the models applied throughout study. Lastly, all the limitation of these studies would be analyzed prior to proposing the potential future works which emphasize on the researches done using different kind of suggestions on the impact of China's outward FDI on the economic growth in different regions and groups with different level of income.

5.2 Summary and Conclusion

China's outward FDI becomes an important source of funding and also brings strong positive impact on the countries which has the significant impact on the economic development of the countries. China's investments are aiming to sustain a long-term mutual relationship in the host economy (Klossek, Linke and Nippa, 2012; Knoerich, 2010). The impact of China's outward FDI in Asia, Africa, Europe and Latin America is covered as well as part of the regional study. Interestingly, the China's outward FDI has impacted on each region in different ways. In general, most of the countries in Asia, Africa and Latin America are classified as developing countries while most of the Europe countries are known as developed countries. Thus in the past few decades, Asia, Africa and Latin America have strongly dependent on FDI to improve on their economies especially in the early 20s century when China's investment boosted up, these regions absorb the China's outward FDI at a lower interest rate. On the other hand, Europe countries also attracted China's outward FDI in the late 20s century due to crisis.

China's outward FDI could increase the job opportunities to developed and developing countries. Besides, China's outward FDI could provide numbers of job opportunities in Asia, Africa and Latin America region due to China's enterprises shifts their labor intensive production line to the regions. China's government and firms have created a number of job opportunities for local resident including the natural resource sector of developing countries. However, the effect China's outward FDI on job creation of Europe is not significant as compare with other regions like Asia and Africa because China's enterprises did not shifts their labor intensive production line to Europe countries. Although the impact is not big as other region, it is significant on the economy of Europe by stabilize the labor market because China's outward FDI safeguards domestic

firms of developed countries from bankruptcy preventing the local residents facing unemployment and expand in future.

In the early stage, China's investment is mainly deal with the developing countries. However, in the later part, even developed countries started to come in due to the economy crisis which happened in late 2000s which led to a positive impact on the productivity, global competitiveness and economy development of the developing countries and developed countries. Due to poor technology affecting productivity of the developing countries, China's government and firms transferred their technology to improve and to enhance the competitive in the productivity line over the developed countries in the global market. China's investment also brought in the specific technology into the developed countries aiming to lower production cost, improve their productivity and enhance their productions in gaining global competitiveness. China's outward FDI impacted these regions by upgrading their technologies in each regions where Asia region mainly focusing on the labor intensive production plan from China while Africa and Latin America have benefited in term of the tourism sectors in return improving their economy and productivity. Nonetheless, Europe region also benefited with specific technology from China's outward FDI to improve their productivities on low level production. Overall, China's outward FDI has strongly enhanced the competitiveness of Asia and Europe region on global market due to strong productivity improvement.

China's outward FDI also strongly improved the infrastructure in Asia, Africa and Latin America regions by providing road, electric dam, telecommunication system, school, hospital, etc. Lastly, medical and education supports also provided which is highly needed by these regions. Thus, it has improved their economies and enhanced their living standards. However, China's outward FDI does not have any impact to the infrastructure of developed

countries or European countries. It is because infrastructure of European countries is well developed than China.

5.3 Policy Recommendation

Over the past few decades, the developed countries supplied most of the global FDI while the developing countries contributed a small portion as most of the developing countries are mainly the recipients of the FDI. However, the situation has changed as the FDI of developing countries increased modestly while the outward FDI of developed countries decreased in the recent years. Large portion of FDI amongst the developing countries is contributed from China due to strong economic growth and the high trade surplus. Although China's FDI is relative low and new as compared to other developed countries, policy makers should not neglect on the China's FDI which has a huge potential to keep growing in the future or even becoming one of the important sources of FDI for host countries.

Even though it is very important for the host countries to increase their domestic resources of finance, they should not depend solely on these resources. Instead, they should attract more FDI inflow. Nevertheless, since China's FDI is quite new in the global market, they should be careful in dealing with the presence of China's outward FDI.

In order for the countries to improve or to enhance on their economies, they should absorb or to attract more of the China's outward FDI as the recipient countries would benefit more from China's outward FDI inflow as reported from previous analyses which are the objective of this study. Based on the evidence given from these studies, it has concluded that China's outward FDI played an

important role in the economic development of the host country. For all the policy makers, indeed this information is crucial in helping them to deal with China's outward FDI in ways that could help to create opportunity for greater growth in their countries. In fact, the growth of China in the global economy makes it even more important to be inquired further impact of China's outward FDI on growth.

With the economy growth on China's outward FDI, it has benefited both the developing countries and developed countries in different ways depending on the income levels. For developing countries, host governments need to allocate the China's outward FDI into high technology production line like heavy industries rather than just focus on labor intensive production or resources sector. China's enterprises will need to bring high technology and skills into developing countries to maintain their production line. Domestic firms and labor can absorb the technology and skills relatively and compete in the global market. On the other hand for the developed countries, host government needs to analyse the investments from China and shifts the FDI into more strategic location. Some researchers showed that China's outward FDI just focus on the technology seeking. Host governments can diversify the China outward FDI into different sectors or strategic location to maximize the impact of the China's outward FDI on the domestic market. In such, policy makers could foresee and to pre-plan on utilizing the China's outward FDI by transferring the FDI into productive sector which could enhance the impact on the economy of host country.

In Europe, local government can keep updated about the progress of Chinese enterprises and confirmed have positive economic impact by search for a balance between attaching the China's outward FDI and enterprises and safeguarding domestic market. In Africa, local government can attract more China's outward FDI and investors into African countries to boost up their economies. African governments need to improve their safety and security level to ensure that safety of the investment on African countries for investors.

In Asian, local government can strongly link with China government to enhance their network and markets size due to China's outward FDI and investors expand globally. Besides, local government can attract more technology intensive production from China to host countries by giving incentive like lands, permit and etc. In Latin American countries, local governments can try to open their market for China's outward FDI and investors rather than compete with China. China is one of the largest consumers and producers in the world and host countries can fulfill the Chinese market rather than compete with their products. Besides, host government can attracting different FDI like China's outward FDI rather than just stated with U.S. or other developed countries.

China's rebalancing to provide huge benefits to developing countries, but it also brings considerable challenges. In the past two decades, China's growth has driven the growth of demand for commodities such as oil, aluminum, copper and iron ore. As China moves toward a more consumption-driven growth model, the demand and prices of these commodities are expected to be much lower than previous. This will negatively affect the producers in countries, but it will also provide new opportunities for restructuring and transforming the developing countries. Countries that are over-reliant on natural resource exports will need to diversify their industrial and agricultural sectors, while a reduction in the revenues of the resource sector may force public spending to be difficult to choose. Policy makers need to improve the competitiveness of industries that are affected by Chinese import competition may also help countries respond well to expected changes.

Policy makers from China need to ensure that China's activities should be in line with needs of each countries, especially in terms of transformation and diversification. For example, it may be time to get rid of traditional infrastructure investment models through resource-backed loans and incidental assistance, ensuring that infrastructure investments (from China and elsewhere) closely

reflect Africa's development needs. Reducing import tariffs on specific products (such as agriculture) and mutual agreements on joint ventures in sectors of mutual interest (including services) may help strengthen economic ties between China and Africa. This will create a long term relationship with between China and host countries.

5.4 Limitation & Recommendation for Future Studies

Throughout the studies in this report, there are several constraints in which the empirical works were conducted. The first constraint is mainly regarding to the limitation of data available. In order to have sufficient sample groups, this study were managed to take data from 2003 to 2009, which merely 91 countries could fulfilled the condition. Even through, the focus of this study is on China's outward FDI with a more recent data available from 2010. All the data beyond 2010 is not recommended or included in this study as it would lead to a drastic shrinkage in the sample group with only a few countries would have sufficient data available for analysis. Hence, further studies could be done by researchers to investigate the effect of China's outward FDI on the economy of host countries by incorporating the latest China's outward FDI as time goes by where more data available from different countries.

Besides, the framework used in this study in examining the impact of China's outward FDI on the economic growth may be expanded by including other macroeconomic and institution variables for instant such as the education, technology capacity, trade between China and host country, etc., have yet been included in the empirical model on this study because the data of the variables is limited recently. Based on the literature reviews, these are some of the secondary variables which have been considered by others on the economy growth studies.

In addition, the absent of institutions measurement such as political risk, corruption index and quality of bureaucracy has also limited the possible detailed analysis in this study. Furthermore, China's outward FDI data were collected from MOFCOM databases with the existing limitation where the data generated by other databases such as OECD databases are neglected because it might not consistent and detail compare with MOFCOM.

Few possible recommendations could be done for the future research when looking into the relationship into the relationship between China's outward FDI and economic growth. Firstly, case studies could be conducted on countries and regional case studies which could provide an additional insight on the sudden flow into the intermediate causal mechanisms with negative impact of China's outward FDI on economic growth. These studies could look specifically at the consequences of the sudden inflows especially "hot money" or volatile capital flow where countries and regional studies could provide a complementary test showing the importance of some institutional indicators such as political risk, corruption index, and quality of bureaucracy in improving the "capacity absorptive" of recipient countries.

Secondly, additional quantitative analyses could be included as supplementary data to the existing data reported in this study. The impact of China's outward FDI could be test or examine empirically by using higher-order power models with more complicated interaction effects. Random effects and Non-linear fixed effect models and other could be used to explain on the reciprocal causation between China's outward FDI and economic growth. Random effects evaluate the different between individuals and groups of consistently and non linear fixed-effect can estimate the specific biological hypotheses of interest like different between populations and groups. Moreover, the passage of newly available data or recent wave of China's outward FDI in countries perhaps could be more promising analyses for the future works.

Reciprocal causality between China's FDI and economic growth which assumes that two events affect each other at the same time. If China's FDI affects economic growth of host countries and economic growth affects China's FDI, these events will affect each other. Our research is focus on the effect of China's FDI on developing and developed countries and each regions. However, the research of reciprocal causation between China's outward FDI and economic growth need to study each countries or regions deeply.

The last recommendations are related to data and information. The lack of Chinese foreign direct investment data in limits research and rational analysis to support policy development. In particular, official foreign direct investment data collected by the Chinese Ministry of Commerce underestimated actual investment flows. Improving the availability of foreign direct investment data will greatly enhance the knowledge of decision makers and contribute to better policy dialogue. The Chinese government should improve the registration system of companies investing abroad and attract more investment entities, especially small-scale manufacturing and commercial projects. In addition, follow-up surveys of companies that regularly track operations outside China can help clarify their final investment destinations and should be adjusted if there is any second-stage investment.

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