Can China's Outward FDI be explained by general FDI theory?

An empirical study on the determinants of Chinese OFDI during 2003-2009

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Abstract

China’s surging OFDI has been a prominent phenomenon since the start of 20th century. As China’s economic growth is widely received as following a unique path, a question arises immediately---does Chinese outward investment also follows a distinctive pattern which can only be explained by special theories? This paper analyzes the determinants of Chinese OFDI by adopting Random Effects FGLS estimation technique using MOFCOM's data on China's OFDI from 2003 to 2009. Our result shows that Chinese OFDI can well be accommodated within established FDI theoretical framework, with market and natural resources-seeking motivations being the major determinants. Our extended specification suggests that China’s OFDI is mainly driven by economic interests instead of political goals.

Keywords: China OFDI, Outward foreign direct investment, determinants

Abbreviation

CCP	Chinese Communist Party
FDI	Foreign Direct Investment
IFDI	Inward Foreign Direct Investment
IMF	International Monetary Fund
MNCs	Multinational Corporations
MNEs	Multinational Enterprises
MOFCOM	Ministry of Commerce of People's Republic of China
NOI	Net Outward Investment
OECD	Organization for Economic Co-operation and Development
OFDI	Outward Foreign Direct Investment
SAFE	State Administration for Foreign Exchange
SOE	State Owned Enterprise
UNCTAD	United Nations Conference on Trade and Development

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Section 1: Introduction

Chinese OFDI was virtually non-existent before economic reform in 1978. Even though it started to invest overseas after 1978, it was not until early 2000s that Chinese outward FDI really took off. With its strong economic growth and continuous economic liberalization, China is no longer just a popular FDI destination but also an aggressive capital provider itself. According to the UNCTAD World Investment Report 2010 (UNCTAD, World investment report 2010: Investing in a low-carbon economy, 2010), China's OFDI flow skyrocketed by more than1000 times from US$ 44 million in 1982 to US$ 48 billion in 2009. As a late-comer to the globalized economy, China alone has accounted for 4.36% for the global OFDI[1] in 2009, ranking the 6th in the world. With strong economic growth and more capital available, the Chinese OFDI is expected to have high growth momentum in the coming years.

China's economic development is argued to possess unique 'Chinese characteristics' and special theories are developed to explain China's market transition. (Lin, Cai & Li, 1996) Gradual, experimental bottom-up reform strategies underpin China's transition from planned to market economy. Privatization and liberalization were initiated in many areas like agriculture and industries but state intervention persisted. The same applies to China's outward investment. OFDI approval process have undergone considerable liberalization, nonetheless it is still subject to government control. Hence, the uniqueness of Chinese developmental path and state involvement in Chinese OFDI draw attention to the nature of Chinese OFDI. While some argue that Chinese OFDI can be addressed by traditional FDI theories like Dunning's electric paradigm (Liu, Bucka & Shu, 2005), others see the need to explore special theories to replace or complement existing ones. (Buckley et. al., 2007) This study aims to test the fitness of general FDI theories in explaining Chinese OFDI. The hypotheses drawn from Dunning's electric paradigm will be tested against using China's OFDI data from 2003-2009. Considering the degree of state participation in Chinese OFDI, this study complements existing literature by examining the importance of political interests to Chinese OFDI, which is to our knowledge the first attempt in related empirical studies.

In this study, random effects FGLS estimation is adopted to investigate the factors determining the China's OFDI flow and stock from 2003-2009 using the panel data provided by Ministry of Commerce of People's Republic of China (MOFCOM). Our results show that

[1] The first five ranking countries were: United States, France, Japan, Germany, Hong Kong SAR (China). The share of China's OFDI flow is calculated by using data from UNCTAD, which indicates a lower value that that provided by MOFCOM.

the major factors determining Chinese OFDI during 2003-2009 are the host country's market size and the accessibility of their natural resources, which are two common motivations in the conventional FDI theories. Although there is little empirical support for other motivations as suggested in the general theories, such as strategic asset seeking and political risk reducing, the benchmark model built on traditional FDI framework generally offer satisfactory explanatory power to China's OFDI. The regressions which include special components relevant to China's circumstances on top of those from general theory do not explain Chinese OFDI better. Our extended specification does not provide empirical support for the hypothesis that China's OFDI is influenced by political interests.

The remainder of this paper is organized as follows. Section 2 provides an overview of China's OFDI policy since 1978, as well as features and trend of China's recent OFDI. Section 3 provides a general discussion of the theories on FDI and develops hypotheses on Chinese OFDI. Section 4 describes data and methods used in this study. Section 5 presents the results and discusses the findings. Section 6 concludes and suggests direction for further research.

Section 2: Overview of Chinese OFDI policy and pattern

2.1 Development of Chinese OFDI Policies

The institutional context on which OFDI develops affect its outcomes since institutions are the 'rules of the game' (North, 1990) and delineates incentive structures and constraints on international investors. Despite the name 'open-door policy', the outward investment in China has to go through a series of administrative procedures and screening processes by the government, and is subject to state support or discouragement. These formal institutions and their changes shape the extent and pattern of Chinese OFDI. Hence, government's orientation towards OFDI and the evolution of policies on OFDI is important in order to understand the changes in Chinese OFDI. Buckley et. al. consolidated previous studies on Chinese authorities' OFDI policies and differentiated between five major stages of Chinese OFDI policy since reform in 1978.(Buckley et. al., 2007, 2008) As elaborated below, the Chinese OFDI policies are characterized by gradual deregulation and yet continuing state involvement.

Stage One: Restrictive internationalization (1979-1985)

During the first half decade after the commencement of 'Open-door' policy, state-controlled OFDI served as one of the means to gradually open up Chinese market and integrate it into world economy. The State Council only allowed selected state-owned trading firms under MOFCOM and provincial and municipal 'economic and technology cooperation enterprises' to invest abroad, mostly in the form of foreign joint venture. (Ye, 1992) (Zhang, 2003) Restrictive measures such as an inward-looking economic strategy and tight foreign exchange control contributed to the slow growth of Chinese OFDI, despite the significantly overvalued Chinese Yuan.

Stage Two: State encouragement (1986-1991)

Regulatory framework on OFDI was revised by MOFCOM in 1985 so that restrictive OFDI policies were partly liberalized. SOEs were allowed to establish foreign affiliates too, provided that they had undergone the administrative approval procedures. (Zhang, 2003) The change in national development strategy from inward-looking to export-oriented, combined with the eased OFDI policies supported the faster growth of Chinese OFDI in this period. The number of approved OFDI projects rose from 185 by 1989 to 891 by 1991, amounting to around US$1.2 billion.

Stage Three: Expansion and Regulation (1992-1998)

After Chinese ideological leader Deng Xiaoping's southern tour in 1992, a series of economic reform towards liberalization was initiated in China. The threshold for foreign exchange in an OFDI project for it to be approved by national State Administration for Foreign Exchange (SAFE) office was adjusted upward from US$1 million to US$3million. Also, OFDI was officially incorporated into national economic development plan, resulting in local government's active engagement in promoting internationalization of firms within their jurisdictions. But in the wake of Asian financial crisis in 1997, suspected defalcation of state-assets and capital flight, MOFCOM stepped in to tighten the approval processes, especially for projects of more than US$1 million. Therefore, individual OFDI projects declined, despite a net increase in total OFDI value of US$1.2billion from 1992 to 1998.

Stage Four: The 'Go Global' policy (1999-2001)

Government policies towards OFDI were contradictory. On one hand, the authorities attempted to strengthen the approval procedures and capital control to curb illicit capital transfers. On the other hand, OFDI in particular industries was encouraged by government financial and administrative support, notably in trade-related activities that promoted Chinese exports activities. (Wong & Chan, 2003) In 1999, the Chinese government instigated the 'Go global' policy to officially encourage the internationalization of Chinese enterprises. This was incorporated in the 10th Five Year Plan on 2001. Total approved OFDI increased by US$ 1.8billion, with an average project value of US$ 2.6million.

Stage Five: Post-WTO liberalization (2002-present)

The objectives of the 'Go Global' policy were consolidated at the CCP's 16th Congress in 2002. Since China's WTO accession in 2001, more open business environment increased domestic and foreign competition in the Chinese market, and forced some Chinese firms to seek new markets abroad. Further liberalization has been undertaken, including decentralized approval process, simplified application requirements and loosened control on foreign exchange. These reform measures supported a surge in OFDI.

2.2 Features and trend of China's recent OFDI

Generally speaking, Chinese OFDI flow has been rising since the start of reform, and the increase has significantly accelerated after the 'Go global' policy after 2002. China's share in global OFDI share similar trends too, turning the country into one of the largest investors around the globe. Most of Chinese OFDI come from primary and tertiary industries, while secondary production like manufacturing contribute a small portion only. From 2002 onwards, the destinations of Chinese OFDI see a shift from Latin America to Asia, which is currently the largest recipient region. Lastly, an overwhelmingly large part of Chinese OFDI originates from government-related organizations, dominated by centrally-administrated ones, instead of private enterprises.

In this section, a more detailed description for China's OFDI will be provided. Data between 1982 and 2001 were obtained from UNCTAD online database. Data from 2002 to 2009 were mainly obtained from *2009 Statistical Bulletin of China's Outward Foreign Direct Investment* provided by MOFCOM unless specified. All figures and tables mentioned in this section can be found in the Appendix A.

Aggregate annual ODFI flow and stock and their global shares

From Figure 1 which shows China's OFDI flow since 1982, it is evident that the outflow had been rising after the reform commenced. Growth of the ODFI flow was quite modest before the 'Go Global' policy was introduced in 2002, since then its amount jumped exponentially and reached its record high at US$ 56.5 billion in 2009. Figure 2, which shows the China's OFDI stock, presents a coherent picture of an enormous increase in China's accumulated OFDI. Its aggregate amount reached US$ 245.8 billion in 2009.

There is a common trend of increasing FDI flows in most countries due to globalization and increase in market openness, so we would like to know if China is just following this trend or if it has outperformed others. By looking at the share of China's OFDI to the global OFDI and its share in developing economies, the relative importance of China as an emerging investor in the world can be revealed. Figure 3 plotting the China's OFDI relative share since 1982 shows that China plays an increasingly important role as a global investor. Its OFDI flow and stock shares in world total leaped from 0.503% and 0.385% to 5.13% and 1.29% from 2002 to 2009 respectively. China's rising significance in the outward investment among other developing economies is also striking. Its OFDI flow and stock shares in developing

economies, which accounted for 5.44% and 3.45% respectively in 2002, have surged to 24.7% and 9.13% in 2009.

Decoupling, a phrase to describe that China undergoes a different economic cycle as other developed countries do, seems to be applicable on China's OFDI too. Because of the economic recession in 2007, the world OFDI flow has contracted from US$2268 billion in 2007 to US$1101 billion in 2009, implying a 51% drop. Nonetheless, China's OFDI experienced a 113% expansion dramatically during the same period. Together with an economic recovery in coming years, a further expansion for China's OFDI is expected.

Sectoral composition of China's OFDI

Table 1 and 2 illustrate the sectoral composition of China's OFDI flow and stock respectively. From Table 1, it can be shown that primary and tertiary industries were the four largest investing industries for Chinese OFDI flow in 2009, including mining (23.6%), wholesale and retailing (10.9%), finance (15.5%) and leasing & business service (36.2%). They together accounted for almost 90% of the outward investment that year. But the picture was quite different in 2002 since the sectoral composition of the OFDI flow has been undergone substantial changes. Mining industry, once the largest source industry, has its share dropping by a half from near 50% in 2002 to 23.6%[2] in 2009. Another shrinking source industry is the manufacturing industry, which experienced a plunge from 21.8% in 2002 to a mere 4.0%[3] in 2009. In contrast, the leasing and business service industry has quadrupled form 10% to almost 40% during 2002 to 2009. So the trend is that Chinese investors from the service industries are gaining dominance, while primary and secondary industries invest proportionately less abroad. Another trend is that the diversity of Chinese OFDI source industries has been increasing.

Table 2 shows that the sectoral composition of OFDI stock is similar to the flow, with the same aforementioned leading industries accounting for 80% of total stock in 2009. In contrary to OFDI flow, the sources of stock have been more stable. The relative sizes for

[2] OFDI data for finance industry were only available since 2006. If finance industry was deducted from the total OFDI for comparison purpose, share for mining industry in 2009 was 27.9%
[3] It is 4.7% if adjustment for finance industry was made

different industries, except for the IT and leasing & business service industries[4], have been quite steady and remained at similar level compared to 2002.

Geographical distribution of China's OFDI

Table 3 and Figure 4 present the regional distribution of China's OFDI flow from 2003 to 2009. China's recent OFDI flow has been highly concentrated in the Asian countries. Asia has always been the largest OFDI destination region since 2003 except in 2005, in which Africa took the first place. While the share of Asia went up from 37% in 2005 to 71% in 2009, the share for Latin American countries in contrast has contracted from 53% to 13%. For the remaining four regions (Africa, Europe, North America and Oceania), their relative shares in Chinese OFDI flow have been more stable with no clear increasing or decreasing trend[5]. Generally speaking, China's OFDI flow became less diverse geographically since it has become more concentrated in Asia.

Table 4 and Figure 5 show the regional distribution of China's OFDI stock from 2003 to 2009. Not surprisingly, the trend of OFDI stock has a very similar geographic structure to that of OFDI flow. By the end of 2009, the Asia region alone has accounted for 76% of the total OFDI stock, which was about 6 times that of the Latin America (12%). The shares of other regions include Africa, Europe, North America and Oceania ranged from 2% to 4%, and collectively accounted for only 12% by 2009.

Structural composition of China's ODFI flow

From the data available from various issues of *Statistical Bulletin of China's Outward Foreign Direct Investment* provided by MOFCOM, we can classify the form of China's OFDI into three kinds, namely equity capital, reinvested earning and other investment. Their values and shares were presented in Table 5 and Figure 6. While each investment form exhibits wide range of share in total investment, none can be considered to be more extensively used than others. As suggested by Table 6, merger and acquisition remained an intensively used form of China's OFDI since 2003.

[4] By the end of 2003, the IT industry share was high as 32.8% and dropped dramatically to 2.7% in the next year. The leasing & business service industry share was low as 6.0% and dropped dramatically to 36.7% in the next year. Since then, their relative sizes returned stable.

[5] Range for these four regions from 2003 to 2009: Africa (3-10%), Europe (2%-6%), North America (1%-4%), Oceania (1%-4%); Percentage as a share of total OFDI flow

Organizational background of major OFDI investors

Over 98% of China's OFDI originated from State-Owned Enterprises and government bodies, while the share by private firms was negligible[6]. Sorting by government level[7], the majority share of outward investment came from central government-controlled SOEs rather than those under provincial governments. Table 7, 8 and Figures 7, 8 show that the OFDI flow and stock coming from centrally-administrated SOEs consistently accounted for around 80% of the total OFDI flow and stock, which are four times than their local counterparts.

Analyzing by a regional level, the Chinese OFDI can be grouped into regions according to the investors' geographical location. Regions in China have different levels of economic development and growth due to various reasons, e.g. historical, geographical, political factors. These result in differences in the ability and propensity to invest aboard among regions. As seen in Table 9 and Figure 9, the predominant investing regions are the Southern and Eastern regions, which is consistent with the fact that these areas have been the richest in China and were the pioneers to be opened up during economic reforms. Although the Western and Central regions accounted for only 28.4% of total OFDI flow in 2009, their shares have shown strong upward trajectory in recent years, thanks to the 'Great Western Development' started in 2000 to promote the economic development in these regions. For the OFDI stock, Table 10 and Figure 10 allow us to detect a similar trend of increasing importance of Central and Western regions. In short, their shares were still small but increasing.

[6] They accounted for 0.6%, 0.3%, 1.5%and 1.5% of total OFDI flow in 2009, 2008, 2004 and 2003 respectively.
[7] Inconsistence and errors have been detected in the data from *2009Statistical Bulletin of China's Outward Foreign Direct Investment* provided by MOFCOM. Data from Chinese version but not English version of the bulletin is used. Data for 2007, which is different from that reported in the later 2009 bulletin, is collected from *2007Statistical Bulletin of China's Outward Foreign Direct Investment.*

Section 3: Theoretical Framework & Hypotheses

3.1 General theories of FDI

It is imperative to review general theories on FDI in order to develop a broad theoretical framework where specific analysis on China's OFDI can be nested on. With consideration that the mainstream theories on FDI have been built largely on the experience of developed countries investors, it is also of vital importance to discuss the extent to which general theories can be applied on emerging countries like China.

There has been a prolonged quest for answers to why firms engage in international activities and what explain their decisions related to international production, theories and analytical frameworks have been developed along the quest. One of the earliest FDI theories was the capital market theory which prevailed before1960s. (Ohlin, 1933) (Samuelson, 1948) Assuming a frictionless market, it stated that as the rate of profit tends to drop in industrialized countries, multinational enterprises (MNEs) will finance themselves in capital-abundant countries with lower interest rate, and then invest in countries with low capital endowment and hence higher interest rate. Thus, FDI serves as a tool for MNEs for capital arbitrage across countries. Capital market approach predicts that FDI flows from the capital-abundant countries to the capital-deficient ones unilaterally, and it analyzes FDI on a country-level. But the fact that capital flows in both directions between countries and international production are organized at the firm-level revealed the inadequacy and possible flaws of this theory. Empirical studies for this theory have shown it to be insufficient in explaining FDI (Agarwal, 1980), and its theoretical ground on interest rate differentials have been significantly weakened by the liberalization that international capital market have undergone in recent decades.

In 1960, Hymer introduced a FDI theory on a micro-level which focused on international production rather than international exchange. Hymer (1976) inspired by Coase (1937) and based upon industrial organization theory, Hymer argued that MNEs exist due to ownership advantages created by market imperfections. Structural market imperfections lead to a divergence from perfect competition and result in ownership advantages enjoyed by specific firms *vis-à-vis* other firms. Such firm-specific advantages may include privileged access to resources, economies of scale, intangible assets such as brands and patents, etc. Hymer asserted that for firms to operate value-adding activities abroad, they must possess some kind of advantages specific to their ownership, be it innovatory, human capital, financial or

organizational advantages. Also, these advantages should be large enough to outweigh the disadvantages they face in the competition with the indigenous firms in the foreign markets. (Hymer, 1976) Despite its pioneering propositions of ownership advantages, Hymer's theory was criticized to have comprised of only a necessary but not a sufficient condition for FDI. (Dunning & Rugman, 1985) (Casson, 1987) Since firms with ownership advantages may choose to supply a foreign market by exporting or licensing a local firm, ownership advantages alone cannot fully explain why, how and where firms choose to use FDI to supply a foreign market.

In the mid-1970s, the theory of internalization set in to provide a more encompassing explanation for emergence of MNE and FDI. (Buckley & Casson, 1976) (Hennart, 1982) (Casson, 1983) Rooted in transaction cost economics initiated by Coase (1937) and developed upon famous work by Williamson (1975, 1985) the central tenet of this theory is that market imperfections prevent efficient trade and investment across national border, so that MNEs would try to overcome these market failures by internalizing the foreign markets through FDI. Market imperfections in the product or factor markets may arise from government interventions such as legal restrictions, or other market failures like asymmetric information dissemination. For example, a firm may choose to internalize market for intermediate goods subject to volatile tariff rates to ensure a stable supply of production inputs. Internalization theory enjoy a dominant position in related international economics literature during the last two decades for it gives a better insight to the question why firms choose to organize international production within its own hierarchy instead of between individual firms in the open market. Advocates (Rugman, 1981) (Hennart, 1994) regards this theory as sufficient explanation for the emergence of MNEs while some questioned that even though ownership specific advantages and internalization advantages are necessary for FDI to occur, it still does not offer a complete picture. (Dunning, 1981) Dunning's OLI paradigm introduced below suggests that not only internalization but also ownership and location advantages should be taken into account in order to analyze FDI.

A framework of FDI analysis from another perspective is the product life cycle theory developed by Vernon. (Vernon, 1966, 1979)Vernon suggested that there are four stages in a product's life cycle, namely introduction, growth, maturity and decline. The production location and the form of entry into foreign market depend on which stage the product is in. During the stages of growth and maturity, when the firms gradually lose market shares in

domestics, or when foreign demands for its products increase beyond certain point, the firms will respond by moving production to foreign sites with lower costs. Although the PLC theory offers a plausible explanation for FDI, it does not explain why the firms choose to undertake FDI instead of exporting or licensing a foreign firm.

The eclectic paradigm

The theories discussed above provided valuable insights for explaining FDI from different angles, and contributed to the development of FDI theories. However, the complexity of decisions regarding international production renders these theories as partial and calls for a more general and inclusive conceptual framework.

To date, the most widely received framework of FDI is the eclectic paradigm, or the OLI paradigm, published by John H. Dunning in 1980. (Dunning, 1979, 1980) In the paradigm, Dunning attempted to synthesize several strands of FDI theories from both macro- and micro-level, and integrate them into a single analytical framework. The main thesis of the eclectic paradigm is that the decisions about international production financed by FDI are determined by the configuration of three sets of advantages. (Dunning, 1977, 1981, 1988) More specifically, the extent and pattern of international production are analyzed in terms of the ownership-specific advantages (O), location-specific advantages (L) and internalization advantages (I) as perceived by multinational enterprises. The main hypothesis of the eclectic paradigm is that in order for firms of one nationality to supply any particular market, they must possess net competitive advantages over those firms of another nationality, and the firms must perceive that internalizing the markets is of their best interest, while the choice of location depends on the relative advantages as perceived by the firms. Simply put, the larger the firm's O- and I- advantages and the more the L advantages of exploiting these advantages in a particular foreign location, the more FDI will be undertaken.

Ownership advantages refer to the firm-specific competitive advantages that have been developed by multinational enterprises in their home countries. Dunning distinguished between three types of O-advantages, the asset-advantages (Oa), the transaction-advantages (Ot) and the institution-advantages (Oi). (Dunning, 1988, 1993, 2008)

Asset-advantages (Oa) arise from the exclusive possession of and/or favored access to certain income-generating assets *vis-à-vis* those possessed by other enterprises. They can

include tangible assets such as natural resources, and intangible assets such as patents, innovative capacity, organizational and management system, brands, etc.

Transaction-advantages (Ot) refer to the firm's ability to capture the transactional benefits arising from common governance of assets across borders. This ability 'reflects the firm's opportunities and capability to internalize cross-border intermediate product markets, and/or to augment its assets and competences better than can some alternative organizational form, for example, joint ventures or cooperative agreement'. (Dunning & Lundan, 2008) For instance, established MNEs having branches in different countries can enjoy economies of scale and scope, favored access to inputs and product markets over *de novo* firms. Also, multi-nationality *per se* can also enhance transaction-advantages by offering wider opportunities to MNEs. Therefore, transaction costs may be lessened by economies of common governance when the firm integrates its existing activities with its new cross-border activities.

Institution-advantages (Oi) stem from the favorable formal and informal institutions governing the value-added activities within the firm, and between the firm and its stakeholders. (Dunning & Lundan, 2008)With institutions being the 'rules of the game', they shape stakeholders' behavior and firms' decisions by comprising incentive structures and imposing constraints. Institutions within a firm may include codes of conduct, corporate culture, incentive schemes and appraisal system, only to name a few. Dunning contended that the firms with strong institutions, backed with credible enforcement mechanism, are more likely to make decision consistent with its own resources, capabilities and social objectives.

Internalization advantages (I) refer to the MNE's ability to transfer its O-advantages across national borders within its own organization. Market failures and transaction costs are argued to be the reasons why MNEs choose to exploit their O-advantages internally rather than in other ways such as export or licensing a foreign firm on an open market. (Buckley & Casson, 1998)For instance, when market failures impede the international transfer of assets, firms are more likely to establish strong ownership links in foreign market in order to facilitates the transfer and reduce transaction costs. (Dunning, 1993) This is particularly relevant for intangible assets like technologies and knowledge possessed by firms. Since such assets involves higher transaction costs due to volatile valuation, contractual disputes and difficult monitoring, internal transfer is more likely to be used than market mechanism to lessen transaction costs.

Given that a MNE has O- and I-advantages strong enough for it to profit by internalizing markets abroad, what are the factors determining where it chooses to invest? Dunning stated that the choice of country depends on the non-transferable characteristics of the host countries and on the match between host and home country which makes any productivity differentials. (Dunning, 1979)Particular characteristics of a location enables firms to gain by combining productive factors back in home country with immobile factors of production in the foreign location. Locational advantages may stem from structural and transactional market imperfections. While the former relates to market distortions which affect the costs and revenues of producing in different countries, the latter refers to transactional gains resulting from common governance of production activities in different locations. (Dunning, 1988)

Since the motivations behind FDI directly affect the L-advantages perceived by MNEs for different geographical areas, it is important to identify the objectives of FDI. The eclectic paradigm suggests three primary motivations for FDI, which are resource-seeking FDI, market-seeking FDI and efficiency-seeking FDI (Dunning, 1979, 1993) Resource-seeking FDI refers to the investment undertaken by MNEs to seek and secure the supply of production factors, e.g. natural resources. Strategic-asset-seeking FDI is often regarded a kind of resource-seeking FDI and occurs when MNEs protect or augment their O-advantages by performing merger & acquisition on local firms and their strategic assets. For market-seeking FDI, as the name has suggested, the main objective is to find markets for the MNE's products and services. Finally, efficiency-seeking FDI has the main purpose of attaining international specialization and achieving an efficient portfolio of foreign and domestic assets owned by the MNEs.

The eclectic paradigm is about both the importance of each individual advantage, and the configuration among them. (Dunning, 2001) Under the paradigm, different types and combinations of OLI variables can be accommodated, and the configuration between the advantages is likely to be context-specific and vary across the types of international production, firms, industries and countries. (Dunning, 1993)

Since the establishment eclectic paradigm, many scholars conducted empirical studies to investigate its validity. By and large, the results are consistent with the paradigm. The significance of ownership advantages has received broad empirical support. It has been found that firms possessing higher ownership advantages, e.g. higher technological capability and better product diversity, are more likely to engage in FDI. (Grubaugh, 1987) (Pearce, 1989)

(Kogut & Chang, 1991) Although internalization advantages are regarded as difficult to quantify, its importance and hypothesized effect on FDI are confirmed with the empirical results when suitable proxies are applied (Erramilli & Rao, 1993) (Agarwal & Ramaswami, 1992) (Denekamp, 1995) Lastly, the locational advantages are also found to crucial determinants affecting whether firms choose to produce at home or abroad. (Dunning, 1998) (Hennart & Park, 1994)

Application of theories on China

A number of studies on OFDI from emerging countries support the saying that the conceptual framework for analyzing the internationalization of developed countries is readily applicable on that of developing countries. (Lecraw, 1993) (Dunning, van Hoesel & Narula, 1996) (Liu, Bucka & Shu, 2005)Notwithstanding, the applicability of mainstream theories, which are derived from the experience of the Western countries, on explaining the OFDI of China has been questioned by many (Cai, 1999) (Child & Rodrigues, 2005) (Buckley et. al., 2007) Specific extensions to existing theories are suggested to account for the unique characteristics of Chinese economy, cultures, institutions, etc. (Child & Rodrigues, 2005) suggested four primary areas that need to be addressed in current theories, including latecomer perspective and catch-up strategies, the institutional role of government, the relation of entrepreneurs and institutions and the liability of foreignness. (Buckley et. al., 2007) argue that capital market imperfections in China, ownership advantages of Chinese MNEs and institutional factors require a special theory nested within conventional theories. Generally speaking, the results of these studies confirm that the general theories should provide a coherent and reliable framework to analyze Chinese OFDI, but additional considerations for the context on which China OFDI develops should also be included. Therefore, in this study hypotheses will be built mainly upon the Dunning's eclectic paradigm, and China's stage of development, its international reserve and political interests will be further added as special components in the models.

3.2 The Determinants of China's OFDI: Hypotheses

Based on the Dunning's eclectic paradigm and empirical studies reviewed above, hypotheses will be formed about the determinants of China's OFDI. They can be divided into three groups generally: (i) Host countries' 'Pulling' factors; (ii) China's 'Pushing' factors and (iii) Control factors.

3.2.1 Host countries' 'Pulling' factors

Host Market Size

The location aspect of OLI paradigm asserts that one of the primary motives of FDI is to have better access to the markets of host countries. Therefore, home country's outward FDI to a specific host country is a function of the latter's market size, usually measured by its GDP. It is argued that market size reflects potential demand for products and the rooms for economies of scale. (Davidson, 1980) The larger the host country market, both in absolute and per capita sense, the higher the potential demand for the intermediate or final goods produced there. Growth in market size also indicates growth in aggregate demand and profit opportunities. Moreover, a larger market size allows for more efficient utilization of resources and the attainment of economies of scale. Both enhance the L-advantages of the host country.

There is strong empirical support for the positive relationship between host country market size and home country's OFDI. Many previous studies have consistently found significant positive association between them (Schmitz & Bieri, 1972) (Dunning, 1980) (Kravis & Lipsey, 1982) (Wheeler & Mody, 1992) (Billington, 1999). Similar empirical findings are also found for the studies conducted on China's OFDI. (Buckley et. al., 2007) (Cheng & Ma, 2007)

Hypothesis 1a: China's OFDI is positively related to absolute host market size.
Hypothesis 1b: China's OFDI is positively related to host market size per capita.
Hypothesis 1c: China's OFDI is positively related to growth of host market.

Natural Resources

Another primary motive of FDI is to gain access to those production factors which the home country is deficient in, or needs to supply for oversea production sites. This is of particular relevance to Chinese OFDI in recent years. Due to rapid industrialization and economic growth, China has to secure stable oversea supplies of raw materials, especially minerals and oils. (Wang, 2002) Though China has high natural resources endowment, considering its large population, it per capita availability or supply for natural resources[8] is indeed quite low and not able to satisfy its rapidly growing demand. (Deng, 2004) By the end of 2009, MOFCOM announced that 6 out of top 10 non-financial Chinese MNEs ranked by their foreign assets holdings were natural resources-related companies[9], which indicates foreign natural resources are highly valued by Chinese investors. (MOFCOM, 2010) Therefore, the L-advantages of the host country also depend on its ability and willingness to supply natural resources, i.e. the accessibility of natural resources, for resource-seeking FDI.

Dunning stated that although globalization and changes in world economic dynamics had led to a relative decline in resource-seeking FDI, this motivation still helps to account for a major part of first-time FDI, particularly those from developing world (Dunning, 1999). Empirical evidence repeatedly confirms the positive relationship between Chinese OFDI and the accessibility of natural resources in host countries. (Buckley et. al., 2007) (Cheung & Qian, 2009)

Hypothesis 2: *China's OFDI is positively related to the accessibility of natural-resources in host countries.*

Strategic Assets

The L-advantages of a particular location depends on how well it enhances or augments the O-advantages of the MNEs by combining the immobile factors in that location with the production factor in MNE's home country. Strategic assets comprises of an important part of the immobile resources of the host country since they are found to be the basis for firms' competitive advantages. (Barney, 1991). Therefore, FDI has been used to develop new and exploit existing strategic assets such as market knowledge, technological know-how,

[8] This is especially true for iron ore, aluminum, copper, petroleum and timber
[9] They are China National Petroleum Corporation, China Resources (Holdings) Co., Ltd., China Petrochemical Corporation, China Petrochemical Corporation, Aluminum corporation of China and Sinochem Corporation

management skills and reputation. (Dunning, 1998) (Kuemmerle, 1999) (Chung & Alcácer, 2002) (Wesson, 2004)

As a relatively latecomer in the globalized market, China mainly possesses its comparative advantages in labor intensive industries and still has a long way to catch up with the technological frontier. Thus, Chinese MNEs use OFDI as a way to build and augment their O-advantages. Suggested by Dunning (2001), these O-advantages could the technological and marketing synergies offered by host countries' firms, also they can be strategic assets created by foreign competitors, suppliers, customers, human capital and innovatory capacity already built there. Thus, it is argued that host countries with more high-quality strategic assets are more attractive for foreign investors (Dunning, van Hoesel & Narula, 1998) (Dunning, 2006)

Empirical evidence in support for the strategic asset-seeking motivation of FDI is ample. It has been found that MNEs of developing countries are strongly motivated to gain access to strategic assets such as established brands, cutting-edge technology and other intangible assets in foreign markets through OFDI. (Mutinelli & Piscitello, 1998) (Kumar, 1998) (Makino, Lau & Yeh, 2002) (Deng, 2007)

Hypothesis 3: *China's OFDI is positively related to the quantity and quality of strategic assets in the host countries.*

Political Risk

Political risk is another major component decisive for a location's L-advantages, since it affects the extent to which the firms utilize their O-advantages. One major concern over firms' investment decisions is the future income stream. When the political system in the host country is volatile and hostile to foreign investors, this casts uncertainty over the MNEs' future income and hence prevents them from making investment there.

Empirical evidence concerning the role of host country risk on OFDI is ambiguous. While some researchers have obtained a significantly negative relationship between country risk and FDI flow (Loree & Guisinger, 1995), others have found that the relationship between political risk and FDI was insignificant, hinting that it might only be a precondition for FDI but not a determinant for its amount. (Kobrin, 1979) (Tu & Schive, 1995)

Hypothesis 4: China's OFDI is negatively related to host countries' political risk level.

Bilateral Trade

For a domestic MNE to supply a foreign market, it may enter the market by exports or FDI, or a combination of both. There are two views on the relationship between exports and FDI: substitutive or complementary. The supporters of the 'substitutive' effect argue that the higher transportation costs and trade barriers, the more the OFDI activity in order to 'jump' over these barrier, *ceteris parabis*. If trade barriers are low and the host's L-advantages are not attractive enough, the home country may just choose to export. Thus trade and FDI act as substitutes in this way.

On the other hand, the other side thinks bilateral trade and FDI as complementary. More bilateral trade means better integration between the home and host countries. This may enable MNEs in home country to obtain more information on profit opportunities in the host market and encourage OFDI from home. In addition, the bilateral trade may constitute of the supplies and exchange of inputs or final products between parents firms and their subsidiaries in host countries. In this way, the bilateral trade between the home and host countries complements OFDI from the home country and they move in same direction.

Based on the China's economic development in recent decades, we postulate that China's export and its OFDI is complementary in nature. Since the majority of China's exports are comprised of manufactured products, while the Chinese OFDI mainly comes from tertiary service industries, it makes little sense to say that the two are substitutive and OFDI is used to avoid trade barriers on exports.

Hypothesis 5: China's OFDI is positively related to amount of export from China to host countries.

3.2.2 China's 'Pushing' factors

Home Market Size

The views about the relationship between home market size and OFDI are not unanimous. On one hand, it is argued that a positive relationship is expected for a country's stage of economic development and its OFDI activity. (Ajami & Barniv, 1984) (Grosse &

Trevino, 1996) Persistent economic growth is accompanied by changes in a country's economic structure and competitive advantages. As the comparative advantages gradually shift from agriculture, to labor-intensive industries, and finally to capital- and knowledge-intensive industries, market size increases and the demand pattern also evolves towards differentiated products. A bigger market enables specialization, and competition stimulates innovative activities and improves efficiency. (Chenery, Robinson & Syrquin, 1986) As the home market becomes bigger, firms develop and accumulate these O-advantages. The higher the O-advantages, especially if the firm-specific advantages are intangible and hence enlarging the I-advantage, the more likely firms will invest abroad through OFDI.

On the other hand, another view contends that the domestic market size should be negatively related to the amount of outward investment. It is suggested that that main reason for domestic firms to invest abroad is the lack in domestic demand due to small local market. Since market size reflects aggregate demand, smaller home market implies lower domestic demand, and hence greater needs to internationalize. Since the former view receives wider empirical support than the latter, we hypothesize according to the more received direction.

Hypothesis 6: China's OFDI is positively related to its economic development.

International reserve

Since the open door policy, the Chinese Government has adopted an export-led growth economic policy. As a result, the international reserves of China were rapidly accumulated and China is accused of having caused the global imbalance of current and capital accounts. Pressures and criticisms from other countries, especially United States, have tensed the relationship between China and them. Thus, China has adopted several policies to reduce the amount of excess international reserve. As suggested by (Cheung & Qian, 2009), one of which is to channel them to other countries through OFDI. And in their study, a significant positive relationship has been found between the amount of China's international reserve and Chinese OFDI.

Hypothesis 7: China's OFDI is positively related to its international reserve.

Political Goals

The above hypotheses deal with the economic incentives possibly affecting China's OFDI. Here we propose a new determinant, political incentive. There have always been political interventions on China's outward investments. Since Chinese OFDI projects have to go through screening and approval process by the responsible state organs, Chinese government is able to give priority to investment into its political allies in order to sustain or augment the relationship. Even after a series of liberalization measures, the launch of 'Go Global' policy by Chinese government still incorporates political concerns and national interests into China's OFDI. (Luo, Xue & Han, 2010) The consideration of political interests when approving foreign investment projects is widely recognized and OFDI projects are evaluated by their political successfulness. In retrospect, China has used economic and diplomatic tools to successfully gain support from African and other developing countries for its UN permanent membership in the early 1970s. More recently, China has been utilizing its OFDI to isolate Taiwan from other countries which possibly provide international recognition for its independence. (Wang, 2002)

Hypothesis 8: *China's OFDI is higher in those countries which share common political view and stance.*

Section 4: Data and methodology

4.1 Data

Currently, only a few sources of China's OFDI data since 1980s are available to public. One major source is data collected and provided by UNCTAD[10]. This dataset provides the realized Chinese OFDI instead of the approved numbers provided by the Chinese authorities. Some researchers claim that this dataset is better than the official OFDI data, (Cai, 1999) (Kolstad & Wiig, 2009) since the approved figures only accounted for 15 to 20 percentage of actual financial outflows before late 1990s. Hence, using official data possibly leads to considerable underestimation of the actual OFDI and biased results.

Another main data source comes from the Chinese government officials. Prior to 2002, China's OFDI data was published by MOFTEC (predecessor of MOFCOM). However, only those investment projects screened and approved by relevant government agencies were reported. Also, further investments made after the initial approval of projects were not included, implying omission of re-investment from retained earnings. (Cheng & Ma, 2007) But in December 2002, MOFCOM started to adopt the IMF's BPM5 and OECD's BD3 definitions and standard in collecting OFDI data. Therefore, the discrepancies between the data from this source and those from UNCTAD should be reduced since 2003.[11]

In addition, another Chinese authority which provides OFDI data is SAFE, the data provided can be traced earliest from 1984. Buckley et.al. (2007) have conducted a study using official data published by SAFE from 1984 to 2001. Despite the relatively long time period covered in this dataset, the number of countries included is in fact small due to the availability of other variables. Also, the flow of Chinese OFDI stayed stably at a low level during those years, so meaningful implications for the rapidly rising China's OFDI in recent years may not be derived.

In this study, the data for dependent variable, China's OFDI to host countries from 2003 to 2009, is collected from *Statistical Bulletin of China's Outward Foreign Direct Investment* published by MOFCOM annually since 2003. This dataset is preferred for the following two

[10] UNCTAD collects data from several sources: (i) National Official sources; (ii) IMF based balance-of-payment accounting ;(iii) Other international organization like World Bank, OECD, etc; (iv) Own estimations (See UNCTAD (2006) and UNCTAD (2010))

[11] Discrepancies should be further reduced since 2006 because data for financial sector is also included. They are excluded for 2003, 2004 and 2005 in *Statistical Bulletin of China's Outward Foreign Direct Investment* provided by MOFCOM.

reasons. First, as stated above, the adoption of data collection standard provided by IMF and OECD guarantees data consistency throughout the whole sample period. Second, China being an increasingly active investor is a rather recent issue since 2000s. Prior to that, China's OFDI was virtually negligible in the world's total FDI. With high possibility of structural breaks since opening up in 1979, using dataset covering longer period may not be a good choice.

This study covers 7 years from 2003 to 2009 and around 150 countries, providing more observations than previous studies using the same dataset. This will allow us to generate more reliable results. Unlike most other studies in which only OFDI flow data is examined, see example (Buckley et.al., 2007) (Cheung & Qian, 2009) (Kolstad & Wiig, 2009), Chinese OFDI stock will also be studied. The inclusion of OFDI stock data is inspired by the Cheng & Ma's study, in which they found their models had better explanatory power using OFDI stock data. (Cheng & Ma, 2007)

4.2 Choice of models

The available data allows us to apply panel models, which yield more efficient estimators than independent cross-sections models. The choice of model exhibits a large variety among the previous studies on the determinants of Chinese OFDI. So, it is important to first specify which model is most compatible with the data used in this study.

A number of statistical models are available to estimate panel data. Due to data incompleteness and relatively short sample period, we prefer using the simplest models to avoid imposing strong assumptions on the models. Four types of models were considered, including Fixed Effect (FEs), Random Effects (REs), Pooled Ordinary Least Square (POLS) and Vector Autoregressive Models (VAR)

VAR model provides a framework for testing for Granger causality between each set of variables without pre-determining endogenous and exogenous variables. It is used by (Tolentino P. E., 2008) to model China's OFDI. But VAR model does not allow us to derive useful inference from the data because the main purpose of this study is to investigate how well general FDI theory explains Chinese OFDI. We are interested in the factors determining the amount and pattern of OFDI instead of the other way round, i.e. what variables are affected by China's OFDI. Also, most independent variables in our study like distance,

culture proxy, and host country's economics characteristics are exogenous to China's OFDI. Hence, this approach is not suitable for this study.

Preliminary estimations on our benchmark specifications were conducted using FEs, REs and POLS, as shown in Table 11 below. Hausman test was performed to determine which model to use for the OFDI flow data. For the specification in which time-invariant variables[12] are included, the X^2 estimate is 17.20 with the p-value for the one-sided test is 0.1905, which shows support for REs. For another specification which time-invariant variables are excluded, the X^2 estimate is 20.60 and the p-value for the one-sided test is 0.0812, which only supports the use of FEs at 5% significant level. These results show that REs is preferred, especially if time invariant variables are included in the regression model, which is the case in all models appears in this study. It is because these time invariant variables, often called as 'gravity' specificities, have already captured some fixed effects for the individual countries. Normally, REs will work better than FEs in general for a 'short' panel in which number of countries (N) tends to be much larger than the time periods (T), which is our case. For consistency and comparability, RE estimation is also applied for OFDI stock data.

Breusch and Pagan Lagrangian Multiplier test (LM) is also performed for OFDI flow data, the X^2 estimate is 174.21 and p-value of the test is 0.0000. With this strong evidence of significant differences across countries, a RE model rather than pooled ordinary least squares (POLS) should be used. Similar for OFDI stock data, the X^2 estimate is 669.77 and p-value of the test is 0.0000, which indicates REs model should be used.

As suggested by the tests results above, REs model will be used in this study.[13] Huber-White robust standard errors are used in all estimations here if possible. This is done for conservativeness to make sure our estimates are free from heterogeneity. And due to the fact that our panel is relatively short, we can assume that serial correlation is not a problem.[14] (Torres-Reyna, 2010) The testing for unit root is not feasible and meaningful here since our panel consists of a relatively short period. The missing data for China's OFDI also leads to unbalanced panel which violates the prerequisite for many commonly used unit root tests.

[12] They include EDU, DIST, CHIN, CONTIG and LANDLOCK.
[13] Study conducted by Buckley et.al. (2007) is also utilizing this REs FGLS model. Their study is more comparable to this study.
[14] From our preliminary estimate results, it is found that if we use Generalized Lest Squares (GLS) with robust standard error corrected for heteroskedasticity and autocorrelation with AR (1). The results remain largely unchanged to REs with robust error. Thus, the latter is performed in our study.

Table11. Regression estimates for FEs, REs and POLS

	FEs	REs	POLS	FEs	REs	POLS
	(1)	(2)	(3)	(4)	(5)	(6)
Independent Var.	OFDIF	OFDIF	OFDIF	OFDIS	OFDIS	OFDIS
GDP	3.325	0.460**	0.0841	2.869	0.980***	0.311*
	(2.376)	(0.201)	(0.203)	(1.983)	(0.168)	(0.167)
GDPpc	-0.109	-0.570**	-0.352**	-3.075	-1.040***	-0.720***
	(2.808)	(0.255)	(0.160)	(2.878)	(0.283)	(0.137)
GDPG	-0.0541*	-0.0333	-0.0451**	0.0169	0.0135	-0.0216
	(0.0293)	(0.0245)	(0.0208)	(0.0177)	(0.0158)	(0.0212)
RESOURCE	0.0255**	0.0214***	0.0226***	0.00522	0.0143***	0.0151***
	(0.0115)	(0.00664)	(0.00425)	(0.00888)	(0.00492)	(0.00332)
EDU		-0.0126	-0.0410**		0.0137	0.000218
		(0.0359)	(0.0208)		(0.0470)	(0.0197)
RISK	0.340	0.543	0.437*	0.441	0.367	0.249
	(0.793)	(0.393)	(0.245)	(0.686)	(0.343)	(0.200)
EXPORT	0.142	0.261**	0.511***	0.0389	0.0811	0.521***
	(0.131)	(0.120)	(0.178)	(0.0939)	(0.103)	(0.163)
TRADE	0.00238	0.00596	0.00246	0.0120	0.0101**	0.000735
	(0.00938)	(0.00442)	(0.00314)	(0.00901)	(0.00487)	(0.00273)
IMPORT	-0.105	0.0346	0.0874	-0.0736	0.00179	0.125**
	(0.1000)	(0.0855)	(0.0771)	(0.0618)	(0.0585)	(0.0563)
EXRATE	0.204	0.143*	0.0735*	-0.0754	0.0863	0.104***
	(0.712)	(0.0770)	(0.0430)	(0.0831)	(0.0704)	(0.0358)
INFLAT	-0.00363	0.00239	0.00195	0.000720	0.00626*	0.00680***
	(0.00801)	(0.00262)	(0.00242)	(0.00527)	(0.00321)	(0.00192)
INFDIS	0.00366	0.00320	0.000766	0.000791	0.00208	0.00437*
	(0.00396)	(0.00313)	(0.00267)	(0.00363)	(0.00335)	(0.00228)
DIST		-0.0847	-0.227		-0.229	0.00284
		(0.392)	(0.223)		(0.345)	(0.167)
CHIN		1.664	1.640**		1.968	2.733***
		(1.264)	(0.789)		(1.309)	(0.668)
CONTIG		0.996	0.864**		0.586	0.363
		(0.713)	(0.360)		(0.807)	(0.324)
LANDLOCK		-0.0804	-0.00453		-0.157	-0.0933
		(0.473)	(0.325)		(0.461)	(0.239)
TD07	0.151	0.188	0.170	-0.0904	-0.0851	-0.0744
	(0.226)	(0.238)	(0.345)	(0.139)	(0.136)	(0.256)
TREND	0.218**	0.310***	0.256***	0.454***	0.429***	0.255***
	(0.102)	(0.0634)	(0.0906)	(0.0647)	(0.0453)	(0.0758)
Observations	488	488	488	671	671	671
Countries	106	106		118	118	
Adjusted R^2	0.3814	0.4570	0.4711	0.3458	0.5183	0.5639

Note: Robust standard errors in parentheses. ***, ** and * indicate that coefficient is significant at 1%, 5% and 10% levels respectively. DIST, CHIN, CONTIG and LANLOCK are omitted in FEs because they are time invariant.

4.3 Variables

Dependent variables

This study includes estimations using OFDI flow and stock as the dependent variable. The advantage is that while flow tends to be more volatile across time, OFDI stock shows milder fluctuations and is more stable. The flow data represents short-term impacts from the explanatory variables while stock data contains more long-run effects. Also, Chinese OFDI flow contains some zero or negative values which have to be omitted in the regression models while the OFDI stock is always non-negative and provides us with more observations.

All monetary data have been deflated to real values in constant (2000) US price. Natural logarithm has been taken to some variables[15] in order to tackle the non-linearity issues and enable better interpretation of the results. One drawback of this data treatment is that some data for OFDI flow will be lost due to negative OFDI flow. However, this is a minor problem because number of observations dropped is relatively small.[16] Also the main focus of this paper is Chinese outward investment. Disinvestments, which are not considered and properly modeled here, may well be driven by another set of determinants.

Independent variables

The independent variables need to be carefully justified since many are proxies for the variables in hypotheses. To proxy for the host country's market size, three measures are used: Gross Domestic Production (GDP), per-capita Gross Domestic Production (GDPpc) and growth rate of Gross Domestic Production (GDPG). GDP is used to measure the absolute market size of the host country. The GDPpc captures the stage of economics development in the host country. GDPG represents the realized, also the expected potential growth of economy for the host country. They are used to test for H1a, 1b and 1c respectively.

As for the accessibility of natural resources, the ratio of fuel, ores and metal exports to merchandise exports for host country (RESOURCE) is used as a proxy. It is used to test for H2. While some suggest that actual natural resources endowments rather than export share is better proxy for natural resources abundance (Brunnschweiler & Bulte, 2008) (Lederman & Maloney, April 23, 2008), we intend to use the export ratio rather than the endowments since

[15] Details can be referred to Appendix B.
[16] For example, 67 observations are dropped in our benchmark specification.

it can indicate the willingness of host country in supplying resources to foreign companies. Since some countries may impose strict protection regulations on their natural resources, higher endowment does not necessarily imply more natural resources available for resources-seeking OFDI.

To proxy for the strategic assets, the host country's percentage of population aged 15 and over and completed tertiary education as their highest education level (EDU) in 2005 is used. It is used to test for H3. Higher education and better human capital are found to favor product innovation and advance in technology. (Dakhli & Clercq, 2004) So a higher percentage of population completing tertiary education indicates a higher abundance of strategic assets. Since complete data across time is not available for most host country, the data used is the completion rate in 2005, which is in the middle of our sample period.

To proxy for political risk, the independent variable (RISK) is constructed from the average of six recently available indicators from World Governance Indicators produced by (Kaufmann, Kraay, & Mastruzzi, 2010) . It is used to test for H4. The six indicators are (i) Control of Corruption, (ii) Government Effectiveness, (iii) Political Stability and Absence of Violence/ Terrorism, (iv) Regulatory Quality, (v) Rule of Law, and (vi) Voice and Accountability. These indicators combine the views from a large number of survey respondents including entrepreneurs, experts and citizens, so it should represent the perceived level of political risk quite accurately. A higher scores received in each indicator represents a better performance in that area. Since all indicators have been normalized and ranged from about -2.5 to 2.5, combining them into one index by taking simple average should yield no biased result.

The variable EXPORT is included in the model to examine the effects of bilateral trade on OFDI. EXPORT is the total export value from China to the host country. The hypothesized effect is that China's OFDI and its export are complementary in nature, so the coefficient estimate for EXPORT should be positive. It is meaningful also to look at the estimates for control variables TRADE and IMPORT when interpreting the result for H5 since these three trade-related variables are useful in exploring the empirical dynamics and nature of relationship between China's OFDI and bilateral trade.

To measure China's stage of economics development and international reserve, China's per capital Gross National Income (CGNIpc) and international reserve (RESERVE) are used

as proxies respectively. CGNIpc is chosen because it is more directly related to the income of Chinese people, therefore can reflect better the progress of economics development in China. RESERVE is chosen as an estimate of the total amount of international assets owned by China as a whole. The above two variables are used to test for H6 and H7 respectively.

As for political goals, two variables will be introduced as proxies. They are voting decision for United Nations General Assembly Resolution 2758 (UNVOTE) and the Revised Combined Polity Score (POLITY). Both of them are used to test for H8. UNVOTE is used because it represents to some extent the political ties between China and the voting countries. The independence and reorganization of Taiwan as a country have been a highly sensitive and important issue for China. For countries having good political relationship with China, when they were asked about the question "Whether there should be one lawful China", they should have tended to say "Yes" in order to maintain the friendly position and prevent retaliation. Although the resolution was long before our time period of study, it is a reasonably good proxy for political goals behind Chinese OFDI given that there are few choices of alternatives available. Next, the rationale behind the use of POLITY is that countries form allies based on the ruling party ideology. An example is the politics of Cold War, during which capitalist countries and communist countries formed their allies and competed against the opposite party. Using POLTIY allows us to examine whether China uses the OFDI to support countries with similar regime, or to use OFDI as a way to promote China's political regime in order to resist the opposition and criticisms from capitalist countries. China, consistently received score -7 for polity2 from 2003 to 2009, is recognized as an (partly) autocratic regime. POLITY will be a good proxy for the similarity and political relationship between China and host countries' political regime. However, one drawback of using POLITY is that they can be correlated with the host countries' economics development since more developed countries tend to enjoy a higher level of democracy.

Control variables

The following control variables are included in the specifications in order to isolate the impacts of the variables of interests from other general determinants of Chinese OFDI. The ratio of total export and import values to GDP of host country (TRADE) is included to control for trade openness of the host country. The value of total import from host country to China (IMPORT) is included to control for any bilateral trade effect on China's OFDI .Total inward FDI stock in the host country (INFDIS) is included to control for the openness for inward FDI

in host country. Exchange rate of host country currency to Chinese RMB (EXRATE) and host country's inflation rate (INFLAT) are used to control for the host's economics conditions and stability. The use of Chinese as official language (CHIN), dummy for host country shares common border with China (CONTIG) and the dummy for landlocked economy (LANDLOCK) are time invariant control variables used to control for the host country's 'gravity' set of variables. This set of control variables can also be found in other similar studies. (Buckley et. al., 2007) (Cheng & Ma, 2007) (Cheung & Qian, 2009)

According to the data available, financial sector is only included in OFDI flow and stock since 2007. This leads to a possible jump in intercept for aggregate OFDI in all host countries since 2007.This structural break may result in biased estimates. To take this into account, a time dummy variable (which equals to one when $t \geq 2007$) is added in the model. In addition, based on the increasing trend observed for aggregate OFDI flow and stock across the sample time period, TREND, which is a time dummy for each year is also included in the benchmark specification.

Table12 below shows the summary of the above variables and their expected effects. Correlation matrix which shows the correlation between each variable appear in our benchmark models is available in Appendix C. The correlation coefficients do not indicate any critical problems of multicollinearity. Details and data sources can be found in Appendix B. Summary statistic for each variable is also provided in Appendix D.

Table12. Summary of variables

Variables	Description	Expected sign	Theoretical justification	Types of variables
OFDIF	Annual outflow of China's FDI (Flow)			Dependent
OFDIS	Annual outflow of China's FDI (Stock)			Dependent
GDP	Host country GDP	+	Market seeking	Independent
GDPpc	Host country GDP per capita	+	Market seeking	Independent
GDPG	Host country's real GDP growth rate	+	Market seeking	Independent
RESOURCE	Ratio of fuel, ores and metal exports to merchandise exports of host country	+	Natural resources seeking	Independent
RISK	Host country political risk rating	+	Transaction cost	Independent
EDU	Host country's percentage of population who completed tertiary education	+	Strategic asset seeking	Independent
EXPORT	China's exports to host country	+	Trade-related OFDI	Independent
CGNIpc	China's GNI per capita	+	Home pushing effect	Independent
RESERVE	Ratio of China's total international reserve to China's Current GDP	+	Home pushing effect	Independent
UNVOTE	Voting pattern for United Nations General Assembly Resolution 2758	+	Political Goals	Independent
POLITY	Revised Combined Polity Score (Polity2)	-	Political Goals	Independent
TRADE	Ratio of sum of exports and imports of goods and services to the host country GDP	/	Trade openness	Control
IMPORT	China's imports from the host country	/	Trade-related OFDI	Control
EXRATE	Host country official annual average exchange rate against RMB	/	Macroeconomics factors	Control
INFLAT	Host country annual inflation rate	/	Macroeconomics stability	Control
CHIN	Dummy for host country which Chinese is official language or commonly used	/	Culture proximity	Control
CONTIG	Dummy for host country which is contiguous with China	/	Gravity specification	Control
LANDLOCK	Dummy for landlocked economy	/	Gravity specification	Control
INFDIS	Ratio of inward FDI stock to GDP for host country	/	Investment policy openness	Control
TD07	Time Dummy for year 2007 and after	/	Data modification	Control
TREND	Dummy for time trend	/	Time trend	Control

4.4 Model Specifications

To examine whether China's OFDI follows a conventional or unique path, we first estimate the benchmark specifications of which the hypothesized variables are based primarily on the Dunning's eclectic paradigm. Depending on the ability of general theory-based models in explaining the behavior of Chinese OFDI, we can test whether China's overseas investment provide a testimony or refutation to traditional FDI theory. Notwithstanding, the possibility of special China-related determinants nesting on general FDI theories cannot be excluded, so we will further extend our model to test for the significance of proposed special determinants of China's ODI.

4.4.1Benchmark specifications

The following model will act as the benchmark model for later comparison. We will use the host country's pulling factors (H1- H5) derived from Dunning's OLI paradigm as independent variables and test the explanatory power of this model in order to see how well China's OFDI is explained by traditional FDI theory.

For OFDI flow,

$$OFDIF_{it} = \alpha + \beta_1 GDP_{it} + \beta_2 GDPpc_{it} + \beta_3 GDPG_{it} + \beta_4 RESOURCE_{it} + \beta_5 EDU_i + \beta_6 RISK_{it} + \beta_7 EXPORT_{it} + \beta_8 TRADE_{it} + \beta_9 IMPORT_{it} + \beta_{10} EXRATE_{it} + \beta_{11} INFLAT_{it} + \beta_{12} INFDIS_{it} + \beta_{13} CHIN_i + \beta_{14} CONTIG_i + \beta_{15} LANDLOCK_i + \beta_{16} INFDIS_{it} + \beta_{17} TD07_t + \beta_{18} TREND_t + \varepsilon_{it}$$

For OFDI stock,

$$OFDIS_{it} = \alpha + \beta_1 GDP_{it} + \beta_2 GDPpc_{it} + \beta_3 GDPG_{it} + \beta_4 RESOURCE_{it} + \beta_5 EDU_i + \beta_6 RISK_{it} + \beta_7 EXPORT_{it} + \beta_8 TRADE_{it} + \beta_9 IMPORT_{it} + \beta_{10} EXRATE_{it} + \beta_{11} INFLAT_{it} + \beta_{12} INFDIS_{it} + \beta_{13} CHIN_i + \beta_{14} CONTIG_i + \beta_{15} LANDLOCK_i + \beta_{16} INFDIS_{it} + \beta_{17} TD07_t + \beta_{18} TREND_t + \varepsilon_{it}$$

Where α is the common intercept for all host countries, β represents the corresponding coefficient estimates for each independent and control variables, ε_{it} is assumed to be random error (i.d.d.).

4.4.2 Benchmark Specifications, excluding Tax Havens and OFCs

The Chinese OFDI data has a serious problem which requires us to exclude tax havens and OFCs countries from our sample and re-estimate. Although definition of OFDI is clearly established and international standard is adopted for data collection, at the operational level the issue of "round-tripping" exists with no doubt. Due to tax benefits or other purposes, some of the Chinese outward investment going to tax-havens or Offshore Financial Centers (OFCs) is actually invested elsewhere or return to China. This results in overestimation of Chinese OFDI in these tax-havens or OFCs and underestimation of the values in other host countries. For example, for the top ten countries receiving China's OFDI flow in 2009, one of them is tax-haven[17] and six of them are OFCs[18]. Hong Kong SAR alone accounted for 63% of total Chinese OFDI flow in 2009. (MOFCOM, 2010). Cheng & Ma (2007) used a gravity model approach to analysis China's OFDI from 2002 to 2005 and their study has shown that estimation results can be adversely affected by the inclusion of tax-havens and OFCs. Therefore, in this specification we exclude the tax havens and OFCs countries from our sample[19] to minimize the effects of round-tripping OFDI.

4.4.3 Benchmark Specifications, "Developed" VS "Transitional and Developing"

Researchers have identified different sets of explanatory variables for Chinese OFDI in host countries with different levels of economic development. See (Buckley et.al., 2007)) (Cheung & Qian, 2009). To check if the estimation results hold or change with the countries chosen, we will further divide our sample into two sub-groups according to their stages of economics development, namely 'developed countries' and 'transitional and developing countries'.[20] Originally, estimations are also performed by dividing the countries into three groups, which are 'developed', 'transitional' and 'developing' countries. However, the number of observations for transitional countries is only 23 and 35 respectively for OFDI flow and OFDI stock. And the result is in general similar to developing countries, so transitional and developing countries are grouped as one. This division is believed to yield better classification of host countries' economics development, as compared to the previous

[17] Classification from OECD (2000). It is British Virgin Islands.
[18] Classification from IMF (2006) They are Hong Kong SAR (China), Cayman Islands, Luxembourg, Singapore, British Virgin Islands and Macao SAR (China).
[19] For the classifications of Tax Havens and OFCs countries, please refer to Appendix E.
[20] Classification for developed, transitional developing countries is taken directly from UNCTAD (2010). Detailed classifications are available in Appendix F.

studies like Buckley et.al. (2007) which only divide countries according to their OECD membership.[21]

4.4.4 Benchmark Specifications, "2003-2006" VS "2007-2009"

According to the data provided by MOFCOM, for the period 2003 – 2006, the flow and stock data only consist of OFDI from non-financial industry. And OFDI data including financial industry is only available and included since 2007. So we will divide the sample into two periods, i.e. 2003-2006 and 2007-2009, in order to identify any changes in determinants for OFDI across the time periods.

4.4.5 Robustness checking

Some robustness checking will be conducted to our benchmark model. They include the use of OFDI flow and stock per capita as dependent variables, which is an alternative dependent variable used by Cheung & Qian (2009). Also checked is the use of number of patent granted (PATENT) rather than EDU as the proxy for strategic assets. PATENT is chosen because it is a measure for the actual and final outcomes for strategic assets owned by the host country. Lastly, the variable RESOURCE is further decomposed into fuel export as a percentage of merchandise export (FUEL) and ore and metal export as a percentage of merchandise export (ORME). This is done in order to identify which type of resources China's OFDI is seeking if there is only a specific type.

4.5 Extended Specifications

In the benchmark specification only the determinants from the conventional FDI theories are used as the variables of interests. In the extended specifications, we include three more China-specific determinants deemed relevant in explaining Chinese OFDI (H6-H8). It is to determine whether if China's own policy and economics situation also help determine the aggregate outward OFDI. In addition, we seek to examine if there is any political goals behind the allocation of OFDI.

[21] Regression result with such a classification is also estimated and they are generally similar to our results presented in this study. Countries are considered as OECD member countries if they joined OECD before the end of 2002. They are Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States of America.

Section 5: Results and Discussions

5.1 Basic Models

5.1.1 Benchmark specifications

The regression estimates for benchmark specifications is shown below in Table13. Columns (1) to (3) show the regression results using Chinese OFDI flow as dependent variables, and columns (4) to (6) show that using Chinese OFDI stock as dependent variables.

From Table 13 below, we can see that the regression results of the whole panel and the panel excluding Tax Haven and OFCs countries do not differ much, in terms of both signs and significance for each coefficient. One possible explanation is that, many data for the independent variables of these Tax Haven and OFCs countries are missing in the whole panel sample. So, a large amount of observations from these Tax Havens and OFCs countries are already excluded in the regression for the whole panel. So, the actual number of observations dropped is small if we exclude Tax Haven and OFCs.[22] This result shows that this data issue does not have significant impact on our dataset and we can continue estimating the model for whole sample period.

Without having to worry the problems created by round-tripping OFDI, we can discuss the result for OFDI flow and OFDI stock across the whole sample period in column (1) and (4) respectively. Since the signs of the coefficients for all variables, except GDPG and TD07, are the same for these two regressions, we can say that Chinese OFDI flow and stock share similar set of explanatory variables.

[22] For OFDI flow, 3 countries observations are dropped when Tax Haven is excluded. 10 more countries observations are excluded when OFCs are excluded. For OFDI stock, 3 countries observations are dropped when Tax Haven is excluded. 11 more countries observations are excluded when OFCs are excluded.

Table13. Estimates for benchmark specifications

Model	Whole panel	Tax Havens excluded	OFCs excluded	Whole panel	Tax Havens excluded	OFCs excluded
	(1)	(2)	(3)	(4)	(5)	(6)
Independent Var.	OFDIF	OFDIF	OFDIF	OFDIS	OFDIS	OFDIS
GDP	0.460**	0.409**	0.390	0.980***	0.942***	0.983***
	(0.201)	(0.202)	(0.239)	(0.168)	(0.172)	(0.184)
GDPpc	-0.570**	-0.508**	-0.508*	-1.040***	-0.990***	-1.067***
	(0.255)	(0.257)	(0.278)	(0.283)	(0.289)	(0.288)
GDPG	-0.0333	-0.0398	-0.0157	0.0135	0.0112	0.0236
	(0.0245)	(0.0242)	(0.0234)	(0.0158)	(0.0160)	(0.0145)
RESOURCE	0.0214***	0.0234***	0.0219***	0.0143***	0.0151***	0.0160***
	(0.00664)	(0.00667)	(0.00678)	(0.00492)	(0.00503)	(0.00510)
EDU	-0.0126	-0.0225	-0.00992	0.0137	0.00509	0.0254
	(0.0359)	(0.0364)	(0.0381)	(0.0470)	(0.0480)	(0.0500)
RISK	0.543	0.540	0.439	0.367	0.351	0.280
	(0.393)	(0.398)	(0.395)	(0.343)	(0.348)	(0.341)
EXPORT	0.261**	0.251**	0.195	0.0811	0.0738	0.0681
	(0.120)	(0.120)	(0.120)	(0.103)	(0.102)	(0.0989)
TRADE	0.00596	0.00535	-0.000752	0.0101**	0.00984**	0.00552
	(0.00442)	(0.00436)	(0.00588)	(0.00487)	(0.00490)	(0.00532)
IMPORT	0.0346	0.0346	0.0890	0.00179	0.00186	0.0165
	(0.0855)	(0.0852)	(0.0948)	(0.0585)	(0.0570)	(0.0593)
EXRATE	0.143*	0.123*	0.0994	0.0863	0.0731	0.0839
	(0.0770)	(0.0748)	(0.0733)	(0.0704)	(0.0685)	(0.0707)
INFLAT	0.00239	0.00188	0.00213	0.00626*	0.00591*	0.00747**
	(0.00262)	(0.00261)	(0.00272)	(0.00321)	(0.00326)	(0.00303)
INFDIS	0.00320	0.00343	0.00402	0.00208	0.00217	0.00482*
	(0.00313)	(0.00310)	(0.00265)	(0.00335)	(0.00338)	(0.00280)
DIST	-0.0847	-0.197	-0.303	-0.229	-0.295	-0.275
	(0.392)	(0.401)	(0.400)	(0.345)	(0.355)	(0.366)
CHIN	1.664	1.638		1.968	1.929	
	(1.264)	(1.246)		(1.309)	(1.296)	
CONTIG	0.996	0.981	0.565	0.586	0.593	0.122
	(0.713)	(0.697)	(0.699)	(0.807)	(0.791)	(0.806)
LANDLOCK	-0.0804	-0.120	0.00285	-0.157	-0.196	-0.287
	(0.473)	(0.472)	(0.500)	(0.461)	(0.460)	(0.455)
TD07	0.188	0.215	0.332	-0.0851	-0.0649	-0.0922
	(0.238)	(0.238)	(0.235)	(0.136)	(0.136)	(0.141)
TREND	0.310***	0.291***	0.280***	0.429***	0.419***	0.411***
	(0.0634)	(0.0613)	(0.0630)	(0.0453)	(0.0443)	(0.0439)
Observations	488	479	431	671	657	596
Countries	106	103	93	118	115	104
Overall R^2	0.4570	0.4535	0.4165	0.5237	0.5153	0.4960

Note: Robust standard errors in parentheses. ***, ** and * indicate that coefficient is significant at 1%, 5% and 10% levels respectively. CHIN is omitted in specifications (3) and (6) because all countries using Chinese as official language are classified as OFCs.

The main variables will be discussed first. The coefficient estimate for host country market size (GDP) is significantly positive at 5% and 1% significant level for OFDI flow and OFDI stock respectively. This shows a very strong evidence for market seeking motivation. This finding shows strong support for H1a that absolute host market size is positively related to OFDI. As for H1b, it is found that GDPpc, which can be considered as a proxy for host economics development stage as well as market size, have a negative effect for both OFDI flow and stock. This suggests that China tends to make more investment in less developed countries. One plausible explanation may be that China tends to invest in developing countries for their loose restriction on natural resources and cheap labor. The insignificant coefficients for GDPG represents China's OFDI mainly seek for large market but not the potential market growth. This result is not supportive for H1c. In short, Chinese overseas investment mainly seeks for large foreign market. And host countries' market size growth seems not an important determinant. These results are expected and similar to other studies. (Buckley et.al., 2007) (Cheng & Ma, 2007)

The accessibility of natural resources (RESOURCE) has a positive sign and is highly significant for both OFDI flow and stock in all the models presented. This strongly support for the natural resources seeking motivation behind China's OFDI (H2). Although the coefficients is small (a percentage increase in it can only raise China's OFDI by 0.01% to 0.02%), given that the level RESOURCE has a large variance[23], it can yield a big overall effect on the amount of OFDI to some host countries. This finding is reasonable given the large demand of raw materials needed for the rapid growth of Chinese economy.

Strategic assets, as proxied by the tertiary-education completion rate (EDU), are not significant to both flow and stock. Moreover, the sign of coefficients is negative for OFDI flow, which indicates China's investment tends to flow into host country with lower percentage of population completed tertiary education. This result shows little support for the strategic asset seeking motivation (H3). One way to explain this is that China still possesses comparative advantages in producing middle to low-end manufacturing products which requires little advanced technology and innovation. Also, Chinese companies can use other ways to acquire foreign strategic assets, for example inward FDI, reverse engineering, etc. Thus the quality of human capital owned by the host countries might not a significant consideration for Chinese investors.

[23] The standard deviation for RESOURCE is 28.85% and its mean is 25.34%.

As for political risk, the sign of coefficient for RISK is positive as hypothesized, i.e. China invest more in politically stable countries, however it is insignificant. So hypothesis 4 is not supported. This implies that political risks are not the primary concern of Chinese outward investment.

For the impact of bilateral trade on Chinese capital outflow, EXPORT is found to have a positive sign and in general significant in determining OFDI flow, supporting for the hypothesis that China's OFDI and export is complementary. This is an expected and conventional finding. (Buckley et. al., 2007) (Cheung & Qian, 2009) Although EXPORT is insignificant for OFDI stock, it is still positively signed. If we also impact on host country's trade openness on Chinese OFDI, an interesting finding is that TRADE is positive and in general significant in determining OFDI stock, i.e. Chinese multinationals invest more in countries with higher trade openness. This could be due to the fact that China still imposes restriction and taxes on trade, especially imports. So Chinese companies may capitalize on the freer trade environment of the host countries and conduct production and trade activities.

For the control variables, exchange rate (EXRATE) is significant coefficient for OFDI flow but not for OFDI stock. It shows that depreciation in host countries' currency attracts more China's OFDI in a shorter run but not in a longer time span. An interesting contrast is that, inflation rate (INFLAT) is significant for OFDI stock but not for OFDI flow. This shows changes in inflation rate in short run, which possibly implies a macroeconomics instability and shock, does not have significant impact on OFDI flow in short run. However, a mild inflation which indicated a strong and continuous aggregate consumer demand may attract China's OFDI stock in a longer run. The signs for coefficients for FDI openness (INFDIS), distance (DIST), culture proximity (CHIN), common border (CONTIG) and landlocked economy (LANDLOCK) are same as expected for both OFDI flow and stock panel. However, they are insignificant in general which show these country-specific features have much less influence on China's OFDI. The time dummy variable TREND is positive and significant in all cases. This is consistent with the fact that both aggregate OFDI flow and stock are increasing over time within our sample time period.

The overall R^2, as a measurement of fitness, is higher for using OFDI stock as dependent variable comparing to OFDI flow. This shows possibilities that the theoretical framework provides a higher explanatory power for OFDI stock than flow. Similar findings are obtained by Cheng & Ma (2007).

5.1.2 Benchmark Specifications, "Developed" VS "Transitional and Developing"

Table 14. Estimates for "Developed" VS "Transitional and Developing"

	Developed countries	Developing countries	Developed countries	Developing countries
	(1)	(2)	(3)	(4)
Independent Var.	OFDIF	OFDIF	OFDIS	OFDIS
GDP	0.809**	0.452*	1.441***	0.870***
	(0.369)	(0.246)	(0.220)	(0.220)
GDPpc	-1.529*	-0.436*	-2.408***	-0.780***
	(0.888)	(0.264)	(0.770)	(0.286)
GDPG	-0.0457	-0.0290	0.0720**	0.00275
	(0.0748)	(0.0264)	(0.0353)	(0.0188)
RESOURCE	0.0158	0.0205***	-0.0195	0.0150***
	(0.0297)	(0.00679)	(0.0168)	(0.00493)
EDU	0.0155	-0.0498	0.117	-0.0366
	(0.0902)	(0.0372)	(0.0818)	(0.0505)
RISK	1.535	0.400	2.509***	-0.0459
	(1.195)	(0.436)	(0.875)	(0.347)
EXPORT	0.459	0.220*	-0.168	0.138
	(0.434)	(0.128)	(0.307)	(0.132)
TRADE	0.00501	0.0110**	0.0197*	0.0103*
	(0.0134)	(0.00533)	(0.0103)	(0.00544)
IMPORT	-0.138	0.0702	0.184	-0.0387
	(0.307)	(0.106)	(0.229)	(0.0636)
EXRATE	-0.151	0.153*	0.0567	0.0979
	(0.296)	(0.0815)	(0.166)	(0.0697)
INFLAT	-0.101	0.00135	-0.0598	0.00607**
	(0.0848)	(0.00285)	(0.0524)	(0.00288)
INFDIS	0.00543	0.00433	-0.000423	0.00567
	(0.00496)	(0.00331)	(0.00521)	(0.00432)
DIST	-0.255	-0.197	0.534	-0.505
	(1.109)	(0.411)	(0.562)	(0.383)
CHIN		0.265		1.631
		(1.307)		(1.449)
CONTIG		0.701		0.306
		(0.739)		(0.809)
LANDLOCK	-0.687	0.577	-1.599*	0.193
	(1.130)	(0.537)	(0.882)	(0.557)
TD07	0.0468	0.278	0.359	-0.307**
	(0.508)	(0.265)	(0.302)	(0.149)
TREND	0.264*	0.303***	0.461***	0.456***
	(0.154)	(0.0790)	(0.117)	(0.0551)
Observations	139	349	202	469
Countries	28	78	32	86
Overall R^2	0.4568	0.5291	0.6372	0.5520

Note: Robust standard errors in parentheses. ***, ** and * indicate that coefficient is significant at 1%, 5% and 10% levels respectively. CHIN and CONTIG are omitted in the developed countries sample because none of the developed country uses Chinese as it official or share a common border with China.

The regression results for benchmark specifications of the two sub-groups, "Developed" and "Transitional and Developing countries", are shown above in Table14. From Table 14, we detect different results for developed and developing countries in general, also different results for OFDI flow and stock are observed. These mixed results require separate discussions. In this section, only results for main variables will be discussed since the estimates for control variables are show expected effects and require no special attention.

OFDI flow

For the OFDI flow, GDP is significantly positive for both developed and developing countries, meaning China's OFDI flow is attracted by larger absolute host market size in both developed and developing countries. Also, GDPpc is significant and negative for both developed and developing countries. These findings are similar to that in the whole panel case which China's OFDI tends to locate in larger economy with lower level of development. Again, GDPG is insignificant to determine the amount of OFDI flow. Thus, H1a is supported for OFDI flow in both developed and developing countries while H1b and 1c are not supported by our findings.

RESOURCE is significantly positive in developing countries but not in developed countries. So, our findings suggest that the resource seeking motivation behind Chinese FDI, H2, is only supported for developing countries. It can be the case that developed countries impose more protection for their natural resources than the developing countries do, thus Chinese investors choose the less developed countries for raw material. Also, many developing countries heavily rely on the selling and exporting of natural resources on which they possess their comparative advantages. This raises the accessibility of natural resources for Chinese companies in these developing countries.

Similar to the regression result for the whole sample, EDU and RISK are insignificant for both developed and developing countries. Thus, H3 and H4 are not supported for OFDI flow in all countries. In addition, it is found that TRADE and EXPORT are only significant and positive for developing countries but not for developed countries. So, the trade-complementary nature for China's OFDI (H5) is only supported in developing counties.

Finally, although TREND is significant and positive for OFDI flow in both developed and developing countries, its value are much higher for that in developing countries. It reveals

a stronger and clearer increasing trend for China's OFDI flow to developing countries. In short, market-seeking seems to be the only significant motivation for China's OFDI flow in developed countries. But for developing countries, market-seeking, natural resources-seeking and trade-augmenting FDI are possible explanations for China's OFDI flow. In addition, our model has a slightly higher explanatory power in the latter panel, which is indicated by a higher overall R^2 in the model (2).

OFDI stock

For the OFDI stock, it provides consistent evidence that there are different sets of motivations behind China's OFDI in developed and developing countries. Signs and significance for GDP and GDPpc again show that China's OFDI stock seeks for large absolute market size and lower-end market. One difference is that GDPG is positive and significant in developed countries, implying Chinese companies invest in places with higher economics growth as well as larger size in a longer run. The results support H1a but not H1b for OFDI stock in all countries, while H1c is only supported for developed countries.

Similar with the results obtained from OFDI flow, RESOURCE is positive and significant only for developing countries but not for developed countries. H2 is again only supported for China's OFDI stock in developing countries. EDU is insignificant for all countries. Thus, H3 is not supported in both groups of countries. An important finding here is that, coefficient for RISK for developed countries is positive and highly significant. For Chinese OFDI stock in developed countries, H4 is supported. This is very different with the result for developing countries which is negative and insignificant. In another words, lower political risk and better governance in developed countries attracts China's OFDI in long run.

As for the trade-related variables, while TRADE is positive and significant for both groups of countries, EXPORT and IMPORT are found to be insignificant in both groups. This may indicate that China uses the host country as secondary export base outside China. The complementary nature between OFDI and EXPORT seems to be less important in longer run. Thus H5 is not supported for OFDI stock here.

Lastly, it is found that the time dummy variable TD07 for developing countries is negative and significant. It can be explained by the fact that more financial sector OFDI, which data is only available after 2007, was invested in developed countries. TREND has

been found to be both positive and highly significant for developed and developing countries. In contrast to the findings for OFDI flow, our model provides a higher explanatory power for developing countries indicated by overall R^2.

5.1.3 Benchmark Specifications, "2003-2006" VS "2007-2009"

The regression results for benchmark specifications of two sub-periods, '2003-2006' and '2007-2009', are shown below in Table15.

Table15. Estimates for "2003-2006" VS "2007-2009"

Time period	2003-2006	2007-2009	2003-2006	2007-2009
	(1)	(2)	(3)	(4)
Independent Var.	OFDIF	OFDIF	OFDIS	OFDIS
GDP	-0.247	0.684***	0.466*	1.195***
	(0.275)	(0.236)	(0.269)	(0.164)
GDPpc	-0.201	-0.856***	-0.773***	-1.144***
	(0.251)	(0.298)	(0.280)	(0.277)
GDPG	-0.0632**	-0.0221	-0.0168	0.00321
	(0.0263)	(0.0366)	(0.0264)	(0.0117)
RESOURCE	0.0226***	0.0248***	0.0154**	0.0103**
	(0.00650)	(0.00832)	(0.00651)	(0.00491)
EDU	-0.0399	-0.0152	0.0137	0.00952
	(0.0306)	(0.0451)	(0.0487)	(0.0440)
RISK	0.487	0.641	0.265	0.428
	(0.447)	(0.494)	(0.408)	(0.341)
EXPORT	0.793***	0.128	0.447**	0.0199
	(0.243)	(0.110)	(0.217)	(0.0553)
TRADE	-0.000687	0.0120***	0.00143	0.00867**
	(0.00610)	(0.00464)	(0.00595)	(0.00360)
IMPORT	0.112	0.00940	0.0224	-0.0253
	(0.116)	(0.101)	(0.0962)	(0.0542)
EXRATE	0.137*	0.0736	0.170**	0.0739
	(0.0804)	(0.103)	(0.0825)	(0.0819)
INFLAT	-0.00142	2.40e-06	0.00749***	0.00298
	(0.00321)	(0.0167)	(0.00244)	(0.00568)
INFDIS	-0.00607	0.00246	0.00162	0.00624
	(0.00632)	(0.00486)	(0.00556)	(0.00417)
DIST	0.0986	-0.208	-0.215	-0.118
	(0.431)	(0.451)	(0.373)	(0.397)
CHIN	2.478	0.607	3.551**	1.695*
	(1.993)	(1.209)	(1.625)	(0.986)
CONTIG	0.777	1.193	0.174	1.004
	(0.772)	(0.796)	(0.804)	(0.871)
LANDLOCK	0.270	-0.294	-0.356	0.0161
	(0.541)	(0.624)	(0.502)	(0.459)
TREND	0.238**	0.349**	0.354***	0.341***
	(0.104)	(0.146)	(0.0783)	(0.0612)
Observations	282	206	386	285
Countries	93	90	114	110
Overall R^2	0.4657	0.4075	0.5075	0.5649

Note: Robust standard errors in parentheses. ***, ** and * indicate that coefficient is significant at 1%, 5% and 10% levels respectively.

There are two possible ways to interpret any differences in the results from these estimates. First, any differences can represent the fundamental change in determinants of China's OFDI flow and stock in all sectors across the two time periods. Second, any changes in results can also be viewed as the effects of including data of financial sector OFDI in the latter period, there may be different factors determining OFDI in financial sector and the other sectors.

OFDI flow

The results for OFDI flow in models (1) and (2) will first be discussed. Comparing the results of two models, there are several main features can be observed.

First of all, the market seeking motivation proxy by GDP, GDPpc and GDPG are in general in insignificant economically and statistically in the former period, 2003-2006.[24] They become more significant in the latter period. One plausible reason may be that China's OFDI has become more market-orientated and target at larger potential markets in recent years. Also, it is likely that financial sector OFDI is motivated by market demands and this is reflected in the data of the latter period. H1a is thus supported in the later period but not in the earlier one.

Second, RESOURCE is highly significant and positive in both periods, meaning that resources-seeking remains a strong motivation throughout time. H2 is supported in both periods. Third, coefficients for EDU and RISK are both insignificant in both periods. H3 and H4 still lack empirical evidence even if we separate the time period into two. Forth, while EXPORT is significant and positive in the first period, it becomes insignificant and TRADE becomes the significant variable. This may reflect that OFDI and export was complementary to each other in the former period, and when the Chinese foreign subsidiaries became larger later, they can be used as a base to trade with other countries. Thus TRADE becomes significant in latter period. So, H5 is only supported in the first period. The control variables yield similar results as the benchmark case, so no further explanations are required.

[24] Although coefficient estimate for GDPG is significant at 5% significant level. Its estimate is only -0.06, which represents that 1% increase in GDPG will only decrease the OFDI flow by 0.06%. Given that the fluctuation of GDP growth is normally low. This effect is believed not economically significant.

OFDI stock

Using OFDI stock, GDP and GDPpc are significantly positive in both periods. Both their coefficient and significance increase in the second period. This matches with the result pattern for OFDI flow. The motivation to seek for larger market in absolute size with lower development level is more obvious for OFDI stock. Thus the evidence is supportive for H1a but not H1b and H1c.

Since RESOURCE is significant in both periods, it further confirms natural resource seeking as a strong motivation behind China's OFDI stock in between 2003-2009. H2 is strongly supported by this finding. Although the signs for EDU and RISK are correctly expected in both periods, their significance still remain low so conclusion cannot be been made. The empirical evidence is again not supportive for H3 and H4. For TRADE, EXPORT and IMPORT these three trade-related OFD share a similar with those for OFDI flow. H5 is only supported in former period but not in latter one.

To conclude, the fundamental change in motivation for OFDI across these two periods is that market-seeking motivation becomes more significant for the Chinese outward investment in recent years. Natural resource-seeking motivation remains significant across periods but strategic asset-seeking and political risk-reducing motivation stay insignificant across two periods. The stronger market-seeking motivations may be attributable to the 'Go-Global' policy which came into effects in the second half part of 2000s. Since decentralization in approval process and reforms on the selection criteria were instigated, the overseas investment in the late 2000s should be more incentivized by economic interests, and hence attracted to bigger market for profits opportunities.

5.1.4 Robustness Checking

Table16 below shows the results for the robustness checking of our benchmark specifications. Results here are compared with the results obtained from the benchmark model with whole sample, which is shown in Table13.

Table16. Robustness checking for benchmark specifications

Independent Var.	(1) OFDIFpc	(2) OFDISpc	(3) OFDIF	(4) OFDIS	(5) OFDIF	(6) OFDIS
GDP	-0.538***	-0.0183	0.406*	0.806***	0.515**	0.967***
	(0.201)	(0.168)	(0.220)	(0.177)	(0.203)	(0.170)
GDPpc	0.429*	-0.0409	-0.511**	-1.025***	-0.452	-1.016***
	(0.256)	(0.283)	(0.248)	(0.263)	(0.286)	(0.310)
GDPG	-0.0333	0.0134	-0.0176	0.0109	-0.00838	0.0103
	(0.0245)	(0.0158)	(0.0244)	(0.0141)	(0.0321)	(0.0156)
RESOURCE	0.0214***	0.0143***	0.0217***	0.0130**		
	(0.00664)	(0.00492)	(0.00685)	(0.00607)		
EDU	-0.0128	0.0134			-0.0193	0.0117
	(0.0359)	(0.0469)			(0.0375)	(0.0467)
RISK	0.542	0.367	0.519	0.721**	0.389	0.336
	(0.393)	(0.343)	(0.362)	(0.347)	(0.430)	(0.376)
PATENT			-0.0304	-0.0182		
			(0.0398)	(0.0254)		
FUEL					0.0174**	0.0135**
					(0.00774)	(0.00591)
ORME					0.0314**	0.0155*
					(0.0122)	(0.00866)
EXPORT	0.260**	0.0807	0.235**	0.154	0.259**	0.0899
	(0.120)	(0.103)	(0.120)	(0.120)	(0.122)	(0.105)
TRADE	0.00599	0.0101**	0.00394	0.00694	0.00681	0.00988**
	(0.00442)	(0.00487)	(0.00495)	(0.00431)	(0.00439)	(0.00489)
IMPORT	0.0350	0.00209	0.0197	-0.0286	0.00138	0.00448
	(0.0855)	(0.0585)	(0.0788)	(0.0616)	(0.0898)	(0.0585)
Observations	488	671	433	590	493	676
Countries	106	118	106	124	107	118
Overall R^2	0.4622	0.3736	0.4696	0.5162	0.4491	0.5265

Note: Robust standard errors in parentheses. ***, ** and * indicate that coefficient is significant at 1%, 5% and 10% levels respectively.

Specifications (1) and (2) show the regressions estimates if OFDI flow per capita and OFDI stock per capita are used as dependent variables. For OFDIFpc in (1), it has been found that all coefficient estimates' sign and significance remain largely unchanged as the benchmark specification except GDP and GDPpc. GDP is becoming more significant while GDPpc is becoming less significant. Meanwhile, GDP has changed from positively to negatively related to OFDI flow. GDPpc has changed from positively related to negatively

related with OFDI flow. These results are reasonable since OFDI flow is now normalized by population in host countries, the interpretation of this 'new' specification is same as that for the original specification, i.e. holding population constant, China's OFDI tends to flow to economies with larger absolute size and lower stage of development.

Similar pattern can be observed for OFDISpc in (2), all coefficient estimates' sign and significance remain largely unchanged as the benchmark specification except GDP and GDPpc. Both estimates have became insignificant, GDP has changed from positively related to negatively related with OFDI stock. Meanwhile, the sign for GDPpc remain unchanged as negative. The changes of sins and significance level are rather unclear with no obvious explanation. However, though using OFDISpc lead us to a slightly different result to the benchmark case, it should be noticed that there is a fairly large drop in overall R^2, from 52.37% to 37.36%. This may implies that our benchmark model provides a better explanatory power for the total OFDI stock compare to OFDI stock per capita.

Specifications (3) and (4) show the regression results if the number of patent granted by host country (PATENT) rather than EDU is used. PANTENT is both negative and insignificant in both cases. From the result from model (3), it is found that most signs and significance of independent variables remain largely unchanged as the benchmark specification. However, two changes are observed for OFDI stock in (4). First, the RISK variable becomes positive and significant. Second, TRADE becomes an insignificant variable. One possible explanation for this result is that once PATENT is controlled for, which implies that at the same level of strategic asset abundance level of host country. Chinese's OFDI stock seek to locate in county with lower political risk and better governance. It may due to higher need for protection of those private property rights for advantaged technology and innovation generated by those patents. These results show the insignificance for strategic asset seeking motivation does not change due to the use of proxy. However, the choice of the proxy can affect the significance for other motivations which requires special attention.

Specifications (5) and (6) show the regression results if RESOURCE is disaggregated into FUEL and ORME. For OFDI flow in (5), both FUEL and ORME are positive and highly significant at 5% significant level. The sign and significance remain largely unchanged for most other variables For OFDI stock in (6), both FUEL and ORME are positive and significant variables. The sign and significance of other variable estimates are almost exactly the same as the benchmark specification. These results show fuel, ores and metal both are raw

material which China's OFDI seek for, so it makes no difference to aggregate all these raw material. In addition, by comparing the sizes of coefficients for FUEL and ORME, it seems that ores and metals are slightly more important raw material than fuel for China.

5.2 Extended Specifications

Table17.Estimates for extended models

Independent Var.	(1) OFDIF	(2) OFDIS	(3) OFDIF	(4) OFDIS	(5) OFDIF	(6) OFDIS
GDP	0.463**	0.974***	0.496*	1.092***	0.455**	0.879***
	(0.200)	(0.168)	(0.268)	(0.192)	(0.210)	(0.171)
GDPpc	-0.572**	-1.037***	-0.834***	-1.242***	-0.652**	-1.043***
	(0.256)	(0.283)	(0.311)	(0.334)	(0.266)	(0.298)
GDPG	-0.0393	0.0120	-0.0508*	0.00121	-0.0335	-0.00115
	(0.0253)	(0.0185)	(0.0273)	(0.0238)	(0.0243)	(0.0198)
RESOURCE	0.0213***	0.0145***	0.0271***	0.0176***	0.0238***	0.0159***
	(0.00666)	(0.00493)	(0.00748)	(0.00552)	(0.00671)	(0.00544)
EDU	-0.0129	0.0133	-0.0242	0.0455	0.00284	0.0248
	(0.0358)	(0.0470)	(0.0410)	(0.0520)	(0.0376)	(0.0471)
RISK	0.550	0.372	0.785*	0.460	0.609	0.545
	(0.393)	(0.343)	(0.452)	(0.397)	(0.393)	(0.368)
EXPORT	0.251**	0.0873	0.242	0.0120	0.242**	0.103
	(0.125)	(0.110)	(0.150)	(0.115)	(0.119)	(0.104)
TRADE	0.00583	0.0100**	0.00386	0.0141**	0.00487	0.00385
	(0.00443)	(0.00486)	(0.00523)	(0.00581)	(0.00481)	(0.00448)
IMPORT	0.0364	0.00128	0.0792	0.00100	0.0351	-0.0134
	(0.0865)	(0.0610)	(0.108)	(0.0619)	(0.0858)	(0.0615)
CGNIpc	-0.955	0.806	-1.975	-0.923	-2.411	-1.267
	(3.995)	(2.771)	(4.329)	(3.362)	(3.998)	(2.872)
RESERVE	0.377	0.596	0.756	0.0962	0.109	0.456
	(1.509)	(0.724)	(1.679)	(0.886)	(1.551)	(0.738)
UNVOTE			-0.943**	-0.585		
			(0.377)	(0.370)		
POLITY					-0.0103	-0.0103
					(0.0288)	(0.0243)
Observations	488	671	390	523	469	636
Countries	106	118	84	90	100	110
Overall R^2	0.4566	0.5250	0.4470	0.4841	0.4262	0.4931

Note: Robust standard errors in parentheses. ***, ** and * indicate that coefficient is significant at 1%, 5% and 10% levels respectively.

Table 17 above shows the estimates for our extended specification. Similarly, Hausman test was performed and results suggested that REs should be used rather than FEs for OFDI flow. Breusch and Pagan Lagrangian multiplier test (LM) is performed for each specifications. All results suggested that REs should be used rather than POLS estimate. Therefore, same as

the models used in benchmark specifications, REs is used for all extended specifications. For simplicity, the estimates for control variables are omitted here since they are generally similar to those in the benchmark specifications.

Specifications (1) and (2) show the results if CGNIpc and RESERVE are included as independent variables. It is found that their coefficient estimates are insignificant. In addition, they remain insignificant in most other specifications. The sign for CGNIpc in the OFDI flow (1) is even negative.[25] From these results, we conclude that the China's aggregate economic growth and accumulation of international reserve do not seem to play an important role in determining the aggregate level of China's OFDI flow and stock. This result is largely different from the previous study conducted by Cheung & Qian (2009), who found China's international reserve was a positive and highly significant factor in determining the China's OFDI. One possible explanation is that their study covers a longer time period from 1991 to 2005, during which China's GNI per capita and international reserve level both experienced a larger change than our investigated time period. Thus, a better way to interpret our findings is that the changes in China's GNI per capita and international reserve level within our sample time period are relatively less important as other OFDI motivations.

The dummy variable UNVOTE is included in the specification (3) and (4), the coefficient estimates are both negative but only the one for OFDI flow is significant at 5% significant level. Under our hypothesis, the countries which voted 'Yes' for the resolution should receive larger amount of China's OFDI since the voting pattern should represent a better political relationship with China. However, the empirical result shows that the host countries which voted 'Yes' receive on average 0.943% and 0.585% less OFDI flow and stock respectively from China. If an interpretation is to be made, this result may hint China's attempt to improve relationship with its 'political enemies' by pumping OFDI into those countries. In another words, they may target for host countries which did not support for China's CCP originally in order to gain their recognition.

From the estimation results of specifications (5) and (6), it further suggests the difficulty and instability to proxy for political goal. These two specifications both use POLTIY to proxy for the political goals of China. POLITY, which is a time variant variable, is insignificant in

[25] CGNIpc and RESERVE have been tried to be included in the specification separately, however, the result and conclusion is not largely different. So, it has been chosen to report the model with both variables included for simplicity reason.

both models. Although the direction of coefficient is as predicted, it is highly insignificant with p-values higher than 0.6 in both specifications.

The results in specifications (3), (4), (5) and (6) altogether suggest the lack of strong evidence for political goals behind aggregate Chinese OFDI in our sample period. UNVOTE and POLITY are in most cases insignificant. Plus, the overall R^2 is in general similar to the benchmark specification. So these China-specific variables provide little extra explanatory power in explaining China's OFDI.

At the same time, we have also tried to estimate the model by dividing the host countries according to their OECD membership statue. We did so because the original idea of including political goal is that China seeks to gain international support from the host countries. Since an OECD membership indicates the host country is larger and more developed, thus has greater influence in the World. It is reasonable to suspect that political goal matters only for OECD countries but not for those smaller countries with less influence. The results obtained have confirmed our expectation here. Coefficients for UNVOTE and POLITY for OECD countries are negative and highly significant.[26] However, they are both insignificant for non-OECD. These results show a very interest phenomenon for China's political goal related OFDI, which worth a deeper investigation in the future study on China's OFDI.

In order to provide an overall picture for our findings, Table 18 and 19 below summarizes the test results of the hypotheses in different samples and specifications. Generally speaking, economic motivations including market-seeking and resources-seeking are the major significant determinants of China's OFDI. The benchmark specifications built on general FDI theory provide satisfactory explanatory power to the aggregate flow and stock of Chinese OFDI. Therefore, Chinese capital outflow can be fit well into the conventional FDI theoretical framework. On the other hand, the hypothesis that China's OFDI is influenced by political interests receives weak empirical support in this study. The regressions which include special components on top of those from general theory provided not better explanatory power.

[26] For UNVOTE. They are -2.082 and -2.635 for OFDI flow and stock respectively. For POLITY, they are -0.935 and -0.481 for OFDI flow and stock respectively. Detailed results are not presented here for simplicity.

Table18. Summary of estimations results for OFDI Flow

Hypothesis	Justification	Benchmark	Developed countries	Developing countries	2003-2006	2007-2009
H1a	Absolute market size seeking	Yes	Yes	Yes	No	Yes
H1b	Per capita market size seeking	No	No	No	No	No
H1c	Market growth seeking	No	No	No	No	No
H2	Natural resources seeking	Yes	No	Yes	Yes	Yes
H3	Strategic asset seeking	No	No	No	No	No
H4	Political risk reducing	No	No	No	No	No
H5	Export-augmented OFDI	Yes	No	Yes	Yes	No
H6	China's path dependent	No	N/A	N/A	N/A	N/A
H7	International reserve	No	N/A	N/A	N/A	N/A
H8	Political Goal	No	N/A	N/A	N/A	N/A

Note: 'Yes' indicates the estimates' signs are same as expected and significant at 10% significant level or lower. Otherwise, we conclude that the hypothesis is not supported.

Table19. Summary of estimations results for OFDI Stock

Hypothesis	Justification	Benchmark	Developed countries	Developing countries	2003-2006	2007-2009
H1a	Absolute market size seeking	Yes	Yes	Yes	Yes	Yes
H1b	Per capita market size seeking	No	No	No	No	No
H1c	Market growth seeking	No	Yes	No	No	No
H2	Natural resources seeking	Yes	No	Yes	Yes	Yes
H3	Strategic asset seeking	No	No	No	No	No
H4	Political risk reducing	No	Yes	No	No	No
H5	Export-augmented OFDI	No	No	No	Yes	No
H6	China's path dependent	No	N/A	N/A	N/A	N/A
H7	International reserve	No	N/A	N/A	N/A	N/A
H8	Political Goal	No	N/A	N/A	N/A	N/A

Note: 'Yes' indicates the estimates' signs are same as expected and significant at 10% significant level or lower. Otherwise, we conclude that the hypothesis is not supported.

Section 6: Conclusion

This paper investigates whether China's outward investment can be explained by general FDI theory which is built on developed countries' experiences or it develops a unique path and requires special explanations. We analyze the common determinants drawn from conventional FDI theories and other variables specially added for China's circumstances.

Our benchmark models show that a large part of China's OFDI can be accounted for by the determinants drawn from general FDI theories. We have found that market and natural resources seeking motivations are the main factors affecting China's OFDI. There is little empirical support for other motivations as suggested in the literature, including strategic asset seeking and political risk reducing. Also, China's OFDI is found to be complementary rather than substitutive with its exports during the sample time period. Although not all the factors suggested by traditional FDI theories are significant in determining Chinese overseas investment, the theories established from Western's experience are shown to be applicable on China's OFDI during 2003-2009.

By further dividing our sample countries into developed and developing counties, the result shows that China's OFDI for developed and developing countries are explained by different sets of independent variables. While Chinese multinationals aim at a larger market and lower political risk in the developed countries, they tend to invest more in resources-abundant countries in the developing world. Furthermore, by separating our sample time period into two sub-periods, we found no significant changes in determinants for China's OFDI flow and stock between the two groups, meaning that the explanatory power of the determinants are generally stable during the investigation period.

Our extended specification further confirms that China's OFDI is mainly driven by traditional FDI factors instead of the proposed China-specific determinants. China's economic growth and its international reserve are found to be insignificant in affecting the China's OFDI flow and stock. Our results do not support for the hypothesized effect of political goals on China's aggregate OFDI.

In this study, China's OFDI is found to be well accommodated within the general theoretical framework. Chinese transnational corporations share similar motivations with those in other countries. As the 'Go global' policy and further reforms proceed, it is expected

that Chinese companies will be more likely to invest abroad based on market rationale and respnd more flexibly according to market's signals instead of political ones.

Based on this study, we believe there are several directions for future study which can allow us to explore more deeply in the determinants of China's OFDI. Firstly, though we have argued here that variables specially added for China's circumstances do not provide satisfactory additional explanatory power, there are a number of other possible special factors for China which can significantly affecting China's OFDI. Further testing on any of these possible factors will be meaningful. Secondly, the time period covered by this study is relatively short. Any empirically study in the future which is able to cover a longer time period to examine China's OFDI will be useful for any comparison purpose. Lastly, it is, to our knowledge, the first empirical study to use UN voting and polity2 score to proxy for political goals behind China's OFDI. Further research on the possible instrumental variable proxy for it will allow us to exam the robustness of this study.

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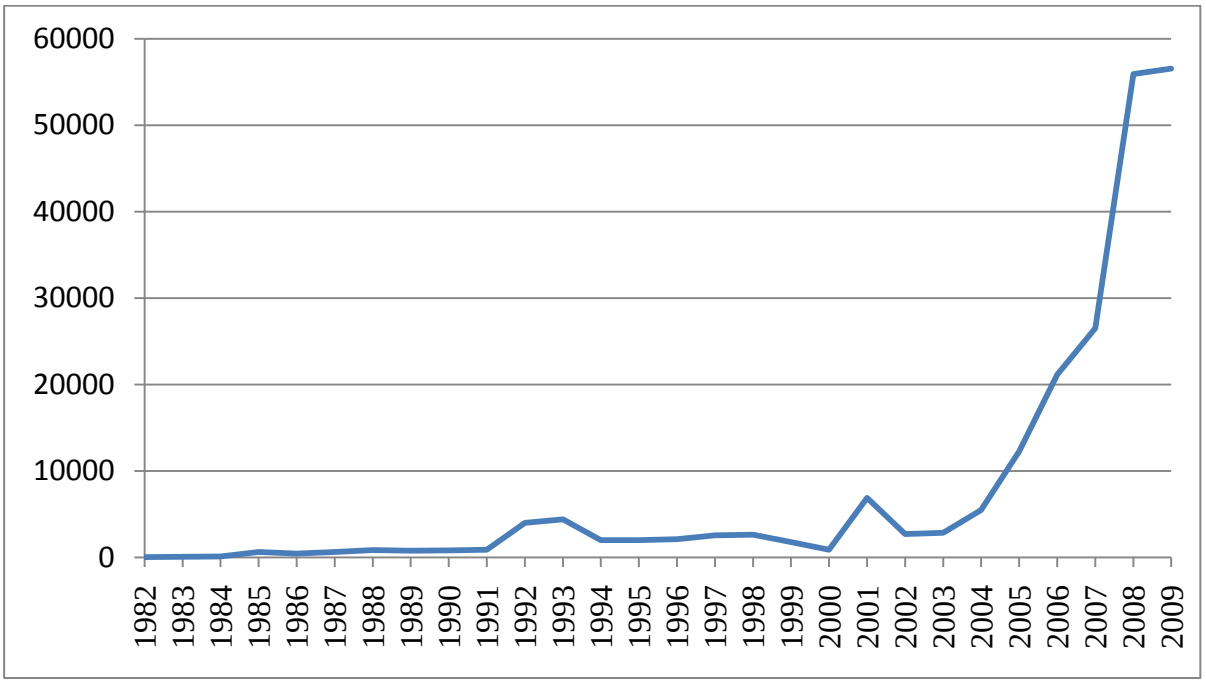
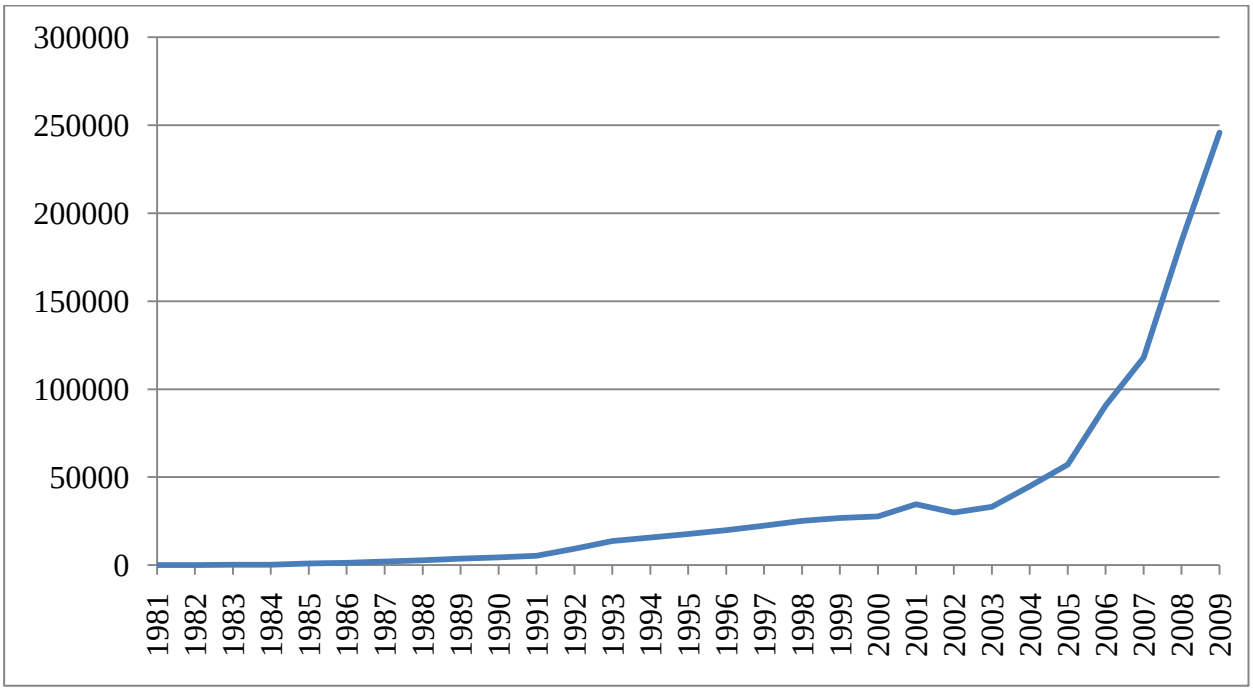
Appendix A. Figures and tables for Section 2.2

Figure.1 China's OFDI flow: 1982-2009 (millions of USD)



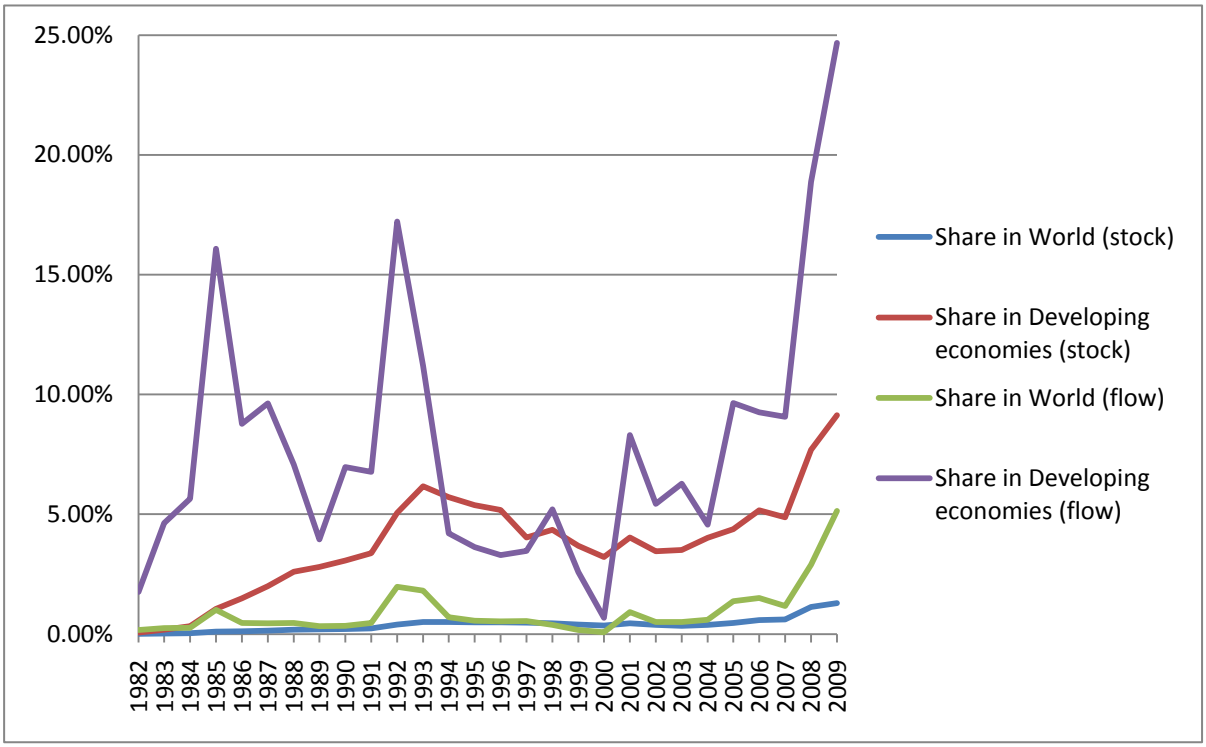
Source: Data for 1982-2001: UNCTAD online database; Data for 2002-2009: MOFCOM (2003-2010)

Firgue.2 China's OFDI stock: 1981-2009 (millions of USD)



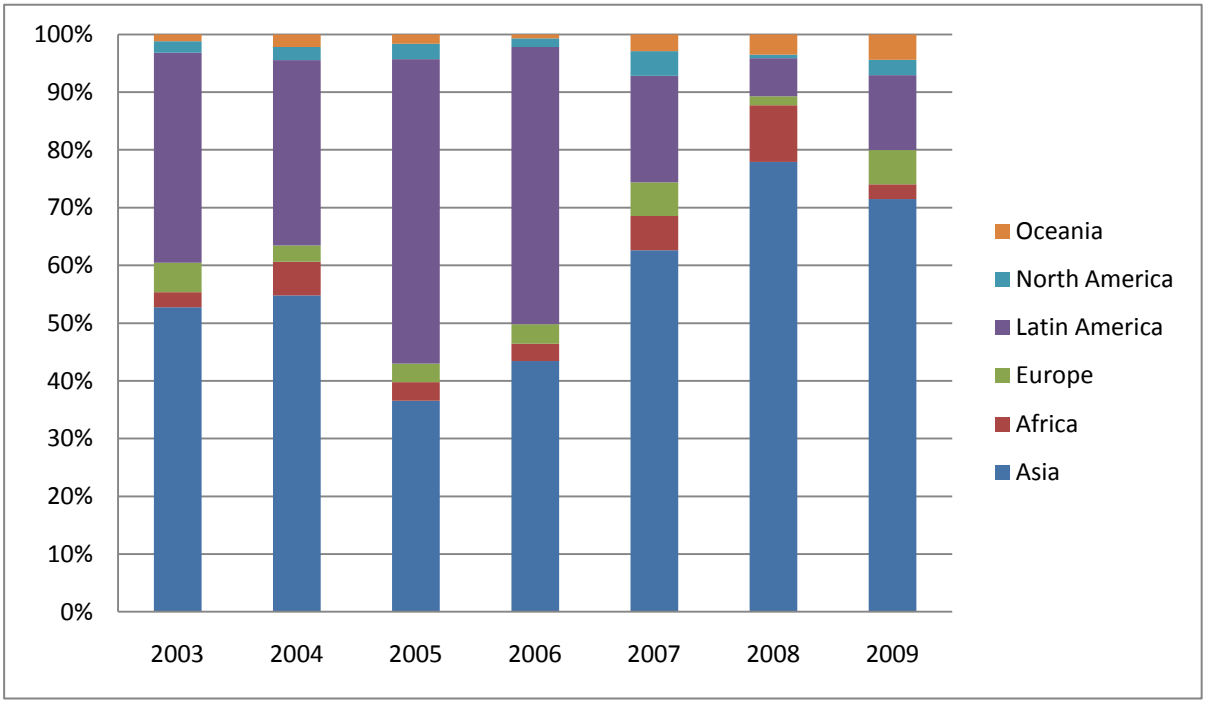
Source: Data for 1982-2001: UNCTAD online database; Data for 2002-2009: MOFCOM (2003-2010)

Figure.3 Shares of China's OFDI flow and stock: 1982-2009 (%)



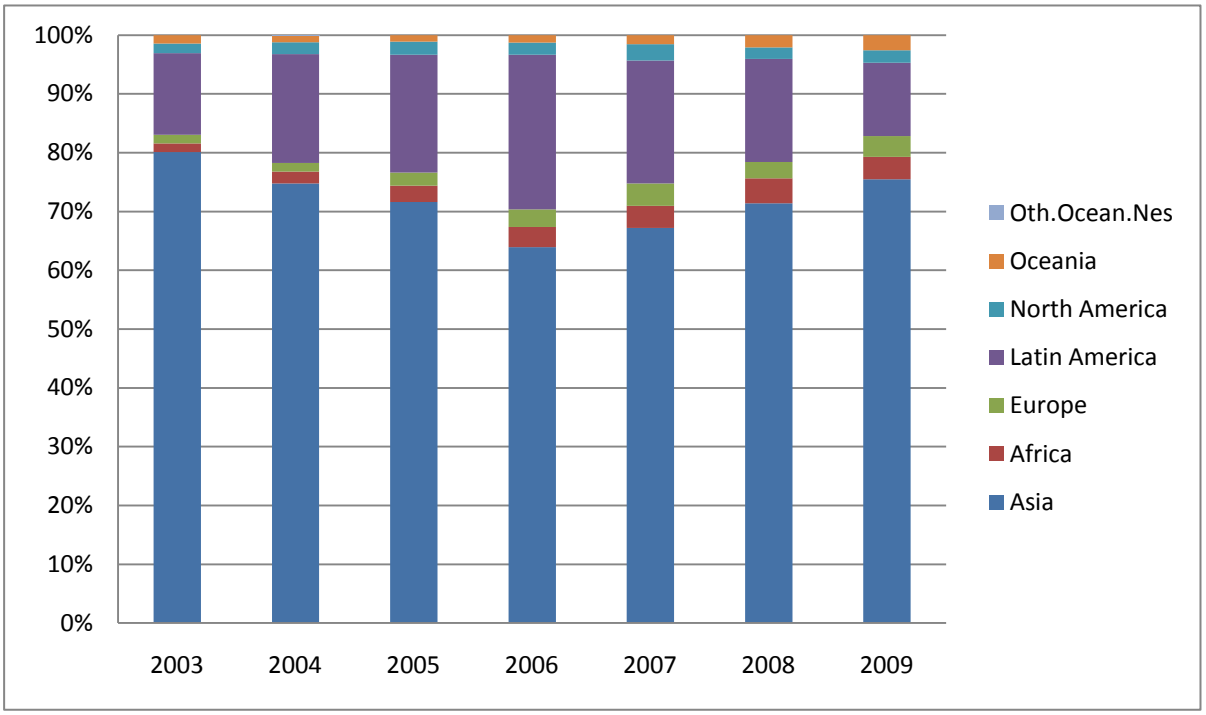
Source: Data for 1982-2009: UNCTAD online database; Data for China's OFDI in 2002-2009: MOFCOM (2003-2010)

Figure4. Geographical distribution of China's OFDI flow: 2003-2009 (%)



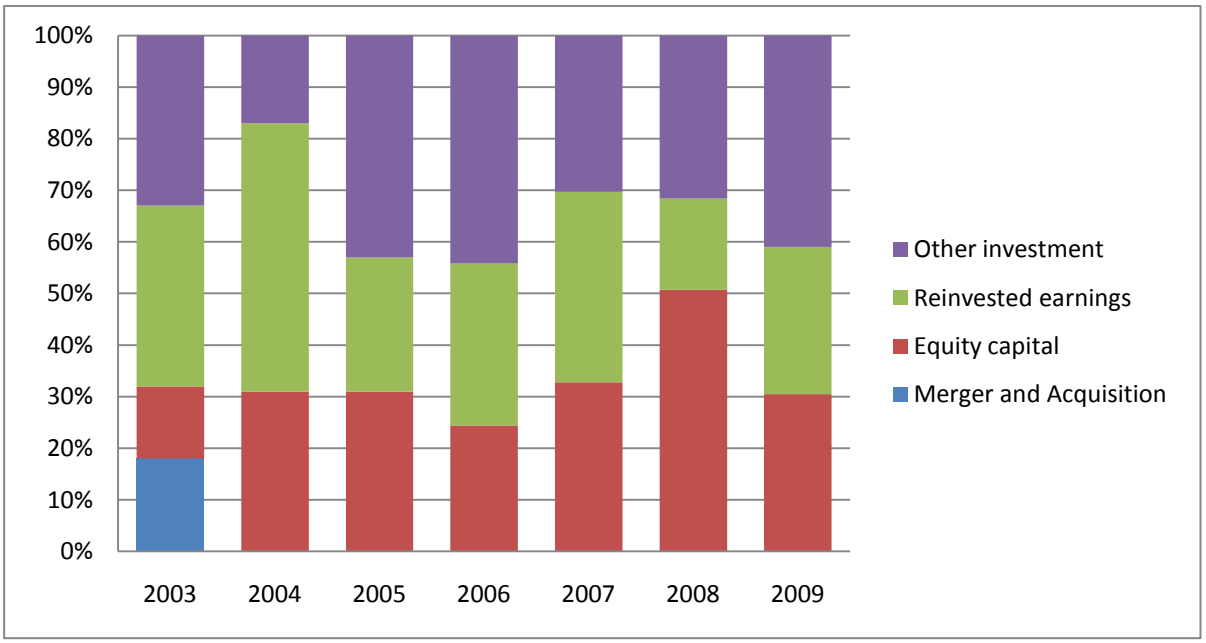
Source: MOFCOM, China (2010). Data for 2003-2006 only include Non-finance industry.

Figure5. Geographical distribution of China's OFDI stock: 2003-2009 (%)



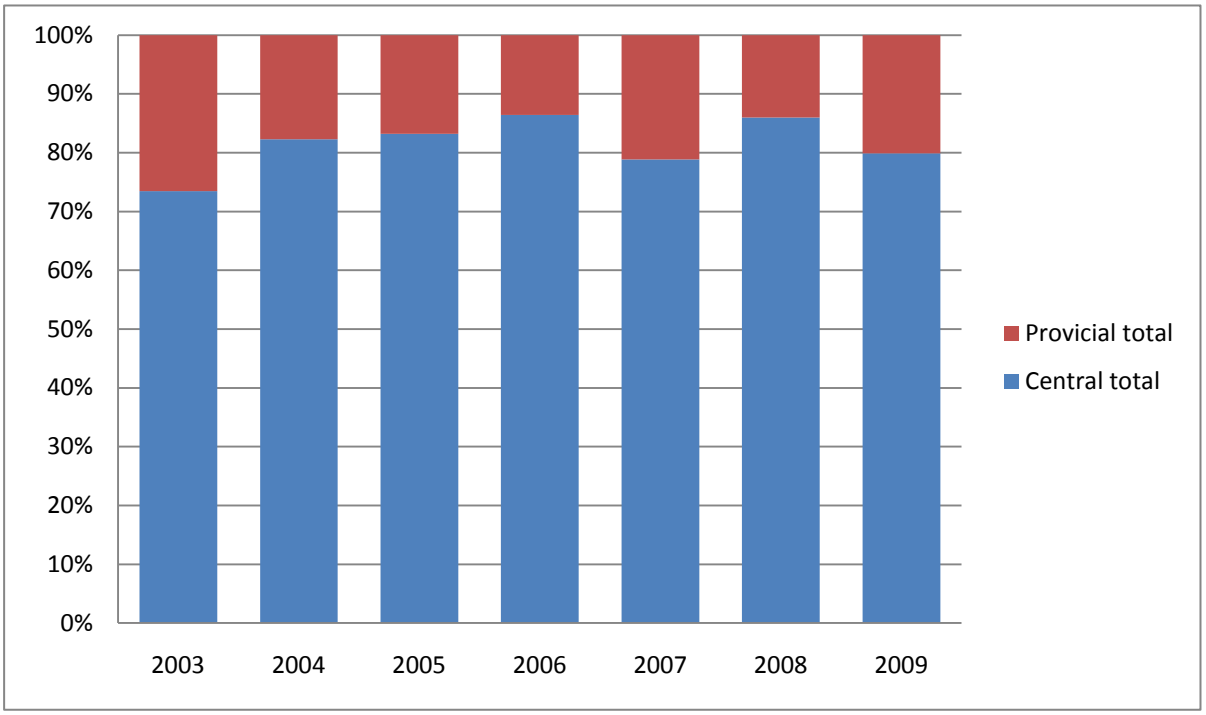
Source: MOFCOM, China (2010). Data for 2003-2006 only include Non-finance industry.

Figure6. Structural composition of China's ODFI flow: 2003-2009 (%)



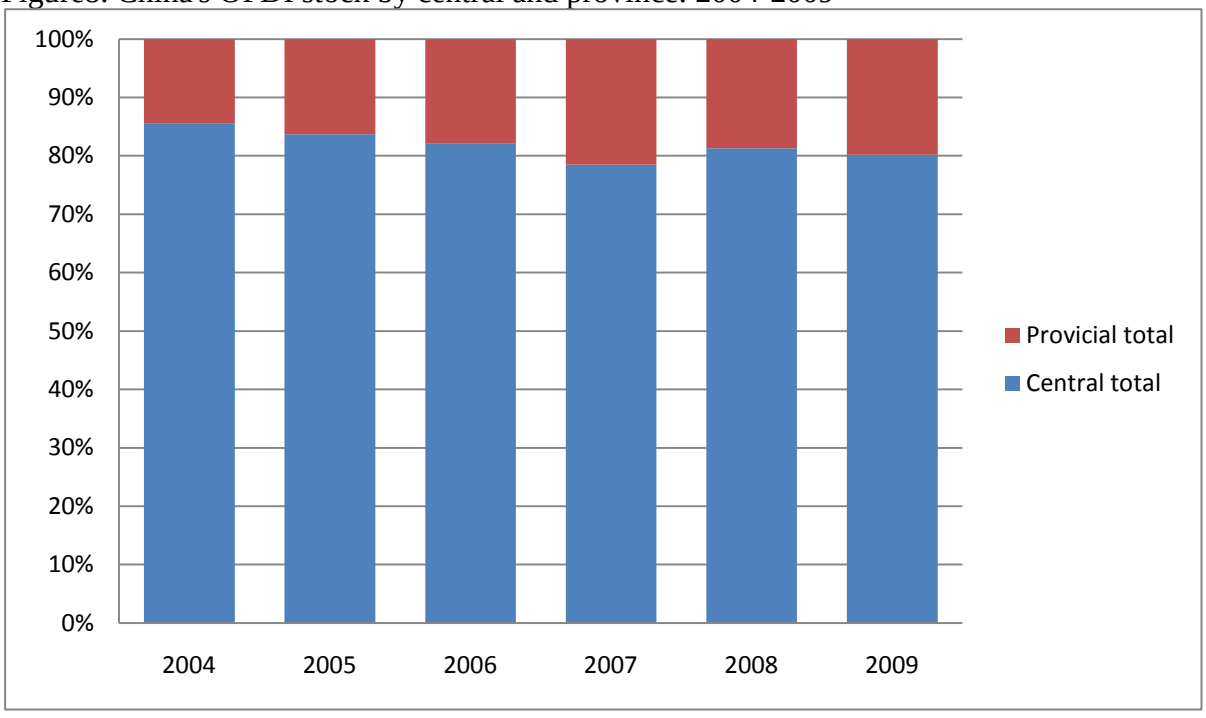
Sources: MOFCOM, China (2004-2010). Data for 2003-2005 only include Non-finance industry.

Figure7. China's OFDI flow by central and province: 2003-2009



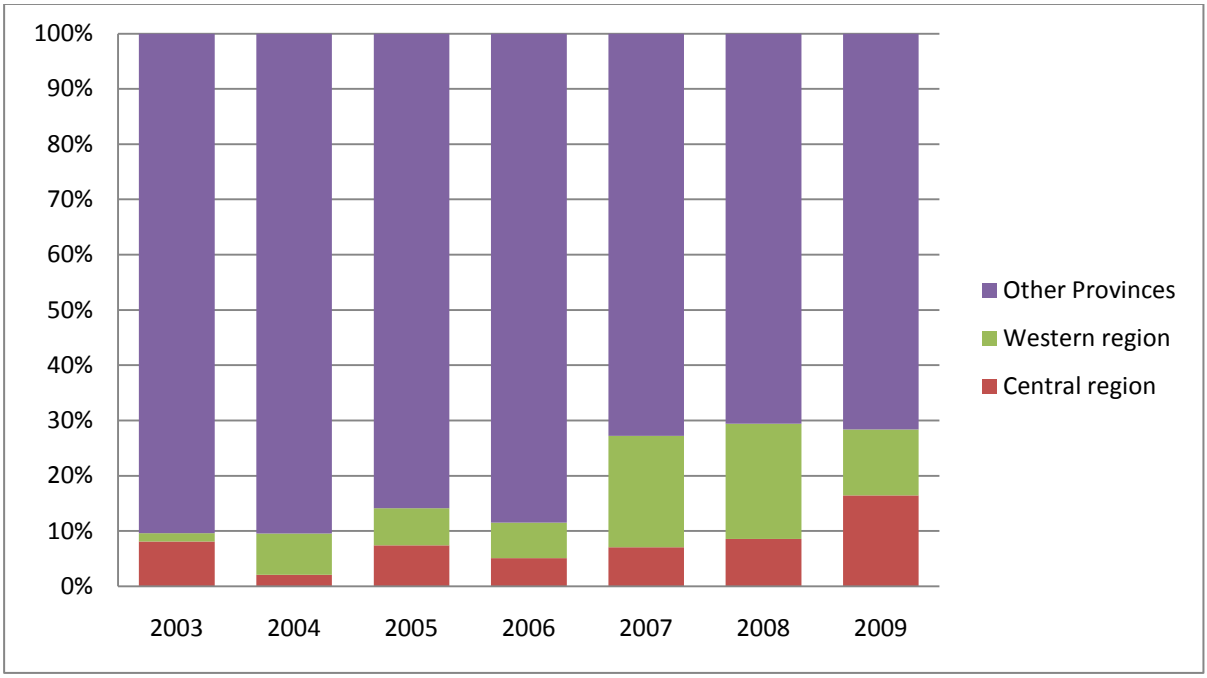
Sources: MOFCOM, China (2007, 2010)

Figure8. China's OFDI stock by central and province: 2004-2009



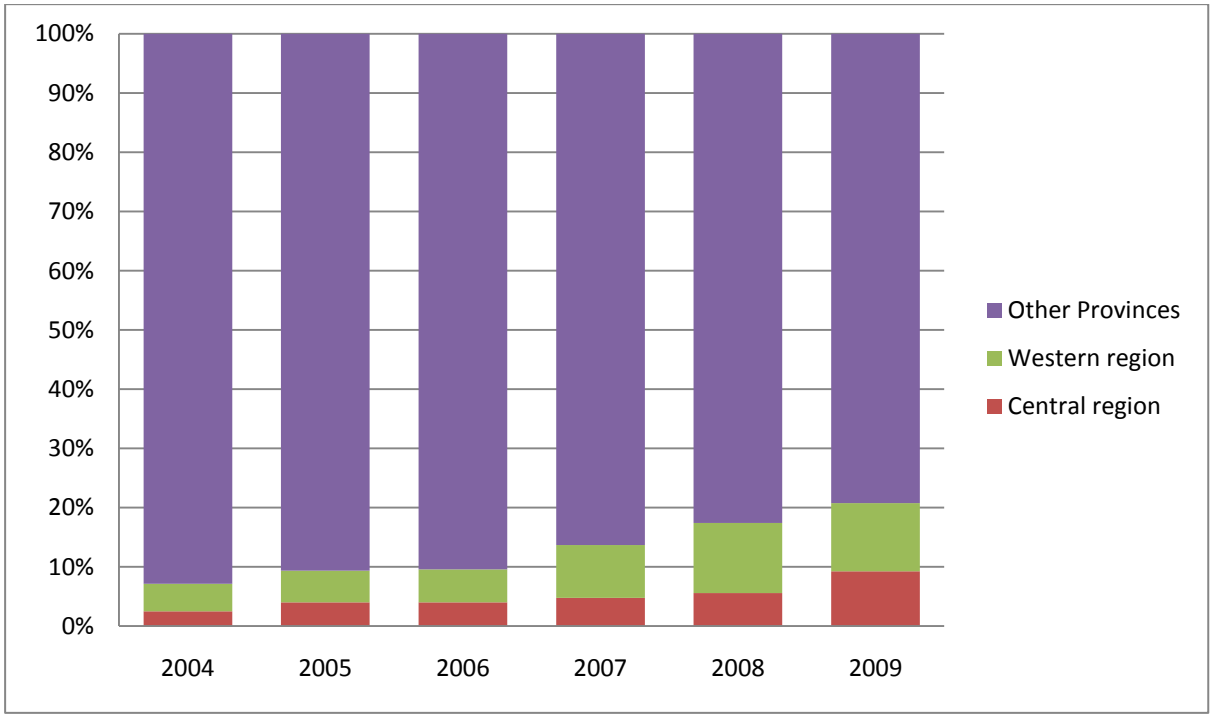
Sources: MOFCOMe, China (2007, 2010)

Figure9. China's OFDI flow by region: 2003-2009



Sources: MOFCOM, China (2007, 2010)

Figure10. China's OFDI stock by region: 2003-2009



Sources: MOFCOM, China (2007, 2010)

Table1. Share of China's OFDI by industry sectors (% of total flow)

Industry	2003	2004	2005	2006	2007	2008	2009
Agriculture, forestry, husbandry, fishery	3.0	5.3	0.9	0.9	1.0	0.3	0.6
Mining	48.4	32.7	13.7	40.3	15.3	10.4	23.6
Manufactory	21.8	13.7	18.6	4.3	8.0	3.2	4.0
Power and other utilities	1.0	1.4	0.1	0.6	0.6	2.3	0.8
Construction	1.0	0.9	0.7	0.2	1.2	1.3	0.6
Transport, warehousing & postal service	3.0	15.1	4.7	6.5	15.3	4.8	3.7
IT	--	0.6	0.1	0.2	1.1	0.5	0.5
Wholesale and retailing	12.6	14.5	18.4	5.3	24.9	11.7	10.9
Residential & catering trade	--	0.0	0.1	0.0	0.0	0.1	0.1
Finance	--	--	--	16.7	6.3	25.1	15.5
Real estate	--	0.2	0.9	1.8	3.4	0.6	1.7
Leasing & business service	9.8	13.6	40.3	21.4	21.2	38.8	36.2
Science research, service & geo-survey	--	0.3	1.1	1.3	1.1	0.3	1.4
Water, environment & public facility management	--	0.0	0.0	0.0	0.0	0.3	0.0
Residential service & other services	--	1.6	0.5	0.5	0.3	0.3	0.5
Education	--	--	--	0.0	0.0	0.0	0.0
Public health & social welfares	--	0.0	--	0.0	0.0	0.0	0.0
Cultural, sports & entertainment	--	0.0	0.0	0.0	0.0	0.0	0.0
Public management & social organization	--	0.0	0.0	--	--	--	--
Total	100.6	100.0	100.0	100.0	100.0	100.0	100.0

Sources: MOFCOM, China (2010, 2004)

Note: *The shares of different sectors for China's OFDI flow = Value of that sector for China's OFDI flow / Total value of China's OFDI flow

Table2. Share of China's OFDI by industry sectors (% of total stock)

Industry	2003	2004	2005	2006	2007	2008	2009
Agriculture, forestry, husbandry, fishery	1.0	1.9	0.9	0.9	1.0	0.8	0.8
Mining	18.0	13.3	15.1	19.8	12.7	12.4	16.5
Manufactory	6.2	10.1	10.1	8.3	8.1	5.3	5.5
Power and other utilities	2.0	0.5	0.5	0.5	0.5	1.0	0.9
Construction	2.0	1.8	2.1	1.7	1.4	1.5	1.4
Transport, warehousing & postal service	6.0	10.2	12.4	8.4	10.2	7.9	6.8
IT	32.8	2.7	2.3	1.6	1.6	0.9	0.8
Wholesale and retailing	19.7	17.5	20.0	14.3	17.2	16.2	14.5
Residential & catering trade	--	0.0	0.1	0.1	0.1	0.1	0.1
Finance	--	--	--	17.2	14.2	19.9	18.7
Real estate	--	0.5	2.6	2.2	3.8	2.2	2.2
Leasing & business service	6.0	36.7	28.9	21.5	25.9	29.7	29.7
Science research, service & geo-survey	--	0.3	1.1	1.2	1.3	1.1	1.2
Water, environment & public facility management	3.0	2.0	1.6	1.0	0.8	0.6	0.4
Residential service & other services	--	2.4	2.3	1.3	1.1	0.4	0.4
Education	--	--	--	0.0	0.0	0.0	0.0
Public health & social welfares	--	0.0	0.0	0.0	0.0	0.0	0.0
Cultural, sports & entertainment	--	0.0	0.0	0.0	0.1	0.1	0.1
Public management & social organization	--	0.0	0.0	--	--	--	--
Total	96.7	100.0	100.0	100.0	100.0	100.0	100.0

Sources: MOFCOM, China (2010, 2004)

Note: *The shares of different sectors for China's OFDI flow = Value of that sector for China's OFDI flow / Total value of China's OFDI flow

Table3. Values and shares of China's OFDI flow by region

Region		2003	2004	2005	2006	2007	2008	2009
Asia	Value	1505.03	3013.99	4484.17	7663.25	16593.15	43547.5	40407.59
	Share (%)	53	55	37	43	63	78	71
Africa	Value	74.81	317.43	391.68	519.86	1574.31	5490.55	1438.87
	Share (%)	3	6	3	3	6	10	3
Europe	Value	145.03	157.21	395.49	597.71	1540.43	875.79	3352.72
	Share (%)	5.1	2.9	3.2	3.4	5.8	1.6	5.9
Latin America	Value	1038.15	1762.72	6466.16	8468.74	4902.41	3677.25	7327.9
	Share (%)	36	32	53	48	18	7	13
North America	Value	57.75	126.49	320.84	258.05	1125.71	364.21	1521.93
	Share (%)	2	2	3	1	4	1	3
Oceania	Value	33.88	120.15	202.83	126.36	770.08	1951.87	2479.98
	Share (%)	1	2	2	1	3	3	4
Total	Value	2854.65	5497.99	12261.17	17633.97	26506.09	55907.17	56528.99

Sources: MOFCOM, China (2010)

Notes: Values in US$ millions. Data for 2003-2006 only include Non-finance industry.

*The shares of different regions for China's OFDI flow = Values of that regions for China's OFDI flow / Total value of China's OFDI flow

Table4. Values and shares of China's OFDI stock by region

Region		2003	2004	2005	2006	2007	2008	2009
Asia	Value	26603.46	33479.55	40954.31	47978.05	79217.93	131317	185547.2
	Share (%)	80	75	72	64	67	71	76
Africa	Value	491.22	899.55	1595.25	2556.82	4461.83	7803.83	9332.27
	Share (%)	1	2	3	3	4	4	4
Europe	Value	487.45	676.65	1272.93	2269.82	4458.54	5133.96	8676.78
	Share (%)	1	2	2	3	4	3	4
Latin America	Value	4619.32	8268.37	11469.61	19694.37	24700.91	32240.15	30595.48
	Share (%)	14	18	20	26	21	18	12
North America	Value	548.5	909.21	1263.23	1587.02	3240.89	3659.78	5184.7
	Share (%)	2	2	2	2	3	2	2
Oceania	Value	472.26	543.94	650.29	939.48	1830.4	3816	6418.95
	Share (%)	1	1	1	1	2	2	3
Other Ocean Nes.	Value	--	6.67	--	--	0	--	--
	Share (%)	--	0	--	--	0	--	--
Total	Value	33222.22	44777.26	57205.62	75025.55	117910.5	183970.7	245755.4

Sources: MOFCOM, China (2010)

Notes: Values in US$ millions. Data for 2003-2006 only include Non-finance industry.

*The shares of different regions for China's OFDI flow = Values of that regions for China's OFDI flow / Total value of China's OFDI flow

Table5. Values and shares of different forms of investment for China's OFDI flow

		2003	2004	2005	2006	2007	2008	2009
Merger and Acquisition	Value	514	--	--	--	--	--	--
	Share (%)*	18.0	--	--	--	--	--	--
Equity capital	Value	400	1700	3800	5163	8694	28345	17241
	Share (%)	14.0	31.0	31.0	24.4	32.8	50.7	30.5
Reinvested earnings	Value	999	2850	3200	6650	9790	9890	16130
	Share (%)	35.0	52.0	26.0	31.4	36.9	17.7	28.5
Other investment	Value	942	950	5260	9353	8031	17667	23177
	Share (%)	33.0	17.0	43.0	44.2	30.3	31.6	41.0
Total	Values	2855	5498	12261	21160	26506	55907	56529

Sources: MOFCOM, China (2004-2010)
Notes: Values in US$ millions, Merger and Acquisition is presented in a separated account only in 2003. Some figures are subject to rounding error since some values are calculated by their respective share percentage. Data for 2003-2005 only include Non-finance industry.
*The shares of different forms for China's OFDI flow = Values of that form for China's OFDI flow / Total value of China's OFDI flow

Table6. Values and share of Merger and Acquisition for China's OFDI flow

		2003	2004	2005	2006	2007	2008	2009
Merger and Acquisition	Value	514	--	6500	8250	6300	30200	19200
	Share(%)*	18.0	--	53.0	39.0	23.8	54.0	34.0

Sources: MOFCOM, China (2003-2010)
Notes: Values in US$ millions. Data for 2003-2005 only include Non-finance industry.
*The share of Merger and Acquisition for China's OFDI flow = Values of Merger and Acquisition for China's OFDI flow / Total value of China's OFDI flow

Table7. Values and shares by Central and Provinces Government administrated SOEs for China's OFDI (non-finance) flow

		2003	2004	2005	2006	2007	2008	2009
Central total	Value	2097.51	4525.17	10203.69	15236.92	19584.88	35982.84	38192.75
	Share (%)	73.48	82.31	83.22	86.41	78.85	85.96	79.91
Provincial total	Value	757.14	972.82	2057.48	2397.05	5253.41	5876.33	9602.50
	Share (%)	26.52	17.69	16.78	13.59	21.15	14.04	20.09
Total	Value	2854.65	5497.99	12261.17	17633.97	24838.29	41859.17	47795.25

Sources: MOFCOM, China (2007, 2010)
Notes: Values in US$ millions.
The share of Central or Provinces for China's OFDI flow = Values of Central's or Provinces' OFDI flow / Total value of China's provincial OFDI flow

Table8. Values and shares by Central and Provinces Government administrated SOEs for China's OFDI (non-finance) stock

		2004	2005	2006	2007	2008	2009
Central total	Value	38287.55	47875.44	61628.23	79443.76	119740.85	160143.26
	Share (%)	85.51	83.69	82.14	78.51	81.30	80.17
Provincial total	Value	6489.71	9330.18	13397.32	21746.84	27535.98	39618.09
	Share (%)	14.49	16.31	17.86	21.49	18.70	19.83
Total	Value	44777.26	57205.62	75025.55	101190.60	147276.83	199761.35

Sources: MOFCOM, China (2007, 2010)
Notes: Values in US$ millions.
The share of Central or Provinces for China's OFDI stock = Values of Central's or Provinces' OFDI stock / Total value of China's provincial OFDI stock

Table9. Values and shares of geographical regions for Provincial Government administrated SOEs (non-finance) flow

		2003	2004	2005	2006	2007	2008	2009
Central region	Value	61.2	20.14	152.08	122.79	369.89	502.64	1581.01
	Share (%)	8.08	2.07	7.39	5.12	7.04	8.55	16.46
Western region	Value	11.53	72.87	138.68	152.97	1061.55	1225.89	1146.99
	Share (%)	1.52	7.49	6.74	6.38	20.21	20.86	11.94
Southern, Eastern and other regions	Value	684.41	879.81	1766.72	2121.29	3821.97	4147.8	6874.5
	Share (%)	90.39	90.44	85.87	88.50	72.75	70.58	71.59
Provincial total	Value	757.14	972.82	2057.48	2397.05	5253.41	5876.33	9602.50

Sources: MOFCOM, China (2007, 2010)
Notes: Values in US$ millions.
*The share of region for China's OFDI flow = Values of region's OFDI flow / Total value of China's provincial OFDI flow
Central region includes Shanxi, Anhui, Jiangxi, Henan, Hubei, Hunan
Western region includes Inner Mongolia, Guangxi, Sichuan, Chongqing, Guizhou, Yunnan, Shanxi, Gansu, Qinghai, Ningxia, Xinjiang, Xinjiang Production and Construction Group, Tibet

Table10. Values and shares of geographical regions for Provincial Government administrated SOEs (non-finance) flow (non-finance) stock

		2004	2005	2006	2007	2008	2009
Central region	Value	160.28	373.3	538.12	1040.48	1536.92	3662.67
	Share (%)	2.47	4.00	4.02	4.78	5.58	9.24
Western region	Value	301.81	500.35	746.28	1939.83	3262.77	4550.67
	Share (%)	4.65	5.36	5.57	8.92	11.85	11.49
Southern, Eastern and other regions	Value	6027.62	8456.53	12112.92	18766.53	22736.29	31404.75
	Share (%)	92.88	90.64	90.41	86.30	82.57	79.27
Provincial total	Value	6489.71	9330.18	13397.32	21746.84	27535.98	39618.09

Sources: : MOFCOM, China (2007, 2010)
Notes: Values in US$ millions.
*The share of region for China's OFDI stock = Values of region's OFDI stock / Total value of China's provincial OFDI stock
Central region includes Shanxi, Anhui, Jiangxi, Henan, Hubei, Hunan
Western region includes Inner Mongolia, Guangxi, Sichuan, Chongqing, Guizhou, Yunnan, Shanxi, Gansu, Qinghai, Ningxia, Xinjiang, Xinjiang Production and Construction Group, Tibet

Appendix B. Definitions and sources of variables

CGNIpc: China's GNI, in constant (2000) US$ prices, scaled by China's population. In natural log value. [World Bank (2011), World Development Indicators]

CHIN: Dummy for host country which Chinese is one of the official languages or commonly used. CHIN is equal to one if Chinese is used as one of the official languages or is spoken by at least 9% of the population in the host country. CHIN is equal to zero if both of the above condition do not satisfy. In this study, only five countries have 1 for this CHIN dummy, they are Hong Kong SAR, Macau SAR, Malaysia, Singapore and Taiwan. All of them both use Chinese as one of the official languages and is spoken at least by 9% of the population in the host country. [Source: CEPII (2006)]

CONTIG: Dummy for host country which is contiguous with China. CONTIG is equal to one for host country is contiguous with China. It is otherwise equal to zero if not. [Source: CEPII (2006)]

DIST: It is the weighted distance between China and host country, which also assess the geographic distribution of population inside each nation. The idea is to calculate distance between two countries based on bilateral distances between the biggest cities of them, those inter-city distances being weighted by the share of the city in the overall country's population. The population figure come from 2004. In natural log value. [Source: CEPII (2006)]

EDU: Host country's percentage of population aged 15 and over which completed tertiary education as their highest education level. In natural log value. [Source: Barro-Lee Data set (2010)]

EXRATE: Host country official annual average exchange rate against the official Chinese currency, Renminbi (RMB) Primary data source from World Bank, missing values are replaced by ones from World Penn Table7. In natural log value. [Source: World Bank (2011), World Development Indicators and World Penn Table7 (2011)]

EXPORT: China's exports to the host country, in constant (2000) US$ prices. In natural log value. [Source: China Statistical Yearbook (2004-2010) and World Bank (2011), Worldwide Governance Indicators]

FUEL: Ratio of total value of fuel exports to merchandise exports for host country. [Source: World Bank (2011), World Development Indicators]

GDP: Host country GDP, in constant (2000) US$ prices. In natural log value. [Source: World Bank (2011), World Development Indicators]

GDPpc: Host country GDP per capita, in constant (2000) US$ prices. In natural log value. [Source: World Bank (2011), World Development Indicators]

GDPG: Host country's real GDP growth rate in % [Source: World Bank (2011), World Development Indicators]

IMPORT: China's imports from the host country, in constant (2000) US$ prices. In natural log value. [Source: China Statistical Yearbook (2004-2010) and World Bank (2011), World Development Indicators]

INFDIS: Ratio of inward FDI stock, in constant (2000) US$ prices, to GDP, in constant (2000) US$ prices for host country. In natural log value. [Source: UNCTAD FDI database (2010) and World Bank (2011), World Development Indicators]

INFLAT: Host country annual inflation rate in percentage [Source: World Bank (2011), World Development Indicators]

LANDLOCK: Dummy variable for host country, which is set equal to 1 for landlocked countries. Otherwise, it is set to 0. Data for Liechtenstein, Montenegro, Serbia and Western Samoa are not available in the dataset, so they are observed manually. [Source: CEPII (2006)]

OFDIF: Annual outflow of China's FDI (Flow), in constant (2000) US$ prices. In natural log value. [Source: MOCFOM, Statistical Bulletin of China's Outward Foreign Direct Investment (2010) and World Bank (2011), World Development Indicators]

OFDIFpc: Annual outflow of China's FDI (Flow), in constant (2000) US$ prices, scaled by host country's population. In natural log value. [Source: MOCFOM, Statistical Bulletin of China's Outward Foreign Direct Investment (2010) and World Bank (2011), World Development Indicators]

OFDIS: Annual outflow of China's FDI (Stock), in constant (2000) US$ prices. In natural log value. [Source: MOCFOM, Statistical Bulletin of China's Outward Foreign Direct Investment (2010) and World Bank (2011), World Development Indicators]

OFDISpc: Annual outflow of China's FDI (Flow), in constant (2000) US$ prices, scaled by host country's population. In natural log value. [Source: MOCFOM, Statistical Bulletin of China's Outward Foreign Direct Investment (2010) and World Bank (2011), World Development Indicators]

ORME: Ratio of total value of ores and metal exports to merchandise exports for host country. [Source: World Bank (2011), World Development Indicators]

PATENT: The total number of Patent applications made by host countries as a country of origin. In natural log value. [Source: World Intellectual Property Organization (2011), Patent applications by office and by country of origin (1995-2009)]

POLITY: Revised Combined Polity Score (Polity2) [Source: Polity IV Dataset (2009)]

RESERVE: Ratio of China's total international reserve (current USD) to its current GDP (current USD). In natural log value. The reserve comprise holdings of monetary gold, special drawing rights, reserves of IMF members held by the IMF, and holdings of foreign exchange under the control of monetary authorities.[Source: World Bank (2011), World Development Indicators]

RESOURCE: Ratio of total value of fuel, ores and metal exports to merchandise exports for host country. [Source: World Bank (2011), World Development Indicators]

RISK: This is an index computed by taking average for six indexes provided by World Bank. The six indexes are (i) Control of Corruption, (ii) Government Effectiveness, (iii) Political Stability and Absence of Violence/ Terrorism, (iv) Regulatory Quality, (v) Rule of Law, and (vi) Voice and Accountability. This index computed ranged approximately from -2.5 to 2.5. A higher index value in general represents a lower political risk. [Source: World Bank (2011), Worldwide Governance Indicators]

TRADE: Proxy for trade openness. It is measured the ratio of sum of exports and imports of goods and services to host country's GDP, both in constant prices. [Source: World Penn Table7 (2011)]

TREND: Time trend. Time dummy for each year within sample period.

TD07: Time dummy variable which is equal to one when year is 2007 and beyond. Otherwise, it is zero.

UNVOTE: United Nations General Assembly Resolution 2758 is voted on 25 October 1971 at the 1976th plenary meeting. Its title is 'Restoration of the lawful rights of the People's Republic of China in the United Nations: resolution / adopted by the General Assembly'.
The detail of the resolution is as followed.

"*Recalling* the principles of the Charter of the United Nations,

Recognizing that the representatives of the Government of the People's Republic of China are the only lawful representatives of China to the United Nations and that the People's Republic of China is one of the five permanent members of the Security Council,

Decides to restore all its rights to the People's Republic of China and to recognize the representatives of its Government as the only legitimate representatives of China to the United Nations, and to expel forthwith the representatives of Chiang Kai-Shek from the place which they unlawfully occupy at the United Nations and in all the organizations related to it."
(Ref: Official Records of General Assembly, Twenty-sixth Session, document A/L.630 and Add.1-2)

There are altogether 131 memberships voted. 76 voted ‘Yes’, 35 voted ‘No’, 17 absent from the vote and 3 memberships did not vote. In our model, dummy for UNVOTE is 1 if the country voted ‘Yes’. Dummy for UNVOTE is 0 for country voted ‘No’, absent or did not vote. [Source: United Nations Bibliographic Information System (2011)]

Appendix C. Correlation matrix

	OFDIF	OFDIS	GDP	GDPpc	GDPG	RESO-URCE	EDU	RISK	TRADE	EXPORT	IMPORT	EXRATE	INFLAT	INFDIS	DIST	CHIN	CONTIG	LAND-LOCK	TD07	TREND
OFDIF	1																			
OFDIS	0.8638	1																		
GDP	0.333	0.3828	1																	
GDPpc	0.1531	0.1582	0.6794	1																
GDPG	-0.0841	-0.1419	-0.2583	-0.2898	1															
RESOURCE	0.1593	0.1052	-0.1682	-0.1748	0.2323	1														
EDU	0.0777	0.0908	0.5254	0.633	-0.2107	-0.1789	1													
RISK	0.0904	0.0932	0.5008	0.8377	-0.2866	-0.4009	0.5775	1												
TRADE	0.2043	0.2016	-0.1019	0.271	0.0446	-0.1838	0.0654	0.3111	1											
EXPORT	0.5063	0.5603	0.8516	0.5698	-0.1636	-0.1932	0.4901	0.4523	0.1868	1										
IMPORT	0.4656	0.5108	0.8068	0.5463	-0.1206	0.0352	0.4645	0.3881	0.0677	0.8204	1									
EXRATE	0.0765	0.0704	-0.3681	-0.6017	0.1599	0.1843	-0.3696	-0.4931	-0.1525	-0.2507	-0.1664	1								
INFLAT	-0.0443	-0.0217	-0.1604	-0.1904	-0.0135	0.0961	-0.1611	-0.2429	-0.0511	-0.1504	-0.0826	0.0321	1							
INFDIS	0.1988	0.2208	-0.0221	0.3078	-0.1304	-0.113	0.1378	0.393	0.6799	0.1851	0.0934	-0.1632	-0.0837	1						
DIST	-0.3025	-0.3331	-0.179	-0.0668	-0.0959	0.1565	-0.2036	-0.0753	-0.34	-0.3967	-0.3511	-0.2422	0.0646	-0.0918	1					
CHIN	0.2885	0.3295	0.0666	0.1809	0.0655	-0.1066	-0.017	0.1893	0.7401	0.2645	0.2125	-0.1084	-0.06	0.3891	-0.321	1				
CONTIG	0.2943	0.2823	0.0007	-0.1743	0.1949	0.0991	-0.1102	-0.1634	0.1443	0.1867	0.1624	0.2349	0.0371	0.1497	-0.4619	0.1661	1			
LANDLOCK	-0.0669	-0.0982	-0.3456	-0.2145	0.0311	0.0502	-0.139	-0.0581	0.0459	-0.3229	-0.2359	0.2839	0.1681	0.2396	0.0195	-0.0801	0.1365	1		
TD07	0.289	0.3031	0.0568	0.0941	-0.2504	0.0003	0.0317	0.0734	0.066	0.1786	0.0558	-0.0119	-0.0806	0.2004	0.049	-0.0132	-0.0228	0.0408	1	
TREND	0.3331	0.3682	0.0644	0.0978	-0.2934	0.0396	0.0248	0.0613	0.0632	0.1931	0.085	-0.01	-0.0775	0.1943	0.0489	-0.0008	-0.0327	0.0548	0.8606	1

Appendix D. Summary Statistics for variables

Variable	Number of observations	Mean	Standard Deviations.	Minimum	Maximum
OFDIF	868	1.69e+08	1.56e+09	-8.52e+07	3.14e+10
OFDIS	1135	5.57e+08	5.49e+09	-171691.2	1.32e+11
GDP	1174	2.09e+11	9.74e+11	1.16e+08	1.17e+13
GDPpc	1174	7945.081	12411.66	83	82935
GDPG	1185	4.656743	5.394766	-41.3	46.5
RESOURCE	921	25.34239	28.85045	0	99.74
RISK	1218	-.0235583	.9334115	-1.957	1.897
EDU	973	6.293525	5.361514	.1	21.8
TRADE	1223	93.45058	52.51506	14.27075	443.0802
EXPORT	1190	4.67e+09	1.73e+10	24489.35	2.05e+11
IMPORT	1190	3.59e+09	1.21e+10	0	1.22e+11
EXRATE	1232	1.66e+13	5.84e+14	.04	2.05e+16
INFLAT	1182	8.184805	18.92898	-33.53	381.27
DIST	1232	9035.246	3924.389	1124	19110
CONTIG	1267	.0828729	.2757989	0	1
CHIN	1267	.0276243	.1639586	0	1
LANDLOCK	1267	.1878453	.3907428	0	1
INFDIS	1121	62.56214	88.76083	.2015057	1119.575
CGNIpc	1267	1910.286	579.022	1196	2938
RESERVE	1267	38.74657	7.449983	25.363	49.201
PATENT	829	5338.514	24803.78	1	239458
UNVOTE	763	.5963303	.4909546	0	1
POLITY	1038	3.773603	6.428135	-10	10
FUEL	929	17.10561	27.43931	0	99.73948
ORME	950	8.308934	14.54023	0	85.37204

Note: The values for each variable are the ones before taking natural log.

Appendix E. Tax Havens and Offshore Financial Centers

The OECD recognized 35 countries/regions as tax heavens. They are Andorra, Anguilla, Antigua and Barbuda, Aruba, Bahamas, Bahrain, Barbados, Belize, British Virgin Islands, Cook Islands, Dominica, Gibraltar, Grenada, Guernsey/ Sark/ Alderney, Isle of Man, Jersey, Liberia, Liechtenstein, Maldives, Marshall Islands, Monaco, Montserrat, Nauru, Netherlands Antilles, Niue, Panama, Samoa, Seychelles, St Lucia, St. Christopher & Nevis, St. Vincent and the Grenadines, Tonga, Turks & Caicos, US Virgin Islands, Vanuatu
[Source: OECD (2000)]

IMF recognized 46 countries as Official Financial Centers. They are Andorra, Anguilla, Antigua, Aruba, Bahamas, Bahrain, Barbados, Belize, Bermuda, British Virgin Island, Cayman Island, Cook Islands, Costa Rica, Cyprus, Dominica, Gibraltar, Grenada, Guernsey, Hong Kong SAR, Ireland, Isle of Man, Jersey, Lebanon, Liechtenstein, Luxembourg, Macao SAR, Malaysia (Labuan), Malta, Marshall Islands, Mauritius, Monaco, Montserrat, Nauru ,Netherlands, Niue, Palau, Panama, Samoa, Seychelles, Singapore, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Switzerland, Turks and Caicos Islands and Vanuatu.
[Source: IMF (2006)]

Appendix F. Classification of developed, transition and developing countries

According to UNCTAD (2010), *World investment report 2010: Investing in a low-carbon economy*. The classification of developed, transition and developing countries is as followed.

Developed countries:	The member countries of the OECD (other than Chile, Mexico, the Republic of Korea and Turkey), plus the new European Union member countries which are not OECD members (Bulgaria, Cyprus, Latvia, Lithuania, Malta and Romania), plus Andorra, Israel, Liechtenstein, Monaco and San Marino.
Transition economies:	South-East Europe and the Commonwealth of Independent States
Developing economies:	In general all economies not specified above. For statistical purposes, the data for China do not include those for Hong Kong Special Administrative Region (Hong Kong SAR), Macao Special Administrative Region (Macao SAR) and Taiwan Province of China.