

# China's Outward FDI: Past and Future<sup>+</sup>

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## Abstract

In this paper we provide a systematic analysis of the size and composition of China's outward FDI in 2003-2005. Despite the attention given to China's recent outward FDI and the prospect that it will continue to surge upward, its investment flows and stocks were smaller than those of some small industrial economies and some emerging developing economies as of 2005. The bulk of China's FDI was made by firms owned by or associated with different levels of governments, including its largest multinational companies. By the end of 2005, business services accounted for the largest share of China's outward FDI stock (28.9%), to be followed by wholesale and retail, mining and petroleum, transportation and storage, and manufacturing. The true breakdown of the destination of China's FDI was basically unknown because a predominant share of its FDI in recently years was made in the world's tax havens,

An empirical analysis reveals that the host economies' GDP had a positive impact whereas their respective distances from China had a negative impact on attracting FDI from China. Their per capita GDP had no impact on FDI flows but a negative impact on FDI stocks. Cultural proximity was a positive factor in attracting China's FDI to the host economies that speak the Chinese language.

China's future FDI outflows are forecast based on its own past experience, international experience, and Japan and South Korea's experience with FDI outflows. Our baseline forecasts based on the experience of many FDI source economies indicate that China's aggregate FDI outflow will reach US\$20 billion around 2008, US\$30 billion in the early 2010's, and US\$50 billion by 2015. In more optimistic forecasts based on the experience of Japan and South Korea, the first two thresholds will be reached one year earlier and the third threshold will be reached five years earlier.

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## I. Introduction

China's has achieved remarkable success in attracting foreign direct investment (FDI) since the earlier 1990s. It became the largest recipient of FDI among developing economies for the first time in 1993 and then became one of the top three recipients of FDI in the world in 2003 – 2005, and No. 4 in 2006 based on preliminary estimates.<sup>1</sup> Perhaps as a reflection of this success, there are many papers written on the various aspects of China's inward FDI. In contrast, China's outward FDI up to now is small, and thus not as much systematic research has been done on it.

Nevertheless, as China is rapidly integrating with the global economy, its outward FDI has picked up in recent years. More importantly, perhaps, several major acquisition efforts have brought media attention to China as a source of FDI. Among them, Lenovo's acquisition of IBM PC announced in December 2004 could arguably be the most eye-catching example of these efforts. The other highly visible cases included the electronic appliance manufacturer TCL's acquisition of France's Thomson Electronics in 2004, white-goods manufacturer Haier's building of plants in the US since the late 1990s, CNOOC's failed attempt to acquire US oil company UNOCAL in 2005, and Nanjing Automotive's success in acquiring UK's MG Rover Group in 2005.<sup>2</sup> The energy crunch in 2006 also witnessed stories about China's effort to invest in oil companies in the world, in particular in Russia, Central Asia, and Africa, giving an impression that resource grapping was a key driving force behind China's outward FDI.

### Background

A description of China's outward FDI from 1979 to 1993/94 can be found in Cai (1999). The country's annual FDI outflow grew from virtually zero in 1979, when

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<sup>1</sup> According to UNCTAD's *World Investment Report 2004* (Annex table B.1, pp. 367 and 370), in 2003 China's inward FDI of US\$53.5 billion ranked No. 1, before both France (US\$47 billion) and the US (US\$29.8 billion), the second and third largest recipients of FDI in that year. However, in *World Investment Report 2005* (Annex table B.1, pp. 303) the US figure for 2003 was revised to become US\$56.8 billion, implying that China would rank No. 2 in that year after the US. In 2004, China's inward FDI (US\$60.6 billion) ranked No. 3 after the US (US\$95.9 billion) and United Kingdom (US\$78.4 billion). According to UNCTAD Investment Brief Number 1 2007, China was ranked No. 2 (after the U.S.) in 2004, No. 3 (after U.K. and U.S.) in 2005, and No. 4 (after U.S., U.K. and France) in 2006. The 2006 data are preliminary estimates.)

<sup>2</sup> Even though Shanghai Automotive started to have some cooperative arrangements with MG Rover involving intellectual property rights, in the end the British auto maker was sold to Nanjing Automotive after the former went into bankruptcy [ <http://www.zydg.net/magazine/article/1671-4725/2005/16/222961.html>].

China embarked upon its open door policy, to US\$628 million in 1985, and to US\$913 million in 1991, before shooting up to US\$4 billion in 1992, the year in which China's paramount leader Deng Xiaoping made an important tour to South China tour to reaffirm China's commitment to its reform and open door policy in the aftermath of the Tiananmen crackdown in 1989.

Notice that the FDI statistics used by Cai were provided by UNCTAD and collected by the IMF based on balance-of-payments accounting. Relative to the UNCTAD statistics, outward FDI statistics provided occasionally by the Ministry of Commerce (MOFCOM) (and its predecessor MOFTEC) up to 2002 represented serious underestimates.<sup>3</sup> Among other things, the MOFCOM excluded investment projects not screened and approved by relevant government agencies, and did not include investment made after the projects' initial approval, such as the plough back of retained earnings. However, from 2002 onward, MOFCOM's FDI statistics have been collected in accordance with OECD definitions and IMF's balance-of-payments guidelines. Thus, if there were still discrepancies between MOFCOM and UNCTAD's FDI statistics, the discrepancies from 2003 should be smaller than before.

By the end of 1996, China's total stock of FDI outflows was over US\$18 billion. It surpassed South Korea (US\$13.8 billion) and Brazil (US\$7.4 billion) to move up to the number four position among developing economies, behind Hong Kong (US\$112 billion), Singapore (US\$37 billion), and Taiwan (US\$27 billion) (Cai, 1999, p.861).

For the period of 1979-93, almost two thirds of China's FDI was found in Asia, including 61% in Hong Kong and Macau. The other regions in descending order were North America (15%) Oceania (8%), Central and Eastern Europe (5%); Africa (2%); Latin America (2%); Western Europe (2%) (Cai, 1999, p.864). 60% of China's FDI up to 1994 was in the services sector, mainly to service and promote its exports. The remaining FDI was in natural resources (25%) and manufacturing (15%, mainly in textiles and clothing, and other labor-intensive industries, located primarily in Africa,

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<sup>3</sup> As indicated in Cai (1999, p.857), some argued that the actual stock of FDI outflows from the beginning of China's open door policy to the late 1990s were between US\$80 billion and UD\$100 billion, even though only US\$15 billion was officially approved.

Asia and the Pacific).

Hong and Sun (2004), also using UNCTAD's FDI statistics, reported that the stock of China's outward FDI flows reached about US\$36 billion by end the of 2002, ranked No. 6 among 118 developing economies. They found that China's aggregate FDI outflows during 1988-2002 were quite similar to those of South Korea during the same period, and to Japan's outflows in the period of 1968-1982. The sectoral composition of China's FDI, with 40-50% of shares in the non-trade category, was similar to that of South Korea in the 1980s and that of Japan in the 1960s and 1970s.

Hong and Sun found that the motives, destination, financing, and mode of entry of Chinese investors had undergone changes in the 1990's. For example, even though natural resources were still an important motive, in the late 1990s increasingly more Chinese firms used FDI to acquire advanced foreign technologies and managerial skills, which had the effect of increasing their investment in the U.S. Also, from 1992 to 2001, Chinese firms increasingly cultivated their comparative advantages in Asia, Africa, and Latin America. In 1997-2001, Africa became the second largest regional destination of Chinese FDI outflows, only after Asia, as it received 24.1% of the total. Since the mid-1990s, more and more Chinese firms used listing in overseas stock markets (Hong Kong and New York) to raise equity capital and to enhance their international reputation. What they found the most striking, however, was mergers and acquisitions gradually became the main form of investing overseas.

### Related Literature

Since China was a developing economy which was generally short of capital and foreign exchange, its outward FDI requires some explanations. Cai (1999) identified four motives for Chinese FDI: (a) market; (b) natural resources; (c) technology and managerial skills; and (d) financial capital. These motives were later augmented by other researchers. For instance, Deng (2004) identified two additional motives: (e) strategic assets (e.g., brands, marketing networks), and (f) diversification. Clearly, because China was itself a low-cost production base, cost minimization was not a major motivation of Chinese FDI overseas.

Alternative routes taken by China and its national firms to acquire the above assets and resources have received attention in fields of international business and politics. For example, Child and Rodrigues (2005), on the basis of case studies, examine the pros and cons of three alternative routes taken by Chinese firms in seeking technological and brand assets: (a) Original Equipment Manufacturing (OEM) and joint ventures; (b) mergers and acquisitions; (c) organic international expansion.

As a world factory, China will become increasingly more dependent on the global supply of raw materials and energy. Thus, China's FDI in natural resources seems to have captured the world's imagination, given many reports of billion dollar deals in 2006 and 2007 involving oil producing African countries (e.g., Taylor), central Asian countries (e.g., International Herald Tribune, October 27, 2006), and elsewhere.<sup>4</sup> As a reflection of Chinese effort to secure the supply of raw materials and energy for its national economy, there is a literature on "resource diplomacy," which was according to Zweig (2006) defined as "diplomatic activity designed to enhance a nation's access to resources and its energy security." While the first and foremost resource for China is oil,<sup>5</sup> the country is also in great demand for other minerals such as copper, bauxite, uranium, aluminum, manganese, and iron ore, etc. (see, e.g., Taylor (2007)). As pointed out by Taylor, "the strategy chosen is basically to acquire foreign energy resources via long-term contracts as well as purchasing overseas assets in the energy industry." These strategic choices also apply to other key natural resources.

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<sup>4</sup> To what extent the news reports will be reflected by official FDI statistics remains to be seen, as China's 2006 FDI statistics by sector have yet to be released. Let's use two examples to compare the FDI statistics as reported in the 2005 Statistical Bulletin issued by the Ministry of Commerce against the statistics quoted in the newspaper reports. For instance, the total stock of Chinese FDI in Algeria by the end of 2005 as reported in the Bulletin was US\$171 million, much less than the value of a single deal involving China National Petroleum Corporation (CNPC) as reported in Taylor: "In 2003 CNPC purchased a number of Algerian refineries for \$350 million and signed a deal to explore for oil in two blocks." What could be the explanations of the big difference in FDI statistics besides misreporting on either side or on both sides? Did CNPC take a long time to implement its deal, so that by the end of 2005 only a fraction of the transacted amount was actually invested? Or did CNPC sell part or all of its interests before the end of 2005? Or was part or whole of the investment be considered portfolio investment, and thus not included as direct investment? As another example, according to Taylor China's investment in Sudan was estimated at \$4 billion. However, by the end of 2005, China's official statistics showed only a stock of US\$352 million, which was less than Taylor's report of US\$600 million that Sinopec and CNPC jointly paid in November 2005 for drilling rights to an oilfield in the country. As another example, according to Taylor China's investment in Sudan was estimated at \$4 billion. However, by the end of 2005, China's official statistics showed only a stock of US\$352 million, which was less than Taylor's report of US\$600 million that Sinopec and CNPC jointly paid in November 2005 for drilling rights to an oilfield in the country.

<sup>5</sup> According to Taylor, China surpassed Japan in 2003 to become the world's second largest user of oil products after the US.

Researchers in both the fields of international business and politics recognize the importance of the role of the Chinese government in China's outward FDI. This point would not be hard to appreciate because, as we shall see below, until now the lion's share of China's outward FDI has been made by firms that have close relationships to various levels of government. Moreover, overseas investment by Chinese private firms requires government approval. Partly as a result of the perceived need to secure key natural resources and technologies through ownership, and partly as a result of increasingly abundant foreign reserves, China started to encourage its national firms to "go global" in 2003. The government not only relaxed the approval process of outward FDI, but also provided incentives for FDI in target industries.

Stimulated by international attention on some successes and failed attempts of buyout by Chinese multinational firms, Antkiewicz and Whalley (2006) discussed three policy issues about cross-border mergers and acquisitions. They were (a) government subsidization of cross-border mergers and acquisitions; (b) transparency of the acquiring firms; and (c) national security concerns of OECD countries whose firms are the targets of buyouts.

The purpose of this paper are three-fold: (a) To provide a systematic analysis of the size and composition of China's outward FDI in 2003-2005, the period over which such data are available from China's Ministry of Commerce; (b) to uncover the determinants of the direction and amount of this outward FDI, and (c) to forecast the amount of China's future outward FDI based on its own past experience, international experience, and Japan and South Korea's experience with FDI outflows.

The paper is organized as follows. The next section describes and analyzes the pattern of China's outward FDI in 2003-2005, including amount, sectoral composition, geographical distribution, and the status of investing firms in China's economy. Section III attempts to uncover the determinants of the direction and amount of China's outward FDI with the help of gravity equation regression analysis. Section IV provides forecasts for China's future outward FDI. The final section summarizes and indicates directions for further research.

## **I. Patterns of China's Recent Outward FDI**

From this point onward, we shall omit the adjective “outward” if the meaning of FDI is clear without it. In this section, we first present the amount of China's aggregate annual FDI flow from 1982 to 2006, and its global shares in aggregate FDI flows and stocks from 2002 to 2005. After that we shall examine the sectoral composition and geographical distribution of China's FDI flows and stocks, to be followed by an analysis of the organizational background of the Chinese investors. Note that the difference between the FDI stocks (measured as of end of year) of two successive years is not necessarily equal to the FDI flow of the later year, as one might expect, due to reasons such as re-valuations of the stock of investment.

### **II.1. Amounts and Global Share of China's Outward FDI**

The flow of China's FDI from 1990 to 2006 is depicted in Figure 1, where the data from 1982 to 2001 were based on UNCTAD's *World Investment Reports* while data from 2002 were provided by MOFCOM based on international definitions and data collection methods. Despite of the rapid growth of China's FDI in recent years, it shares of the world's total FDI remained very small. As shown in Table 1, China's FDI flow in 2002 and 2003 accounted for a miniscule 0.5%, but it was tripled to 1.57% in 2005. China's FDI stock over the same period accounted for an even smaller percentage of the world's total FDI stock. As shown in Table 2, China's global share in 2002 was 0.29%, and it grew to 0.54% in 2005.

As a matter of comparison, China's FDI flows and stocks were not only much smaller than those of the world's major industrial economies, but also smaller than some small developed economies. For instance, its FDI flow in 2005 at US\$12.26 billion was more than doubling its flow in 2004, but still below those of Ireland (US\$12.93 billion) and Norway (US\$14.46 billion). When compared with developing economies, its flow in 2005 exceeded Singapore (US\$5.52 billion) for the first time in history. China's FDI stock at the end of 2005 stood at US\$57.2 billion. As a latecomer in outward FDI, this stock was slightly below those of Austria (US\$67.24 billion), Brazil (US\$71.56), and Finland (US\$74.41), and significantly behind Singapore

(US\$110.9 billion) and Russia (US\$120.42 billion).

However, given the expectation that China's FDI flows in the future will continue to grow, its rankings by flow and stock can be expected to move up.

## **II.2. Sectoral Composition of China's Outward FDI**

As seen in Table 3, in 2005, 40.3% of China's FDI flow went into business services; 18.6% went into manufacturing (mainly, telecom equipment, computer and other electronic equipment, transportation equipment, general equipment, textiles, wood products, metallurgy) ; 18.4% went into wholesale and retail (mainly, imports and exports); 13.7% went into mining and petroleum; 4.7% went into transportation and storage. Also given in Table 3 are the sectoral compositions of FDI flows in 2003 and 2004. As can be seen, mining and petroleum accounted for close to almost one half in 2003 and one third in 2004, but dropped to less than 14% in 2005. In contrast, business services rose from less than 10% in 2003 to over 40% in 2005.

By the end of 2005, business services accounted for the largest share of China's outward FDI stock (28.9%), to be followed by wholesale and retail (20%), mining and petroleum (15.1%), transportation and storage (12.4%), and manufacturing (10%).

## **II.3. Geographical Distribution of China's Outward FDI**

In 2005, China's FDI flowed into 163 countries and regions spread over all continents except the Antarctica. Tables 4 and 5 show the geographical distributions of China's FDI flow and stock, respectively. In 2005, 52.7% of China outward FDI flow was destined for Latin America, exceeding the share of Asia for the first time in history, but much of the investment in Latin America was made in three tax havens there: Cayman Islands, British Virgin Islands, and the Bahamas. Investment in these and other tax havens typically results in re-investment in other host economies, including China itself. Asia ranked second as a destination of China's FDI, and accounted for a total of 35.7%, including 27.8% for Hong Kong alone. The other regions in the world were not important destinations for China's FDI at all, with Europe accounting for 4.1%, Africa accounting for 3.2%, North America accounting



for 2.6%, and Oceania accounting for 1.7%. When compared with the share of world's aggregate FDI flows to different regions, we see that the shares of China's FDI flows in Asia and Latin America were significantly higher than those of the world's, but its shares in Europe, North America and Oceania were very low, whereas its share in Africa was below the world average in 2003, above the world average in 2004, and close to the world average in 2005.

Asia's shares of China's FDI stocks in 2003 – 2005 were more than three times those of Latin America, the second largest share among all regions in this period. Clearly, China's substantial flows to Latin America were a relatively recent phenomenon. The shares of Africa, Europe, and North America were in the range of 1-3%. When compared with the share of world's aggregate FDI stocks in different regions, we see that the shares of China's FDI stocks in Asia and Latin America were significantly higher than those of the world's, but its shares in Europe, North America and Oceania were very low, whereas its share in Africa was below the world average in 2003 and 2004, and slightly above the world average in 2005.

Ignoring Cayman Islands and British Virginia, the top 10 recipients of China's FDI in 2005 were Hong Kong (which is also a tax haven), South Korea, US, Russia, Australia, Germany, Sudan, and Kazakstan. In 2004, Indonesia, Singapore, and Nigeria replaced South Korea, Germany, and Kazakstan. Both lists were indicative of the role of natural resources found in Africa, central Asia, and Southeast Asia.

Given that 81% of China's total FDI in 2005 was made in the world's tax havens, and at least 78% of its FDI in 2004 was made in three tax havens which led the list of top 10 destinations, the true breakdown of the destination of China's FDI was basically unknown. Our attempts to obtain information about China's actual investment destinations from news databases and the annual reports of publicly listed Chinese companies, unfortunately, proved to be unsuccessful.

#### **II.4. Organization Background of Chinese Investing Entities**

The bulk of China's FDI was made by country's state owned enterprises (SOEs), in particularly those large multinational companies that were administered by the Central Government's ministries and agencies. The shares of FDI flows in 2003-2005

made by SOEs under the Central Government were 73.5%, 82.3%, and 83.2%, respectively. Their shares of FDI stocks by the end of 2004 and 2005 were 85.5% and 83.7%, respectively. The remaining shares of FDI flows and stocks were made by SOEs administered by regional governments and non-SOEs that are owned collectively and privately.<sup>6</sup> At the end of 2004, the 30 Chinese multinational companies with the largest stocks of FDI accounted for 80.4% of China's total FDI stock. Over 20 of them were SOEs administered by the Central Government. The remainder included the listed companies Lenovo, TCL, Beida Jade Bird, and other listed companies that are owned by the regional governments of Beijing, Shanghai, and Guangdong.

## II. Determinants of China's Outward FDI Flows: A Gravity Model Analysis

China's Ministry of Commerce (2006) has released data on the FDI flows and stocks by destination in 2003-2005. There were 134 host economies in the sample for FDI flows and 166 host economies in the sample for FDI stocks. However, due to lack of macroeconomic data for many of these economies for some years, we are forced to use two substantially smaller sub-samples, namely, a sub-sample of 85-90 host economies for flows and a sub-sample of 77-83 host economies for stocks. The gravity equation to be estimated for the purpose of uncovering the determinants of China's outward FDI is as follows:

$$\log(FDI_{i,t}) = \alpha + \beta_1 \cdot \log(GDP_{i,t}) + \beta_3 \cdot \log(PGDP_{i,t}) + \beta_2 \cdot \log(dist_i) + \beta_4 \cdot ChineseLang_i + \beta_5 \cdot Border_i + \beta_6 \cdot Landlock_i + \beta_7 \cdot Island_i + \beta_8 \cdot Dummy_t$$

where  $FDI_{it}$  stands for China's FDI flow to (or FDI stock in ) economy  $i$  in year  $t$ ,  $GDP_{it}$  and  $PGDP_{it}$  stand for the host economy's real GDP and per capita real GDP, respectively;<sup>7</sup>  $dist_i$  stands for the distance between the economy's capital and Beijing,  $ChineseLang_i$  is a dummy variable for the use of the Chinese language,

<sup>6</sup> In China, the provincial level regions include provinces, provincial level autonomous regions, and provincial level municipalities directly administered under the central government. In 2004, private firms in China accounted for a mere 1.5% of the country's total FDI flow.

<sup>7</sup> The estimation results are qualitatively similar whether the GDP of host economies was measured in nominal or real terms.

*Border<sub>i</sub>* stands for its sharing a common border with China, *Landlock<sub>i</sub>* indicates that it is a landlocked economy's, and *Island<sub>i</sub>* indicates that it is an island economy.

Since FDI that goes into “tax havens” and “offshore financial centers” will typically be invested elsewhere, they are not the ultimate destination of the FDI. In order to avoid the influence of FDI that went to economies with tax havens and offshore financial centers, we carried out the estimation of the gravity equation first by using the full sample, and then by excluding such economies. As the definition of “tax heaven” or “offshore financial center” is not unambiguous, there are many country lists of tax havens and of offshore financial centers. For the purpose of this study, we adopt the two most widely used lists, namely, the “tax heaven” list issued by OECD in 2000,<sup>8</sup> and “offshore financial center” list issued by IMF in 2006.<sup>9</sup>

The estimation results of the gravity equation for FDI flows are reported in Table 6 and those for FDI stocks are reported in Table 7. The results in Table 6 reveals that, as expected, the host economies' GDP had a positive impact whereas their respective distances from China had a negative impact on attracting China's FDI. In contrast, the host economy's per capita GDP had no impact at all. The landlocked economies also seemed to be at a disadvantage in attracting Chinese FDI. Sharing a common border with China (which included some landlocked economies) had no impact at all. While the use of the Chinese language had a positive impact on China's FDI, there were only four such economies in the world.<sup>10</sup> As in other cases, the coefficient for “Chineselang” in Hong Kong, Macao, and Singapore captures the positive impact of their common culture and custom with China, and in the case of

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<sup>8</sup> The OECD report listed 35 countries/regions as tax havens: 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

<sup>9</sup> IMF report listed 46 countries/regions as offshore financial center: Bahrain, Andorra, Aruba, Hong Kong SAR, Belize, Anguilla, Grenada, Ireland, Bermuda, Antigua & Barbuda, Lebanon, Luxembourg, Cayman Islands, Bahamas, Malaysia (Labuan), Malta, Cyprus, Barbados, Marshall Islands, Switzerland, Gibraltar, British Virgin Islands, Nauru, Guernsey, Cook Islands, Turks and Caicos Islands, Isle of Man, Costa Rica, Jersey, Dominica, Macao SAR, Liechtenstein, Mauritius, Netherlands Antilles, Monaco, Niue, Montserrat, Palau, Samoa, Panama, Seychelles, St. Kitts and Nevis, Singapore, St. Lucia, St. Vincent and the Grenadines, Vanuatu

<sup>10</sup> Outside China, the Chinese language is used in Hong Kong, Macao, Singapore, and Taiwan. However, China's outward FDI in Taiwan was zero due to policy restrictions on the part of Taiwan's government. Using the regression estimates contained in Table 6, the forecast FDI flow from China to Taiwan in 2005 would be about US\$180-200 million, depending on whether tax haven economies are excluded.

Hong Kong and Macau it probably also captures their political affiliation with China.

The estimation results about China's FDI stocks as contained in Table 7 are similar to those contained in Table 6, with the exception that per capita GDP had a significantly negative coefficient, suggesting that in the past China's FDI tended to be negatively correlated with the level of development of the host economies. To the extent that FDI flows are more volatile than stocks, one could argue on theoretical grounds that the gravity model has greater validity for stocks than for flows, and thus has greater explanatory power,<sup>11</sup> and hence the negatively relationship between China's FDI and the per capita GDP of the host economies should not be ignored.

### **III. China's Future Outward FDI**

In this section, we attempt to forecast China's outward FDI in the near future based on the past experiences of the world's economies in their outward FDI. We shall first use China's own past experience with FDI outflows to forecast its future aggregate FDI flows. Then we shall use the experiences of all economies for which relevant data are available to forecast China's future aggregate FDI flows. Finally, we shall use the experiences of Japan and South Korea, two East Asian economies that are more advanced than China in both their stages of economic development and their overseas investment, not only to forecast China's future aggregate FDI flows, but also to provide reference points for the FDI flows' sectoral composition and geographical distribution.

#### **IV.1 China's Future Aggregate Outward FDI Flows Based on Its Own Past Experience**

First we use China's own FDI flows from 1982 to 2006 to estimate the growth trend of these flows, assuming that the growth rate was the same throughout the entire period. The result is given in Figure 2, in which a straight line is fitted to the log of China's FDI flows over the period. Based on the estimated growth trend, forecasts of

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<sup>11</sup> When the two regression equations use the same set of explanatory variables, the  $R^2$  for stocks is indeed greater than that for flows. However, the number of observation for flows was larger than that for stocks.

China's FDI flows from 2003 to 2020 are provided in Table 8. As shown in the table, the forecast flows for 2003 and 2004 exceeded their actual values, but the forecasts for 2005 and 2006 fell short of their actual values. More problematic is that the forecast for 2009 is less than the actual value of 2006, raising serious doubts about the validity of these forecasts.

There are good reasons to believe that there was a structural change in China's outward FDI in recent years (e.g., abundant foreign reserves, relaxed approval processes, government encouragement, etc.). Thus, the constant growth rate obtained from historical data would underestimate future FDI flows. For this reason and the "poor" performance of the forecasts from 2005 to 2009, we have decided to ignore these forecasts, or at most to treat them as lower bounds.

## IV.2 China's Future Aggregate Outward FDI Flows Based on Experience of Many Economies

We use a sample of economies that had outward FDI and the required macroeconomic statistics to estimate their FDI outflows as a function of key macroeconomic variables, the time trend, and if applicable, their status as tax havens or offshore financial centers. We then use the estimated equation to calculate the predicted values for China's outward FDI flows by feeding the values of forecast Chinese macroeconomic variables into the estimated equation.

The equation for outward FDI flows is as the following:

$$\log(F_{i,t}) = \beta_1 \cdot \log(GDP_{i,t}) + \beta_2 \cdot \log(PGDP_{i,t}) + \beta_3 \cdot \log(FR_{i,t}) + \beta_4 \cdot Open_{i,t} + \beta_5 \cdot WTH_{i,t} + \beta_6 \cdot t + C$$

where  $F_{i,t}$  is economy  $i$ 's outward FDI flow at time  $t$ ,  $GDP_{i,t}$  and  $PGDP_{i,t}$  are the economy's real GDP (constant prices: chain series) and per capita real GDP,<sup>12</sup>  $FR_{i,t}$  stands for its foreign reserves,  $Open$  stands for its degree of openness as measured

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<sup>12</sup> Data on real GDP are obtained from PWT6.2, while data on population are obtained from the World Bank's World Development Indicators.

by its total trade/GDP ratio,<sup>13</sup>  $C$  is a constant, and  $WTH_i$  stands for a dummy variable associated with the status of tax heaven or off-shore financial center but weighted by its relative importance in attracting FDI (i.e., its inward FDI divided by the world's total inward FDI). The variables  $F_{i,t}$ ,  $FR_{i,t}$ , exports and imports are adjusted with the U.S. CPI index with 2000 as the base year.<sup>14</sup>

The estimation results are reported in Table 9. They indicate that real GDP, per capita real GDP, foreign reserves, and openness all had a significantly positive impact on the source economies' outward FDI flows. The coefficients were similar regardless of whether the OECD list of tax havens or the IMF list of offshore financial centers was used. After controlling for real GDP, per capita real GDP, foreign reserves, and openness, there was no significant time trend. It is interesting that the coefficient of real GDP was slightly below unity, and that for per capita real GDP was slightly above unity, with the latter suggesting that the stage of economic development is an important determinant of FDI outflows.

To calculate the forecast FDI flows for China using the estimated equations contained in Tables 9, we need to have actual and forecast Chinese macroeconomic data. The foreign reserves and openness data for 2003-2006 are actual figures. Because PWT 6.2 contains data only up to 2004, we estimate China's real GDP in 2005 with the PWT's 2004 data and the growth rate of its real per capita GDP in 2005 as reported by the World Bank. For 2006 real GDP, we assume that the growth rate of per capita real GDP was 8%.

For the forecast period of 2007 - 2020, we make the following assumptions about China's real GDP, per capita GDP, foreign reserves, and openness:

- a) Its population growth rate during the forecast period will stay at its average growth rate during the period of 1994-2004, namely, 0.659% per annum;

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<sup>13</sup> The total trade/GDP ratio of an economy is given the ratio of the nominal value of the sum of its exports and imports to its nominal GDP.

<sup>14</sup> Data on foreign reserves, exports, imports, and U.S. CPI are obtained from the World Bank's World Development Indicators and IMF's IFS statistics, and data on outward FDI flows are obtained from the UNCTAD's FDI database

- b) Its real per capita GDP during the period of 2007-2015 will grow at the average growth rate during the period of 1994-2004, namely, 8% per annum;
- c) Its real per capita GDP growth rate from 2016-2020 will slow down to 6.5% per annum;
- d) Its foreign reserves from 2007 will be equal to 10% of real GDP throughout the entire forecast period; alternatively, its foreign reserves will remain at US\$ 1.2 trillion (the actual level in mid-2007, but at 2006 constant prices) throughout the entire forecast period;
- e) Its openness will be equal to 65% throughout the entire forecast period;

China's foreign reserves and openness grew rapidly in last several years, but their high growth rates are unlikely to be sustainable. Indeed, the Chinese government has already taken steps to control their unusually high growth rates. So we assume that throughout the entire forecast period its openness will be 65%, which is slightly higher than its value in 2006. Similarly, since China's foreign reserves might not grow proportionately with its real GDP, we make an alternative assumption that it will stay fixed at a level recorded in mid-2007 (but in 2006 price). Notice that because China's foreign reserves grew much faster than its real GDP in the first half of 2007, China's future foreign reserves under the assumption of 10% real GDP will not exceed US\$1.2 billion until 2009, with corresponding implications for the forecasts of China's annual FDI flows.

The forecasts based on the estimation results reported in Table 9 and the above assumptions are reported in Table 10. Since actual figures of foreign reserves were used for the four years (2003-2006) when actual FDI outflow data are available, the forecasts for these years were independent of the assumption about the size of future foreign reserves. The forecasts of FDI flows for 2003 and 2004 were above the actual figures, but those for 2004 and 2005 were quite close, especially if the OECD list is used instead of the IMF list.

According to Table 10, China's FDI outflow is forecast to exceed US\$20 billion around 2008, and US\$30 billion in the early 2010's. By 2015, the annual flow is

forecast to exceed US\$50 billion. If the FDI flows of world's leading investors were to remain at their 2004 and 2005 levels, then China could have moved up to No. 11-13 by 2008, No. 9-11 by the early 2010's, and No. 4 or higher by 2015. Apparently, the FDI outflows of the leading investors are expected to increase as well. As a result, China might not be ranked within the top 10 before 2010, and still outside the top five till 2015.

### **IV.3 Forecasting China's Future Outward FDI with Japan and South Korea's Past Experiences**

In this section, we analyze the evolution paths of Japan and Korea's past outward FDI and use their experiences to forecast China's future outward FDI. Japan and Korea are China's two significant East Asian neighbors that had gone through stages of economic development that China is expected to go through in the future, including their experiences with outward FDI. In terms of per capita real GDP, China's present development stage is similar to Japan's in the 1960s and Korea's in the 1980s.<sup>15</sup> In Section I, we noted that Hong and Sun (2004), by comparing growth trends, found that China's aggregate FDI outflows during 1988-2002 were quite similar to those of South Korea during the same period and to those of Japan in 1968-1982. In the following, however, we take a different approach, namely, that we shall match China's stages of economic development (as measured by per capital real GDP) with those of South Korea and Japan.

#### Forecasting China's Aggregate FDI Outflows

Figure 3 and 4 depict, respectively, Japan's aggregate outward FDI flow from 1965 to 2006 and Korea's aggregate outward FDI flow from 1980 to 2006. From these figures we observe that each country experienced two high growth periods of outward FDI flow. From 1968 to 1973, Japan's FDI flow increased by about 627%, and from 1985 to 1989 its flow increased by about 380%. Similarly, from 1989 to 1996 Korea's outward FDI flow increased by about 781%, and from 2003 to 2006 the

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<sup>15</sup> According to PWT6.2, in 2004 China's real per capita GDP (at Laspeyres constant prices) was US\$ 5, 333, which was close to that of Japan in 1962 (US\$ 5, 550) and of Korea in 1983 (US\$ 5, 457).



flow increased by about 140%. Interestingly, Japan's real per capita GDP (measured at Laspeyres constant prices) in 1968, 1973 and 1985 was US\$9,286, US\$13,359 and US\$17,434, respectively, and Korea's real per capita GDP (at Laspeyres constant prices) in 1989, 1996 and 2003 were US\$8,689, US\$14,115 and US\$17,595, respectively. For these two countries, US\$8,500, US\$14,200 and US\$17,000 appeared to be three watersheds of outward FDI.

If China's growth rates in the future are as assumed in Section IV.2, then its per capita GDP will reach US\$8,500 in around 2010, US\$14,200 in around 2017, and US\$17,000 in around 2020. If Japan and Korea's experiences were to be repeated in China, then China's outward FDI flow will continue to grow steadily for three years before it jumps up in 2010. However, considering the fact that China's regional greater disparity in income and the fact that outward FDI tend to originate mostly from the more advanced regions, the jump may occur well before 2010.

The growth rates of Japan and Korea's outward FDI flow appear to be nonlinear, as reflected by jumps at critical levels of economic development. To capture this nonlinearity, we estimate a model in which the coefficient of per capita real income depends on which of the following four development levels the investing country finds itself: (0) less than US\$ 8,500; (1) between US\$ 8,501 and US\$ 14,200; (2) between US\$ 14,201 and US \$ 17,000; and (3) greater than US\$ 17,001. More specifically, we estimate the following regression model with Japan and Korea's data:

$$\log(F_{i,t}) = \beta_1 \log(GDP_{i,t}) + \gamma_i + \alpha_1 \cdot l_1(PGDP_{i,t}) + \alpha_2 \cdot l_2(PGDP_{i,t}) + \alpha_3 \cdot l_3(PGDP_{i,t})$$

where  $F_{i,t}$  is the country  $i$ 's FDI outflow (measured at constant price) in time  $t$ ,  $GDP_{i,t}$  is its real GDP (constant prices: chain series) in time  $t$ ,  $\gamma_i$  captures country  $i$ 's fixed effect,  $l_l(PGDP_{i,t})$  is the dummy variable for development level  $l$ . Because of the small size of sample, other independent variables are excluded. The estimation results are given in Table 11, which shows that the coefficient for real GDP was significantly positive. Among the three dummy variables, only that for development level 1 was significantly positive.

Before we can provide forecasts for China's future FDI outflows with the above regression model, we need to choose a reasonable value of  $\gamma_{China}$  to capture the fixed effect of China. To obtain a value for this fixed effect, we choose 2004 and 2005 as two alternative benchmark years and assume that its actual FDI outflow in each benchmark year was equal to its predicted flow. With all the requisite parameters, we can do forecast as in Section IV.1 by making the same assumptions about China's annual growth rate of per capita real GDP, namely, 8% from 2007 to 2015, and 6.5% from 2016 to 2020. Two sets of forecasts are contained in Table 12, one with 2004 as the benchmark year and the other with 2005 as the benchmark year.

Like the forecasts provided in Table 10, the forecast FDI flows provided in Table 12 for 2003 and 2004 overshoot their actual values (by definition neither overshooting nor undershooting in 2004 when it was used as a benchmark year), whereas those for 2005 and 2006 undershot their actual values (by definition neither overshooting nor undershooting in 2005 when it was used as a benchmark year). Since the forecasts with 2004 as the benchmark year were substantially below their actual figures in 2005 and 2006, and likely to be below that actual figures in 2007 and beyond, we have decided not to use the forecasts with 2004 as the benchmark year.

Finally, since the forecasts based on Japan and South Korea's experiences using 2005 as the benchmark year exceed those based on the experience of many sources economies, we shall use the latter as our baseline forecasts and the former as our upper bound forecasts for China's future aggregate FDI outflows.

#### Forecasting the Sectoral Composition and Geographical Distribution of China's FDI Outflows

Next, we analyze the sectoral composition of Japan and Korea's FDI flows. Figure 5 and 6 illustrate the percentages of Japan and Korea's outward FDI flows in different sectors, respectively. Before 1982, the mining sector was an important target of Japan's FDI, averaging about 20%. After that year, the sector's share fell to below 5%. Korea's experience around 1990 was similar. Before 1989, the share of

investment in the mining sector was more than 10%, but it fell to about 5% by 1994. In contrast, the two countries' shares of investment in the services sector grew gradually over time. After 2000, Japan's share of investment in the services sector was about 50%, whereas Korea's share was about 40%.

Notice that the decline of Japan's FDI in the mining sector occurred in its development stage 2 as defined earlier in this subsection, whereas the decline of South Korea's FDI in the same sector occurred right from the beginning of its development stage 1. Also, South Korea's high share of FDI in the services sector occurred in its development stage 2, whereas Japan's high share of FDI in the same sector occurred long after it passed into its development stage 3. That is to say, South Korea's sectoral composition followed similar changes as Japan's, but the pace of change was much faster, implying that there seemed to be less similarity in the two countries' evolution of their sectoral composition than in the evolution in their aggregate FDI outflows.

Let us compare China's sectoral composition of FDI flow with those of Japan and Korea. In 2004 and 2005, China's share of investment in the mining sector was 32.74% in 2004 and 13.29% in 2005. Since China's present stage of economic development is similar to that of Japan in the 1960s and Korea in the 1980s, we expect China's investment in this sector will continue to grow until China's real per capita GDP reaches the range of US\$ 10,000, which is expected to occur in 2012. The average share of China's investment in manufacturing sector was 13.74% in 2004 and 10.09% in 2005, less than Japan in the 1960s and Korea in the 1980s. Thus, we expect China's share in investment in the manufacturing sector to grow steadily, but probably not dramatically.

China's investment in the services sector was 48% in 2004 and 75% in 2005, which were significantly higher than those of Japan and Korea in the 2000s. Judged against the experiences of Japan and South Korea, it seems curious why China's investment share in the services sector was so high. One may speculate that it was a result of China's capital control policy, which induced Chinese firms to invest in offshore financial centers before they were re-invested elsewhere in other non-service related sectors (including "round-tripping" back to China). If Japan and Korea's

sectoral compositions in outward FDI had predictive value for China's, we would expect China's investment share in the services sector to decline over time due to increases in the shares of mining and manufacturing, and in the longer run in response to China's liberalization of capital movements.

Figure 7 and 8 depict the shares of Japan and Korea's FDI flow to different regions. A comparison of these figures with those for China contained in Table 4 indicates that the share of China's outward FDI flow to Asia in 2003-2005 was broadly similar to those of Japan in 1960s and Korea in 1980s. However, China's shares of investment flows to Europe and North America in the same years were significantly less than those of Japan and Korea's in their respective comparable periods. In contrast, China's share of investment flow to Latin America was abnormally higher than Japan and Korea's. Again, this could be a result of the huge investment in tax havens in Latin America. Despite this special factor, we expect China's share of FDI flows to Latin America will decrease in the future, while its share of investment in North America and Europe will grow.

Japan's average FDI share in Africa from 1965 to 1985 was 3.6%, higher than that of China in 2003-2005. However, it declined significantly after 1985 and reached a negligible 0.3% in 2004. Compared with Japan, South Korea's FDI share in Africa was relatively low in the entire period. During 1990-1998, its average share was about 2.3%. Its African share began to decrease after 1998, and by 2004 it dropped to 0.85%, which was less than China's current share. We expect China's future African shares to be higher than the current shares of Japan and S. Korea because Africa is politically much more important to China than to Japan and S. Korea.

#### **IV. Summary and Directions for Further Research**

In this paper we have provided a systematic analysis of the size and composition of China's outward FDI in 2003-2005, using data provided by China's Ministry of Commerce. In addition, we have made an attempt to uncover the determinants of the direction and amount of China's outward FDI by estimating a gravity equation. Finally, we attempt to forecast China's future FDI outflows based on its own past

experience, international experience, and Japan and South Korea's experience with FDI outflows.

Our empirical analysis of the determinants of China's outward FDI received by different host economies reveals that the host economies' GDP had a positive impact whereas their respective distances from China had a negative impact on FDI from China. Their per capita GDP had no impact on FDI flows but a negative impact on FDI stocks. Cultural proximity was a positive factor in attracting China's FDI to the host economies that speak the Chinese language.

Our baseline forecasts based on the experience of many FDI source economies indicate that China's aggregate FDI outflow will reach US\$20 billion around 2008, US\$30 billion in the early 2010's, and US\$50 billion by 2015. In more optimistic forecasts based on the experience of Japan and South Korea, the first two thresholds will be reached one year earlier and the third threshold will be reached five years earlier.

The number of host economies included in the sub-sample we used in estimating China's outward FDI flows was 65-70. This sub-sample is substantially smaller than the full sample of 134 host economies. Thus, the first direction of research is to expand the sample size as the 2005 macroeconomic data of host economies not already included in our sub-sample become available. A second direction of further research is to consider the impact of other potential factors that could have an impact on China's outward FDI, including bilateral trade, China's inward FDI from its host economies, etc. A third direction of research, which goes beyond China's outward FDI, is to identify the key determinants of outward FDI flows and stock for the world's leading investing economies.

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## Appendix

**Table 1: China's Outward FDI Flows in Relation to the World's Total FDI Flows\***

	2002	2003	2004	2005	2006
China's outward FDI flow (US\$ Bn)	2.7	2.85	5.5	12.26	16.1
World's total FDI flow (US\$ Bn)	539.5	561.1	813.1	778.7	N.A.
Percentage (%)	0.50	0.51	0.68	1.57	N.A.

\*The percentages reported in this table are slightly different from those reported in the Ministry of Commerce's Statistical Bulletins from 2003 and 2004. The percentages reported in these bulletins were taken as percentages of the world's total FDI flows in the preceding instead of the same years.

**Table 2: China's Outward FDI Stocks in Relation to the World's Total FDI Stocks by Year End<sup>+</sup>**

	2002	2003	2004	2005	2006
China's outward FDI stock (US\$ Bn)	22.9	33.2	44.8	57.2	73.3
World's total FDI stock (US\$ Bn)	7684.1	9046.3	10325.2	10671.9	N.A.
Percentage (%)	0.29	0.37	0.43	0.54	N.A.

+ The percentages reported in this table are slightly different from those reported in the Ministry of Commerce's Statistical Bulletins from 2003, 2004 and 2005. The percentages reported in these bulletins were taken as percentages of the world's total FDI stocks in the preceding instead of the same years.



**Table 3: Values and Shares of China's Outward FDI by Sector**

		Flow			Stock		
		2003 <sup>+</sup>	2004	2005	2003 <sup>+</sup>	2004	2005
<b>Agriculture, forestry, animal husbandry, and fishery</b>	Value (US\$ M)	85.5	288.66	105.36	332	834.23	511.62
	Share (%)	3	5.25	0.86	1	1.86	0.89
<b>Mining, quarrying and petroleum</b>	Value (US\$ M)	1380	1800.2	1675.22	5900	5951.37	8651.61
	Share (%)	48.4	32.74	13.66	18	13.29	15.12
<b>Manufacturing</b>	Value (US\$ M)	620	755.55	2280.4	2070	4539.07	5770.29
	Share (%)	21.8	13.74	18.60	6.2	10.14	10.09
<b>Services</b>	Value (US\$ M)	763.8	2643.4	8198.58	24833	33470.9	42280
	Share (%)	26.8	48.08	66.87	74.8	74.75	73.91
Business Services	Value (US\$ M)	280	749.31	4941.59	1992	16445.5	16553.6
	Share (%)	9.8	13.63	40.30	6	36.73	28.94
Wholesale and Retail	Value (US\$ M)	360	799.69	2260.12	6530	7843.27	11417.9
	Share (%)	12.6	14.55	18.43	19.7	17.52	19.96
Transportation and Storage	Value (US\$ M)	85.5	828.66	576.79	1992	4580.55	7082.97
	Share (%)	3	15.07	4.70	6	10.23	12.38

+ The 2003 figures are subject to rounding errors, because the values by sector, if not explicitly provided in the *2003 Statistical Bulletin of China's Outward Foreign Direct Investment*, are calculated from the sector percentages and aggregate FDI figures.

Sources: Ministry of Commerce, China (2004, 2005, 2006), *World Investment Report* (2006)

**Table 4. Values and Shares of China's FDI Flows by Region**

	2003	2004	2005
<b>Values of China's Outward FDI Flows (US\$ Million)</b>			
Asia	1498.95	3000.27	4374.64
Africa	74.79	317.42	391.68
Europe	151.14	170.92	505.02
Latin America	1038.15	1762.72	6466.16
North America	57.74	126.49	320.84
Oceania	33.88	120.15	202.83
<b>Shares of China's Outward FDI Flows (%)*</b>			
Asia	52.51	54.57	35.68
Africa	2.62	5.77	3.19
Europe	5.29	3.11	4.12
Latin America	36.37	32.06	52.74
North America	2.02	2.30	2.62
Oceania	1.19	2.19	1.65
<b>Relative ratio of China's Outward FDI flows**</b>			
Asia	2.32	2.22	1.54
Africa	0.79	2.39	0.95
Europe	0.10	0.09	0.08
Latin America	4.63	2.66	5.37
North America	0.18	0.12	0.16
Oceania	0.48	0.34	-0.47***
Source: China's data from Ministry of Commerce, China (2006), world's data from UNCTAD's FDI database			
* The share of China's outward FDI flow to region = China's outward FDI flow to region / China's aggregate outward FDI flow			
** The relative ratio of China's outward FDI flow = The share of China's outward FDI flow to region/ The share of world's FDI flow to region			
***The world's outward FDI to Oceania in 2005 was negative			

**Table 5. Values and Shares of China's Outward FDI Stocks by Region**

	2003	2004	2005
<b>Values of China's Outward FDI Stocks (US\$ Million)</b>			
Asia	26559.39	33409.53	40629.04
Africa	491.22	899.55	1595.25
Europe	531.52	746.66	1598.19
Latin America	4619.34	8268.37	11469.62
North America	548.49	909.21	1263.24
Oceania	472.26	543.94	650.28
<b>Shares of China's outward FDI Stocks (%)*</b>			
Asia	79.94	74.61	71.02
Africa	1.48	2.01	2.79
Europe	1.60	1.67	2.79
Latin America	13.90	18.47	20.05
North America	1.65	2.03	2.21
Oceania	1.42	1.21	1.14
<b>Relative ratios of China's Outward FDI Stocks**</b>			
Asia	5.08	4.83	4.15
Africa	0.61	0.81	1.07
Europe	0.03	0.03	0.06
Latin America	1.85	2.47	2.43
North America	0.08	0.10	0.11
Oceania	0.47	0.36	0.42
Source: China's data from Ministry of Commerce, China (2006), world's data from UNCTAD's FDI database			
* Share of China's outward FDI stock to region = China's outward FDI stock to region / China's aggregate outward FDI stock			
** Relative ratio of China's outward FDI to region = Share of China's outward FDI stock to region/ Share of world's FDI stock to region			

**Table 6. Regression Results for Recipient Economies of China's Outward FDI Flows (2003-2005)**

	Full Sample	Tax heaven economies (OECD list) excluded	Offshore financial center economies (IMF list) excluded <sup>+</sup>
Lgdp	0.19092*** (0.09126)	0.19771** (0.09683)	0.12186 (0.09850)
lpgdp	-0.03279 (0.12215)	-0.05522 (0.12736)	0.03845 (0.13382)
Ldist	-0.66497*** (0.25011)	-0.72739*** (0.24894)	-0.77280*** (0.24668)
Chineselang	3.08849*** (0.88245)	3.12671*** (0.87893)	
Border	0.59051 (0.54221)	0.49398 (0.53724)	0.35393 (0.55300)
Landlock	-1.12738*** (0.37163)	-1.15676** (0.36907)	-1.17475*** (0.37610)
Island	0.01256 (0.36282)	-0.08298 (0.36667)	0.03032 (0.39059)
R <sup>2</sup>	0.2816	0.2856	0.2012
Observations	270	261	250
<p>NOTE: ***, ** and * indicate significance at 1, 5 and 10 percent levels, respectively; standard deviations are provided in parentheses  <sup>+</sup> Since Hong Kong, Macau, and Singapore appeared on the IMF list, and Taiwan had no FDI from China, the Chineselang dummy became irrelevant for the sample that excluded offshore financial center economies.</p>			

**Table 7 Regression Results for Recipient Economies of China's Outward FDI Stocks (2003-2005)**

	Full Sample	Tax heaven countries (OECD list) excluded	Offshore financial center countries (IMF list) excluded <sup>+</sup>
Lgdp	0.43515*** (0.08944)	0.45613*** (0.09715)	0.39634*** (0.09556)
lpgdp	-0.37382*** (0.11961)	-0.38295** (0.12500)	-0.34832*** (0.12658)
Ldist	-0.58251** (0.23456)	-0.60620** (0.23623)	-0.64497*** (0.23063)
Chineselang	5.03551*** (0.82054)	5.08122*** (0.82996)	
Border	0.13683 (0.50166)	0.06474 (0.50416)	-0.18495 (0.51017)
Landlock	-0.84598** (0.35298)	-0.81338** (0.35706)	-0.93641*** (0.35890)
Island	0.11106 (0.36219)	0.03690 (0.37499)	0.13657 (0.40217)
R <sup>2</sup>	0.3964	0.3930	0.2748
Observations	248	240	230
<p>NOTE: ***, ** and * indicate significance at 1, 5 and 10 percent levels respectively; standard deviations enclosed in parentheses  + Since Hong Kong, Macau, and Singapore appeared on the IMF list, and Taiwan had no FDI from China, the Chineselang dummy became irrelevant for the sample that excluded offshore financial center economies.</p>			

**Table 8. Forecast of China's Outward FDI Flow Based on Linear Model**

Year	Forecast	Actual Value
2003	6.12	2.85
2004	7.20	5.50
2005	8.53	12.26
2006	10.09	16.13
2007	11.56	NA
2008	13.25	NA
2009	15.18	NA
2010	17.39	NA
2015	34.34	NA
2020	67.81	NA

**Table 9. Regression Results for Source Economies' Outward FDI Flows (1970-2004)**

Lrgdp	0.9165*** (0.05156)	0.84893*** (0.05227)
Lprgdp	1.19265*** (0.05735)	1.18534*** (0.05695)
Lre	0.22289*** (0.04481)	0.25433*** (0.0448)
Open	0.00873*** (0.00109)	0.00479*** (0.00125)
Year	-0.00699 (0.00516)	-0.007 (0.00509)
WTH (OECD)	0.00026648*** (0.00007802)	
WTH (IMF)		0.0000668*** (0.00000963)
R <sup>2</sup>	0.6556	0.6604
Observation	2536	2536
NOTE: ***, ** and * indicate significance at 1, 5 and 10 percent levels, respectively; standard deviations are provided in parentheses		

**Table 10. Forecasts of China's Outward FDI Flows**

Year	Forecast based on Table 8 and OECD list		Forecast based Table 8 and IMF list		Actual Value
	Foreign reserves will be 10% of real GDP from 2007	Foreign reserves will be US\$ 1.2 trillion from 2007	Foreign reserves will be 10% of real GDP	Foreign reserves will be US\$ 1.2 trillion	
2003	6.37	6.37	5.81	5.81	2.85
2004	8.83	8.83	7.86	7.86	5.50
2005	12.07	12.07	10.60	10.60	12.26
2006	15.69	15.69	13.69	13.69	16.13
2007	18.39	18.93	15.94	16.47	NA
2008	22.02	22.24	19.02	19.24	NA
2009	26.36	26.14	22.69	22.47	NA
2010	31.56	30.72	27.06	26.24	NA
2015	77.62	68.82	65.37	56.99	NA
2020	162.15	133.06	134.54	107.36	NA

**Table 11. Regression Results of the Outward FDI Flows of Japan (1965-2004) and Korea (1981-2004)**

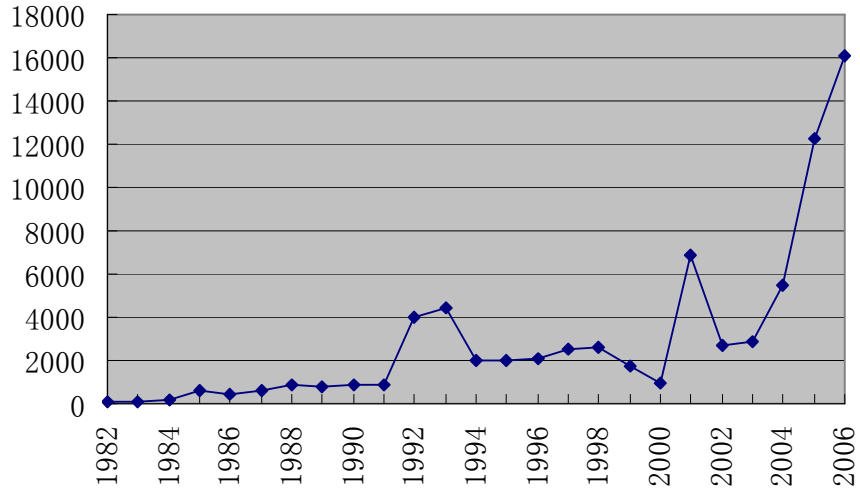
<i>lrgdp</i>	2.62109	(0.31818)***
$\alpha_1$	0.42293	(0.25037)*
$\alpha_2$	0.22870	(0.35259)
$\alpha_3$	0.29950	(0.45017)
$R^2$	0.9948	
Observations	64	
NOTE: ***, ** and * indicate significance at 1, 5 and 10 percent levels respectively; standard deviations enclosed in parentheses		

**Table 12. Forecasts of China's Outward FDI Flows Based on Japan and Korea's Experiences**

Year	2004 as benchmark	2005 as benchmark	Actual Value
2003	4.38	7.33	2.85
2004	5.50	9.19	5.50
2005	7.34	12.26	12.26
2006	9.45	15.80	16.13
2007	11.77	19.66	NA
2008	14.65	24.48	NA
2009	18.23	30.47	NA
2010	34.64	57.88	NA
2015	103.50	172.97	NA
2020	227.59	380.34	NA

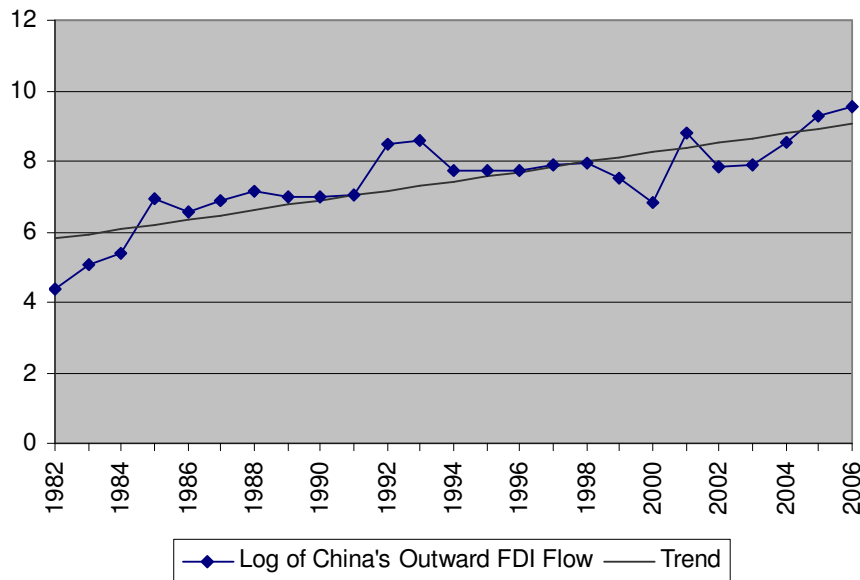


**Figure 1: China's outward FDI Flow: 1982 to 2006 (US\$ million)**

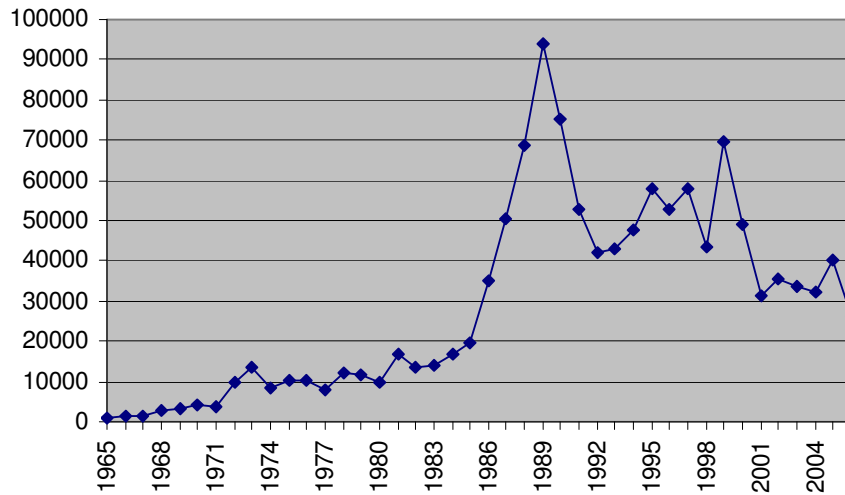


Source: Ministry of Commerce, China (2006, 2007). Data for 1982-2001 are based on various issues of UNCTAD's *World Investment Report* whereas data for 2002-2006 were compiled by the ministry.

**Figure 2. Linear Time Trend of Log of China's outward FDI Flow (Constant price)**

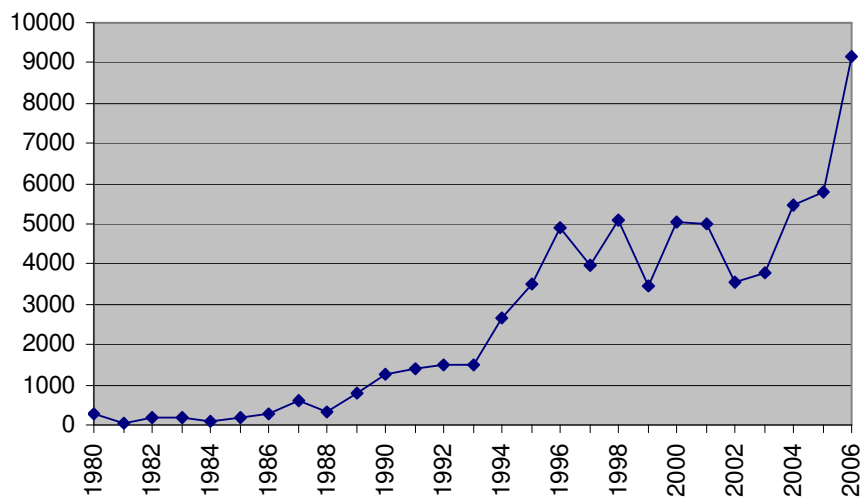


**Figure 3. Japan's Outward FDI Flow (million US\$ at 2000 constant price), 1965-2006**



Sources: Japan External Trade Organization (JETRO) and International Financial Statistics (IFS)

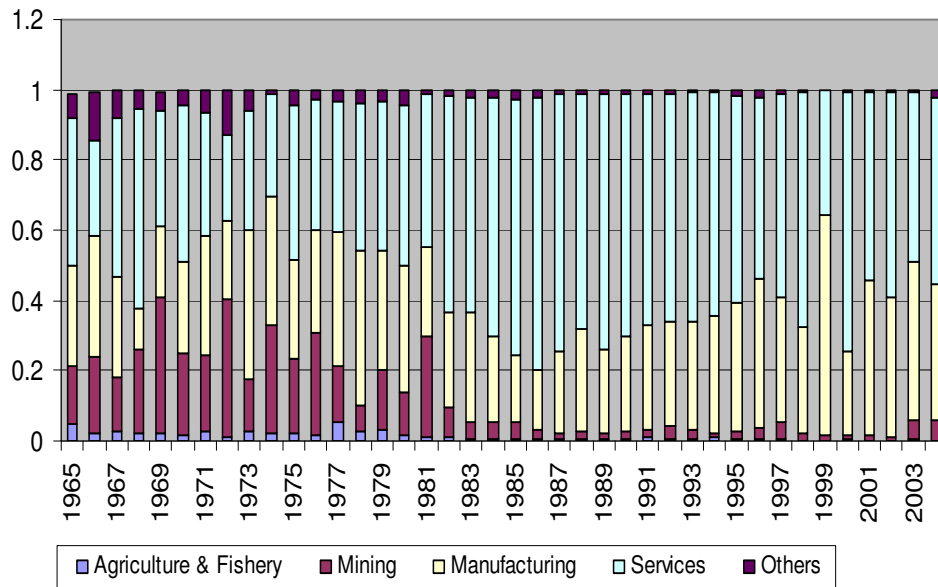
**Figure 4. Korea's Outward FDI Flow (million US\$ at 2000 constant price), 1980-2006\***



Sources: Korea Eximbank and IFS. FDI figures were deflated by US CPI.

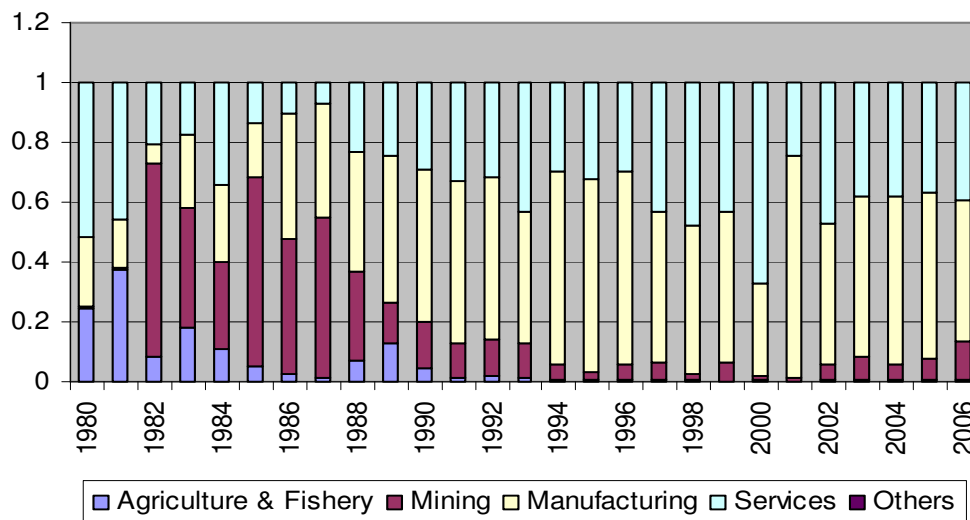
\* The figure for 1980 stands for the cumulated outward FDI flows up to 1980.

**Figure 5 Japan's sectoral distribution of outward FDI flows: 1965-2004**



Sources: JETRO

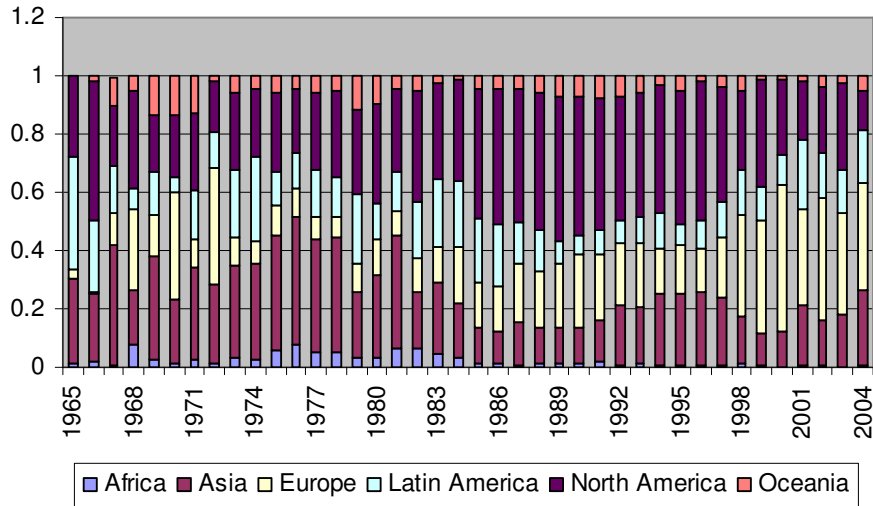
**Figure 6. Korea's sectoral distribution of outward FDI flow: 1980-2006\***



Sources: Korea Eximbank.

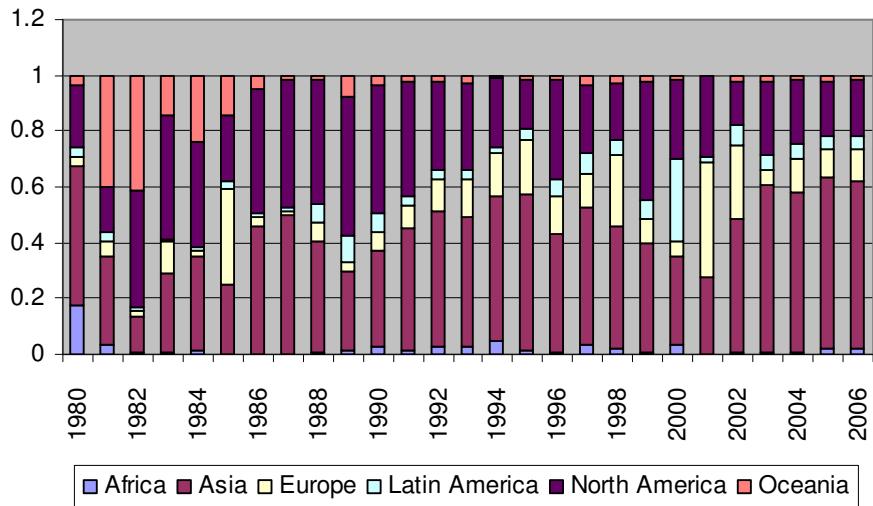
\* The figures for 1980 refer to cumulated outward FDI flows up to 1980.

**Figure 7. Japan's regional distribution of outward FDI flow: 1965-2004**



Sources: JETRO

**Figure 8. Korea's regional distribution of outward FDI flow: 1980-2006\***



Sources: Korea Eximbank

\* The figures for 1980 refer to cumulated outward FDI flows up to 1980.