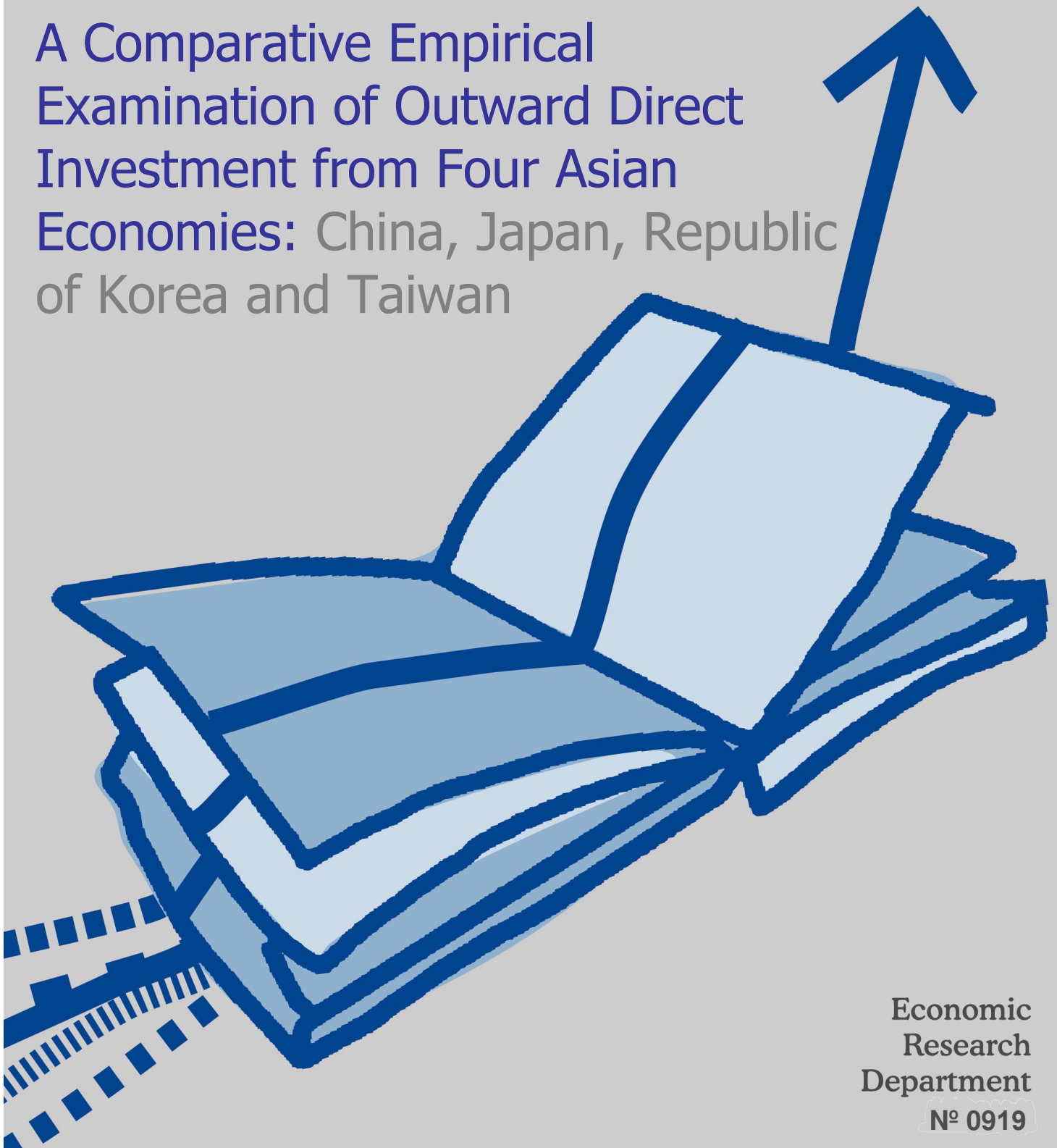


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Examination of Outward Direct  
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Economies: China, Japan, Republic  
of Korea and Taiwan



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Nº 0919

# **A Comparative Empirical Examination of Outward Direct Investment from Four Asian Economies: China, Japan, Republic of Korea and Taiwan<sup>1</sup>**

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## **Abstract**

In this paper we compare and contrast the determinants of outward direct investment from China with those from Japan, South Korea and Taiwan. We examine both descriptively as well as econometrically the various motives and factors behind the investment abroad from these four Asian economies. The hypotheses we are testing include the market-seeking hypothesis, the natural resource-seeking hypothesis, the technology acquisition hypothesis and the human capital hypothesis. We examine outward direct investment for China for the years 1991-2006, Japan for 1983-2007, Korea for 1980-2007 and Taiwan for 1968-2007. Our results using the full set of determinants yield uniform support for the market-seeking hypothesis. The natural resource-seeking motives hold for Japan and Korea, while the technology acquisition hypothesis seems relevant for Taiwan. Chinese investments tend to go to destinations with poorer labor quality. In addition, openness is important for Japanese investment abroad, while distances deter investment from China and Korea.

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## 1. Introduction

In recent years, the spectacular growth of China has attracted increasing attention from both academics and policymakers. Measured by market exchange rates and using the official government figures, China's gross domestic product (GDP) reached US\$4.4 trillion in 2008. China has surpassed Germany as the third largest economy in the world. Facing an ongoing global financial and credit crisis, it is expected that the pace of economic growth of China will slow. However, to combat slower economic growth, the Chinese government has been implementing a stimulus package worth more than US\$580 billion. Forecasts of the current growth rate of China vary, but most expect that China will still meet its target growth of 8% growth in 2009.<sup>2</sup>

As China continues to grow, its inward direct investment has also increased substantially. According to UNCTAD (2008), foreign direct investment (FDI) inflows reached US\$83.5 billion in 2007. There has been a very large literature on studying various aspects of FDI flowing into China (see. e.g. Fung, Garcia-Herrero, Iizaka and Siu 2005). But a more interesting trend has emerged that has caught the attention of academics, researchers and policymakers in the last few years, namely the surge of FDI outflows from emerging economies like China. Again according to UNCTAD (2008), China's outward FDI flows increased from US\$21.2 billion in 2006 to US\$22.5 billion in 2007. There are indications that the outflows will continue in the near future. From January to mid-July of 2008, China already announced more than one hundred and thirty foreign mergers and acquisitions (M &A) deals. In 2008, China's outward M &A exceeded US\$26 billion (Wall Street Journal 2008).

One interesting question to examine is to compare the current FDI outflows from China with the past experiences of its richer neighbors such as Japan, Taiwan and Republic of Korea. In this paper, we aim to examine the pattern and motives of Chinese outward FDI and to compare Chinese outward FDI with FDI from other Asian economies.<sup>3</sup> One of the motivations of such comparisons is to ascertain if the current wave of Chinese FDI outflows follows the pattern of previous East Asian experiences. In other words, are outflows from China different or do they follow a fairly typical East Asian pattern?

The organization of the paper is as follows: in the next section, we provide a literature survey of FDI outflows both in general and in particular, FDI outflows from China and other Asian economies. In section 3, we focus on an empirical study of outward FDI from China, Japan,

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<sup>2</sup> The official growth rate of China in the second quarter of 2009 reached 7.9%. The latest forecast for China's growth from the International Monetary Fund was 7.5% for the year 2009.

<sup>3</sup> For a comparison of Chinese FDI outflows with Indian FDI outflows, see Fung and Garcia-Herrero (2008).

Republic of Korea and Taiwan, applying the full set of determinants to all four cases. Due to a fair amount of missing data which differs for each economy, in section 4, we choose to use selective and different sets of explanatory variables to examine the motives and factors behind outward investment for the four different cases. In section 5, we conclude.

## 2. A Review of the Academic Literature

In this section we will provide a review of the relevant and up-to-date literature of the FDI outflows. The general academic literature has at least three strands. From the macroeconomic and international finance literature standpoint, the most well-known article on this topic is the one by Lucas (1990), which has led to a vast subsequent literature (see for example Alfaro and Kalem-Ozcan 2005). The “Lucas paradox” asks the important question as to why so little capital has been flowing from rich economies to less developed countries. There have been many attempts to answer this question, but two of the more important potential answers are related to the poorer quality of the institutions (such as corruption, rule of law, etc.) and the relative lack of human capital in developing economies. While this important literature focusing on where capital from rich economies has been going is indeed related to our topic of Chinese FDI outflows, it does not provide us with very direct theoretical guidance because the literature is not focused on where capital from a *poor* economy like China should be flowing. In addition, the literature concentrates on total capital flows, whereas our question is only on a particular mode of the flows of capital, viz., FDI. It is quite plausible that FDI flows and portfolio flows have different patterns and motives. However, the “Lucas paradox” may have some relevance to the cases of Japan, Republic of Korea and Taiwan, which are richer economies than China. We will thus keep this literature in mind but will not stick to its line of arguments directly.

Another strand of relevant literature focuses on the recent theoretical development in the modeling of heterogeneous firms in international trade. As an example, according to Antras, Helpman and Yeaples (2005), firms that engage in both FDI and exports have the highest firm-level productivity, with firms that engage only in exports having the second highest productivity and firms that only sell domestically having the lowest productivity. The idea is that there are significant fixed costs facing exporters, with fixed costs being even higher with FDI. This implies that Chinese and other Asian firms that invest abroad should have the highest productivity among all Chinese or Asian companies and where they invest abroad should depend on where the fixed costs of investment are lower. While this set of theories and empirical work is very interesting and relevant, its motivation on FDI is driven by *horizontal* FDI, i.e. companies setting

up affiliates abroad to sell in the host markets. If for example, it is often alleged that China invests abroad to extract minerals and natural resources, then a comparison of the fixed costs of investment should only be confined to those host economies where such minerals can be found. Instead of comparing the ease of investment in all potential host economies, a Chinese company may then only compare the difficulty of investing in minerals in certain Latin American economies, parts of Africa, parts of Asia (say Indonesia), Australia, etc. But the literature on heterogeneous firms can apply more directly to cases of Japanese, Korean and Taiwanese firms. FDI from these richer economies may be both horizontal, vertical as well as for other strategic reasons.

In the international business literature, Dunning (1981, 1991, 1998) argues that the level of per capita income of the home country will determine the direction as well as the magnitude of the FDI outflows. For example, if the per capita gross national product (GNP) of the home country is below approximately US\$400, there should not be any FDI outflows. If the per capita income rises to roughly between US\$400 and US\$2,000, then there should be a small amount of outward FDI. When the per capita GNP increases to perhaps between US\$2,000 and US\$ 4,750, there should be a rapid increase of FDI outflows, but the net FDI inflows should still be positive. Finally, if the per capita income further rises to beyond US\$4,750, then FDI outflows should exceed inflows. While this taxonomy is of interest to our topic, it does not really tell us the detailed pattern of outward FDI from a country like China or other Asian economies. In particular, it does not provide us with explanations or determinants of Chinese and East Asian outflows of FDI.

Finally, there is also a small but growing literature focusing specifically on an econometric explanation of the determinants of Chinese FDI abroad. Cheng and Ma (2007), Buckley, et al (2007), Fung and Garcia-Herrero (2008), Goublomme and Luc (2008) and Cheung and Qian (2009) are the studies closest to this paper. Cheng and Ma (2007) use three years of data and focus on the basic gravity model to study the FDI outflows from China. Goublomme and Luc (2008) use a stripped down version of gravity model and discusses the basic determinants of China's FDI. Fung and Garcia-Herrero (2008) explicitly and econometrically examine and compare the various motives that both China and India may have in engaging in investing abroad, whereas Buckley et al (2007) and Cheung and Qian (2009) focus on the Chinese case alone.<sup>4</sup>

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<sup>4</sup> There are also many studies of Japanese, Korean and Taiwanese FDI outflows. We will refer to some of them in section 4.

### 3. An Overview of FDI Outflows from Four Asian Economies

#### 3.1 China's FDI Outflows

In this section we first provide an analysis of recent FDI outflows from China.<sup>5</sup>

In Table 1, we present the flows of outward FDI from China in various years:

**Table 1. FDI Outflows from China by Years**

Year	Chinese Outward FDI Flows (US\$ billion)
1991	1.0
1992	4.0
1993	4.3
1994	2.0
1995	2.0
1996	2.08
1997	2.6
1998	2.7
1999	1.9
2000	1.0
2001	6.9
2002	2.7
2003	2.85
2004	5.5
2005	12.26
2006	21.2

<sup>5</sup> Note that starting from 2003, China's outward FDI statistics have been changed to conform to OECD FDI statistics guidelines. Data before and after 2003 may not be directly comparable.

2007	22.5
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Source: Yearbook of China's Foreign Economic Relations and Trade, various years; China Commerce Yearbook, various years

In 2006, in terms of stock, 21.5 percent of China's outward direct investment was in commercial services, followed by mining with 19.8 percent and then finance, which has 17.2 percent. In terms of flows, 40.5 percent was in mining and petroleum, with commercial services being second, with 21.4 percent. One unusual characteristic of China's outward FDI is that about half of the 2006 total flow of foreign direct investment is in the service sectors.

The top recipients of China's investment abroad in 2006 are Hong Kong, Cayman Islands, British Virgin Islands, the United States, South Korea, Russia, Australia, Macao, Sudan and Germany. Like many other cases of FDI outflows (e.g. FDI from Hong Kong or Taiwan), investment from China is getting very difficult to track. This is partly because of the increasing importance of many tax haven economies (such as Cayman Island and British Virgin Islands) emerging as destinations of investments, with the funds likely to be re-directed elsewhere. Keeping these complications aside, what are the main determinants and motives for China's FDI outflows?

In the literature, we encounter several suggestions. First, there is the *natural resources* hypothesis, which posits that China invests abroad to extract oil and minerals (e.g. copper, bauxite, aluminium, etc). Second, China may be investing to sell or facilitate selling in the host economies' *markets*. Third, China may be using its investment to acquire *technology* from abroad. Fourth, China's investment is affected by its bilateral *exchange rate* with the host economies as well as other important macroeconomic and financial variables such as China's current account balance and money supply. Focusing on exchange rates, a higher Yuan relative to the host economy's currency may mean that it is cheaper to purchase foreign assets and will increase Chinese FDI in that country. We have seen the effects of high currencies on FDI outflows for the case of Japan during the 1980s and early 1990s. With the high yen, Japanese FDI outflows surged. Similar episodes have been witnessed for the case of Taiwan. However, the bilateral exchange rates are more fundamentally linked with several domestic macroeconomic variables such as the extent of domestic money supply, the magnitude of the foreign exchange reserves, the current account balance as well as the level and growth rate of the home economies. These important macroeconomic variables may also independently

influence the extent and distribution of FDI outflows. For example, it was often argued that the large and growing Chinese foreign reserves contribute to the magnitude of China's FDI outflows while the Chinese current account balance adds urgency for China to invest in selective countries to circumvent potential protectionism. Lastly, China's FDI abroad may also be linked to how *open* the host economies are. If the host country is relatively closed, it is harder to export and foreign sales will be facilitated by investing in factories in that economy. Again we have seen the impact of protectionism on FDI flows. In the 1980s and the first half of the 1990s with the United States arranging automobile and other voluntary export restraints (VERs) and increasing the incidence of antidumping duties, we witnessed a significant increase of Japanese FDI in the United States.

### 3.2 Japanese FDI Outflows

For the case of Japan, there were several *hypotheses* concerning the chronological shifting of FDI outflows. In the late fifties and the 1960s the major concerns were like the current case of China, the supply of raw materials and oil to the rapidly growing Japanese economy. There were major Japanese investment projects in the Middle East, parts of Latin America, Australia as well as in a few Asian countries like Indonesia. Also in the 1960s and 1970s, labor costs began to rise significantly in Japan. Firms from several Japanese manufacturing industries first with textile and then televisions began to move their production facilities to cheaper locations. In 1981, the U.S. automobile VERs began to limit the exports of Japanese cars. Then by 1985, with growing reserves and a swelling current account surplus (particularly against the United States), the yen rose significantly which resulted in a huge shock to the Japanese export industries. U.S. and European protections of their domestic industries coupled with the yen shock led to an acceleration of the overseas Japanese FDI, particularly to the developed economies. Some of the Japanese investment also went to the newly industrializing economies (NIE) and the Association of Southeast Asian Nations (ASEAN) economies, where the production costs were much lower. However, it also seems that due to the complex just-in-time production methods used by Japanese automobile and consumer electronic firms, Japanese investors are also much more concerned with the quality of labor in the host countries (Fung, Iizaka and Siu 2002). In Latin America, during the 1980s, as some of the host countries began to liberalize their economies, Japanese affiliates in automobile and in electronics, including those in Brazil and Chile also shifted from manufacturing to services related to imports. Mexico



seems to be the major exception, where Japanese companies maintained and may even have expanded their production facilities (Tsunekawa 1995).

### 3.3 Korean FDI Outflows

The Korean FDI outflows seem to be motivated by gaining market access, utilizing lower production costs abroad as well as investing to develop or secure natural resources (Kumar 1995, Yoon 2007). Recently, the Korean Export-Import Bank conducted a survey asking Korean multinationals about their motives to go abroad. The survey results are presented in Table 2.

**Table 2. Motivations of Korean FDI by period (in % of companies)**

Motive	1968— 1993	1994— 1996	1997— 2001	After 2002
Securing or developing local or third country markets	28.9	50.2	52.4	47.1
Utilizing local labor costs	14.7	37.2	30.3	38.5
Avoiding trade barriers	1.7	2.5	2.3	3.1
Securing raw materials	3.8	4.8	3.9	4.4
Acquiring advanced technology or management know-how	1.1	2.6	7.7	4.1
Developing natural resources	49.9	2.7	3.3	2.8

Source: Yoon (2007)

It can be seen from Table 2 that up until 1993, the number one motive to invest abroad by Korean companies is to develop natural resources, followed by securing or developing local or third markets. After that period, securing and developing local or third markets and utilizing local labor costs became the first and second most important motives. After 1997, acquiring advanced technology has become the third most important motive for Korean FDI. In recent years, Asia has become the most important destination of Korean FDI. In 2006, Korean FDI in Asia amounts to US\$60.6 billion, with North America and Europe each getting US\$21.4 billion. Within Asia, it is clear that China has been receiving a large amount of Korean FDI. In 2006, Korea invested US\$ 16.98 billion in China. Hong Kong is the second most important destination, with US\$2.99 billion. Globally, in 2006, Korea invested the largest amount in manufacturing, followed by wholesale and retail and mining.

### 3.4 Taiwanese FDI Outflows

According to the Investment Commission of the Ministry of Economic Affairs in Taiwan, about 60 percent of Taiwanese FDI outflows are to China in 2007.<sup>6</sup> Of the remaining 40 percent, the United States received US\$1.35 billion, and Singapore received US\$1.19 billion. Within China, the most popular regions include Guangdong, Jiangsu, Zhejiang and Fujian. The industries that are most popular with Taiwanese companies include electronic parts and components, computer and electronic products and machinery equipment. According to Kumar (1995), Taiwanese FDI abroad was severely restricted before 1978. In the 1980s, the Taiwanese Export-Import Bank provided insurance, credits and information to firms that would like to invest abroad. Again the pressures of Taiwanese manufacturing firms to go abroad are similar to the Japanese and Korean cases. Starting in the mid-1980s, the NT dollar appreciated substantially and labor costs also increased. Coupled with a large pool of exchange reserves which led to inflation, Taiwanese exporters and subcontractors started to experience an erosion of competitiveness. This creates a set of motives to go abroad. More recently, many Taiwanese high-technology companies need to survive the intense competition of the industry and they also try to acquire advanced technology as well as better trained personnel from overseas, particularly from the developed economies.

To formally evaluate the relevance of the various motives and determinants, we first run regressions with the full set of determinants explaining Chinese, Japanese, Korean and Taiwanese FDI outflows. These determinants are selected based on the relevant literature discussed above. Note that we are not running a cross-country regression. We run the same regression equation for each East Asian economy separately. The determinants are the same to facilitate comparisons. The full regression equation is:

$$\begin{aligned}
 \ln ODI_{ijt} = & a + b_1 \ln GDP_{jt} + b_2 \ln DISTANCE_{ij} + b_3 BORDER_{ij} + \\
 & b_4 \ln OPEN_{jt} + b_5 \ln FUEL_{jt} + b_6 \ln FOOD_{jt} + b_7 \ln OMTL_{jt} + \\
 & b_8 \ln RDE_{jt} + b_9 \ln ICTE_{jt} + b_{10} \ln SCHL_{jt} + \\
 & b_{11} \ln HGDPG_{it} + b_{12} \ln HGDP_{it} + b_{13} \ln HCA_{it} + \\
 & b_{14} \ln HFX_{it} + b_{15} \ln HM2_{it}
 \end{aligned} \tag{1}$$

where  $ODI_{ijt}$  is outward FDI from each home economy  $i$  in the host economy  $j$  in year  $t$

<sup>6</sup> It is well-known that official data on Taiwanese investment outflows are underestimated. This is partly due to the heavy outflows to tax haven economies in the Caribbean and also partly due to official restrictions by the Taiwanese government, which lead to Taiwanese companies forming shell companies abroad to act as a conduit to invest in China.

$GDP_{jt}$  is gross domestic product of the host economy j in year t

$DISTANCE_i$  is the distance between the host economy j and the home economy i

$BORDER_{ij}$  is a dummy variable for continuous border for host economy j and home economy i

$OPEN_{jt}$  is trade openness in host economy j in year t

$FUEL_{jt}$  is the share of fuel exports to total exports from host economy j in year t

$FOOD_{jt}$  is the share of food exports to total exports from host economy j in year t

$OMTL_{jt}$  is the share of ores and metal exports to total exports from host economy j in year t

$RDE_{jt}$  is research and development expenditure in host economy j in year t

$ICTE_{jt}$  is information and communication expenditure in host economy j in year t

$SCHL_{jt}$  is share of population enrolled in secondary school in host economy j in year t

$HGDPG_{it}$  is real gross domestic product growth of the home economy i in year t

$HGDP_{it}$  is gross domestic product of the home economy i in year t

$HCA_{it}$  is current account balance of the home economy i in year t

$HFX_{it}$  is foreign exchange reserves of the home economy i in year t

$HM2_{it}$  is the money supply M2 of the home economy i in year t

The home economies are the four Asian economies that we are considering: China, Japan, Republic of Korea and Taiwan. GDP is used as a proxy for market size of the destination economy. It represents a test of the market-seeking hypothesis. The natural resource-seeking hypothesis is to be estimated using three variables: FOOD, FUEL and OMTL. More specifically, FOOD focuses on testing if the Asian economies are investing abroad to seek agricultural products; FUEL for augmenting energy supplies, and OMTL for acquiring minerals and metals. The technology-acquisition is to be tested using RDE and ICTE. SCHL proxies the labor market conditions in the host countries, including the quality of labor. Distance proxies gravity-type investment costs, while openness denotes whether the investments are to facilitate trade or to jump over trade barriers. The home country variables HGDPG, HGDP, HCA, HFX, HM2 represent the home market potential supply of FDI as well as the macro conditions that relate to the home countries exchange rates and inflation rates. Together they test the macroeconomic factors that may affect the magnitude and allocation of FDI outflows.

**Table 3: Panel Regression Results with Outward Direct Investment using the Full Model**

	<b>CHINA</b>	<b>JAPAN</b>	<b>KOREA</b>	<b>TAIWAN</b>
GDP	3.8526*** (0.851)	2.9883*** (0.8814)	4.7017*** (1.0538)	0.8955** (0.348)
FUEL	0.2179 (0.6404)	-0.6275 (0.6338)	0.3437 (0.7367)	-0.2146 (0.2763)
FOOD	0.0183 (0.9114)	2.0978* (1.1825)	1.8326* (1.0929)	-0.5118 (0.5943)
OMTL	1.2266 (0.9146)	1.7953* (1.0494)	1.2557 (1.0388)	0.3429 (0.4701)
RDE	-1.8977 (1.1963)	-0.0299 (1.2773)	-1.9206 (1.4133)	-0.73 (0.7637)
ICTE	-0.7953 (2.5964)	2.9465 (2.3279)	3.2116 (2.9267)	5.104*** (1.3806)
SCHL	-11.5943** (4.6231)	-6.4852 (4.7489)	2.0169 (4.5474)	-5.1805 (3.342)
OPEN	2.026 (1.9308)	4.1417*** (1.4359)	3.2604 (2.2554)	0.867 (0.5713)
DISTANCE	-3.7107* (2.0055)	-1.7113 (1.3069)	-4.4783* (2.5131)	0.2139 (0.6801)
BORDER	2.78 (4.9423)	NA	NA	NA
HGDPG	29.5387 (40.6153)	2.1227 (1.4755)	9.049 (10.5508)	0.3213 (1.8683)
HGDP	-15.6586 (85.8924)	-15.2895 (9.4577)	-48.0151 (79.3287)	NA
HCA	-1.9463 (4.1889)	-5.8221 (6.3029)	-29.848 (38.5922)	-1.0979 (2.2631)
HFX	8.799 (36.0657)	-6.9182 (4.7894)	168.3227 (241.0882)	6.5462 (9.3248)
HM2	-1.9721 (24.6836)	79.4978 (65.1528)	-272.2951 (384.2849)	-29.1075 (29.7966)
R-sqr	0.3693	0.6030	0.3915	0.5390
Observations	175	61	182	47

Standard errors in parentheses

\*significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

HCA is excluded from the Taiwan regression due to multicollinearity

The regressions are run for China 1991-2006, Japan 1983-2007, Korea 1980-2007, Taiwan 1968-2007

For all four sets of regressions, the market-seeking motive holds for all four Asian economies. For the resource-seeking motives, none of the proxies are significant for China. Distance acts as a deterrent for Chinese FDI outflows. For Japan, the resource-seeking explanation holds up reasonably well, with the coefficients on food, ores and metals both being significant at the 10% level. Surprising, the fuel proxy is not significant for oil-scarce Japan. Perhaps capturing the

complementary nature of Japan's market-seeking motive and the importance of trade in the host economy, the openness index is significant and has a larger estimated coefficient than the coefficient on GDP. For the Korean regression, other than the market-seeking motive, the only other coefficients that are significant are FOOD and DISTANCE. Thus only one of the three proxies representing resource-seeking is relevant for Republic of Korea. For Taiwan, other than GDP, the only other variable that is significant is expenditure on information and communication technology by the host country. This is interesting given the importance of Taiwan's long-term subcontracting relationship with Silicon Valley and other global consumer electronics firms. As profit margins are squeezed, one way for Taiwan to lower its costs is to invest abroad, perhaps seeking destinations that have some experiences with ICT productions.

Overall, the regressions with the full model yield interesting results but they are not entirely satisfactory. Given the large number of missing observations and the limited number of explanatory variables that are significant in the full model, we decided to further run the model for each source economy in a stepwise fashion, adding each variable one at a time and choose the model based on the overall fit and whether the variables are significant. The results are given in the following four tables:

**Table 4. Regressions for Chinese FDI Outflows**

Determinants	Coefficients
GDP	3.4007*** (0.4485)
FOOD	1.1396* (0.6847)
RDE	-2.6354*** (2.17)
SCHL	-4.552*** (1.6858)
DISTANCE	-4.8568*** (1.683)
BORDER	7.4554**

	(3.2301)
HGDP	5.2398*** (1.6285)
R-sqr	0.4128
Observations	297

Standard errors in parentheses

\*significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

The regressions are run for China ODI from 1991 to 2006

In our China model, we test a variety of hypothesis and motives and we should keep these results in mind so that we can compare our properties of the Chinese FDI outflows with FDI outflows from other Asian economies (Japan, Korea and Taiwan).<sup>7</sup> In the specific China model, we again find that there is evidence that China's FDI is market-seeking, flowing to economies where the GDP is higher. Distance deters Chinese FDI flows. This is partly related to the fact that a large share of Chinese FDI have been going to Hong Kong, Macao and other Asian neighbors. Sharing a border with China helps attract more FDI from China also. The natural resource hypothesis finds support in the coefficient for FOOD being significant. The technology acquisition hypothesis as captured by RDE actually has the wrong sign, indicating that China is investing in less technology-intensive destinations. The only home macroeconomic variable that is important is the GDP of China.

**Table 5. Regressions for Japanese FDI Outflows**

Determinant	Coefficient
GDP	3.5724*** (0.4659)
OPEN	2.6007*** (0.84)
HFX	4.1368***

<sup>7</sup> The regressions are run with the random effects model.

	(0.3132)
R-sqr	0.6147
Observations	628

Standard errors in parentheses

\*significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

The regressions are run for Japan ODI from 1983 to 2007

Few determinants are important for Japanese FDI outflows. In general, as in the Chinese case, the market-seeking hypothesis holds for Japanese FDI outflows. Openness of the host countries (as in the full model) continues to be highly significant. These determinants are important partly perhaps because a large amount of Japanese FDI go to other developed economies such as the United States and Europe, where the GDPs are big and the economies relatively open. For the home economy's macroeconomic variables, only the Japanese foreign reserves variable is significant. This variable did historically play a role in spurring Japan to invest abroad according to the descriptive literature surveyed above.

**Table 6. Regressions for Korean FDI Outflows**

Determinant	Coefficient
GDP	2.7843*** (0.2141)
FOOD	1.0092*** (0.2387)
OPEN	3.3418*** (0.5994)
DISTANCE	-3.705*** (0.8939)
HGDP	3.1751*** (0.2389)
R-sqr	0.3482

Observations	2611
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Standard errors in parentheses

\*significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

The regressions are run for Korea ODI from 1980-2007

As can be seen above for the Korean model, the market access determinant is again significant. Unlike the Japanese case but similar to the Chinese model, distance is important for Korean FDI. Like their Japanese counterparts, Korean corporations invest in economies with higher degrees of openness. There is some evidence to support the natural resource hypothesis as the FOOD variable (like the Chinese case) is significant. The home macroeconomic variable that is significant for the Korean model is similar to the Chinese case, HGDP. A higher home GDP may mean that domestic Korean firms are also getting bigger, more sophisticated and more productive. Using the heterogeneous firm literature, one can surmise that as the Korean firms become more productive, there will be more outflows of FDI.

**Table 6. Regressions on Taiwanese FDI Outflows**

Determinant	Coefficient
FOOD	-0.8998* (0.5291)
DISTANCE	-3.1442*** (1.0822)
HM2	3.63*** (0.143)
R-sqr	0.4784
Observations	882

Standard errors in parentheses

\*significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

The regressions are run for Taiwan ODI from 1968-2007



Table 6 highlights the results from the Taiwanese model. Distance is a significant deterrent to Taiwanese outflows, similar to the Korean and Chinese cases. However, FOOD actually has the wrong sign, indicating that Taiwan has been investing in economies where the food abundance index is lower. For the home variable, only Taiwanese M2 money supply is significant. Again according to the literature, historically, a larger money supply which led to increased Taiwanese inflation did erode Taiwan's competitiveness and created incentives for the Taiwanese firms to go abroad.

## 5. Conclusion

In this paper we examine the increasingly important phenomenon of China's FDI outflows and compare and contrast its determinants with ODI from Japan, Republic of Korea and Taiwan. We examine both descriptively as well as econometrically the various motives and determinants of investment abroad from the four Asian economies. We examine factors behind ODI for China for the years 1991-2006, Japan for 1983-2007, Republic of Korea for 1980-2007 and Taiwan for 1968-2007. We aim to compare the historical as well as the current factors behind FDI outflows from these East Asian economies. We first perform econometric tests using the full set of explanatory variables for all relevant years. The hypotheses we are testing include the market-seeking hypothesis, the natural resource-seeking hypothesis, the technology acquisition hypothesis and labor quality hypothesis. We further test determinants related to openness (trade-facilitating investment), home market macroeconomic and international financial conditions (such as current account balances) as well as some gravity-type explanations such as distance and sharing common borders. The full model yields interesting results. The market-seeking hypothesis seems to hold well. Chinese investments tend to go to destinations with poorer labor quality. In addition, the natural resource-seeking hypothesis seems to partially hold for Japan (food and ores and metals) and for Republic of Korea (food), while the technology acquisition hypothesis seems relevant for Taiwan. In addition, openness is important for Japanese ODI, while distance deters ODI from China and Republic of Korea.

However, due to difficulties in filling in all the data for all the years, we next decide to perform further empirical tests, testing each economy's FDI determinants using a stepwise approach. We add each determinant to each economy's regression one at a time and decide on the appropriate model for each country based on its goodness-of-fit and the significance of the determinants. These economy-specific models yield somewhat different results compared to the full model. However, there are some important similarities as well. Except for Taiwan, the market-seeking hypothesis basically holds. The food-seeking motive holds for all economies

except Japan. Openness is important for Japan and Republic of Korea. Distance deters Chinese and Taiwanese ODI. Some domestic macroeconomic and financial variables are also important, including home GDP for China and Republic of Korea, foreign reserves for Japan and money supply for Taiwan. Home GDP represents the importance of domestic size and also may be a proxy of the level of sophistication of the corporations in the source country. Foreign reserves and money supply may pertain to the supply of the outward of FDI as well as factors that can influence exchange rates of the Asian home economies.

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