

A Comparative Empirical Examination of Outward Foreign Direct Investment from Four Asian Economies: People's Republic of China; Japan; Republic of Korea; and Taipei, China

K. C. FUNG, ALICIA GARCIA-HERRERO, AND ALAN SIU

This paper compares and contrasts the determinants of outward foreign direct investment from the People's Republic of China (PRC) with those of outward foreign direct investment from Japan, Republic of Korea, and Taipei, China. The paper examines descriptively and econometrically the motives and factors behind the investment abroad from these four Asian economies. The hypotheses being tested include the market-seeking hypothesis, the natural resource-seeking hypothesis, the technology acquisition hypothesis, and the human capital hypothesis. The paper examines outward foreign direct investment by the PRC for the years 1991–2006, Japan for 1983–2007, the Republic of Korea for 1980–2007, and Taipei, China for 1968–2007. Results using the full set of determinants yield uniform support for the market-seeking hypothesis. The natural resource-seeking motive holds for Japan and the Republic of Korea, while the technology acquisition hypothesis seems relevant for Taipei, China. The PRC's investments tend to go to destinations with poorer labor quality. In addition, openness is important for Japanese investment abroad, while distance deters investment from the PRC and Republic of Korea.

I. INTRODUCTION

In recent years, the spectacular growth of the People's Republic of China (PRC) has attracted increasing attention from scholars and policymakers. Measured by market exchange rates and using the official government figures, the PRC's gross

K. C. Fung is Professor of Economics at the University of California, Santa Cruz. Alicia Garcia-Herrero is Chief Economist for Emerging Markets at Banco Bilbao Vizcaya Argentaria (BBVA) Hong Kong. Alan Siu is Director of the APEC Center at the University of Hong Kong. An earlier version of this paper was presented at the Workshop on Outward Foreign Direct Investment from Developing Asia held on 27 July 2009 at Asian Development Bank Headquarters. The authors received constructive comments from Juzhong Zhuang, Jong-Wha Lee, Douglas Brooks, and participants at the workshop. The authors appreciate the capable research assistance of Lily Yang and Eva Chan. All errors are those of the authors.

domestic product (GDP) reached \$4.4 trillion in 2008. The PRC has surpassed Germany as the third largest economy in the world. Facing the ongoing global financial and credit crisis, it is expected that the pace of this economic growth will slow down. However, to combat slower economic growth, the government of the PRC has been implementing a stimulus package worth more than \$580 billion. Forecasts of the current growth rate of the PRC vary, but most expect that the PRC will still meet its target 8 percent growth in 2009.¹

As the PRC has grown, its inward direct investment has also increased substantially. According to UNCTAD (2008), foreign direct investment (FDI) inflows reached \$83.5 billion in 2007. A large literature has emerged on studying various aspects of FDI flowing into the PRC (see, e.g., Fung et al. 2005). But a more interesting trend has caught the attention of scholars and policymakers in the last few years: the surge of FDI outflows from emerging economies like the PRC. Again according to UNCTAD (2008), the PRC's outward FDI flows increased from \$21.2 billion in 2006 to \$22.5 billion in 2007. There are indications that the outflows will continue in the near future. From January to mid-July of 2008, the PRC already announced more than 130 foreign merger and acquisition (M&A) deals. In 2008, the PRC's outward M&As exceeded \$26 billion (*Wall Street Journal* 2008).

This paper aims to examine the pattern and motives of the PRC's outward FDI and to compare the PRC's outward FDI with the past experiences of its richer neighbors such as Japan; Taipei, China; and Republic of Korea (henceforth Korea).² One of the motivations of such comparisons is to ascertain whether the current wave of the PRC's FDI outflows follows the pattern of previous East Asian experiences. In other words, are outflows from the PRC different or do they follow a fairly typical East Asian pattern?

The organization of the paper is as follows: Section II provides a survey of the relevant literature on FDI outflows. Section III gives an overview of outward FDI from PRC; Japan; Korea; and Taipei, China. Section IV empirically analyzes the determinants of outward FDI for these four Asian economies. First, regressions are run for each economy to determine which of a full set of home and host economy variables influences outward FDI. Due to a fair amount of missing data that differs for each economy, the results of these regressions are not entirely satisfactory. Therefore, selective and different sets of explanatory variables are tested to examine the motives and factors behind outward investment for each of the four East Asian economies. Section V concludes.

¹The official growth rate of the PRC in the second quarter of 2009 reached 7.9 percent. The latest forecast for the PRC's growth from the International Monetary Fund was 7.5 percent for the year 2009.

²For a comparison of the PRC's FDI outflows with Indian FDI outflows, see Fung and Garcia-Herrero (2008).

II. A REVIEW OF THE SCHOLARLY LITERATURE

This section will review the relevant literature on FDI outflows. This literature has at least three strands. From the macroeconomic and international finance standpoint, the most well-known article on this topic is Lucas (1990), which has led to a vast subsequent literature (see, e.g., Alfaro and Kalemli-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 (due to such problems as corruption and lack of rule of law) and the relative lack of human capital in developing economies. While this literature focusing on the destinations of capital outflows from rich economies is related to the topic of the PRC’s FDI outflows, it does not provide us with direct theoretical guidance because it is not focused on where capital from a *poor* economy like the PRC should be flowing. In addition, the literature concentrates on total capital flows, whereas the focus of this paper is limited to a particular mode of the flows of capital, i.e., FDI. It is 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; Korea; and Taipei, China, which are richer economies than the PRC.

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 Helpman, Melitz, and Yeaple (2004), 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 the PRC and other Asian firms that invest abroad should have the highest productivity among all the PRC 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 interesting and relevant, its focus is on *horizontal* FDI, i.e., companies setting up affiliates abroad to sell in the host markets. If, for example, the PRC invests abroad to extract minerals and natural resources, then a comparison of the fixed costs of investment should be confined to those host economies where such resources can be found. Instead of comparing the ease of investment in all potential host economies, a company from the PRC may then compare the difficulty of investing in minerals in a limited group of potential host economies, such as certain Latin American economies, parts of Africa, parts of Asia (say Indonesia), and Australia. But the literature on heterogeneous firms can apply more directly to cases of firms from Japan; Korea; and Taipei, China. FDI from these richer economies may be horizontal and vertical as well for other strategic reasons.

In the international business literature, Dunning (1981, 1991, and 1998) argued that the level of per capita income of the home country determines 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 \$400, there are unlikely to be any FDI outflows. If the per capita income rises to roughly between \$400 and \$2,000, then there should be a small amount of outward FDI. When the per capita GNP increases to perhaps between \$2,000 and \$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 \$4,750, then FDI outflows should exceed inflows. While this taxonomy is of interest to the topic at hand, it does not really tell the detailed pattern of outward FDI from a country like the PRC or other Asian economies. In particular, it does not provide explanations or determinants of outflows of FDI from the PRC and East Asia.

Finally, there is a small but growing literature focusing specifically on an econometric explanation of the determinants of the PRC's FDI abroad. Cheng and Ma (2007), Buckley et al. (2007), Fung and Garcia-Herrero (2008), Gaublotte and Luc (2008), and Cheung and Qian (2009) are the studies most relevant to this paper. Cheng and Ma (2007) used three years of data and focused on the basic gravity model to study the FDI outflows from the PRC. Gaublotte and Luc (2008) used a stripped down version of the gravity model and discussed the basic determinants of the PRC's FDI. Fung and Garcia-Herrero (2008) examined and econometrically compared the various motives that the PRC and India may have in investing abroad, whereas Buckley et al. (2007) and Cheung and Qian (2009) focused on the PRC's case alone.³

III. AN OVERVIEW OF FDI OUTFLOWS FROM FOUR ASIAN ECONOMIES

A. FDI Outflows from the PRC

This subsection provides an analysis of recent FDI outflows from the PRC.⁴ Table 1 presents the flows of outward FDI from the PRC in various years.

³There are also many studies of the FDI outflows of Japan; Korea; and Taipei, China. Some of these studies will be referred to in Section III.

⁴Note that starting in 2003, PRC's outward FDI statistics have been changed to conform to Organisation for Economic Co-operation and Development (OECD) FDI statistics guidelines. Data from before 2003 may not be directly comparable with that from after 2003.

Table 1. FDI Outflows from the PRC, 1991–2007

Year	PRC's Outward FDI Flows (\$ Billion)
1991	1.00
1992	4.00
1993	4.30
1994	2.00
1995	2.00
1996	2.08
1997	2.60
1998	2.70
1999	1.90
2000	1.00
2001	6.90
2002	2.70
2003	2.85
2004	5.50
2005	12.26
2006	21.20
2007	22.50

Sources: *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 the PRC's outward FDI was in commercial services, followed by mining with 19.8 percent and finance with 17.2 percent. In terms of flows, 40.5 percent was in mining and petroleum, followed by commercial services with 21.4 percent. One unusual characteristic of the PRC's outward FDI is that about half of the 2006 total flow of FDI was in the service sectors.

The top recipients of the PRC's investment abroad in 2006 were Hong Kong, China; Cayman Islands; British Virgin Islands; United States (US); Korea; Russia; Australia; Macau SAR of the People's Republic of China; Sudan; and Germany. Like many other cases of FDI outflows (e.g., FDI from Hong Kong, China or Taipei, China), investment from the PRC is growing difficult to track. This is partly because of the increasing importance of many tax haven economies (such as Cayman Islands and British Virgin Islands) as destinations of investments, with the funds likely to be redirected elsewhere. Keeping these complications aside, what are the main determinants and motives for the PRC's FDI outflows?

In the literature, authors have offered several suggestions. First, there is the *natural resources* hypothesis, which posits that the PRC invests abroad to extract oil and minerals (e.g., copper, bauxite, aluminum). Second, the PRC may be investing to sell or facilitate selling in the host economies' *markets*. Third, the PRC may be using its investments to acquire *technology* from abroad. Fourth, the PRC's investment may be affected by its bilateral *exchange rate* with the host

economies as well as other important macroeconomic and financial variables such as the PRC'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 this may increase the PRC's FDI in that country. Experience has shown the effects of high currency values on FDI outflows in the case of Japan during the 1980s and early 1990s. With the high yen, Japanese FDI outflows surged. Similar episodes have been witnessed in the case of Taipei, China.

However, the bilateral exchange rates are more fundamentally linked with several domestic macroeconomic variables such as the size of domestic money supply, the magnitude of the foreign exchange reserves, the size of the current account balance, and the level and growth rate of the home economies. These important macroeconomic variables may also independently influence the size and distribution of FDI outflows. For example, it has often been argued that the large and growing foreign reserves of the PRC contribute to the magnitude of the PRC's FDI outflows while the PRC's large positive current account balance adds urgency for the PRC to invest in selected countries to circumvent potential protectionism. Lastly, the PRC's FDI abroad may also be linked to how *open* the host economies are. If the host economy is relatively closed, it is harder to export to that economy and foreign sales will be facilitated by investing in factories there. Again, the impact of protectionism on FDI flows is seen. In the 1980s and the first half of the 1990s, with the US arranging automobile and other voluntary export restraints and increasing the incidence of antidumping duties, a significant increase of Japanese FDI in the US was witnessed.

B. FDI Outflows from Japan

For the case of Japan, several hypotheses have been put forth concerning the chronological shifting of FDI outflows. In the late 1950s and the 1960s, the major concern, resembling the current case of the PRC, was 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, and 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. Japanese manufacturers producing several types of goods, first textiles and then televisions, began to move their production facilities to locations where costs were lower. In 1981, the US automobile voluntary export restraints began to limit the exports of Japanese cars. Then by 1985, with growing reserves and a swelling current account surplus (particularly against the US), the yen rose significantly, which resulted in a huge shock to the Japanese export industries. The US and European protections of their domestic industries coupled with the yen shock led to an acceleration of overseas Japanese FDI, particularly to developed economies. Some of the Japanese investment also went to the newly industrializing economies and the economies

of the Association of Southeast Asian Nations (ASEAN), where 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 were 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 automobiles and electronics, including those in Brazil and Chile, 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).

C. FDI Outflows from Korea

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

Table 2. Motivations of Korean FDI by Period (percent 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 until 1994, the number one motive for Korean companies to invest abroad was to develop natural resources, followed by securing or developing local or third-country markets. Beginning in 1994, securing and developing local or third-country markets and utilizing local labor costs became the first and second most important motives. After 1996, acquiring advanced technology became 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 amounted to \$60.6 billion, with North America and Europe each getting \$21.4 billion. Within Asia in that year, Korea invested

\$16.98 billion in the PRC. Hong Kong, China was the second most important destination in Asia, with \$2.99 billion. Globally, in 2006, Korea invested the largest amount in manufacturing, followed by wholesale and retail and mining.

D. FDI Outflows from Taipei,China

According to the Investment Commission of the Ministry of Economic Affairs in Taipei,China, about 60 percent of Taipei,China's FDI outflows were to the PRC in 2007.⁵ Of the remaining 40 percent, the US received \$1.35 billion, and Singapore received \$1.19 billion. Within the PRC, the most popular provinces include Guangdong, Jiangsu, Zhejiang, and Fujian. The industries that are most popular with Taipei,China's companies include electronic parts and components, computer and electronic products, and machinery equipment. According to Kumar (1995), Taipei,China's FDI abroad was severely restricted before 1978. In the 1980s, the Export-Import Bank of Taipei,China provided insurance, credits, and information to firms that wanted to invest abroad. The pressures of Taipei,China's manufacturing firms to do business abroad were similar to the Japanese and Korean cases. Starting in the mid-1980s, the New Taiwan dollar appreciated substantially and labor costs also increased. Coupled with a large pool of foreign exchange reserves, which led to inflation, Taipei,China's exporters and subcontractors started to experience an erosion of competitiveness. This created a set of motives to do business abroad. More recently, many of Taipei,China's high-technology companies engage in FDI based on the need to survive intense competition and the desire to acquire advanced technology as well as better-trained personnel from overseas, particularly from developed economies.

IV. DETERMINANTS OF FDI OUTFLOWS

A. Full Model Regressions

To formally evaluate the relevance of the various motives and determinants, regressions were run with a full set of determinants explaining FDI outflows of PRC; Japan; Korea; and Taipei,China. These determinants were selected based on the literature discussed above. Note that a cross-country regression was not run here. Rather, the same regression equation was run for each East Asian economy separately. The same determinants were used in each regression to facilitate comparisons. The full regression equation is:

⁵It is well known that official data on Taipei,China's 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 government of Taipei,China, which lead to Taipei,China's companies forming shell companies abroad to act as a conduit to invest in the PRC.

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

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

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

$DISTANCE_{ij}$ is the distance between host economy j and home economy i ,

$BORDER_{ij}$ is a dummy variable for a shared border between 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 in total exports from host economy j in year t ,

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

$OMTL_{jt}$ is the share of ores and metal exports in 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 communications 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 home economy i in year t ,

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

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

HFX_{it} is foreign exchange reserves of home economy i in year t , and

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

The home economies are the four Asian economies that are being considered: PRC; Japan; Korea; and Taipei, China. GDP is used as a proxy for the market size of the destination economy. It represents a test of the market-seeking hypothesis. The natural resource-seeking hypothesis is estimated using three variables: FOOD, FUEL, and OMTL. More specifically, FOOD focuses on testing whether 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 hypothesis is 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 OPEN and

BORDER denote whether the investments are to facilitate trade or to jump over trade barriers. The home country variables HGDPG, HGDP, HCA, HFX, and 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. The results of the regressions are shown in Table 3.

Table 3. Panel Regression Results with Outward Foreign Direct Investment using the Full Model

	PRC	Japan	Korea, Rep. of	Taipei,China
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)	nil	nil	nil
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)	...
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-square	0.3693	0.6030	0.3915	0.5390
Observations	175	61	182	47

... indicates data was unavailable or not applicable.

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

GDP = gross domestic product; PRC = People's Republic of China.

Notes: Standard errors are in parentheses. HGDP is excluded from the Taipei,China regression due to multicollinearity. The regressions are run for PRC 1991–2006, Japan 1983–2007, Republic of Korea 1980–2007, and Taipei,China 1968–2007.

The market-seeking hypothesis holds for all four Asian economies. For the resource-seeking hypothesis, none of the proxies are significant for the PRC. Distance acts as a deterrent for the PRC's FDI outflows. For Japan, the resource-seeking hypothesis holds up reasonably well, with the coefficients on food and ores and metals both being significant at the 10 percent level. Surprisingly, 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 coefficients that are significant are food and distance. Thus, only one of the three proxies representing resource-seeking is relevant for Korea. For Taipei,China, other than GDP, the only variable that is significant is expenditure on information and communications technology by the host country. This is interesting given the importance of Taipei,China's long-term subcontracting relationship with Silicon Valley and other global consumer electronics firms. As profit margins are squeezed, one way for Taipei,China to lower its costs is to invest abroad, perhaps seeking destinations that have some experience with information and communications technology production.

B. Stepwise Regressions

Overall, the regressions with the full model yielded results that are interesting but not entirely satisfactory. Given the large number of missing observations and the limited number of explanatory variables that are significant in the full model, the authors decided to run the model for each source economy in a stepwise fashion, adding each variable one at a time and choosing the model based on the overall fit and whether the variables are significant. The results are shown in Tables 4–7.

In the PRC model, a variety of hypotheses and motives were tested and these results allow the properties of the PRC's FDI outflows to be compared with FDI outflows from other Asian economies (Japan; Korea; and Taipei,China).⁶ Table 4 shows that there is evidence that the PRC's FDI is market-seeking, flowing to economies where the GDP is higher. Distance deters the PRC's FDI flows. This is partly related to the fact that a large share of the PRC's FDI has been going to Hong Kong, China; Macau SAR of the PRC; and other Asian neighbors. Sharing a border with the PRC also helps economies attract more FDI from the PRC. The natural resource hypothesis finds support in the coefficient for food being significant. The technology acquisition hypothesis as captured by RDE actually has a negative sign, indicating that the PRC is investing in less technology-intensive destinations. The only home macroeconomic variable that is important is the GDP of the PRC.

⁶The regressions are run with the random effects model.

Table 4. Regressions for FDI Outflows from the PRC

Determinant	Coefficient
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-square	0.4128
Observations	297

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

FDI = foreign direct investment; GDP = gross domestic product; PRC = People's Republic of China.

Notes: Standard errors are in parentheses. The regressions are run for PRC outward FDI from 1991 to 2006.

Few determinants were found to be important for Japanese FDI outflows (Table 5). As in the PRC 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. One reason that these determinants are important may be because a large amount of Japanese FDI goes to other developed economies such as the US and Europe, where the markets 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.

As can be seen in Table 6 for the Korean model, the market access determinant is again significant. Unlike the Japanese case but similar to the PRC 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 PRC case) is significant. The home macroeconomic variable that is significant for the Korean model, as in the PRC case, is 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 5. Regressions for FDI Outflows from Japan

Determinant	Coefficient
GDP	3.5724*** (0.4659)
OPEN	2.6007*** (0.84)
HFX	4.1368*** (0.3132)
R-square	0.6147
Observations	628

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

FDI = foreign direct investment; GDP = gross domestic product.

Notes: Standard errors are in parentheses. The regressions are run for Japan's outward FDI from 1983 to 2007.

Table 6. Regressions for FDI Outflows from the Republic of Korea

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-square	0.3482
Observations	2611

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

FDI = foreign direct investment; GDP = gross domestic product.

Notes: Standard errors are in parentheses. The regressions are run for the Republic of Korea's outward FDI from 1980–2007.

Table 7 highlights the results from the Taipei, China model. Distance is a significant deterrent to Taipei, China's outflows, similar to the cases in the PRC and Korea. However, FOOD actually has a negative sign, indicating that Taipei, China has been investing in economies where the food abundance index is lower. For the home variables, only Taipei, China's M2 money supply is significant. Again according to the literature, historically, a larger money supply, which led to increased inflation in Taipei, China, did erode the economy's competitiveness and created incentives for its firms to do business abroad.

Table 7. Regressions on FDI Outflows from Taipei,China

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

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

FDI = foreign direct investment.

Notes: Standard errors are in parentheses. The regressions are run for Taipei,China's outward FDI from 1968–2007.

V. CONCLUSION

This paper has examined the increasingly important phenomenon of the PRC's FDI outflows and compared and contrasted its determinants with outward FDI from Japan; Korea; and Taipei,China. The paper examined both descriptively and econometrically the motives and determinants of investment abroad from the four Asian economies: PRC for the years 1991–2006, Japan for 1983–2007, Korea for 1980–2007, and Taipei,China for 1968–2007. Econometric tests were first performed using a full set of explanatory variables for all relevant years. These variables were used to test four hypotheses: the market-seeking hypothesis, the natural resource-seeking hypothesis, the technology acquisition hypothesis, and the labor quality hypothesis. The paper further tested variables related to openness (trade-facilitating investment), home market macroeconomic and international financial conditions (such as current account balances), and some gravity-type explanations such as distance and sharing common borders. The full model yielded interesting results. The market-seeking hypothesis seems to hold well. The PRC's 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 Korea (food), while the technology acquisition hypothesis seems relevant for Taipei,China. In addition, openness is important for Japanese outward FDI, while distance deters outward FDI from the PRC and Korea.

Due to gaps in the data for some years, the results of the full model regression were not entirely satisfactory. Further empirical tests were thus performed. Each economy's FDI determinants were tested using a stepwise approach. The determinants were added one at a time to each economy's regression and the

appropriate model for each economy was decided based on its goodness of fit and the significance of the determinants. These economy-specific models yielded somewhat different results compared to the full model. However, there are some important similarities. Except for Taipei, China, the market-seeking hypothesis basically holds. The food-seeking motive holds for all economies except Japan. Openness is important for Japan and Korea. Distance deters outward FDI from the PRC and Taipei, China. Some domestic macroeconomic and financial variables are also important, including home GDP for the PRC and Korea, foreign reserves for Japan, and money supply for Taipei, China. Home GDP represents the importance of the size of the domestic economy 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 outward FDI as well as factors that can influence exchange rates of the Asian home economies.

REFERENCES

- Alfaro, L., and S. Kalemli-Ozcan. 2005. "Why Doesn't Capital Flow from Rich to Poor Countries? An Empirical Investigation." Mimeo, University of Houston, Houston, TX.
- Buckley, P. J., L. J. Clegg, A. R. Cross, X. Liu, H. Voss, and P. Zheng. 2007. "The Determinants of Chinese Outward Foreign Investment." *Journal of International Business Studies* 38:499–518.
- Cheng, L., and Z. Ma. 2007. "China's Outward FDI: Past and Future." Mimeo, Hong Kong University of Science and Technology, Kowloon, Hong Kong, China.
- Cheung, Y.-W., and X. W. Qian. 2009. *The Empirics of China's Outward Direct Investment*. HKIMR Working Paper No. 17, Hong Kong Institute for Monetary Research, Hong Kong, China.
- China Commerce Yearbook*. Various Years. Ministry of Commerce, People's Republic of China.
- Dunning, J. H. 1981. *International Production and the Multinational Enterprise*. London and Boston: Allen and Unwin.
- . 1991. "The Eclectic Paradigm of International Production: Some Empirical Tests." *Journal of International Business Studies* 11(1):9–31.
- . 1998. "Location and the Multinational Enterprise: A Neglected Factor." *Journal of International Business Studies* 29(1):45–66.
- Fung, K.C., and A. Garcia-Herrero. 2008. "Where Do Chinese and Indian Investors Go and Why?" Mimeo. Bank for International Settlements, Hong Kong, China and University of California, Santa Cruz.
- Fung, K. C., A. Garcia-Herrero, H. Iizaka, and A. Siu. 2005. "Hard or Soft? Institutional Reforms and Infrastructure Spending as Determinants of Foreign Direct Investment in China." *Japanese Economic Review* 56(4):408–16.
- Fung, K. C., H. Iizaka, and A. Siu. 2002. *Japanese Direct Investment in China and Other Asian Countries*. Hong Kong Institute of Economics and Business

- Strategy Working Paper, University of Hong Kong, Hong Kong, China.
- Gaublomme, G., and H. Luc. 2008. "What Makes a Country More Attractive for China's Outward Foreign Direct Investment? Evidence from a Gravity Model." Mimeo. Vesalius College and Vrije Universiteit, Brussels.
- Helpman, E., M. Melitz, and S. Yeaple. 2004. "Exports versus FDI with Heterogeneous Firms." *American Economic Review* 94(1):300–316.
- Kumar, N. 1995. Changing Character of Foreign Direct Investment from Developing Countries: Case Studies from Asia. Discussion Paper No. 9516, United Nations University, Tokyo.
- Lucas, R. 1990. "Why Doesn't Capital Flow from Rich to Poor Countries?" *American Economic Review* 80:92–6.
- Tsunekawa, K. 1995. "Japanese Investment in Liberalizing Latin American Economies: Current Patterns and Possible Impact of FTA Initiatives." *Revista de Economia Politica* 15(3):59.
- UNCTAD. 2008. *World Investment Report: Transnational Corporations and the Infrastructure Challenge*. United Nations, New York and Geneva.
- Yearbook of China's Foreign Economic Relations and Trade*. Various Years. Ministry of Commerce, People's Republic of China.
- Yoon, D. R. 2007. "Korea's Outward FDI in Asia: Characteristics and Prospects." Mimeo. Korea Institute of International Economic Policy, Seoul.
- Wall Street Journal*. 2008. "The Indians are Coming!" 16 July, 17.