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Understanding Bilateral Foreign Direct Investment Flows in Emerging Asia[1]

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Abstract

This paper investigates trends, patterns and drivers of intra-Asian foreign direct investment (FDI) flows by analysing bilateral FDI flows involving 14 emerging Asian countries for the period 1990 to 2005. The data indicates that about 35 percent of FDI flows to emerging Asia between 1990 and 2005 have come from within the region. The paper finds that an augmented gravity model fits the data fairly well. As in the case of international trade, distance stands out as an important determinant of bilateral FDI flows, suggesting that transport costs and informational asymmetries are factors that could hinder intra-Asian FDI flows.

Introduction

Many Asian companies have become significant foreign direct investors abroad. According to some rough estimates, intra-Asian FDI flows accounted for about 40 percent of Asia's total FDI inflows in 2004. If correct, this share is broadly comparable to the extent of intra-Asian trade flows. However, unlike trade flows, there has been little to no detailed examination of FDI flows between Asian economies at a bilateral level. This paper uses bilateral FDI flows data to investigate the trends and drivers of intra-Asian FDI flows in the period 1997 to 2004-05 based on data from the United Nations Conference on Trade and Development (UNCTAD). For developing economies, the two most comprehensive databases on FDI inflows and outflows are the International Monetary Fund-Balance of Payment (IMF-BOP) Manual and UNCTAD. Neither source divides FDI into mergers and acquisitions versus Greenfield investments. UNCTAD by far has the most complete FDI database, and unlike the IMF-BOP data, it compiles data on *bilateral* FDI flows – both inflows and outflows.

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1 This brief draws on a longer forthcoming research paper by the authors in the Asia Pacific Economic Literature, 2009.

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Our focus is on selected South Asian, Southeast Asian and East Asian developing economies. The economies included in our sample are Bangladesh, Cambodia, China, Hong Kong, India, Indonesia, Malaysia, Pakistan, the Philippines, Singapore, Taiwan, Thailand, South Korea and Vietnam. Thus, apart from excluding West Asia and some smaller Asian economies in South Asia, Southeast Asia and East Asia, we exclude Japan but follow UNCTAD in defining the newly industrialised economies such as Hong Kong, Singapore, South Korea and Taiwan as "developing".

The Extent of Intra-Asian FDI Flows: Trends and Patterns

The analysis of bilateral FDI between Asian economies is an exercise that is far from straightforward. UNCTAD data on inflows and outflows do not match exactly. It is apparent that UNCTAD FDI outflows data from source countries are incomplete for many of these economies. While some source countries have relatively complete data on outflows, others either have incomplete data or no data all. Different reporting practices of FDI data create bilateral discrepancies between FDI flows reported by source and host countries, and the differences can be quite large. For example, data on FDI flows to China as reported by the Chinese authorities and by the investing countries' authorities differ by roughly US$30 billion in 2000, US$8 billion in 2001, and US$2 billion in 2002. Faced with these concerns, we draw inferences on FDI flows by examining FDI inflow data reported in the host economies as they are more complete and are available for all emerging Asian economies under consideration. In other words, we focus on the *sources of inflows* rather than *destination of outflows*. To keep the analysis manageable we examine data for the averages of 1997 to 2000, and 2001 to 2005 rather than on an annual basis.

As apparent from Table 1, FDI inflows between Asian countries account for about one-third of all FDI inflows to the region, and is particularly pronounced between and within East Asian and Southeast Asian economies. According to Table 2, the average of FDI flows from Hong Kong to China and vice versa from 1997 to 2005 has been around US$24 billion and accounts for almost 48 percent of intra-Asia FDI. Apart from Hong Kong-China-Taiwan flows, bilateral flows between East and Southeast Asia are also significant. Almost three-fifths of flows from East Asia to Southeast Asia have been destined for the relatively higher-income Southeast Asian economies, viz. Singapore, Malaysia, Philippines and Thailand. Singapore has attracted about half of all East Asian FDI destined for Southeast Asia. The city state has also been a major investor in China. Malaysia and Thailand have invested in China as well.

Consideration of intra-Asian bilateral flows highlights a few other important characteristics of intra-Asian FDI flows. First, the leading investors from the region have stayed the same between 1997 to 2006, with Hong Kong as the top investor, followed by Singapore, Taiwan, Korea, China and Malaysia, in that order. The importance of China as a source of capital is noteworthy in that there has been a great deal of debate on whether China has diverted extra-regional FDI from the rest of Southeast and East Asia. While Hong Kong's FDI to China has remained stable between the two sub-periods, that from China to Hong Kong has declined. Second, intra-Southeast Asia investment accounted for 6.7 percent of cumulative FDI flows in Asia between 1997 and 2005. Comparing the two sample periods, intra-Southeast Asia's investment share of cumulative FDI flows in Asia increased between the two periods from 3.6 percent to 7.4 percent, with Singapore as the leading investor in both periods. Singapore's investments to its ASEAN neighbours, Malaysia and Thailand, have increased in the second

sub-period, while the city state's investments to China and especially Hong Kong have declined. Third, FDI flows between East Asia and South Asia remain low and stagnant.

It is important to note that the data analysed above exclude the offshore financial centers (OFCs) such as the British Virgin islands (BVI), Bermuda, Cayman islands, Mauritius and Western Samoa as sources of FDI. Insofar as at least some part of inflows from the OFCs involve FDI that originated from other Asian economies, and the inflows are not destined to return to their originating country (that is, trans-shipping as opposed to round-tripping), we may be undercounting the size of intra-Asian FDI flows. For instance, the BVI has consistently been the second largest source of FDI into China, surpassed only by Hong Kong, with the Cayman Islands and Western Samoa also being among the top ten in 2006. Similarly, investments from other sources may have been re-routed to India via Mauritius which has consistently been the top source of FDI to India.[3]

Determinants of FDI Flows to Emerging Asia

The previous section has highlighted the extent of FDI outflows from developing countries and more specifically, the intensification of intraregional FDI flows. But what explains the rise of intraregional FDI flows in Asia? This section undertakes a simple empirical investigation of some of the possible determinants of FDI flows from Emerging Asia to the rest of the region over the period 1990 to 2005. Can a gravity model framework that is commonly used to rationalise outward FDI flows from OECD economies be used to understand intra-Asian FDI flows?

The aim of this section is to develop a relatively parsimonious model which includes commonly-used determinants as well as focus on specific bilateral variables. To this end we follow the basic gravity-type framework which argues that market size and distance are important determinants in the choice of location of direct investment's source countries. The set of explanatory variables used are: real GDP per capita differentials of the host and source countries, the lag of real export of goods from the source country to the host country; change in bilateral real exchange rate of the source country with respect to the host country; the ratio of stock market capitalisation to GDP of the host country's stock market, average corporate tax rates in the host country, a political risk index in the host country, a binary variable equal to 1 if the countries' legal system is originated from the British common law system, a binary variable equal to 1 if the source and host countries have an operational free trade agreement (FTA); and a financial openness index in the host country.

Our sample is based on an unbalanced panel of annual data of 14 source countries and ten host countries between 1990 and 2005. The data contains a large number of missing variables – approximately 48 percent – and a very small number of disinvestment figures – approximately 48 observations (shown in the data as negative). A missing variable for bilateral FDI may indicate either "unreported FDI" reflecting the fact that the two countries have chosen to report low FDI values as zero, or "no FDI", indicating no FDI flows between the two. After a thorough observation of our data we feel that most of the missing variables in our dataset were due to the fact that there was "no FDI". As for the negative disinvestment figures, we treated them as zero observations since they represent no investment in the destination countries. In all of our estimations we deal with the issue of censored data.

[3] See S. Gopalan and Ramkishen S. Rajan, "India's Foreign Direct Investment Flows: Trying to Make Sense of the Numbers", ISAS Insights No. 79, 28 July 2009.

As summarised in Table 3, we considered four initial specifications, each building on the previous one. First, we start with a basic gravity model without additional explanatory variables in regression (1). We then add some real sector explanatory variables in regression (2), some financial variables in regression (3) and some institutional quality variables and other variables (corporate tax rates and bilateral FTA) in regression (4). In the four specifications the distance variable remains statistically and economically significant. Greater distance between the host and source country tends to lower bilateral FDI. As expected, larger countries receive (and send) higher volumes of FDI. A common language is also positively associated with more FDI inflows, though not statistically significant. This may at least partly be reflective of the fact that English dominates economic transactions within Asia.

Regression (2) highlights that the difference in GDP per capita between host and source countries is positive and statistically significant, implying that the greater the degree of income divergence between the countries, the more likely there is to be bilateral FDI flows between the countries. While this may be indicative of FDI inflows being more horizontal rather than vertical in nature, the estimated coefficient is effectively zero, suggesting little economic significance of this variable. A one percent rise in lagged exports from the source to host economy is associated with 0.3 to 0.4 percent rise in FDI flows, suggesting a degree of complementarity between exports and FDI flows. This may indicate that exporting to a country first leads to greater market familiarity which in turn facilitates greater FDI flows to that country. A one percent real exchange rate appreciation of the source country vis-à-vis the host country by one unit is associated with an approximate 3.6 to 4.0 percent rise in FDI flows from source to host country. Both results are robust across the regressions.

Regression (3) includes the financial market variables. The effect of stock market capitalisation in the host country is positive and statistically significant. A one percent increase in the ratio of market capitalisation to GDP in the host country is associated with a 0.4 percent rise in FDI inflows. We also tested for the impact of financial openness by including the well-known Chinn-Ito index. We found that a more financially open host country would seem to attract more regional FDI flows. However, this result should be interpreted with some caution, once again because of the limitation of the proxy used. In particular, the index may be too aggregated (that is, an economy may be financially closed to capital flows in general but what matters is its openness to FDI). In addition the index only captures *de jure* as opposed to *de facto* controls, and as is well known, controls tend to be weakened when there are sufficient incentives for agents to circumvent them.

Regression (4) adds the institutional quality variables, the corporate tax rates of the host country, and bilateral FTA between the two countries. The political risk index has the correct sign, that is, lower political risk (proxied by a higher International Country Risk Guide rating) in the source country leads to more FDI inflows. The effects are economically and statistically significant; lower political risk of the host country is associated with greater FDI inflows. When the host country adapts a similar legal system to the British common law system, it appears to facilitate more FDI inflows. The finding concurs with a growing body of literature which suggests that Anglo-American law (that is, common law) improves the quantity of finance and the efficiency with which it is utilised. The presence of an operational FTA also facilitates FDI flows between the source and host countries. We find that if two countries have an operational FTA, then bilateral FDI flows between them will be increased by approximately 68 percent. This result is also robust. The corporate tax rate has a negative

sign and is statistically significant, implying that a lowering of corporate tax rates in the host country is associated with a rise in FDI inflows. However, this result must be interpreted with some cautious since we have not controlled for double tax agreements, tax sparing agreements, tax incentives and transfer pricing, among other factors, all of which may muddy the results.

We performed a number of sensitivity analyses to ascertain the robustness of these foregoing results, including controlling for flows between China and Hong Kong. By and large, it appears that our results are highly robust to various checks.

Concluding Remarks

This paper has investigated the trends, patterns and drivers of intra-Asian FDI flows by analysing bilateral FDI flows involving 14 emerging Asian countries for the period 1990 to 2005. In other words, the primary contribution of this paper is that it is one of the first to examine the magnitudes and determinants of FDI flows from emerging Asian sources to other emerging Asian hosts. The data indicates that around 35 percent of FDI flows to emerging Asia between 1990 and 2005 have come from within the region, with over 90 percent of the flows originating from Hong Kong, China, Singapore and Taiwan. Clearly, some of these flows are overstated as they involve recycling or round-tripping of funds (especially between China and Hong Kong). Against this, trans-shipping from offshore financial centers have not been included, implying a degree of understating. While the intra-Asian flows are substantial, two issues stand out. One, a large part of these flows pertains to bilateral flows between Hong Kong and China. Two, the data does not indicate that intra-Asian flows are necessarily intensifying. Given that emerging Asia is investing aggressively overseas, what this suggests is that relatively more investments are being made outside emerging Asia.

The paper finds that an augmented gravity model fits the data fairly well. The baseline regression is able to capture much of the variations in existing intra-Asian FDI flows. Most of the estimated coefficients are the correct signs and are statistically and economically significant. Intra-regional FDI activity between emerging Asian economies is driven by economic factors such as market sizes (especially in the host country), export intensity, real exchange rate changes, measures of financial depth, institutional factors (such as political risk and legal origin), an operational FTA and level of financial openness of the host country. As in the case of international trade, distance stands out as an important determinant of bilateral FDI flows even after the inclusion of a bilateral FTA, suggesting that transport costs and informational asymmetries are factors that could hinder FDI flows.

Table 1: Average of Intra-Asian Bilateral FDI Outward Flows

(In millions of U.S. dollars, unless otherwise noted)

	Host region 1/					
	(1997-00)			(2001-05)		
	Asia 2/	*In percent of Asia*	*In percent of World*	*Asia 2/*	*In percent of Asia*	*In percent of World*
Source countries						
Newly Industrialized Asia	*11,051.3*	*28.7*	*1.2*	*9,490.7*	*27.0*	*1.4*
Korea	656.4	1.7	0.1	276.8	0.8	0.0
Singapore	7,018.5	18.2	0.8	5,197.2	14.8	0.8
Taiwan POC	3,376.5	8.8	0.4	4,016.6	11.4	0.6
ASEAN-4	*1,101.2*	*2.9*	*0.1*	*1,129.2*	*3.2*	*0.2*
Indonesia	254.9	0.7	0.0	194.5	0.6	0.0
Malaysia	376.6	1.0	0.0	433.3	1.2	0.1
Philippines	180.4	0.5	0.0	263.8	0.8	0.0
Thailand	289.3	0.8	0.0	237.6	0.7	0.0
China	*26,226.6*	*68.2*	*2.8*	*24,436.0*	*69.6*	*3.6*
Mainland China	7,356.8	19.1	0.8	5,651.7	16.1	0.8
Hong Kong SAR	18,869.8	49.1	2.0	18,784.3	53.5	2.8
India	*43.9*	0.1	0.0	34.9	0.1	0.0
Low Income Asia	*10.7*	*0.0*	*0.0*	*5.5*	*0.0*	*0.0*
Bangladesh	0.2	0.0	0.0	0.5	0.0	0.0
Cambodia	0.5	0.0	0.0	3.1	0.0	0.0
Lao PDR	2.6	0.0	0.0	-0.5	0.0	0.0
Myanmar	4.7	0.0	0.0	2.2	0.0	0.0
Sri Lanka	2.7	0.0	0.0	0.2	0.0	0.0
Vietnam	0.0	0.0	0.0	0.0	0.0	0.0
Other Asia	*26.4*	*0.1*	*0.0*	*17.4*	*0.0*	*0.0*
Pakistan	1.4	0.0	0.0	6.2	0.0	0.0
Brunei Darussalam	25.1	0.1	0.0	11.1	0.0	0.0
Developing Asia 3/	*27,408.9*	*71.3*	*3.0*	*25,623.0*	*73.0*	*3.8*
Asia 2/	***38,460.2***	***100.0***	***4.1***	***35,113.6***	***100.0***	***5.2***

Source: UNCTAD FDI/TNC database.

1/ Asia data is based on FDI inflow data in host economy; world data is based on FDI outflow from donor economy.

2/ Asia consists of Newly Industrialized Asia, ASEAN-4, China, India, Low Income Asia, and Other Asia.

3/ Developing Asia consists of ASEAN-4, China, India, Low Income Asia, and Other Asia.

Table 2: Top Fifty Intra-Asian Bilateral FDI Outward Flows

(In million of U.S. dollars)

Donor	Host	Average (1997-00)	Average (2001-05)	In percent to Asia (1997-00)	In percent to Asia (2001-05)
Hong Kong SAR	China	17,750.8	17,819.1	46.2	50.7
China	Hong Kong SAR	7,266.9	5,459.4	18.9	15.5
Singapore	China	2,706.3	2,136.7	7.0	6.1
Singapore	Hong Kong SAR	2,835.3	353.1	7.4	1.0
Singapore	Malaysia	844.1	1,133.8	2.2	3.2
Singapore	Thailand	441.7	1,381.9	1.1	3.9
Malaysia	China	290.8	316.7	0.8	0.9
Hong Kong SAR	Malaysia	272.3	296.5	0.7	0.8
Hong Kong SAR	Thailand	360.1	160.8	0.9	0.5
Korea	Hong Kong SAR	313.0	155.7	0.8	0.4
Thailand	China	185.8	183.7	0.5	0.5
Philippines	China	135.9	212.2	0.4	0.6
Hong Kong SAR	Singapore	250.1	81.9	0.7	0.2
Malaysia	Hong Kong SAR	62.0	147.2	0.2	0.4
Singapore	Philippines	88.9	76.1	0.2	0.2
Hong Kong SAR	Korea	79.2	51.5	0.2	0.1
Thailand	Hong Kong SAR	-3.1	110.7	0.0	0.3
Hong Kong SAR	Philippines	50.0	54.4	0.1	0.2
Singapore	India	22.0	67.6	0.1	0.2
China	Singapore	-17.3	99.9	0.0	0.3
China	Philippines	71.8	-0.1	0.2	0.0
India	Singapore	36.8	24.9	0.1	0.1
Philippines	Thailand	4.9	48.4	0.0	0.1
China	Cambodia	18.3	33.4	0.0	0.1
Malaysia	Cambodia	24.9	16.7	0.1	0.0
Malaysia	Thailand	19.4	21.2	0.1	0.1
Singapore	Cambodia	19.6	12.9	0.1	0.0
Thailand	Cambodia	19.1	13.4	0.0	0.0
Philippines	Malaysia	6.3	18.7	0.0	0.1
Malaysia	Bangladesh	5.1	19.4	0.0	0.1
Philippines	Singapore	37.5	-15.6	0.1	0.0
Thailand	Malaysia	10.2	11.1	0.0	0.0
Malaysia	Lao PDR	17.4	0.9	0.0	0.0
Thailand	Lao PDR	15.2	1.9	0.0	0.0
China	Malaysia	11.5	5.1	0.0	0.0
Pakistan	Bangladesh	1.3	10.7	0.0	0.0
China	Thailand	0.4	10.8	0.0	0.0
China	Lao PDR	3.9	6.6	0.0	0.0
Malaysia	Philippines	6.5	2.4	0.0	0.0
Singapore	Myanmar	0.0	8.7	0.0	0.0
Thailand	Myanmar	0.0	5.6	0.0	0.0
Myanmar	Singapore	4.1	1.1	0.0	0.0
China	Myanmar	0.0	4.7	0.0	0.0
Thailand	Philippines	3.0	0.8	0.0	0.0
Singapore	Lao PDR	1.0	2.3	0.0	0.0
Cambodia	Thailand	0.6	2.7	0.0	0.0
China	Bangladesh	1.2	1.0	0.0	0.0
Lao PDR	Thailand	2.3	-0.4	0.0	0.0

Source: UNCTAD FDI database

1/ Based on FDI inflow data in host economy.

Table 3: Gravity Model Results[1, 2, 3]

Dependent variable: Ln of bilateral real FDI outflows	Regression (1)	Regression (2)	Regression (3)	Regression (4)
ln(real GDP i)	2.722***	2.172**	2.246**	1.956**
	(0.953)	(0.940)	(0.941)	(0.932)
ln(real GDP j)	3.087***	2.334***	1.670**	2.929***
	(0.690)	(0.692)	(0.729)	(0.718)
Common language	0.245	0.235	0.204	0.129
	(0.254)	(0.247)	(0.245)	(0.242)
ln distance	-0.809***	-0.447***	-0.445***	-0.354**
	(0.137)	(0.164)	(0.164)	(0.157)
Difference in real GDP per capita of i and j		0.000***	0.000***	0.000***
		(0.000)	(0.000)	(0.000)
Lag ln real export of goods from i to j		0.421***	0.417***	0.315***
		(0.096)	(0.098)	(0.105)
Change in real exchange rate of i to j		-0.039***	-0.036***	-0.036***
		(0.011)	(0.010)	(0.011)
Stock market capitalization to GDP in j			0.004**	0.004**
			(0.002)	(0.002)
Financial openness in j			0.325**	0.387**
			(0.134)	(0.158)
Corporate tax in j				-0.094*
				(0.049)
Political risk in j				0.046*
				(0.026)
Legal origin of UK in j				20.833***
				(4.310)
Free trade agreement between i and j				0.680***
				(0.253)
Observations	676	673	673	673
Adjusted R-squared	0.72	0.74	0.74	0.74

Notes: 1/ Robust standard error in parentheses.
2/ * significant at 10%; ** significant at 5%; *** significant at 1%
3/ Year dummies, host/source country dummies, inverse Mills' ratio, and constant are not shown.
Source: Authors calculation

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