

**UNDERSTANDING INTRA-ASEAN FDI FLOWS:
TRENDS AND DETERMINANTS AND THE ROLE OF CHINA AND INDIA**

by

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1. Introduction

The phenomenon of South-South FDI flows, particularly those arising from China and India, has generated significant interest from policymakers, academia and the popular press in recent times. Available data from the World Bank indicates South-South FDI to have increased almost three-fold (from US\$ 14 billion in 1995 to US\$ 47 billion in 2003), and accounts for almost 37 percent of total FDI flows to developing countries, up from 15 percent in 1995 (Table 1). ASEAN is not an exception to this phenomenon. FDI from ASEAN economies has expanded rapidly beyond its borders, especially intra-regionally (Hiratsuka, 2006).

Intra-ASEAN FDI flows can be traced back to the 1997 East Asian financial crisis which caused a severe region-wide recession. The crisis also adversely affected output, currencies, stock markets other asset prices, and capital inflows across ASEAN member countries. ASEAN members experienced a drastic decline of about US\$12 billion in the net FDI flow to them from 1997 to 1998 (Thangavelu, 2007). Table 2 shows the relative shares of global and Asian FDI inflows and outflows. As is apparent, Developing Asia dominates both as sources and destinations of FDI in terms of both stocks and flows among the developing countries. It is interesting to note that during the period after crisis (1998 to 2000) the average of ASEAN share of FDI inflows declined to a low of 2.3 percent compared to a high 5 percent on average between 1988 and 1990, while their FDI outflows increased. During this period the role of China in the world economy has exponentially increased. 40 percent of total FDI inflows to Asia region has been directed to China. China's large domestic market and low labor cost have been among the main attractors of massive FDI into the country. While India is a relatively late-comer and its industrialization strategy is much less dependent on FDI (for instance, see Kelly and Rajan, 2007), its vast pool of skilled workers, strong institutional quality, and large domestic market has begun to attract greater global and regional FDI inflows. Both China and India are also significant exporters of capital, including FDI

This paper uses bilateral FDI flows data to investigate FDI trends, and the role of macroeconomic, financial and institutional variables in facilitating intra-ASEAN FDI flows over the period 1990 to 2005. The paper will also examine the extent and determinants of intra-ASEAN FDI flows. Eichengreen and Tong (2007), Liu, Chow and Li (2007) and Sudsawasd and Chaisrisawatsuk (2006) are three of possibly just a handful of papers that examine FDI to Asia using bilateral data. However, these papers only consider FDI from OECD economies as the source country since they use data from the OECD.¹ In contrast, the focus of this paper is on selected ASEAN economies, India, and China as the sources of FDI to selected ASEAN economies, India, and China, respectively using bilateral FDI data from UNCTAD.^{2, 3}

Before proceeding with the analysis it might be instructive to say a few words on the official definition of FDI and data sources to be used. ASEAN Secretariat General The most common definition of FDI is based on the OECD *Benchmark Definition of FDI* (3rd Edition, 1996) and IMF *Balance of Payments Manual* (5th Edition, 1993). According to this definition, FDI generally bears two broad characteristics. First, as a matter of convention

¹ A selective list of recent papers that use bilateral FDI data from OECD but are not specifically limited to Asia are Bénassy-Quéré, Coupet and Mayer (2007), Daude and Stein (2004), Head and Ries (2007), Lougani, Mody and Razin (2002). Razin, Rubinstein and Sadka (2003), Razin, Sadka and Tong (2005) and Stein and Daude (2007).

² In this study, we are not concern on bilateral FDI flows between China to India, and vice versa.

³ Our selected ASEAN economies are Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam.

FDI involves a 10 percent threshold value of ownership.⁴ Second, FDI consists of both the initial transaction that creates (or liquidates) investments as well as subsequent transactions between the direct investor and the direct investment enterprises aimed at maintaining, expanding or reducing investments. More specifically, FDI is defined as consisting of three broad aspects, viz. new foreign equity flows (which is the foreign investor's purchases of shares in an enterprise in a foreign country), intra-company debt transactions (which refer to short-term or long-term borrowing and lending of funds including debt securities and trade credits between the parent company and its affiliates) and reinvested earnings (which comprises the investor's share of earnings not distributed as dividends by affiliates or remitted to the home country, but rather reinvested in the host country). New equity flows could either take the form of M&A of existing local enterprises or Greenfield investments.

For ASEAN economies, there are three comprehensive databases on FDI inflows and outflows: IMF-BoP Manual, UNCTAD, and ASEAN FDI Statistics (see Duce, 2003 for a comparison of IMF and UNCTAD). UNCTAD and ASEAN by far have the most complete FDI database, and unlike the IMF-BOP data, they compile data on *bilateral* FDI flows -- both inflows and outflows. For this study, we chose to use UNCTAD data because unlike ASEAN FDI, it is based on actual flows rather than appropriations. The main sources for UNCTAD's FDI flows are national authorities (central banks or statistical office). These data are further complemented by data obtained from other international organizations such as the IMF, the World Bank, the Organisation for Economic Co-operation and Development (OECD), the Economic Commission for Europe (ECE) and the Economic Commission for Latin America and the Caribbean (ECLAC), and UNCTAD's own estimates.

The remainder of the paper is organized as follows. Section 2 discusses broad patterns and trends in intra-ASEAN FDI flows and flows between ASEAN and the rest of the world using bilateral net FDI flows over the period 1993 to 2005. Section 3 employs an augmented gravity model framework to examine the main determinants of regional FDI flows using bilateral data based over a period of 1990 to 2005 on a panel dataset. We examine a range of drivers of FDI flows, including macroeconomic variables, transactional distance, institutional quality, and policy type variables. We also analyze the role of China and India as exporters and importers of FDI to ASEAN. Section 4 offers a few concluding remarks.

2. ASEAN FDI Flows: Trends and Patterns

One could analyze FDI data on either *stocks* (i.e. International Investment Positions) or *flows* (i.e. financial account transactions) data. While much empirical analysis to date has been undertaken using the former, changes in stocks could arise either because of net new flows or because of valuation changes and other adjustments (such write-offs, reclassifications etc). To abstract from these valuation and other changes we consider only data on flows of inward FDI (net increases in).

2.1 FDI Flows between ASEAN and the Rest of the World

Table 3 focuses specifically on FDI inflows and outflows of selected ASEAN economies, China, and India between 1990 and 2005. Between 1990 and 1996, FDI inflows to ASEAN grew at an average annual rate of just over US\$ 19 billion, while outflows grew at a rate of US\$ 6.6 billion during the same period. Buoyant global economic conditions and the liberalization of most of the ASEAN economies in the early

⁴ This said, the 10 percent threshold is not always adhered to by all countries systematically. For a detailed overview of the FDI definitions and coverage in selected developing and developed countries, see IMF (2003). Also see Duce (2003). UNCTAD (2007) discusses data issues pertaining to FDI inflows to China.

1990s led to an influx of inflows to the region. Despite the crisis, FDI inflows continued to rise during 1997 to 2005 at an average annual rate of well over US\$ 20 billion, while FDI outflows also rose to an average annual rate of US\$ 10 billion.

Not surprisingly, Singapore has the highest magnitudes of inflows and outflows among ASEAN countries. In both of our sample periods 1990 to 1996 and 1997 to 2005, Singapore has been the single largest destination of FDI, accounting for between one-third and one-half of inflows to ASEAN during the last 15 years. More specifically, for the period 1990 to 1996, the average FDI inflows to Singapore was around US\$ 6.7 billion, while for the second sub-period, 1997 to 2005, the average FDI inflows to Singapore crossed US\$ 13.5 billion. With regard to outflows, Singapore is clearly the single largest source of FDI outflows from ASEAN. FDI outflows from Singapore averaged at US\$ 3.6 billion annually in the first sub-period and roughly at US\$ 7.4 billion in the second sub-period. Referring to Table 3, it is apparent that Singapore, as the only Newly Industrializing Economies (NIE) in ASEAN, has consistently remained among the top developing economy sources of FDI over the last two decades. Malaysia (a near-NIE) is also notable for the size of their outward FDI flows, particularly since the 1990s.⁵

2.2 Intra-ASEAN FDI Flows

Having considered broad country aggregate outflows and inflows to and from ASEAN, we analyze bilateral FDI between ASEAN economies. This exercise is far from straightforward. UNCTAD data on inflows and outflows do not match exactly (also see UNCTAD, 2006, Chapter 3). It is apparent that UNCTAD FDI outflows data from source countries are incomplete for many countries. While some source countries have relatively complete outflows data, others either have incomplete data or no data at all. Different reporting practices of FDI data create bilateral discrepancies between FDI flows reported by home 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 2001, US\$ 8 billion in 2001, and US\$ 2 billion in 2002.⁶ Faced with these concerns we draw inferences on FDI outflows by examining FDI inflow data reported in the host economies as they are more complete and are available for all developing 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.⁷

FDI inflows between ASEAN countries in the post-1997 financial crisis (from 1997 to 2000) on average declined to 6.1 percent from an average of 7.1 percent before the crisis. However, robust economic growth and relatively low asset values led to a surge of FDI inflows between the member countries which in turn increased the average to 13.6 percent in the period from 2001 to 2004. This increase in FDI inflows was even more pronounced in 2001 when intra-ASEAN contributed to one-fourth of FDI inflows to the region (see Figure 2). After the 1997 financial crisis, the magnitude of FDI inflows between ASEAN countries has accounted for about one-eighth of all FDI inflows to the

⁵ While there is not necessarily a one-to-one link between nationality of TNCs and FDI outflows, it is instructive to note that the handful of firms from ASEAN economies that made the top 100 list were from Singapore and Malaysia.

⁶ Apart from round-tripping and trans-shipping issues, part of the data inconsistencies between inflows and outflows arise because many countries do not include retained earnings or loans when considering FDI outflows.

⁷ It is instructive to note that the top destinations of FDI using data based on FDI inflow data in host economy and FDI outflow data from source economy have roughly stayed the same during the period under consideration.

region (see Table 5), and is particularly pronounced from Singapore to the rest of ASEAN economies. According to Table 6, the average of FDI flows from Singapore to Malaysia from 1997 to 2005 has been around US\$ 1 billion and accounts for almost of 50 percent of intra-ASEAN. Bilateral flows from Singapore to Thailand are also significant during the same period with an average of close to US\$ 1 billion.

FDI outflows and inflows for most countries under consideration during the sub-periods 1990 to 1996 and 1997 to 2005 are positively correlated, with the exceptions of ASEAN in general (second sub-period), Thailand (first sub-period), and the Philippines (second sub-period). The correlations in Indonesia, Malaysia, Mainland China and India are particularly high, suggesting that periods of economic liberalization have been characterized by simultaneous rises in both FDI inflows as well as outflows (Table 4).

3. Determinants of FDI Flows

The previous section has highlighted the extent of FDI flows between ASEAN countries and more specifically, the intensification of intra-ASEAN FDI flows. But what explains the rise of intra-ASEAN FDI flows? This section undertakes an empirical investigation of some of the possible determinants of FDI outflows from ASEAN to the rest of ASEAN, as well as flows between ASEAN-China and ASEAN-India over the period 1997 to 2004.⁸ Can a gravity model framework that is commonly used to rationalize outward FDI flows from OECD economies be used to understand intra-regional FDI flows?

3.1 The Model

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 theoretical basis for a gravity model of FDI has recently been proposed by Head and Ries (2007). The model has been used in a host of papers with some variations.⁹

In our sample, we have 8 source countries and 6 host countries from 1990 to 2005.¹⁰ The data contains a large number of missing variables. 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 missing variables in our dataset happen because of "no FDI". Following normal convention in treating missing variables in bilateral data (see Eichengreen and Irwin, 1995), we expressed the dependent variable as $\ln(1 + \text{FDI})$. In this way, large values of FDI, $\ln(1 + \text{FDI}) \approx \ln(\text{FDI})$.¹¹ Against this background, we set our basic specification of our estimated model as:

⁸ While we have FDI data until 2005, some of the independent variables are truncated at 2004.

⁹ The augmented gravity model for FDI is broadly similar -- but by no means identical -- to those used in recent papers including Lougani, Mody and Razin (2002). Stein and Daude (2007), Liu, Chow and Li (2007). di Giovanni (2005) applies a gravity model to analyze cross-border M&A transactions while Portes and Rey (2005) and Lee (2006) apply a gravity model for portfolio equity flows.

¹⁰ We found no data on bilateral net FDI inflows to Indonesia and Vietnam from other ASEAN economies or from China or India in UNCTAD TNC/FDI database within our sample period (between 1990 to 2004).

¹¹ This procedure follows Eichengreen and Irwin (1995) approach in their treatment of zero trades.

$$\ln(1 + \text{FDI}_{ijt}) = \beta_0 + \beta_1 \ln(\text{GDP}_{jt}) + \beta_2 \ln(\text{GDP}_{it}) + \beta_3 \text{LANG} + \beta_4 \ln(\text{DIST}_{ij}) + \beta_5 X_{ijt} + \beta_6 \text{ASEAN}_{ij} + \lambda_t + v_{ijt} \quad (1)$$

where: FDI_{ijt} is the FDI outflow from source country (i) to host country (j) in time (t); GDP_{it} and GDP_{jt} are nominal GDPs in US dollar for the source country (i) and the host country (j) in time (t); LANG is a binary variable equal to 1 if the source and host countries have same official language; DIST_{ij} is the geographical distance between host and source countries' capital cities¹²; X_{ijt} is a vector of control variables influencing FDI outflows; ASEAN_{ij} is a binary variable equal to 1 if the bilateral FDI flows are between ASEAN countries and 0 if the flows are between ASEAN and China or ASEAN and India, and vice versa; λ_t denotes the unobservable time effects (we use year dummies); and v_{ijt} is a nuisance term.¹³

The set of control variables comprises: difference in GDP per capita in US dollar of the host and source countries; lag of exports from country i to country j ; volatility of exchange rate of i with respect to j (constructed by first taking the log difference of end-of-month exchange rates and then calculating a five-years rolling standard deviation), nominal exchange rate of i with respect to j ; a binary variable equal to 1 if i and j have a free trade agreement; a political risk index in country j ; and, average corporate tax rates in economy j .

We expect the coefficients of the GDP of the source and destination countries to both be positive as they proxy for masses which are important in gravity models.¹⁴ The sign for distance from source to host country should be negative, as a greater distance makes a foreign operation more difficult and expensive to supervise and might therefore discourage FDI.¹⁵ The sign for common language should be positive, as common language should facilitate more capital movement, such as FDI, between two countries.

As for the control variables, the prior sign of the difference in GDP per capita (source minus host) is unclear, depending on whether FDI flows are vertical or horizontal in nature. However, a positive sign may also suggest that FDI flows could help reduce income gap between countries. The effect of exports and FDI is ambiguous as FDI can either be a substitute or complement to trade in goods, implying ambiguity in its sign.¹⁶ Volatility of exchange rate has no definite impact on the bilateral FDI flows since the

¹² Instead of using country-pair fixed effects, which authors like Anderson and Marcouiller (2002) suggest may be important, in our specification, we used distance as our country-pair specific variable.

¹³ Since our data is flows data instead of stock data, there are no obvious endogeneity issues.

¹⁴ In physics, the law of gravity states that the force of gravity between two objects is proportional to the product of the masses of the two objects divided by the square of the distance between them. Most gravity models in bilateral trade and FDI have replaced the force of gravity with the value of bilateral trade or direct investments and the masses with the source and destination countries' GDP.

¹⁵ However, if the foreign firm is looking to service the host country's market, a longer distance also makes exporting from source countries more expensive and might therefore make local production more desirable and encourage investment. This argument is not unlike the tariff-jumping one.

¹⁶ We lag the exports variables by one period to account for endogeneity.

effect ultimately depends on different empirical questions.¹⁷ The bilateral nominal exchange rate which is measured in terms of the host country, should have a positive sign as a depreciated exchange rate in the host country should raise FDI inflows from the source country (due to the wealth effects). However, there are other channels that could lead to ambiguity of the signage (Cushman, 1985).

Anghel (2005) and Bénassy-Quéré, Coupet and Mayer (2007) and Daude and Stein (2004) have discussed and explored in some detail the importance of institutional variables in determining FDI flows and Hur, Parinduri and Riyanto (2007) have analyzed the importance of institutions in the case of M&A deals. In view of this we include Political Risk Index of International Country Risk Group (ICRG) database—a higher index in country j should encourage FDI flows to the country.¹⁸ Free trade agreements (FTAs) in form of regional trade agreements (RTAs) and bilateral trade agreements (BTAs) between Emerging Asia have proliferated rapidly. It is commonly believed that FTA tends to stimulate FDI flows (for instance, see Levy Yeyati et al., 2002). We examine this linkage by including dummies for operational bilateral trade agreements and expect the sign to be positive. Higher corporate tax in the host economy should deter FDI. However, the presence of double tax agreements, tax sparing agreements, tax incentives, transfer pricing etc may muddy the results as we have not accounted for them. Finally, we also included an intra-ASEAN dummy variable.

3.2 Data, Methodology and Results

Tables A1 and A2 summarize the data sources to be used. The FDI data are based on the *UNCTAD FDI/TNC* database. Nominal GDP in US dollar, GDP per capita in US dollar, and nominal exchange rates are taken from the IMF's *World Economic Outlook* database. Exports between source and host countries are taken from the IMF's *Direction of Trade and Statistics* database. Data on common official language and distance of capital cities are taken from the CEPII.¹⁹ Political risk index is taken from International Country Risk Group (ICRG) database. The source of average corporate tax rate is a combination of the World Tax Database created by the Office of Tax Policy Research (OTPR) at the University of Michigan Business and KPMG Corporate Tax Survey.²⁰ The data on FTAs is constructed from the World Trade Organization (WTO) website.

We considered 3 specifications (Table 7). First, we calculated our model without the control variables (regression 1). Second, we included the control variables (regression 2). Third, we excluded lagged export from regression (2) (regression 3).

In the three specifications, market sizes remain statistically and economically significant. Bigger market sizes facilitate more FDI inflow between ASEAN countries. Common language and distance only stay statistically significant with correct sign in regression (1). They, however, turned statistically insignificant when we included the

¹⁷ Questions such as how involved the fixed costs in the acquisitions of a firm can go in two different ways, i.e. higher volatility will lead to less inflows yet higher volatility can also lead to more inflows since expected future cash flows from the target firm is correlated with liquid assets.

¹⁹ <http://www.cepii.fr/>

²⁰ The corporate tax figures in OTPR's tax database refers only to the top marginal tax rate on corporations, while KPMG Tax Survey data refers to top marginal tax rates and other local taxes that burden a foreign corporation. OTPR's tax database goes up only to 2002, while KPMG extends to 2005. However, OTPR has a longer history which extends back to 1990, while KPMG only starts at 1993. To reflect the real situation in an economy, we used KPMG data as our starting point. We filled in the missing data on our economy samples by comparing tax rates data for each economy in our sample.

control variables but remain with correct signs.²¹ The intra-ASEAN dummy is significant and positive. Throughout our 3 specifications, intra-ASEAN dummy is positive and statistically significant. It indicates that when we control distance, common language, and control variables on average an ASEAN country would directly invest \$1.2 million more to another ASEAN country. This clearly indicates a strong regional integration.

Apart from the standard gravity variables, the difference in GDP per capita between host and source countries is negative, implying that the lower the degree of income divergence between the countries, the more likely there is to be bilateral FDI flows between the countries. The coefficients of exchange rate values and volatility are both positive, but are not statistically significant. Similar to any other investors, ASEAN countries takes into the account the political risk of their neighbors when they are directly investing as indicated in political risk results of positive sign and statistically significant. The FTA is positive in regression 2 but is statistically insignificant. The corporate tax rate has a negative sign and is statistically significant though weakly economically significant. Lagged exports from source to host economy shows up with a positive sign but is not statistically significant. Results to not vary much by dropping this term, with the exception of the FTA term which turns negative but remains statistically insignificant (regression 3). The intra-ASEAN dummy is positive and statistically significant, implying that an ASEAN country is more likely to invest intraregionally.

4. Concluding Remarks

This paper has investigated trends, patterns and drivers of intra-ASEAN FDI flows using bilateral FDI flows between ASEAN, China and India for the period 1990 to 2005. The data indicate that intra-ASEAN FDI flows appears to have intensified during the period post-1997 financial crisis, with a large part of these flows concentrated between Singapore and its neighboring countries, i.e. Malaysia and Thailand. The paper finds that an augmented gravity model fits the data fairly well and is able to capture up to 63 percent of the variations in existing intra-ASEAN FDI flows. Larger host and source countries sizes, lower political risk, and lower corporate tax rate in the host country are among the factors that appear to facilitate bilateral intra-ASEAN FDI flows as well as flows from China and India to ASEAN. The policy implications here are apparent. There also appears to be evidence that a shorter distance between countries tends to facilitate bilateral FDI flows. While it is unclear whether this variable is capturing actual “transactional distance” or “informational distance” between countries *a la* Loungani, Mody and Razin (2002)., what is clear is that it is highly premature to proclaim the “death of distance”.

²¹ The loss of significance is perhaps an indication that control variables have more impact to FDI flows between ASEAN countries, or it is due to our small sample size.

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Figure 1: Intra-ASEAN FDI Inflow
(In percent of Total World FDI Inflow to ASEAN)

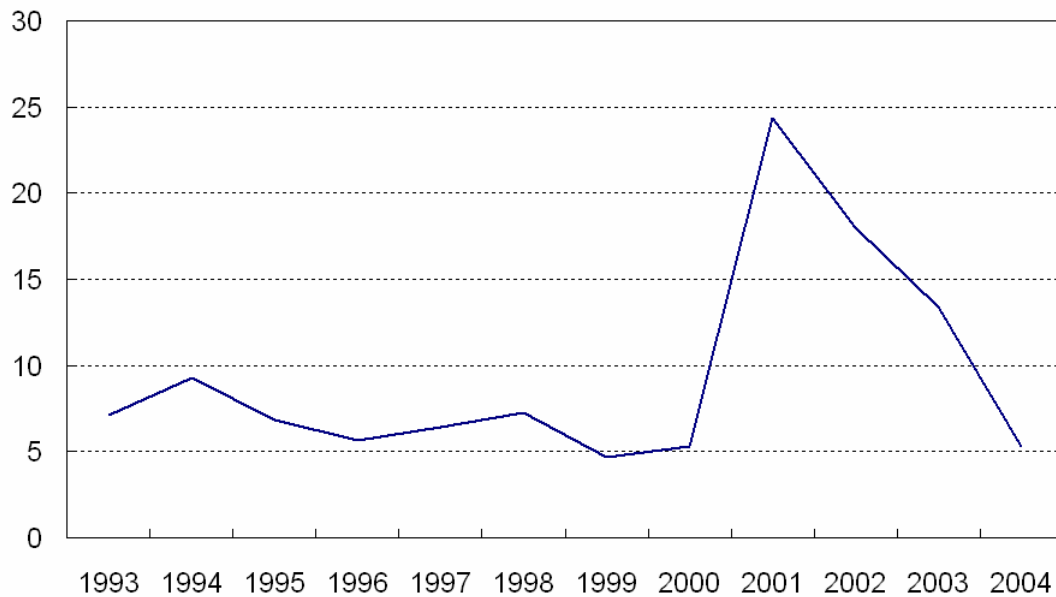


Figure 2: ASEAN Net FDI Flow
(In million of U.S. dollar)

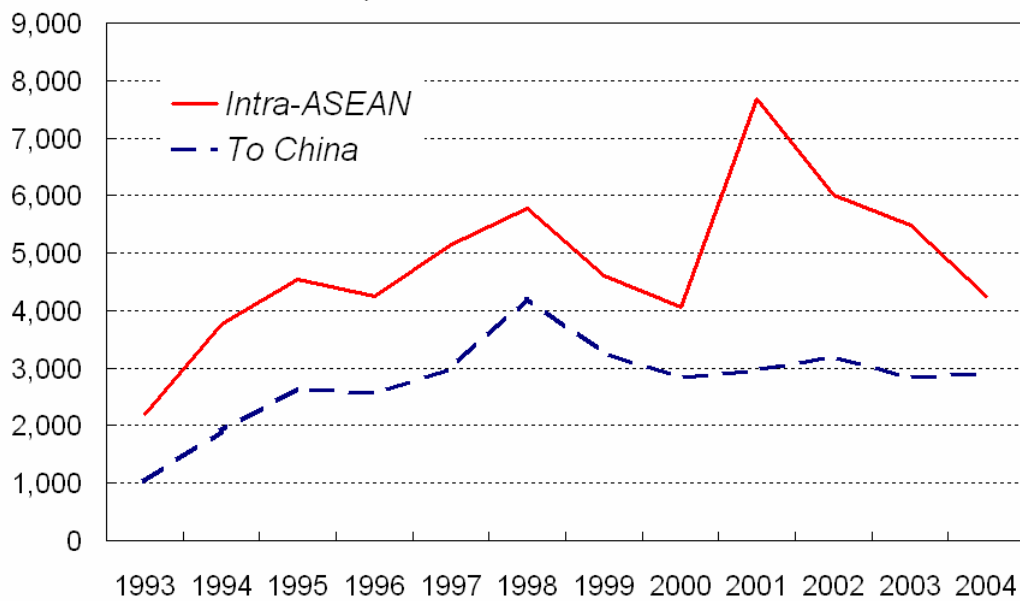


Table 1: Growing Importance of South-South FDI, 1995-2003
(US\$ billions)

	1995	1999	2000	2001	2002	2003e
Total inflows (1)	90.3	163.5	154.7	159.3	135.3	129.6
From high-income OECD (2)	48.1	95.4	93.7	84.8	55.1	59.4
From high-income non-OECD (3)	28.2	35.0	22.7	24.8	27.2	22.8
South-South FDI (1)-(2)-(3)	14.0	33.1	38.3	49.7	53.0	47.4
South-South FDI (percent)	15.5	20.2	24.8	31.2	39.2	36.6

Notes: The South-South estimates are based on 35 countries that account for 85 percent of total FDI flows to developing countries. The estimates are based on the World Bank's classification of developing countries.
Source: World Bank (2006).

Table 2: Distribution of FDI by Region and Selected Countries, 1980-2005
(In percent)

Region	Inward Stock				Outward Stock			
	1980	1990	2000	2005	1980	1990	2000	2005
Developed economies	76.5	80.0	69.5	71.3	87.5	91.8	86.4	86.9
European Union	42.5	42.9	37.6	44.4	37.2	45.2	47.1	51.3
United States	14.8	22.1	21.7	16.0	37.7	24.0	20.3	19.2
Japan	0.6	0.6	0.9	1.0	3.4	11.2	4.3	3.6
Developing economies	23.5	19.9	29.2	26.2	12.5	8.2	13.2	11.9
Africa	6.9	3.3	2.6	2.6	1.3	1.1	0.7	0.5
America	6.2	5.8	8.3	8.2	8.4	3.3	3.0	3.2
Asia	10.2	10.7	18.3	15.3	2.9	3.8	9.5	8.2
China	0.2	1.2	3.3	3.1	...	0.2	0.4	0.4
India	0.1	0.1	0.3	0.4	0.0	0.0	0.0	0.1
ASEAN	3.4	3.5	4.5	3.7	0.2	0.6	1.4	1.6
Indonesia	0.8	0.5	0.4	0.2	0.0	0.0	0.1	0.1
Malaysia	0.9	0.6	0.9	0.5	0.0	0.1	0.4	0.4
Philippines	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0
Singapore	1.0	1.7	1.9	1.8	0.1	0.4	0.9	1.0
Thailand	0.2	0.5	0.5	0.6	0.0	0.0	0.0	0.0
Viet Nam	0.3	0.1	0.4	0.3	...	...	...	...
World	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Region	Inflow				Outflow			
	1978-1980	1988-1990	1998-2000	2003-2005	1978-1980	1988-1990	1998-2000	2003-2005
Developed economies	81.0	82.7	78.2	60.8	44.8	50.6	64.4	54.6
European Union	39.1	40.3	46.0	40.7	39.7	13.6	15.9	15.7
United States	23.8	31.5	24.0	12.6	4.9	19.7	2.6	4.9
Japan	0.4	0.0	0.8	0.8	2.8	6.8	8.3	12.8
Developing economies	19.0	17.3	20.9	34.5	1.0	0.4	0.2	0.2
Africa	2.0	1.9	1.0	3.0	0.9	0.9	3.0	4.0
America	11.7	4.9	8.8	10.1	0.9	5.6	5.1	8.6
Asia	5.1	10.3	11.0	21.3	0.1	4.5	4.3	5.9
China	0.1	1.8	3.9	8.5	...	0.4	0.2	0.6
India	0.1	0.1	0.3	0.8	0.0	0.0	0.0	0.2
ASEAN	4.4	4.9	2.3	3.8	0.4	0.6	0.7	1.5
Indonesia	0.7	0.4	-0.2	0.3	0.0	0.0	0.0	0.3
Malaysia	1.5	0.9	0.3	0.5	0.4	0.1	0.1	0.3
Philippines	0.2	0.4	0.2	0.1	0.2	0.0	0.0	0.0
Singapore	1.8	2.2	1.3	2.1	0.2	0.5	0.5	0.8
Thailand	0.2	1.0	0.5	0.3	0.0	0.0	0.0	0.0
Viet Nam	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0
World	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: UNCTAD FDI/TNC database.

Table 3. FDI Inflows and Outflows of Selected ASEAN Countries, China, and India
(In billions of U.S. dollars)

Country	1990-1996	1997-2005	1997	1998	1999	2000	2001	2002	2003	2004	2005
Inflows											
<i>World</i>	248.3	816.2	489.7	712.0	1,099.9	1,409.6	832.2	617.7	557.9	710.8	916.3
<i>Asia (excluding Japan)</i>	51.3	114.6	100.4	91.1	108.7	143.8	104.0	88.6	93.7	137.0	163.7
ASEAN	19.3	25.2	34.3	22.3	28.8	23.5	19.5	15.8	19.9	25.7	37.1
Indonesia	2.7	0.2	4.7	-0.2	-1.9	-4.6	-3.0	0.1	-0.6	1.9	5.3
Malaysia	5.0	3.5	6.3	2.7	3.9	3.8	0.6	3.2	2.5	4.6	4.0
Philippines	1.1	1.2	1.2	1.8	1.2	2.2	0.2	1.5	0.5	0.7	1.1
Singapore	6.7	13.6	13.8	7.3	16.6	16.5	15.6	7.3	10.4	14.8	20.1
Thailand	2.1	3.6	3.9	7.5	6.1	3.4	3.9	0.9	2.0	1.4	3.7
Viet Nam	1.1	1.5	2.6	1.7	1.5	1.3	1.3	1.2	1.5	1.6	2.0
China: Mainland	22.8	50.9	45.3	45.5	40.3	40.7	46.9	52.7	53.5	60.6	72.4
India	1.0	4.4	3.6	2.6	2.2	3.6	5.5	5.6	4.6	5.5	6.6
Outflows			29.9	20.7	27.4	22.6	18.6	14.4	16.1	25.1	36.1
<i>World</i>	269.7	776.3	483.1	694.4	1,108.2	1,244.5	764.2	539.5	561.1	813.1	778.7
<i>Asia (excluding Japan)</i>	29.1	50.1	51.2	31.7	39.9	80.7	48.4	33.8	21.2	76.1	67.6
ASEAN	6.6	10.4	14.5	3.4	10.0	8.2	20.8	4.6	5.4	14.7	12.0
Indonesia	0.9	0.8	0.2	0.0	0.1	0.2	0.1	0.2	0.0	3.4	3.1
Malaysia	1.4	1.7	2.7	0.9	1.4	2.0	0.3	1.9	1.4	2.1	3.0
Philippines	0.2	0.2	0.1	0.2	0.1	0.1	-0.1	0.1	0.3	0.6	0.2
Singapore	3.6	7.4	10.9	2.2	8.0	5.9	20.2	2.3	3.1	8.5	5.5
Thailand	0.4	0.3	0.6	0.1	0.3	0.0	0.3	0.1	0.5	0.1	0.2
Viet Nam	...	...	...	...	...	...	...	...	...	...	...
China: Mainland	2.3	3.4	2.6	2.6	1.8	0.9	6.9	2.5	-0.2	1.8	11.3
India	0.1	0.9	0.1	0.0	0.1	0.5	1.4	1.7	1.3	2.0	1.4

Sources: UNCTAD FDI/TNC database.

Table 4. Correlations Between Inflows and
Outflows to and from Asia

<i>Country</i>	1990-96	1997-05
<i>Asia (excluding Japan)</i>	<i>0.99</i>	<i>0.80</i>
<i>ASEAN</i>	<i>0.81</i>	<i>-0.04</i>
Indonesia	0.10	0.57
Malaysia	0.75	0.82
Philippines	0.68	-0.08
Singapore	0.90	0.46
Thailand	-0.02	0.07
Viet Nam 1/	...	...
China: Mainland	0.24	0.61
India	0.94	0.88

Sources: Authors calculation

1/ No data on Outflows

**Table 5. Average of Intra-ASEAN Bilateral Net FDI Flows
(In U.S. million dollars, unless otherwise noted)**

	<i>Host</i>								
	(1993-1996)			(1997-2000)			(2001-04)		
	<i>ASEAN</i>	<i>China</i>	<i>India</i>	<i>ASEAN</i>	<i>China</i>	<i>India</i>	<i>ASEAN</i>	<i>China</i>	<i>India</i>
Source									
<i>ASEAN</i>	1,742.3	2,136.4		1,647.5	3,438.7	22.0	2,740.5	2,983.2	43.0
Brunei Darussalam	39.4	0.8		25.1			11.1		
Cambodia	1.7	0.7		0.5			3.1		
Indonesia	36.0	97.7		142.6	115.0		34.5	134.0	
Lao PDR	2.2			2.6			-0.5		
Malaysia	31.5	183.8		-23.5	290.8		-67.8	316.7	
Singapore	1,598.2	1,441.2		1,374.7	2,706.3	22.0	2,750.2	2,136.7	43.0
Philippines	14.2	122.9		48.6	135.9		55.0	212.2	
Thailand	18.2	269.8		72.3	185.8		-77.2	183.7	
Vietnam	1.0	19.5		4.6	4.9		31.9		
<i>Mainland China</i>	27.3			66.5			117.6		
<i>India</i>	2.8	1.9		39.8			31.1		
<i>World</i>	23,909.9	35,131.9	1,545.5	27,222.3	42,938.3	3,001.3	20,212.2	53,438.9	5,289.5

Source: UNCTAD FDI/TNC database.

**Table 6. Top 7 Bilateral Flow
Between ASEAN Countries 1/
(In million of U.S. dollars)**

Source	Host	Average		In percent to Total Intra-ASEAN FDI Inflow	
		(1997-00)	(2001-05)	(1997-00)	(2001-05)
Singapore	Malaysia	844.1	1,273.3	51.2	46.5
Singapore	Thailand	441.7	1,381.9	26.8	50.4
Singapore	Philippines	88.9	95.0	5.4	3.5
Indonesia	Singapore	104.5	16.1	6.3	0.6
Philippines	Thailand	4.9	48.4	0.3	1.8
Indonesia	Malaysia	26.0	15.8	1.6	0.6
Malaysia	Thailand	19.4	21.2	1.2	0.8

Source: UNCTAD FDI database

1/ Based on FDI inflow data in host economy.

Table 7. Gravity Equation

Dependent variable: Ln of bilateral FDI outflows	Regression (1)	Regression (2)	Regression (3)
ln(GDP i)	0.684*** (0.084)	0.559*** (0.113)	0.591*** (0.095)
ln(GDP j)	1.934*** (0.109)	1.342*** (0.137)	1.378*** (0.114)
Official common language	0.992*** (0.21)	0.185 (0.173)	0.242 (0.170)
ln distance from i to j	-0.490** (0.25)	-0.100 (0.157)	-0.158 (0.151)
GDP difference between i and j		-0.016*** (0.00)	-0.016*** (0.00)
Lag of export of goods from i to j		0.055 (0.07)	
Nominal exchange rate of i to j		0.009 (0.031)	0.005 (0.03)
Volatility of exchange rate of i to j		0.106 (0.10)	0.112 (0.095)
Political risk in j		0.073*** (0.01)	0.073*** (0.01)
Free Trade Agreement		-0.019 (0.31)	0.06 (0.31)
Corporate tax in j		-0.173*** (0.034)	-0.176*** (0.03)
Intra-ASEAN dummy	2.022*** (0.32)	1.175*** (0.372)	1.149*** (0.362)
Observations	511	509	511
Adjusted R-squared	0.38	0.63	0.62

Notes: Robust standard error in parentheses.

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

Year dummies and constant are not shown.

Source: Authors calculation

Table A1. Variables Included in the Dataset

Variables	Source
FDI Outflows	UNCTAD FDI/TNC database
Nominal GDP in US dollar	World Economic Outlook, IMF
GDP per capita in US dollar	World Economic Outlook, IMF
Exports of goods	Direction of Trade Statistics, IMF
Exchange Rate	International Financial Statistics, IMF
Common official language	CEPII
Distance	CEPII
Political Risk Index	ICRG
Free Trade Agreements	WTO website
Average corporate tax rate	KPMG Indirect and Corporate Tax Survey, and OTPR's World Tax Database

Table A2: Source and Host Economies in the Dataset

Source	Host
China (Mainland)	China (Mainland)
India	India
Indonesia	Malaysia
Malaysia	Philippines
Philippines	Singapore
Singapore	Thailand
Thailand	
Vietnam	

Table A3. Summary of Statistics

Variable	Units	Observations	Mean	Std. Dev.	Min	Max
Bilateral FDI flows from i to j	US\$ millions	544	115.9	404.8	1.0	3,576.0
Nominal GDP country i	US\$ billions	544	240.0	368.7	6.5	2,243.7
Nominal GDP country j	US\$ billions	544	271.1	432.6	36.8	2,243.7
Official common language	Dummy, 1=yes	544	0.3	0.5	0.0	1.0
Distance between capital cities	Kilometers	544	2,443.9	1,422.2	0.0	5,220.9
Difference in GDP percapita between i and j	US cents	544	16.2	118.2	-261.7	262.4
Export between i and j	US\$ millions	544	2,915.8	4,398.7	0.7	30,405.0
Bilateral nominal exchange rate of i w.r.t. j	Nominal	544	487.1	1,402.6	0.0	7,928.5
Bilateral exchange rate volatility of i w.r.t. j	Nominal	544	0.0	0.0	0.0	0.1
Political risk index	100=min; 0=max	544	69.9	10.2	34.8	89.1
FTA between i and j	Dummy, 1=yes	544	0.5	0.5	0.0	1.0
Average corporate tax	In percent	544	31.0	3.6	22.0	50.0