

## Corruption and Foreign Direct Investment in East Asia and South Asia: An Econometric Study<sup>1</sup>

Rahim M. Quazi

College of Business, Prairie View A&M University  
P.O. Box 519, MS 2300, Prairie View, TX 77446, USA.  
Phone: (936) 261-9225. Email: rmquazi@pvamu.edu

**ABSTRACT:** Many recent FDI studies have focused on the effects of corruption on FDI inflows. Theoretically, corruption can act as either a *grabbing hand* by raising uncertainty and transaction costs, which should impede FDI, or a *helping hand* by “greasing” the wheels of commerce in the presence of weak regulatory framework, which should facilitate FDI. This study analyzes the impact of corruption on FDI inflows in East Asia and South Asia – two regions that have recently received huge FDI inflows. Using GLS methodology with 1995-2011 panel data, this study finds that the impact of corruption on FDI is significantly negative and robust, which validates the “grabbing hand” hypothesis. It is also found that, even after accounting for the economic fundamentals, East Asia seems to enjoy a locational advantage in attracting FDI vis-à-vis South Asia. These results further our knowledge of the FDI dynamics, which policymakers should find helpful in devising pro-FDI strategies.

**Keywords:** Foreign direct investment; corruption; East Asia; South Asia

**JEL Classifications:** D73; F21; O53

### 1. Introduction

Foreign direct investment (FDI) inflow plays a significant role in the growth dynamics of host countries. FDI can provide foreign capital and foreign currency for investment, generate domestic investment in matching funds, facilitate transfer of managerial skills and technological knowledge, increase local market competition, create modern job opportunities, increase global market access for export commodities, etc. Recognizing the manifold benefits of FDI, developing countries have generally eased restrictions on the inflow of foreign capital since the early 1980s. Trends in information and communication technologies (ICT) and globalization have also resulted in greater integration of capital markets easing the flow of capitals across the globe. As a result, the annual FDI inflow to the least developed countries (LDCs) has jumped manifold from 0.29% of their combined GDP in 1990 to 4.65% of their GDP in 2010 (World Bank, 2012).

The increasingly significant role played by FDI in the growth dynamics of emerging economies has created considerable research interest among development economists. A sizeable empirical literature has evolved on the determinants of FDI. Most empirical studies have generally identified domestic economic environment, market size, infrastructure, human capital, economic openness, return on capital, political stability, etc. among the key determinants of FDI. Many recent studies have focused on the effects of corruption on FDI. Theoretically, corruption can act as either a *grabbing hand* by raising uncertainty and transaction costs, which should impede FDI, or a *helping hand* by “greasing” the wheels of commerce in the presence of weak regulatory framework, which should facilitate FDI. Results found in the empirical literature can be described as “mixed”, as several studies found results supporting the *grabbing hand* hypothesis, i.e. corruption reduces FDI, just as

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several other studies found the opposite results that support the *helping hand* hypothesis, i.e. corruption facilitates FDI, and a few studies found no evidence to support either hypothesis.

The purpose of this study is to analyze the impact of corruption on FDI inflows in East Asia and South Asia – two regions that have recently attracted huge FDI, particularly in China and India. A panel regression model is used to econometrically quantify the impact of corruption on FDI in the sample countries. The model also tests whether any regional disparity in FDI inflow exists between the two regions, which can arise due to specific locational advantages enjoyed by one region vis-à-vis the other region. The rest of the paper is organized as follows. Section 2 presents a review of the literature, section 3 describes the methodology, data and estimation, section 4 provides concluding remarks, and section 5 discusses policy implications.

## **2. Literature Review**

Corruption is not a new phenomenon; its history predates the dawn of modern civilization. In an interesting study of the history of corruption, Noonan (1984) has documented four millennia of history of bribes and corruption in many cultures. In ancient Greece and Rome, an inspector post was created to keep market corruption in check. In the 4<sup>th</sup> century BC, the famous Indian philosopher and statesman Kautilya wrote about the corruption of government tax collectors. In Islamic countries during the medieval period, the system of *hisbah* was employed to control moral decay including social and economic corruption (Ketkar et al., 2005). In modern era, corruption has become prevalent and entrenched in many parts of the world, particularly in developing countries.

Many studies have analyzed the economic consequences of corruption using alternative theories, such as rent-seeking, public choice, transaction cost, institution and social cost, property rights, socio-cultural perspectives, etc. (Zhao et al., 2003). The mainstream view is that corruption breeds inefficiencies and distortions, which harm the economy. Shleifer and Vishny (1993) found that disorganized corruption reduces economic growth; Besley and McLaren (1993) and Husted (1994) argued that corruption raises transaction costs; Mauro (1995) suggested that corruption entrenches inefficiency, and Gupta et al. (1998) found that corruption worsens poverty and income distribution. The alternative view is that corruption can facilitate decision-making and enhance efficiency. Rashid (1981) developed a theoretical model that showed corruption can “grease” the economic system and result in a *Pareto Optimal* outcome; Beck and Maker (1986) suggested that in bidding competition, the most efficient firms in fact pay the highest bribes; and Braguinsky (1996) argued that in a competitive market, limited corruption can boost innovation and weaken monopoly, which promotes economic growth.

Theoretically, corruption can act as a *grabbing hand* by raising transaction costs for foreign investors (Bardhan, 1997). Extra costs arising from paying commissions to politicians/bureaucrats for big contracts or bribing local officials for licenses/permits, utilities connection, police protection, tax assessment, etc. raise the overall cost of doing business and lowers profitability of investment. Corruption also creates the risk of losing reputation and brand goodwill in the event of getting tangled up in an international corruption scandal (Zhao et al., 2003). Furthermore, corruption creates market distortions by providing corrupt firms preferential access to lucrative markets (Habib and Zurawicki, 2002). Finally, corruption can negatively affect important determinants of FDI, such as economic growth (Mauro, 1995), productivity of public investment and quality of infrastructure (Tanzi and Davoodi, 1997), and education and healthcare services (Gupta et al., 2000).

On the other hand, corruption can also act as a *helping hand* by “greasing the wheels of commerce” in the presence of weak legal and regulatory frameworks (Bardhan, 1997). Several early studies, such as Leff (1964) and Huntington (1968), suggested that corruption serves as “speed money” that allows investors to bypass bureaucratic red tape. Lui (1985) also suggested that corruption creates efficiency by expediting decision making and allowing businesses to avoid heavy government regulations. Tullock (1996) argued that in developing countries bribes help supplement low wages and allow the governments to keep the tax burden low, which contributes to growth – an important determinant of FDI. Houston (2007) also found that corruption can raise economic growth in countries that have weak legal frameworks, and Swaleheen and Stansel (2007) found the same in countries with high economic freedom.

Many studies have estimated the effects of corruption on FDI inflows, and the empirical evidence found is overall mixed, at best. Several studies have found results that support the *grabbing*

*hand* hypothesis, i.e. the prevalence of corruption reduces FDI inflows. For example, Drabek and Payne (1999) found that high levels of non-transparency (a composite measure comprising corruption, weak property rights, poor governance, etc.) reduce FDI inflows and a 1-point rise in transparency ranking can cause as much as 40% jump in FDI. Wei (2000a) analyzed bilateral FDI flows from 12 home countries to 45 host countries, and found that corruption acted like a tax and reduced FDI. Wei (2000b) used bilateral capital flows from 14 home countries to 53 host countries to analyze the effects of corruption on different types of capital flows and found that corruption reduced FDI more than other types of capital flows. Habib and Zurawicki (2002) studied bilateral FDI flows from 7 home countries to 89 host countries, and found that foreign investors are generally corruption-averse, as they view corruption as immoral and operationally inefficient. This study also found that the degree of difference in corruption levels between the home and host countries is also important, as foreign investors are reluctant to deal with the operational uncertainties in a market with a different corruption level. Zhao et al. (2003) studied FDI inflows to 40 countries (from three different groups - OECD, Asia and emerging economies) over 1991-1997 and found that corruption and lack of transparency significantly reduced FDI inflows across regions and economic classifications. Voyer and Beamish (2004) studied a sample of nearly 30,000 Japanese FDI projects in 59 countries, and found that corruption had negative effects on Japanese FDI in emerging economies, but not in industrialized economies. Ketkar et al. (2005) found that corruption reduced FDI inflows to a sample of 54 developing and developed countries. Simulation results showed that a 1-point improvement in the corruption index can raise FDI by 0.5% of GDP.

Several other studies, such as Wheeler and Mody (1992) and Henisz (2000), have found evidence supporting the *helping hand* hypothesis, and a few studies found no evidence to support the *grabbing hand* hypothesis. For example, Akcay (2001) studied FDI inflows to a cross-section of 52 developing countries, and using two different indices of corruption, found no evidence that corruption significantly affects FDI. Smarzynska and Wei (2002) found that foreign investors prefer to set up joint ventures with local partners in corrupt transition economies than to establish subsidiaries. Caetano and Caleiro (2005) applied the *fuzzy logic* approach to FDI inflows to 97 countries and found two clusters: high-corruption countries, where corruption significantly reduced FDI, and low-corruption countries, where corruption weakly affected FDI. Houston (2007) found that corruption reduced economic growth in countries with sound institutions (i.e. strong legal and regulatory frameworks), but the contrary was found in countries with weak institutions. Cuervo-Cazurra (2006) found that host country corruption reduces FDI from home countries that are signatories to a prominent anti-corruption legislation (*OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions*). However, the contrary was found for FDI flowing from relatively corrupt home countries to corrupt host countries, which suggests that investors from relatively corrupt home countries are more likely to invest in host countries with high levels of corruption.

Several studies have concluded that other economic factors, particularly domestic institutions, are more significant determinants of FDI than corruption. For example, Abed and Davoodi (2000) found that low levels of corruption attract more FDI in transition economies, but structural reforms exert much stronger impact on FDI vis-à-vis lower levels of corruption. Egger and Winner (2006) used 1983-1999 panel data to study the effect of corruption on bilateral FDI from 21 OECD countries flowing into 59 recipient countries. This study found that intra-OECD FDI is negatively affected by the presence of corruption, but extra-OECD FDI is affected more by other economic factors (e.g. economic growth and changes in factor endowments) than by corruption, and the impact of corruption vis-à-vis other factors (such as market growth) on FDI has diminished over time. In a panel study of 117 host countries over 1984-2004, Al-Sadig (2009) found that for every one-point increase in the corruption level, the per capita FDI inflows decrease by about 11%; but when the quality of institutions in the host countries is accounted for, the negative coefficients of corruption turn insignificant, and even barely positive.

To the best of the author's knowledge, no study has focused on estimating the impact of corruption on FDI inflows in the sample countries/regions selected for this study - East Asia and South Asia. Although some countries from this sample have been included in other studies as developing/emerging countries, but no study has studied the topic exclusively for East Asia vis-à-vis South Asia. Given that China and India have recently emerged among top destination countries for

FDI, this study will make a unique contribution to the FDI literature and improve our knowledge about whether FDI in these regions are affected more by the *grabbing hand* or the *helping hand* of corruption.

### 3. Methodology, Data and Estimation

The theoretical framework of FDI models is generally grounded in the OLI (ownership, location, and internalization) paradigm developed by Dunning (1988: 1), which sought to “identify and evaluate the significance of the factors influencing both the initial act of foreign production and the growth of such production”. The ownership (O) factor addresses the “why” aspect of foreign production and is affected by the availability of firm-specific resources and capabilities. The location (L) factor addresses “where” to locate foreign production and is driven by the search for new markets, efficiency, and strategic assets. The internalization (I) factor addresses “how” firms internalize markets and is affected by transaction and coordination costs. The level of corruption can affect the locational advantage of a host country; hence, it is typically treated as a location (L) factor. Higher transaction costs caused by corruption can also affect the internalization (I) factor (Habib and Zurawicki, 2002; Voyer and Beamish, 2004; Caetano and Caleiro, 2005).

This study uses panel data from 1995-2011 covering 9 countries from East Asia (Cambodia, China, Indonesia, Lao, Malaysia, Philippines, S. Korea, Thailand and Vietnam) and 7 countries from South Asia (Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka). In line with the current literature, a general-to-specific modeling approach comprising the following regression equation is used (subscript *i* refers to countries and *t* refers to time).

$$FDI_{i,t} = \alpha + \beta_1 \text{Corruption}_{i,t} + \beta_2 \Delta FDI_{i,t-1} + \beta_3 \text{Economic Freedom}_{i,t} + \beta_4 \text{Rate of Return}_{i,t} + \beta_5 \text{Infrastructure}_{i,t} + \beta_6 \text{Human Capital}_{i,t} + \beta_7 \text{Market Size}_{i,t} + \beta_8 \text{Political Stability}_{i,t} + \beta_9 \text{Region}_{i,t} + \varepsilon_{i,t}$$

Selection of these explanatory variables has been guided by the empirical literature. The lagged change in FDI ( $\Delta FDI_{i,t-1}$ ) has been added following Noorbakhsh et al. (2001) and Quazi (2007); economic freedom has been added following Quazi and Mahmud (2006) and Quazi (2007); return on investment has been added following Edwards (1990), Jaspersen et al. (2000), and Quazi (2007); infrastructure has been added following Loree and Guisinger (1995) and Quazi (2007); human capital has been added following Hanson (1996), Noorbakhsh et al. (2001) and Quazi (2007); market size has been added following Schneider and Frey (1985), Loree and Guisinger (1995), Jaspersen et al. (2000), Wei (2000a) and Quazi (2007); and political stability has been added following Schneider and Frey (1985), Edwards (1990), Loree and Guisinger (1995), Hanson (1996), Jaspersen et al. (2000) and Quazi (2007). These variables are explained in the next section.

#### Model Rationale

*Corruption:* The primary focus of this study is to determine the impact of corruption on FDI. Although the precise definition of corruption may be debatable, many FDI studies, e.g. Wei (2000a), Habib and Zurawicki (2002), Zhao et al. (2003), Voyer and Beamish (2004), Ketkar et al. (2005), and Egger and Winner (2006), have adopted the *Corruption Perceptions Index* (CPI) published by the Transparency International as a reliable measure of corruption. Although there are other measures of corruption, e.g. the International Country Risk Guide from Political Risk Services (ICRG-PRS), but those measures focus more on the political risk of corruption (Egger and Winner, 2006).

**Table 1. Corruption Perceptions Index Mean Scores**

East Asia	Mean Score	South Asia	Mean Score
Cambodia	2.08	Bangladesh	1.89
China	3.30	Bhutan	5.56
Indonesia	2.32	India	3.01
Korea, S.	4.77	Maldives	2.68
Laos	2.28	Nepal	2.49
Malaysia	4.96	Pakistan	2.31
Philippines	2.75	Sri Lanka	3.35
Thailand	3.34		
Vietnam	2.64		

The CPI index defines corruption as the “misuse of public power for private benefit” and uses survey data to measure the perceived levels of public sector corruption in more than 170 countries (Transparency International, 2012). The index scores countries from 0 (highly corrupt) to 10 (very clean), so a higher CPI score reflects less corruption. Table 1 (see last page) shows the mean *Corruption Perceptions Index* (CPI) scores for countries included in the sample. If the estimated coefficient of the CPI index ( $\beta_1$  in the regression equation) turns out positive, that would imply that higher CPI scores (i.e. less corruption) attracts more FDI, which will support the “grabbing hand” hypothesis, and a negative estimated coefficient will imply the opposite (i.e. higher level of corruption attracts more FDI), which will support the “helping hand” hypothesis.

*Lagged Changes in FDI ( $\Delta FDI_{i,t-1}$ ):* Since foreign investors are typically risk averse and tend to avoid unfamiliar territories, it is important for host countries to establish a track record of attracting FDI, which can help dispel the foreign investors’ fear of investing in an unknown location. Also, there is evidence that many multi-national corporations (MNCs) test new markets by staggering their investments, which gradually reach the desired levels after some time adjustments. Incremental lagged changes in FDI ( $\Delta FDI_{i,t-1}$ ) should therefore contribute positively toward the current level of FDI. This study uses net foreign direct investment inflows (% of GDP) as a measure of FDI.

*Economic Freedom:* The general quality of investment climate in host countries plays a critical role in attracting FDI. The investment climate is, however, determined by a host of economic and non-economic factors, which makes it difficult to construct an accurate indicator of the investment climate. The annual *Economic Freedom Index*, jointly published by the Heritage Foundation and *Wall Street Journal*, can be used as a proxy for domestic investment climate. This index also includes measures of financial liberalization and trade openness – variables that have been used in many FDI studies. To avoid multicollinearity, these variables are not included separately in the regression equation.

*Rate of Return on Investment:* Higher rate of return on investment in a host country should attract more FDI. However, due to the absence of well-developed capital markets in most developing countries, measuring the rate of return on investment is difficult. Several studies, such as Edwards (1990) and Jaspersen et al. (2000), have proposed a proxy variable for rate of return on investment -- the inverse of per capita income. The rationale is that return on investment should be positively correlated with the marginal productivity of capital, which should be high in capital-scarce poor countries, where per capita income is low (or the inverse of per capita income is high). Therefore, the inverse of per capita income should be positively related to FDI inflow. This study uses the natural log of the inverse of per capita real GDP as a proxy for rate of return on investment.

*Infrastructure:* Availability and quality of electricity supply, telecommunication networks, roads, highways, airports, seaports, etc. should increase productivity and thereby boost the locational advantage of a host country. This study uses natural log of per capita electricity use (in kilowatt hours) as a proxy for the availability of infrastructure<sup>2</sup>.

*Human Capital:* Although MNCs are often attracted to developing nations by the abundance of cheap labor, the cost advantages can however be counterbalanced by the low labor productivity. Higher level of human capital is a good indicator of the availability of skilled workers, which, along with cheap labor, can significantly enhance the locational advantage of a host country. This study uses natural log of per capita healthcare expenditures as a proxy for human capital<sup>3</sup>.

*Market Size:* An important determinant of “market seeking” FDI, where the primary objective of MNCs is to serve the host market, is the market demand of MNC product in host countries. This type of FDI generally avoids poor countries, where consumers do not have adequate purchasing power. The sample countries included in this study comprise one high income country (S. Korea) and several low income but emerging economies with booming urban population (Malaysia, Thailand,

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<sup>2</sup> Two other proxy variables for infrastructure (natural log of telephone lines per 100 people and natural log of road km per 100 sq. km of land area) were also included in alternative model specifications, but neither one turned out with satisfactory statistical properties.

<sup>3</sup> Two other proxy variables for human capital (natural log of life expectancy at birth and share of GDP spent on healthcare expenditures) are also included in alternative model specifications. Results for all three proxy variables for human capital are shown in Table 3.

Philippines and Indonesia). It is therefore possible that some FDI flowing to this sample is “market seeking” in nature, which should respond to the domestic market potential. The natural log of per capita real GDP (adjusted for purchasing power parity) is used as a proxy for the market size.

*Political Stability:* A significant factor in the FDI location decision of foreign investors is political stability in host countries. Political instability/uncertainty usually creates an unfavorable business climate, which seriously erodes the risk-averse foreign investors’ confidence in the host country and drives FDI away. Since measuring political uncertainty is difficult, some studies such as Edwards (1990) used strikes, political assassinations, and coups d’état to construct indices of political instability, and some studies, such as Alam and Quazi (2003), Lensink et al. (2000) and Quazi (2007), used dummy variables as proxies for political risk. This study uses the “Political Stability and Absence of Violence” indicator developed by the *Worldwide Governance Indicators* (WGI) project as a proxy for political stability. This indicator uses a large dataset collected from survey institutes, think tanks, NGOs, international organizations, and private firms, and measures “perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism” (WGI, 2012)<sup>4</sup>.

*Regional Difference:* It can be hypothesized that East Asia enjoys a locational advantage over South Asia as a destination of FDI due to several factors, such as the “China factor”, high degree of government interventions, government-led export oriented industrialization, broad-based education policies, etc. These factors may have created an overall economic orientation in East Asia that is more conducive to foreign investment than in South Asia. The estimated coefficient of the dummy variable (*Region*) will capture the regional disparity in FDI inflow, which can further explain the location (*L*) factor of the OLI paradigm.

It may be argued that China is a special case among the FDI recipient countries. Following the Communist takeover in 1949, which resulted in a significant outflow of capital to Hong Kong, China remained closed to foreign capital until the late 1970s. Gradually opening up to foreign capital, China has now become one the largest FDI recipients among developing countries. The lure of the “China Market” continues to attract billions of dollars worth of new FDI each year, which jumped from \$34 billion in 1995 to a peak of \$121 billion in 2007, and has thereafter receded due to the global economic slump (World Bank, 2012). This spectacular success can be attributed to an abundance of natural resources and labor, geographical proximity to Hong Kong and Taiwan, “round-tripping” of domestic capital via Hong Kong, steady economic reforms coupled with the iron-fist control of government over the political system, etc.

The early reforms of late 1970s, which led to the creation of Town & Village Enterprises (TVEs) and the replacement of collectivism by household responsibility system, were the first steps for the erstwhile closed Chinese economy toward market efficiency. These reforms were subsequently consolidated in late 1980s and late 1990s leading up to China’s accession to WTO, which contributed to significantly opening up the economy. The timing of these reforms proved to be quite opportune for China, as they coincided with the massive outflow of FDI from southeast and northeast Asia. The economic prosperity enjoyed by the coastal regions of China, due to more open economic orientation vis-à-vis the interior, has now become the catalyst for extending economic reforms to the interior. Economic liberalization seems to have taken firm roots in China, which bodes well for continued FDI influx (Brooks and Hill, 2004).

The unique political regime in China, run by a one-party system with no opposition, has also yielded significant locational advantages, where political decision making is generally quick and smooth – the absence of which arguably repels specially large FDI projects from other developing countries, such as India (Nageswaran, 2004). It has been also argued that local businesses find it easier in a democratic environment to seek protection from FDI by utilizing their contacts with elected officials and politicians. Broad political participation by multiple interest groups in an open democracy may create policy outcomes that are contrary to the interest of foreign MNCs. Therefore, the iron-fist

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<sup>4</sup> The WGI project reports governance indicators for over 200 economies for six dimensions of governance - political stability and absence of violence, voice and accountability, government effectiveness, regulatory quality, rule of law, and control of corruption.

control of government over the political apparatus and the consequent absence of democratic institutions in China have possibly created a political environment that is generally conducive to FDI.

Hong and Chen (2001) noted that culture and geography also play significant roles in attracting FDI to China from Hong Kong and Taiwan. They found that nearly 65% of all FDI in China comes from these two economies. Close geographical proximity and cultural affinity to China are particularly important for FDI from Hong Kong, which is the largest source of FDI to China. Nearly 85% of all FDI from Hong Kong is located in smaller cities in southern China, where investors from Hong Kong have evidently used their Cantonese language and culture connections to establish a strong FDI base. However, it is estimated that as much as 20% of FDI flowing to China may still be “round-tripped” domestic capital (Brooks and Hill, 2004).

Furthermore, as many as four of the countries in the East Asian sample (S. Korea, Indonesia, Malaysia, and Thailand) are classified as “high performing Asian economies” (HPAEs) that achieved high economic growth in recent decades – a phenomenon also referred to as the East Asian Miracle in the economic growth literature. The HPAEs achieved higher economic growth than any other developing regions during the mid-1960s to 1990s (Page, 1994). S. Korea is also one of the “four tigers” (the other three are Hong Kong, Singapore, and Taiwan), and Indonesia, Malaysia, and Thailand are part of the Newly Industrialized Economies (NIEs). Other factors that may have contributed to the locational advantage of the sample East Asian countries include proximity to capital-rich countries like Japan and Taiwan and prevalence of the Confucian culture that may have created a more harmonious work environment there.

Data: Data on annual FDI inflow, per capita real GDP, infrastructure, and human capital are collected from the *World Development Indicators* (World Bank, 2012), economic freedom index is collected from the *Index of Economic Freedom* (Heritage Foundation/Wall Street Journal, 2012), political stability index is collected from the *Worldwide Governance Indicators* (WGI, 2012), and corruption index is collected from the *Corruption Perceptions Index* (Transparency International, 2012).

Results: Since the sample data comprises panel data, the Generalized Least Squares (GLS) panel estimation methodology is applied to estimate the regression model<sup>5</sup>. A total of seven regression models are estimated, the first four of which are presented in Table 2 (see next page). Results from Model 1 show that except for economic freedom, all other explanatory variables (i.e. incremental lagged changes in FDI, rate of return, infrastructure, and regional difference) turned out statistically significant with the correct *a priori* signs, and the coefficient of *Corruption Perceptions Index* came out statistically significant and positive. In Model 2, 3 and 4, three other explanatory variables (market size, human capital, and political stability) are added to Model 1. Each one of these three variables turned out statistically significant with the correct *a priori* signs, and more importantly, the coefficient of *Corruption Perceptions Index* remained statistically significant and robustly positive in all models. It should be recalled that a higher CPI score reflects less corruption, and therefore the positive coefficient of CPI implies that higher CPI scores (i.e. less corruption) raise FDI inflow, which supports the “grabbing hand” hypothesis of corruption (i.e. negative relationship between corruption and FDI).

Table 3 (see next page) presents the last three models (5, 6 and 7), which re-estimate Model 1 with three different proxy variables for human capital – 1. natural log of life expectancy at birth, 2. share of GDP spent on healthcare expenditures, and 3. natural log of per capita healthcare expenditures. The estimated results show strong robustness for the coefficients of other explanatory variables, and particularly for the coefficient of CPI, which remains statistically significant and positive in all models, lending strong support to the “grabbing hand” hypothesis. The estimated coefficients of CPI range from 0.35 to 0.76, which suggest that a 1-point increase in CPI score can raise annual FDI/GDP ratio in the sample by as little as 0.35% to as much as 0.76%. Given that the average annual FDI/GDP ratio in the sample is about 2.50%, the estimated increase in the FDI/GDP ratio by 0.35%-0.76% in fact amounts to a 14%-30% rise from the average level.

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<sup>5</sup> The White test for heteroscedasticity revealed no sign of heteroscedasticity. Therefore, the model was estimated with homoscedastic panels. Also, since the time series are short, it can be reasonably assumed that the panels have a common autocorrelation parameter. Details are available from the author.

**Table 2. Generalized Least Squares (GLS) Panel Estimation**

Explanatory Variables	Model 1		Model 2		Model 3		Model 4	
	Coeff.	z stat	Coeff.	z stat	Coeff.	z stat	Coeff.	z stat
Intercept	5.75	3.02	-11.88	-3.03	-38.72	-2.73	-19.93	-1.28
$\Delta FDI_{t-1}$	0.16	2.11**	0.16	2.31**	0.18	2.58**	0.21	2.20**
Corruption	0.64	2.93**	0.48	2.38**	0.58	2.83**	0.35	1.75*
Economic Freedom	0.03	0.89	0.02	0.62	0.02	0.58	0.01	0.44
Rate of Return	2.45	3.90**	8.69	6.41**	7.41	5.49**	2.58	5.14**
Infrastructure	1.38	3.08**	0.51	1.03	0.41	0.89	1.31	3.36**
Regional Difference	2.17	3.94**	3.50	5.54**	3.14	5.67**	1.84	4.19**
Market Size			8.27	4.93**	6.51	3.85**		
Human Capital					7.76	1.99**	6.90	1.75*
Political Stability							0.50	2.13**
Diagnostic Statistics	n = 161		n = 161		n = 161		n = 125	
	Log likelihood = -251.12		Log likelihood = -241.29		Log likelihood = -241.46		Log likelihood = -166.04	
	Wald $\chi^2_6 = 54.01$ (P value = 0.00)		Wald $\chi^2_7 = 73.57$ (P value = 0.00)		Wald $\chi^2_8 = 95.09$ (P value = 0.00)		Wald $\chi^2_8 = 101.25$ (P value = 0.00)	
**Coefficient statistically significant at 5%; *Coefficient statistically significant at 10%								

**Table 3. Generalized Least Squares (GLS) Panel Estimation (continued)**

Explanatory Variables	Model 5		Model 6		Model 7	
	Coeff.	z stat	Coeff.	z stat	Coeff.	z stat
Intercept	-52.41	-3.28	5.53	2.18	7.62	3.67
$\Delta FDI_{t-1}$	0.18	2.4**	0.16	2.03**	0.15	1.98**
Corruption	0.76	3.58**	0.62	2.60**	0.60	2.63**
Economic Freedom	0.03	1.07	0.01	0.37	0.04	1.13
Rate of Return	2.60	4.51**	1.98	2.68**	3.50	4.26**
Infrastructure	0.87	2.05**	0.91	1.93*	0.74	1.59
Regional Difference	1.79	3.92**	2.64	3.84**	2.94	3.81**
Human Capital 1	14.70	3.62**				
Human Capital 2			0.13	0.81		
Human Capital 3					1.78	3.41**
Diagnostic Statistics	n = 161		n = 161		n = 161	
	Log likelihood = -247.34		Log likelihood = -256.54		Log likelihood = -254.36	
	Wald $\chi^2_7 = 92.00$ (P value = 0.00)		Wald $\chi^2_7 = 34.85$ (P value = 0.00)		Wald $\chi^2_7 = 41.83$ (P value = 0.00)	
**Coefficient statistically significant at 5%, *Coefficient statistically significant at 10%						

The explanatory variables included in this study generally came out with satisfactory statistical results. Three variables, incremental lagged changes in FDI, rate of return, and regional difference, turned out statistically significant with the correct *a priori* signs in all seven models;



infrastructure turned out statistically significant in all but two models, and three other variables - market size, human capital and political stability, turned out statistically significant in at least one model. Only one variable, economic freedom, turned out statistically insignificant. This could be due to possible multicollinearity between the proxy variables of corruption (CPI) and economic freedom (EFI), as the latter is a composite measure that includes “freedom from corruption” along with 10 other “freedom” variables (Heritage Foundation/WSJ 2011)<sup>6</sup>. It is also plausible that EFI perhaps inadequately captures the true effects of economic freedom on FDI, which suggests that future studies should explore alternative proxy variables. The overall diagnostic statistics (measured by log likelihood and Wald  $\chi^2$  statistics) came out satisfactory for all models.

#### **4. Conclusions**

The economic growth literature generally holds that FDI plays an important role in the growth dynamics of developing countries. This study seeks to investigate the role of corruption on FDI in South Asia and East Asia with a panel regression model using 1995-2011 data. This study makes a new contribution to the FDI literature, as it explicitly treats corruption as a determinant of FDI in the sample regions.

Results estimated in this study suggest that foreign investors’ better familiarity with the host economy, political stability, larger market size, higher return on investment, and access to infrastructure and human capital boost FDI inflow, but the prevalence of corruption causes the contrary. The estimated results also suggest that, accounting for the economic fundamentals, there still exists a regional difference in FDI inflow in favor of East Asia over South Asia, which perhaps can be explained by a combination of geo-political and economic factors discussed earlier. While these results are generally consistent with the current FDI literature, however finding corruption a significant and robust determinant of FDI in South Asia and East Asia and quantifying its impact is a new contribution.

Needless to say, strategies should be formulated and policies should be enforced to curb corruption, which will likely foster a healthy economic environment that is not only ready to attract more FDI inflow, but also prepared to nurture the economic ingredients necessary for economic development. The research focus of this study is worthwhile as it seeks to further our knowledge of the FDI dynamics in South Asia and East Asia. A better knowledge of the determinants of FDI is crucial for devising strategies to promote long-term economic development – a course that holds much at stake not only for South Asia and East Asia, but also for the developing countries in general.

#### **5. Policy Implications**

The estimated results are noteworthy for several reasons. First, in addition to the usual determinants of FDI found in the literature, this study finds that corruption is also a significant and robust determinant of FDI in South Asia and East Asia. It is found that a 1-point improvement in *Corruption Perceptions Index* score can lead to as little as 14% to as much as 30% increase in the average annual FDI inflow in the sample. Therefore, in order to attract more FDI, these countries should focus on reducing corruption by enforcing existing anti-corruption policies and/or adopting new strategies. Curbing corruption, however, is an arduous process and may not be achieved overnight. Given the pervasive nexus that exists between politics and corruption, particularly in developing countries, adopting anti-corruption measures may be politically difficult in the short run, but these measures will likely foster a healthy economic environment in the long run that is not only ready to attract more FDI, but also prepared to nurture the economic ingredients necessary for economic development.

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<sup>6</sup> Several studies, e.g. Quazi and Mahmud (2006) and Quazi (2007), found that economic freedom (measured by *EFI*) is a significant determinant of FDI in South Asia and East Asia. However, these studies did not include corruption (*CPI*) as an explanatory variable. Since in the present study, *EFI* did not turn out statistically significant when *CPI* was also included as an explanatory variable, multicollinearity between these two variables is a strong possibility given that *EFI* does include a measure of corruption (“freedom from corruption”).

Higher incremental lagged changes in FDI, which is a proxy variable for foreign investors' incremental knowledge about investment opportunities in host countries, is found to significantly increase the current level of FDI. This result suggests that if a host country is able to successfully attract incremental FDI that will boost foreign investors' confidence in an already familiar host country, which in turn will open the door to additional FDI inflow, thus setting a virtuous cycle in motion. Since the level of FDI is not a policy instrument for host country governments, they should utilize the available pro-FDI policy instruments, which are discussed throughout this section, to dispel the risk-averse foreign investors' fear of investing in an unknown territory, which will help attract additional FDI.

Greater market size, measured by per capita real GDP (adjusted for purchasing power parity), can attract more FDI. Since per capita real GDP is generally affected by economic growth, government strategies to promote higher FDI should comprise pro-growth economic policies, which *per se* is a desirable outcome. Political stability is found to attract more FDI, which suggests that politically destabilizing events erode foreign investors' confidence in the host country economy and reduce FDI inflow. Higher return on investment is found to have positive effects on FDI, which suggests that FDI decisions are driven by profit seeking opportunities, which is hardly surprising. Access to human capital and infrastructure can also have positive impacts on FDI, which policymakers should take into account when designing long-term strategies to enhance the locational appeal of their countries to foreign investors.

Even after accounting for the economic fundamentals (i.e. domestic market size, political stability, rate of return, etc.), East Asia seems to enjoy a locational advantage vis-à-vis South Asia as a destination of FDI. This region is home to several high-performing and newly industrialized economies that have outperformed the South Asian economies in recent years. Furthermore, a range of unique factors, such as geographical proximity to Hong Kong and Taiwan, "round-tripping" of domestic capital via Hong Kong, steady economic reforms coupled with the iron-fist control of government over the political system, etc. have enhanced the locational advantage of China. Finally, prevalence of the Confucian culture, which emphasizes discipline, harmony, submission to hierarchy, and other unique cultural traits, may have also created a less confrontational business environment in East Asia that is conducive to foreign investment.

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