The Driving Factors in Equity Capital Investments: A Study of the Asia-Pacific Country Group

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ABSTRACT

Even though there is an abundant literature analyzing the determinants of FDI, most of these studies have failed to isolate equity capital flows from other FDI financial components. The distinctive feature of equity capital flows, as compared to other components, is that they represent the initial investments into the host country. The main objective of this study is to investigate the main factors that attract equity capital inflows in the 23 Asia-Pacific countries by employing a dynamic panel data method for the period between 2006 and 2014. Our main findings reveal that CR index, GDP, and interest rates are positively correlated with equity capital investments into the Asian country group.
INTRODUCTION

Foreign direct investment (FDI) is financed by three financial components: equity capital, reinvested earnings, and intra-company debt flows. Equity capital investments constitute the most important portion of total investments and represent the initial foreign investments into a host country. Following equity capital investments, reinvested earnings and intra-company debt flows emerge over time as the equity capital stocks gradually grow in the host county. Thus, reinvested earnings and intra-company loans may be classified as subsequent investments in the host county.

Even though there is an abundant literature investigating the determinants of FDI, there are only a handful of studies that separate equity capital flows from subsequent financial FDI components. Because the initial investments take place in the form of equity capitals, a more realistic approach to the determinants of FDI is therefore to consider equity capital investments, rather than total FDI, which includes subsequent financial components as well.

Multinational firms considering how to finance their investments abroad have more options than national firms. Equity capital investments may initially be financed in the home county or in the host county. Following these initial equity capital investments, as the stock of equity capital gradually rises in the host market, multinational firms may have more options in terms of financing additional investments through the subsequent components of FDI (reinvested earnings or intra-company debt flows).

Thus, the main objective of this study is to investigate the main determinants of equity capital investments into 23 Asia-Pacific countries1 for the period from 2006 to 2014. We have chosen this country group because most FDI inflows from developed countries have been directed toward the developing Asia-Pacific country group since the 1990s. As the Economic and Social Commission for Asia and the Pacific (ESCAP) (Asia-Pacific Trade and Investment Report, 2013, p.29) noted, “Much of the relative success of developing countries can be attributed to the Asia-Pacific region. The developing countries in the Asia-Pacific region account for 33% of global FDI inflows, reflecting the region’s solid position as a leading investment destination.”

The main contributions of the study to the existing literature can be expressed as follows: First, the study predicts the main factors driving initial investments into the Asian country group. Second, by employing a two-step system generalized method of moments (GMM) estimation technique, this study captures the endogeneity problems involved with certain variables. Third, this study provides policy implications that are consistent with the empirical results.

The remainder of the paper is organized as follows: Following the introduction, the second section presents the literature review. The third section introduces the data and methodology. The fourth section discuss the empirical results. The final section concludes the study by providing policy implications.

1 Literature Review

Dunning’s (1981, 1988) eclectic theory is the main guide to understanding the determinants of FDI flows. Dunning’s eclectic theory argues that there are three main motivating advantages that foreign investors consider when investing abroad. These advantages are (i) ownership advantage (the production and management techniques or financial strengths of firms), (ii) locational advantages (the existence of natural resources, raw materials, low wages or tariffs, or quotas), and (iii) internalization advantages (advantages arising due to having one’s own business abroad rather than a partnership arrangement).

1 The Asia-Pacific country group includes Armenia, Australia, Azerbaijan, Bangladesh, China, Hong Kong, Kazakhstan, Kuwait, Korea, Madagascar, Mongolia, New Zealand, Pakistan, the Philippines, Sri Lanka, Singapore, Thailand, Turkey, Vietnam, India, Indonesia, Israel, and Japan.
Many empirical studies have investigated the determinants of FDI by focusing on the locational attractiveness of the host country. However, these studies have ignored the fact that foreign investors make the locational decision during the initial stage. Then, during the second stage, they decide how much to invest and how these investments will be financed. Thus, examining the main determinants of equity capital (initial) investments will allow us to paint a more realistic picture of why investors choose a certain country as an ideal investment destination. Although there is an abundant literature that analyses the factors involved in the locational decisions of foreign investors, most of these studies have failed to differentiate equity capital investment from the subsequent components of total FDI. We claim that the macroeconomic and risk factors that attract locational decisions regarding FDI may have varying effects on equity capital investments and the subsequent components of FDI (reinvested earnings and intra-company loans). Our contribution to the existing literature is that we employ equity capital investments, rather than total FDI, as our dependent variable to investigate the locational decisions of foreign investors during the initial stage.

In the literature, one of the most important factors affecting locational decision regarding FDI is market size. Previous research projects have commonly employed gross domestic product (GDP) as an indicator of market size. Market size serves as a necessary condition for utilizing resources efficiently and taking advantages of economies of scale. The studies of Bandera and White (1968), Dunning (1990), Kravis and Lipsey (1982), Night (1985), Culem (1988), Campa (1993), Sader (1993), Tsai (1994), Billington (1999), Erdal and Tataoğlu (2002), Tokunbo and Lloyd (2009), and Eşiyok (2011) have highlighted the importance of market size in attracting FDI flows. These studies have measured the effect of market size using proxies such as GDP, GDP per capita, gross national product (GNP), or GNP per capita.

Another important determinant of locational FDI is the tax structure of the host country. The FDI into a host country with high taxes will be quite low because taxes are one of the most important costs that reduce profitability for investors. Some studies have empirically confirmed a negative relationship between these variables, for example, the studies of Hartman (1984), Cassou (1997), and Kemsley (1998). However, other empirical works could not find any effects on the part of taxes on FDI, for example, the studies of Wheeler and Mody (1992), Yulin and Reed (1995), and Porcano and Price (1996). Furthermore, Swenson (1994) found a positive relationship between FDI and tax rates.

One may also view the country risk variable as a factor determining FDI into a host country. While Dar et al. (2004), Jaspersen et al. (2000), and Bilgili et al. (2012) highlighted the importance of the country risk variable, Sachs and Sievers (1998) noted the importance of political and economic variables in explaining the movements of FDI.

Changes in exchange rate also affect the locational decisions of foreign investors. Many studies suggest that the depreciation of a host country's currency encourages FDI inflows. For example, Froot and Stein (1991), Kaya and Yılmaz (2003), Vergil and Çeştepe (2005), and Kar and Talszől (2008) have argued that host currency depreciation reduces resource costs. Meanwhile, some researchers claim a positive reaction on the part of FDI to changes in exchange rate. These researchers have argued that the appreciation of a host country's currency increases the purchasing power of domestic households, which also leads to higher domestic demand (Campa, 1993; Dhakal et al., 2010). On the other hand, there are a handful of studies that claim there is no relationship between exchange rate and FDI (Sader, 1993; Blonigen, 1997; Tumman and Emmert; 1999).

Another important determinant of FDI is the openness index. Kravis and Lipsey (1982), Culem (1988), De Mello (1999), Lim (2001), and Aqeel and Nishat (2005) have all confirmed that openness is a significant explanatory variable for FDI flows.

Finally, a host country's interest rate is another country-specific factor that may affect locational FDI decisions. However, the real effect of interest rate on FDI flows remains ambiguous. A host country's interest rate may have a two-sided effect on FDI inflows. While high interest rates are seen as increasing the cost of borrowing, at the same time, they may perceived as indicating a return on savings. Thus, studies have found both negative and
positive relationships between a host country’s interest rate and FDI inflows. For example, while Siddiqui, H.A.A., and Aumebonsuke (2014) found a negative relation between FDI inflows and interest rates, Chakrabarti (2001) found a positive relationship between these variables. A handful of studies have found no relationship between these two variables (Faroh & Shen, 2015).

2. Data and Methodology

2.1. Data

The net equity capital investment flows in 23 Asian countries were chosen as our dependent variable. The net values of equity capital investments were estimated by the difference between equity capital inflows and outflows for the host country group. Our explanatory variables were selected as follows: country risk (CR) index, gross domestic product (GDP), GDP growth, corporate tax rates on profits, exchange rates, openness, and interest rates. Along with the explanatory variables, we have also incorporated dummy variables over the study period to capture the effect of the Global Financial Crisis (GFC). We have taken the log of both the dependent and independent variables to avoid the problem of data scaling. All variables are measured in US Dollars. The statistical data on GDP, GDP growth, corporate tax rates on profits, exchange rates, openness, and interest rates were gathered from the World Bank Data retrieval tool (www.worldbank.org). The statistical data on CR were obtained from the Political Risk Service Group (www.prsgroup.org). The expected signs of the coefficients and their brief definitions are provided below:

<table>
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<tr>
<th>Table 1: Expected Signs of the Coefficients</th>
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<td>Explanatory Variables</td>
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<td>CR index</td>
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<td>GDP</td>
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<td>Growth</td>
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<td>Tax Rate</td>
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<td>Interest Rate</td>
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Equity Capital Investments. Equity capital flows represent green-field investments (building a new business from scratch), mergers and acquisitions, and other types of entry modes in the form of equity investments into a host country.

CR index. The CR index is a composite index of financial, political, and economic risk ratings measured by the PRS group. CR ratings range from very high (0-49) to very low (50-100). This means that as CR ratings increase, risks decrease. Thus, the CR index is a measure of the financial, political, and economic confidence level in the Asian country group. Thus, we expect that as CR indices increase, multinational firms will increase their equity capital flows into these countries.

GDP (Gross Domestic Product). GDP is taken as a proxy for market size in a host country. Multinational firms most desire to invest abroad when there is inefficient demand in the market. Our expectations is therefore that a host country will realize more equity capital investments when its GDP level is quite high.

GDP Growth. GDP growth is again taken as a proxy for economic developments in a given host country. Because higher GDP growth may be perceived as a signal that the economy is doing well, this variable is included in the model to determine the effects of economic well-being on equity capital investments.

Corporate Tax Rates on Profits. The corporate tax rate is one of the most important cost factors involved in producing goods and services. Multinational firms are thus likely to move their operations abroad to avoid high tax payments and reduce their costs. We expect a negative relationship between tax rates and equity capital flows.
Exchange Rate. Changes in the foreign exchange rate may affect foreign investors’ decisions to direct their operations abroad. However, the real effect of exchange rate changes remains a controversial issue in the literature. Some researchers have found a positive relationship between these variables, while some others have found a negative relationship, and still others have found no relationship at all. On the one hand, the depreciation of a host country’s currency will make the resources located in the host country cheaper for foreign investors. On the other hand, host currency depreciation may pose a risk to attempts to repatriate earnings back to the home country. Thus, the expected sign of the exchange rate’s effect on equity capital flows is undetermined.

Openness. The openness index is derived by dividing the sum of export and import levels by GDP for the 23 members of the Asian country group. Openness index is an important indicator that measures the involvement of a county in international trade. There are two types of FDI, namely vertical FDI and horizontal FDI. Vertical FDI refers to foreign investments that aim to utilize the lower resource costs in the host county. Foreign investors may carry on their operations in a destination (the host country) where resource costs are lower, rather than exporting their products to other destinations. In contrast to vertical FDI, horizontal FDI aims to meet domestic demand in the host county. Thus, openness may pull in equity capital investments if the aim of the investors is to utilize lower resource costs and meet domestic demand in the host country, and a positive relationship between openness and equity capital investments is expected.

Interest Rate. Interest rates refer to the cost of borrowing to finance foreign investments. The real effect of interest rates on FDI remains controversial. If foreign investors finance investments in the home country, movements in the host country’s interest rate may not affect investment decisions. On the other side, if foreign investors finance investments in the host country, a decline in interest rates may induce foreign investors to locate their investment in the host country. Thus, the real effect of interest rates on FDI depends on the source of financing. Thus, we expect a positive or negative relationship or no relationship between interest rates and equity capital flows into the host country.

2.2. Methodology

Most of panel data, by their very nature, exhibit a dynamic structure. The Arellano and Bond (1991) (AB) method is known to yield consistent estimators that capture the dynamic structure of panel data. This model controls for country-specific effects, which cannot be achieved by using country-specific dummies due to the dynamic structure of the data. Furthermore, the estimator can capture the potential endogeneity problems among some of the explanatory variables. Arellano and Bond (1991) proposed a generalized method of moments (GMM) procedure that yields unbiased and consistent estimators. This GMM technique utilizes the orthogonality conditions that exist between the lagged values of $y_{it}$ and the disturbance $v_{it}$.

The GMM method proceeds via several steps:

By taking the first difference, the model first eliminates the fixed effects in the regression. The resulting equation for the equity capital investments can be shown as follows:

$$\Delta y_{it} = \Delta \alpha_{it} + \Delta \alpha_{it} y_{i,t-1} + \Delta \sum_{k=1}^{2} \delta_{k} X_{it} + u_{it}$$

(1)

where $\Delta y_{it} = y_{it} - y_{i,t-1}$ and $u_{it} = v_{it} - v_{i,t-1}$. Even though this first step eliminates the fixed effects, it leaves the time effect intact, which means that $\Delta y_{it}$ will be still correlated with $u_{it}$ and yield inconsistent and biased estimators.

At this point, Arellano and Bond (1991) proposed employing the lagged levels of the regressors as instruments. This approach is known as a difference GMM estimation, and it is a feasible technique given that the explanatory variables are weakly exogenous and the error term is serially uncorrelated. The orthogonality of the moment conditions can be specified as follows:
Furthermore, Arellano and Bover (1995) and Blundell and Bond (1998) suggest that the Arellano and Bond estimator will yield consistent and unbiased estimators unless the explanatory variables are not persistent over time. Otherwise, as the lagged levels of the variables become weak instruments, one should add additional moment conditions using the lagged first differences (LFDs).

These additional moment conditions can be specified as follows:

\[ E\left[y_{i,t-s} u_{i,t}\right] = 0 \] or \[ E\left[y_{i,t-s} (v_{i,t} - v_{i,t-1})\right] = 0 \] for \( s \geq 2; t = 3, \ldots, T; k = 1, \ldots, 3 \) (2)

As we incorporate additional moment conditions into the model, we have what is called GMM system estimation (GMM-sys). Even though, GMM system estimation yields superior estimators as compared to GMM in difference (GMM-diff) estimators, this technique may create over-identification problems among instruments and may thus weaken the efficiency of the tests. Nevertheless, we adopt the system approach, following Roodman’s (2009) instrument reduction technique by way of imposing lag limits and collapsing the instrument matrix.

The robustness of the estimators can be ensured by post-estimation tests. The main test, called the J test, was developed by Hansen (1982) and is a test of over-identifying restrictions. If the instruments are jointly valid under the null hypothesis, failing to reject the Hansen test ensures there are no over-identification restriction problems among the instruments and thus that the instruments are valid. The Arellano-Bond test for AR (2) investigates this null hypothesis, which is that there is serial correlation for the differenced error term. In this test, a large p value indicates the appropriate specifications of the model.

### 3. Empirical results

Between 2006 and 2014, the unbalanced dynamic panel data for 23 Asia-Pacific countries are estimated by employing a two-step system GMM technique. The estimation results are presented in Table 2 below. Additionally, post-estimation test results are also provided at the bottom of Table 2 to ensure the robustness of our estimators. Accordingly, the Hansen Test and Arellano Bond Test results reveal that there is no second-order correlation in the error terms or over-identification problems among the instruments.
As seen in Table 2, CR risk index, GDP, and interest rates have the power to predict equity capital flows into the Asian country group over the study period. However, we could not find any significant effects on the part of growth, corporate tax rates on profits, exchange rates, or openness variables on equity capital inflows.

We can interpret the results as follows: CR index has a statically significant, positive relationship with equity capital inflows. When the CR index increases by 1%, equity capital investments increase by around 8.2%. In other words, the sensitivity of equity capital investments to the CR index is quite high. As foreign investors feel more confident about the host country's financial, political, and economic conditions, they become more willing to direct their investments into this country group. Furthermore, we have also proven a positive, significant effect on the part of GDP on equity capital inflows. Specifically, a 1% increase in GDP increases equity capital inflows by around 1.06%. This means that as market size increases, foreign investors come to see this country group as an ideal investment destination. Additionally, one can assume that foreign investments into this country group are vertically integrated rather than horizontally integrated. We have also proven a positive, significant effect on the part of interest rates on equity capital flows. When the interest rates in the host country group increase by 1%, equity capital inflows increase by around 1.16%. This interesting result is worthy of explanation: interest rates, by their very nature, involve a tradeoff regarding foreign investors’ decision making regarding FDI and portfolio investments. As we know from economic theory, interest rates and the prices of stocks and bonds change together. An increase in interest rates means an increase in the price of stocks and bonds. Thus, as the prices of portfolio investments increase, the purchasing of portfolio assets becomes more costly. Unsurprisingly, foreign investors may choose equity capital investments over portfolio investments under such conditions. Thus, as interest rates increase in the host market, foreign investors may increase the number of equity capital flows financed in the home market, as compared to the host market.

Finally, we have empirically confirmed that the GFC has a negative effect on equity capital inflows into the Asian country group. As seen in Table 2, equity capital inflows are negatively affected by GFC originating in USA due to the collapse of real estate values in 2007. Furthermore, the 2012 GFC in Europe also had a significant negative impact on capital inflows into Asian Countries in 2013. Because most of the FDI into Asia-Pacific countries has come from the US and European countries since the 1990s, the responses of equity capital flows to the GFC are unavoidable and expected.

CONCLUSION

Even though there is an abundant literature investigating the factors that attract FDI to host countries, most of these studies have ignored the financing structure of total FDI. Total FDI consists of three financial components (equity capital investments, reinvested earnings, and intra-company debt flows). The distinctive feature of equity capital flows, as compared to the other two FDI components, is that they represent the initial investments into the host county.
Thus, this study argues that a realistic approach to finding the determinants of foreign investments should consider equity capital inflows, as the initial investment flows, rather than total FDI inflows, including the subsequent components. Accordingly, the main objective of this study was to investigate the main factors that attract equity capital inflows to the 23 Asia-Pacific countries by employing a two-step system GMM technique for the period from 2006 to 2014.

Our main findings are consistent with the studies of Dunning (1990), Bilgili et al. (2012), and Chakrabarti (2001), who claim positive relationships between FDI and market size, CR index, and interest rates, respectively. Our empirical results have confirmed that CR index, GDP, and interest rates are positively correlated with equity capital investments into the Asian country group. However, we could not find any effect on the part of the other variables discussed in the literature. One potential reason for this is that these variables are not effective in attracting initial, locational FDI but may nonetheless be effective in attracting the subsequent components of total FDI (reinvested earnings and intra-company loans). As foreign investors become more confident regarding the economic, financial, and political uncertainties in a host country, they become more motivated to choose this country group as an ideal investment destination. Higher GDP also induces foreign investors to direct their investments into these high-GDP countries to serve the domestic market. Higher interest rates induce foreign investors to prefer equity capital investments over portfolio investments because they finance their equity capital investments in the home country. Lastly, this study empirically confirms that GFC has a negative effect on equity capital flows into this country group. Our results have certain policy implications: well-structured economic and political policies should be developed to attract more equity capital flows. Furthermore, developed financial markets are needed for multinational firms to carry out their business activities in the host market. Most developing countries suffer from undeveloped financial markets. Our intuition is that Asia-Pacific countries should regulate their financial markets to please foreign investors. In addition, a well-run monetary policy that stabilizes interest rates and balances both types of capital flows (portfolio investment flows and FDI flows) is crucial.

REFERENCES


