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Decision making in foreign direct investment: Cases for China and India

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Abstract

Foreign direct investment (FDI) seems to be the trend for our global development and culture interaction. Seeing that trend in the world, many companies around the world choose FDI to develop. The FDI markets collect many related data of many projects of the multinational companies, and this research goes with China and India (BRIC countries) as cases to analyze. The results will be mentioned in the following parts of the study which are wage levels and country population and GDP growth affecting decision making in FDI of cases.

Keywords: Decision making, foreign direct investment (FDI), projects

Introduction

Foreign direct investment (FDI) by companies around the world has under a big consideration; 4.49 trillion U.S. dollars has been in the total of 58,204 projects of investment (FDI markets – 2003 to 2008). In 2010, FDI to developing countries was at around 573,568 million U.S. dollars in which China got 18% with 105,735 million U.S dollars.

FDI is considered bad news to the local companies while it is viewed to be favorable by local authorities. The growing economy receives about 50% of foreign direct investment worldwide. The project will help the local economy to create jobs. On the other hand, some critics argue that FDI has bad effects to local small businesses.

It is very timely to examine the FDI decisions into two major emerging countries and the factors that affect investment decisions in multinational companies internationally. In this paper, we examine the projects of FDI made in the two economies are growing the largest: China and India. This paper investigated what factors affect multinational companies investing in China and India through projects in FDI.

Literature review

Some other articles have also reviewed this kind of study; for example, Wei (2005) studied the big difference in FDI inflows to China and India. While both countries are considered emerging economies, the paper shows that high flow of FDI in China is mainly due to large domestic markets and international trade relations with more economies OECD, while India is preferred by the OECD labor costs of its relatively cheap, low- risk countries, and cultural similarities. Make a paper model decomposition Oaxaca - Blinder of FDI to measure the distance between the two countries, while

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imposing a random effects model to capture the determinants of FDI for India and China. To avoid any difference of what constitutes FDI of China and India, FDI data from countries outside the OECD has been used in the analysis rather than data reported in the country of India and China. While this article provides rigorous results, the analysis remains at the national level.

In the study of Zheng (2009), it gave a comparison of determinants in FDI into these two countries with the conclusion that economic growth, exports, labour costs, political risk are the main components; while imports and market size and borrowing costs are significant factors in China, geographical and cultural distance are important in India. On the other hand, Lombard and Lombard (2011) figured out China got positive effect of FDI; moderate one came to Indian economy.

We, in this research, focus on the individual multinational company decisions of foreign direct investment into China and India and consider determinant factors of these decisions and the size of the investment.

FDI projects into China and India

From OCO Monitor, FDI Markets, the data are collected; this database includes various types. Thus, we disaggregate into amount, location, industry and ways of FDI together with the amount of jobs. Moreover, The financial statistics and balance sheet, income statement and cash flow statement of companies are also gained to provide enough information for this study.

Figure 1 summarizes the number of FDIs and the number of companies making FDIs. The highest was at 11,684 projects from 6171 firms in 2007. The biggest increase in the number of FDI projects is witnessed between years 2005 and 2006, with 1248 more projects in year 2006. During this time period, 19,961 companies made investments in foreign countries, for a total of 58,204 projects.

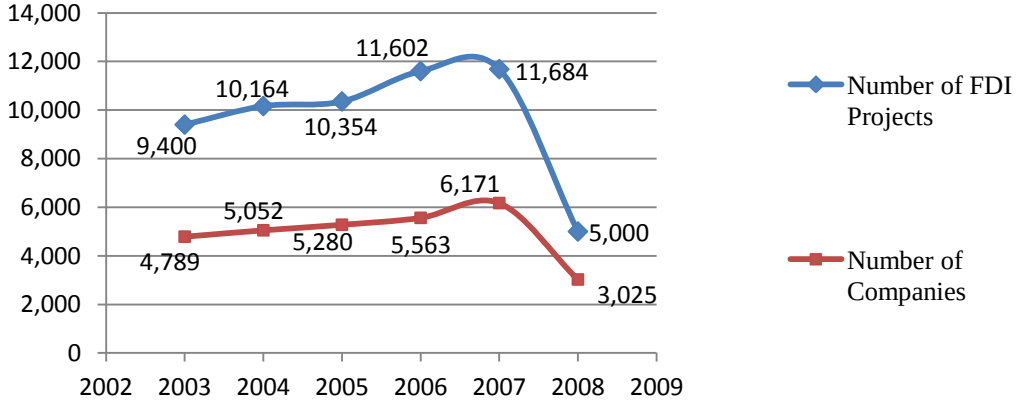

Figure 1: Foreign Direct Investment Projects between 2003-2008
Source: FDI markets

In the table 1, the mean investment amount for the projects is $148,416,920 and estimated investment for the remaining life of the projects is $46,237,345. Maximum number of jobs created is 40,000 while the average amount of jobs created from these foreign direct investments are 266.

Table 1: Summary statistics

	Investment	Estimated Investment	Jobs	Estimated Jobs
Mean	148,416,920	46,237,345	266	223
Standard Deviation	646,305,237	165,205,637	830	467
Kurtosis	311	11,327	654	20
Skewness	15	81	19	4

Maximum	20,000,000,000	24,194,600,000	40,000	3,000
Sum	2,623,714,319,680	1,873,814,630,000	3,201,434	10,289,441
Count	17,678	40,526	12,020	46,184

Source*:* FDI markets – SPSS output

The Chinese and Indian FDI projects are shown clearly in tables 2, 3 and 4.

Table 2: Foreign direct investment projects during 2003-2008 into China and India

	India			China		
Year	**No. of FDI projects**	**Average size (USD)**	**No. of Co.**	**No. of FDI projects**	**Average size (USD)**	**No. of Co.**
2003	97	52,600,000	68	330	100,000,000	216
2004	126	86,400,000	81	337	88,700,000	196
2005	144	56,200,000	86	295	65,600,000	174
2006	179	84,000,000	108	311	56,200,000	198
2007	164	74,800,000	105	274	80,300,000	184
2008	85	125,000,000	68	161	79,500,000	129
…	…	…	…	…	…	…
2014	1,015	37,645.90 m	737	1,835	131,317.40m	1,383

Source: FDI markets

From table 2, a comparison about FDI between these two countries is indicated -- in every year approximately a twice as many inbound projects to China versus India. In 2003 for example, 216 companies invested in 330 projects in China; in the meantime, 68 companies invested in 97 projects for India.

Table 3: Chinese and Indian inward FDI projects between 2003 and 2008

NATIONS	FDI China	FDI India
Australia	13	10
Austria	5	2
Belgium	7	4
Brazil	3	-
Canada	27	9
China		7
Denmark	13	18
Finland	17	5
France	115	42
Germany	127	72
Greece	1	-
Hong Kong	90	9
Iceland	1	-
India	28	-
Indonesia	2	-
Ireland	3	1
Israel	6	4
Italy	19	18
Japan	305	68
Malaysia	30	9
Netherlands	36	19
New Zealand	1	1
Norway	4	1
Philippines	1	-
Poland	1	-
Portugal	2	-
Qatar	2	1
Russia	3	
Singapore	28	6
South Korea	112	52
Spain	11	
Sweden	10	12
Switzerland	24	7
Taiwan	63	8
Thailand	12	2
Turkey	-	1
UAE	5	17
UK	88	59
USA	493	341

Source: FDI markets

According to Table 3, several global multinational companies invested into both China and India, where the majority of projects originated from the United States. Table 4 categorizes FDI projects into China and India by industry; there were 19 FDI projects into China from the aerospace industry whereas there were 8 in the same sector into India. In the whole picture, the software and IT services has been the most invested industry for China and India from 2003 to 2008.

Table 4: 2003-2008 projects by industry

Sectors	FDI	
	China	India
Aerospace	19	8
Alternative/renewable energy	6	12
Automotive components	97	17
Automotive OEM	75	42
Beverages	25	10
Biotechnology	10	5
Building & construction materials	22	15
Business machines & equipment	42	13
Business services	40	43
Ceramics & glass	8	8
Chemicals	129	18
Coal, oil and natural gas	66	32
Communications	23	25
Consumer electronics	60	47
Consumer products	67	17
Electronic components	88	29
Engines & turbines	36	19
Financial services	122	38
Food & tobacco	67	7
Healthcare	8	5
Hotels & tourism	14	2
Industrial machinery, equipment & tools	83	24
Leisure & entertainment	18	20
Manufacturing	1	
Medical devices	2	2
Metals	68	26
Minerals	4	1
Non-automotive transport OEM	1	
Paper, printing & packaging	23	5
Pharmaceuticals	28	14
Plastics	53	13
Real estate	22	20
Rubber	26	2
Semiconductors	82	27
Software & IT services	122	156
Space & defense	3	
Textiles	37	10
Transportation	54	20
Warehousing & storage	45	41
Wood products	12	2

Source: FDI markets

Determinants to FDIs into China and India

By this section, we analyze the macro and micro elements affecting to the FDI projects into China and India. The first encoded is a binary variable which means "1" (FDI into India) and "zero" (elsewhere – not China). The second model, the binary variable is vice versus with the first one -- a value of 1 if the firm pursued an FDI into China, and zero elsewhere. Finally, our third model measures the aggregate of firms where our binary variable takes a value of 1 if the MNE is investing into either India or China, and zero otherwise. Thus, the fully specified model now takes the following form:

GPD is a very important determinant since it can determine the state of an economy and can attract foreign investors. Relative market size and growth (denoted by log GDP) is considered to be a strong factor in foreign direct investment. Due to high levels of GDP reflects a higher level of consumption, which will lead to our assumptions.

Hypothesis 1 (H1): *High GDP and large population affect multinational companies to invest FDI in to China and India*.

Hypothesis 2 (H2): *Bigger, more efficient firms are tenderly to seek FDI in India and China*.

Hypothesis 3 (H3): *Multinational corporations want to invest in developing economies like China and India.*

Hypothesis 4 (H4): *Affordable labor markets attract FDI*.

As the dependent variable is binary, a probability model is appropriate, and not a linear probability (OLS) model. This is true, linear probability model to predict the probability of predictable [0,1] range, it would be unreasonable to explain, but also from outside the heteroscedasticity pain. Therefore, the application of probabilistic model is sufficient. The possibility of being configured to:

These explanatory variables in logs include

- *Market size,* LogGDP is the logarithm of the absolute value of GDP per capita (PP, in current international dollars).
- *Trade Openness,* LogTRADE is a proxy for trade openness. It is the logarithm of exports/GDP ratio. Good effects were found in studies of Sun *et al*. (2001), Skabic and Orlic (2007)
- *Taxes,* LogTAXEs, is the logarithm of tax levels (cf. Kemsley, 1998; Billington, 1999)
- *Inflation,* LogINF is the logarithm of inflation rate.
- *Real wages,* LogW is the logarithm of real wages. Globerman and Shapiro (1999) Skabic and Orlic (2007) found to be negative.

Model specification

$$FDI_{it} = \beta_0 + \beta_1 X_{it} + \delta t + \eta_i + \varepsilon_{it} \quad (1)$$

FDI_{it} denotes the FDI inflows, *X:* explanatory variables which are in the logarithm form; $\eta_i$is the unobserved time-invariant specific effects; δt captures a common deterministic trend; ε_{it} is a random disturbance assumed to be normal, and identical distributed (IID) with E (ε_{it})=0; Var $\varepsilon_{it} = \sigma^2 \rangle 0$

$$FDI_{it} = \rho FDI_{it-1} + \beta_1 X_{it} - \rho\beta_1 X_{it-1} + \delta t + \eta_i + \varepsilon_{it} \quad (2)$$

Here is the result (see table 5).

Table 5: The results of specification models

	India	**China**	**Both**
ROA	0.88** (.44)	.46** (.24)	.57** (0.16)
Log (debt)	0.09 (0.08)	0.35*** (0.13)	0.2** (0.08)
Log (asset)	-.29*** (0.10)	-.47*** (0.15)	-.33*** (0.3)
Country risk	-3.8*** (1.13)	-16.22** (1.66)	-4.01** (1.4)
GDP growth	0.25*** (0.05)	0.55*** (0.07)	0.33*** (0.09)
Inflation	(0.07) (0.03)	0.06 (0.06)	-.15** (0.07)
Log (population)	.27*** (0.074)	.92*** (0.16)	.56*** (0.12)
Hourly wage	-.047** (0.02)	-0.06*** (0.028)	-0.051*** (0.02)
Distance	.00004** (0.00002)	-.0001*** (0.00005)	.0001* (0.00003)
Industry controls	Yes	Yes	Yes
No. of observations	446	531	571

Note: Robust standard errors are reported in parenthesis. * p < .10, ** p<.05, *** p< .01 The results in column 1 are based on characteristics of 40 firms investing into India versus 406 investing into other countries. Similarly, the results from column two are derived from 125 firms investing into China versus the same 406 firms that invested elsewhere. Thus, the final specification model shown in column 3 is based on the 165 firms that invested in either China or India versus the same sample size of 406 firms that invested elsewhere.

Multinational corporations invest in India or China – third column. In the relevant macroeconomic variables, the three models show that companies are more likely to invest in India and China in GDP growth in the high cycle. H1--Population and GDP growth is statistically significant at the 1% level, to validate our population growth and GDP growth in India with a direct and significant impact on hypothetical decisions of foreign direct investment to China. Relative market size and growth (denoted by *logGDP*) is considered to be strong determinants of foreign direct investment because of the higher GDP reflects the high level of consumption levels. In order to measure the size of the market, we have decided to look at the population for multinational corporations to invest in India, China, or both effects. On the same aspect, a relatively large market (by the population of the host economy measure) scale has a positive impact on the decision to invest internationally. Have access to such a large market through FDI, there are more opportunities for multinationals to expand and serve these markets. 1% results in a statistically significant level.

The smaller companies, measured by asset size, with high ROA and profit are more likely to invest in India or China when we investigate the role of company statistics on the decision to invest in India and China: at the 1% and 5%, respectively. We can infer that the smaller companies the more flexible they have, which means they can attract or gain more new FDI opportunities (shown in columns 1 and 2 of table 5). In details, column 1 indicates results of research that international firms do FDI into India compared with other countries and column 2 for China. Interestingly, the same situation exists for 2 cases i.e. small size firms tend to invest more into our target companies. Moreover, the capital issue is also an important factor to determine in FDI (into China and India, especially). This is also mentioned in column 3, both these large economies share characteristics that firms deem attractive when investing internationally. We can go to conclusion that our H2 is correct, i.e. smaller and more mobile companies tend to invest into China and India.

Next, the country risk concern is mentioned. Our results show that if the countries in which corporations would like to invest have the higher risk than their own, these ones would not invest in these countries, specifically China or India. These country risks include political risk, currency risk, or economic risk. The significant is at 1% level shown in 3 columns, which demonstrate the H3 is correct.

Inflation is highly correlated to economy, so companies highly consider this factor when they want to do FDI in a host country. Earlier, we expect inflation would have positive impact to the decision of FDI, but FDI into India or China does not bear the inflation determinant. More

significantly, the inverse effect between inflow of FDI and the size of local wages exists when we analyze the industry effect. The results indicate that the corporations are deterred to do FDI in China or India when they see the local wages rising. In short, our H4 is proved to be supported.

This section mainly focuses on the hypotheses and decision in FDI into China and India. The next section discusses the size of foreign direct investments.

Size of foreign direct investments

Now we move on to focus on the impact of various macroeconomic (the company's home country) factors and factors specific to company size (measured in dollars) of investment projects foreign direct investment. The specific factors refer to the company profitability, leverage, and size of company. This model is similar to the case of probit, where the macroeconomic variables of the country today, and not the target country. In this model, we now introduce specific city dummy variables for cities located in China and India. Due to the large size of heterogeneity in China and India – market size, labor regulations and natural resources, controlling for city specific FDI allow to measure the effects of particular financial issue in the indicators of those mentioned MNE's on the decision making of FDI into China and India. In the study of Mukim and Nunnenkamp (2012), they found that the location of specific India area affects to the FDI investment. Specifically, these areas with good infrastructure and with former FDI projects would attract more and more attention of investors into such these areas. It means the micro determinants have certain impacts to the final decision of FDI, in case of India. Marketization reflects the decision as to which province foreign investors locate their FDI within China. For instance, in our sample of MNEs investing into China, there were 167 projects towards Shanghai, 54 projects in Beijing, 29 in Suzhou, and 23 into Guangzhou (see Biggeri, 2012).

Table 6 shows the results of calculated models. Investing into China is presented in column 1, second for Indian and column for both.

Table 6: The result of calculated models

	China	India	Both
ROA	0.18**	-0.74	.16**
	-0.08	-0.61	-0.07
Log (debt)	-0.06	-0.06	-0.06
	-0.06	-0.11	-0.04
Log (asset)	0.23***	0.18	.21***
	-0.07	-0.14	-0.06
Log (GDP)	-0.64***	0.53	-.52**
	-0.06	-0.49	-0.25
Inflation	-0.61***	.74*	-.45**

	-0.03	-0.4	-0.22
Hourly wage	-0.20*** -0.04	-0.03 -0.02	-.19*** -0.04
Distance	.00004*** (.00001)	-.00005*** (.0002)	-0.00008 (.0001)
Industry control	Yes	Yes	Yes
City control	Yes	Yes	Yes
Country control	Yes	Yes	Yes
Language control	Yes	Yes	Yes
R^2	0.602	0.695	.5643
No. of observations	443	151	594

Table 6 also shows that corporations with higher levels of profitability into China or India intend to expand their FDI, specifically shown in column 3 at about 16% -- robust to 5% level. They consider the profitable aspect in the FDIs. Nevertheless, some characteristics found affect to the size of FDI; for instance, companies with lower indexes still investing into India are related the upper levels of FDI which is unlike China (see 2nd column).

By total assets of the firm, an increase up to 10% in the corporation will see 2.1% increasing in the size of FDI into China and India. Mentioned earlier that smaller firms want to invest (more likely) internationally, this is not totally correct. The reason is based on the result updated that larger companies (used asset to compare) are eager to spend the investment world wide by adding capital or expanding the size of FDI. However, this statement is completely true for the case of China but not really correct in India shown the 2nd column.

Further analysis, these result might be affected by some kind of determinants. First, larger firms may have experienced before FDI, providing a transition easier for multinational companies to move to China. Seeing the company has provided more profitable than FDI can also be controlled by the OLI model of internationalization FDI. The company focuses on the production of their goods are guaranteed or intellectual or human capital they not lost in the process of FDI. More importantly, as seen in previous models, our localization of their FDI plays a big role in the emerging countries. It may be the case that more profitable multinational bigger may be better service as the big emerging countries, where over a period of unfavorable profitable companies can keep investors well .

The macro variables and some effects such as city effects, industry effects, and fixed asset effect from the home countries of the FDI projects imply in some ways to the FDI into China. For instance, in the situation of low GDP in home countries, companies have the tendency to invest internationally by FDI. This is proved by our research when the home country per capita or GDP

is low; the MNE's are more likely to do FDI in other nations. This can cause to the low inflation. Just considering a case that when low wages are beneficial, but the per capita income is also lower; which has a direct effect to the profitability of the corporations. Apparently, the results imply that more FDI funding in financial crises or down turn, the large firms are increasingly profitable; they are more inclined to seek profitable ventures during moderately low levels of national income.

Conclusion

In this section, we conclude what we have analyzed of which the FDI decision into China and India of corporations using data from 2003 and 2008. Large-sized market, high GDP growth and low wages are the main factors of the FDI final decisions.

Profitable companies choose to invest into India and China; more profitable companies tend to allocate profits to invest overseas. However, we see significantly different characteristics affect the size of foreign direct investment into India when multinational investment, as opposed to China. In addition, we have also seen in the company (by total assets) increased by 10% the size and scale of foreign direct investment increased by about 2.1 percent to about China and India. However, we have seen an independent company separate investment in China to promote these results, and the results were not statistically company only significant investment into India.

Moreover, those companies with less leveraged record tend to invest into India or China; the results are not important for firms investing into India only. This implies from the results that FDIs are often made by larger and more profitable companies (by asset) and influenced by some determinants. For example, large companies might get experience before coming to FDI, which make them easier in transition to relocate into China. It may be the case that multinational greater benefit could better serve as the major emerging countries, where the unfavorable period of the company profitable investment may well keep.

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