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RESEARCH ARTICLE

THE DETERMINANTS OF GREENFIELD FOREIGN DIRECT INVESTMENT IN FIVE SELECTED ASEAN COUNTRIES

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ABSTRACT

Multinational companies invest in the form of either greenfield FDI or merger and acquisitions and a massive empirical literature is available on determinants of aggregate FDI.The aim of this study is to extend the previous work through the analysis of panel data of five Asean countries, over the period 2002 to 2015, namely Indonesia, Malaysia, Philippine, Thailand and Vietnam in order to identify macroeconomic determinants of greenfield FDI. The study found evidence that GDP and gross fixed capital formation(GFCG) are significantly influential in determining the greenfield FDI from the whole of our selected sample of Asean countries. Therefore, improved level of net amount of fixed capital accumulation and increased level of economic growth is favourable for the host country to attract the greenfield FDI. It is also recommended that countries should improve infrastructure and financial institution to increase foreign investment subsequenlty economic growth in Asean.

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INTRODUCTION

Foreign investments are mainly done in two different ways, firstly, Greenfield investment, establishment of a new asset in another country and secondly by acquiring an existing firm or merging with a firm in a foreign country. Thus, it is not worthless to say there are two main components of Foreign Direct Investment (FDI): greenfield investments and Merger and Acquisitions (M&As). Many essential determinants of FDI, per capita GDP, GDP growth, labor force, market capitalization and control of corruption,have statistically significant positive impact on FDI inflows in most of middle income countries (Erdogan and Unver, 2015). Regardless of these determinants, the importance of good policiesis still there, as good policies made by good institutions. Political stability, the form of institutions, is a significantdeterminant of FDI (Naudé and Krugell, 2007). Similarly, the key determinants of FDI inflows in MENA countries are the institutional variables, size of the host economy, government size and natural resources. In addition, some external factors trade and global liquidity display the significant effect on the determinants of FDI in MENA countries (Mohamed and Sidiropoulos, 2010). There is extensive literature about the macroeconomic determinants ofthe aggregate FDI while fewer studied are present regarding the determinants of disaggregated foreign investment in theform of greenfield FDI and M&As (Globerman and Shapiro, 2005). Moreover, Rossi and Volpin (2004) stated that domestic investor's protection is an important determinant of mergers and acquisitions within a country. To find the determinants of the cross-borderM&As from ASEAN countriesa number of variables such as GDP, trade costs, financial development indicators are significantly influential (Abdullah *et al*., 2016). Furthermore, market size and government effectiveness are very important toenhance the capacity to attract greenfield FDI in African countries (Rolfe *et al*., 2015).

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Literature review

Harzing (2002) tried to explore the variables influencing the choice between foreign acquisitions and greenfield investments. The discussion explores that merger and acquisitions can operate more independently with lower levels of control which were exercised towards both greenfield and acquisitions. Greenfield field FDI displayed a lower level of responsiveness in the form of local production, R&D and the changing in production style. Furthermore, Cheng (2006) incorporates brownfield with conventional greenfield and acquisitionduring investigation of determinants of foreign investment by entry mode in Asean countries. The firms with higher cost for location change and reconstruction incline to merger and acquisitions as compared to greenfield investment.Neto, Brandão, and Cerqueira (2010) investigated macroeconomic determinants of greenfield investments and cross-border merger and acquisitions through the analysis of panel data of 53 countries over the period 1996 to 2006. The results of the study depict that there are many variables which can play a substantial role to all entry modes such as trade openness, human capital and governance. The receiving country specific variables which can effect to greenfield FDI and M&As are Investors' protection and cultural variables.Erel, Liao and Weisbach (2012) analysed a sample of 56,978 cross-border mergers by taking a time period between 1990 and 2007. The geographic location matters in the perspective of chances to do investments in the form of acquisitions. The adjacent countries have more chances to go to merger and acquisitions as compare to the countries have more distance.

Similarly, Nagano (2013) focused on Japanese firms pursuing FDI in emerging countries in Asia and Oceania. The study also provides empirical evidence of the similarities and differences in determinants of cross-border M&A and greenfield FDI. Another essential point is that some host countries encourage both types of FDI. Though criteria to determine the type of FDI by the home country firm is the host-country's legal environment and variables at firm level.The results of study depict that cross-border M&A is not influenced by an enhancement of the host country's intellectual property rights (IPR) protection laws. While greenfield FDI is promoted by such a changing in law to protect the investors. Likewise, Spigarelli, Lv, and Lattemann (2016)analyse the role of institutional distance and host country desirability in finding locational determinants of Foreign investments by Chinese companies. Furthermore, for greenfield and non-greenfield enterprises, entry mode, type of foreign deeds, host country and ownership structure have substantial position to decide. The study reveals that investment firm are interested in countries with reduced rule of law and market size is also another factor for them. Politically stable environment is also a substantial determinant of foreign investment. Furthermore, favourable business environment and pro investors economic policies could be an attractive tool for potential investors (Azam and Ahmed, 2015).

METHODOLOGY AND DATA

The Panel data set for five Asean is balanced that ranges between 2002 and 2015 providing 70 observations.According to Baltagi (2005) extended data series improves degrees of freedom, reduces the multicollinearity problem and provides more efficient estimates than other type of data like time series or cross-section data. To select the appropriate model for analysis of greenfield FDI of five selected Asean countries, tests are executed among common effect, fixed effect and random effect. The redundant fixed effect is performed to do selection criteria between common and fixed effect model. The criteria to decide is pvalue<0.05, NULL hypothesis define common effect and alternate hypothesis is for fixed effect model (Gujarati, 2004).

Furthermore, to investigate the determinants of greenfield FDI the study focused on the linear regression model.

$$Y = \alpha\iota_N + X_j\beta_j + \varepsilon$$

The study reconstructed and dynamically transformed this model as follows.

$$\text{Greenfield FDI} = \alpha_0 + \alpha_1 MA + \alpha_2 TO + \alpha_3\, GFCF + \alpha_4\, GDP + \varepsilon$$

Where

GFDI	= Greenfield FDI
MA	= Merger and Acquisition
TO	= Trade Openness
GFCF	= Gross Fixed Capital Formation
GDP	= GDP per capita

ESTIMATION AND RESULTS

Table I presents summary of the descriptive statistics. The average per capita GDP growth for the countries under study is 7.8 percent and the standard deviation is 0.8. The mean value of GFDI has been found to be 8.8 percent and standard deviation has been 1.7. Furthermore, the average gross fixed capital formation during the study period is 25 percent with a standard deviation of 4.4 showing highest fluctuation among all data. The average and value of standard deviation for trade openness are 3.9 percent and 0.5 respectively. While merger and acquisition shows a mean value 7.9 percent and standard deviation is 1.73. The correlation matrix results in Table II bear correct signs as expected, the greenfield FDI is positively related to GDP, TO, GFCF and merger and acquisitions. The values of coefficient of TO, GDP show that a strong correlation among these variables and GFDI. Regarding estimates of the regression model where greenfield FDI is the response variable and the regressors are GDP, M&A, GFCF and trade openness. The results of redundant effect test do reject NULL hypothesis and do not reject alternate hypothesis for dataset of greenfield FDI of five selected Asean countries. Furthermore, The Hausman (1978) test can be used in order to choose between the fixed effects model and random effects model.In present study, results of Hausman reject NULL hypothesis, but do not reject alternate which defines that random effect model is more appropriate for data analysis of greenfield FDI of five selected Asean countries. To further confirm the appropriate model, Breush and Pagan Lagrangian multiplier test for random has applied. The criteria for selection of model is p-value<0.05, the NULL hypothesis is for common effect and alternate hypothesis is for random effect. The results indicate that NULL hypothesis do reject and alternate do not reject. So, to analyze the dataset of greenfield FDI of five selected Asean countries, random effect model is more appropriate.

In general, study can conclude that there is a group of variables which are substantially important in explaining the form of investment, greenfield FDI.Furthermore, to analyse the determinants of greenfield FDI, results indicate that the coefficients of M&As, GFCF and GDP have positive signs except the unexpected negative sign of TO. A novel and infrequent determinant of greenfield FDI is also used in this study is merger and acquisition. The size of the coefficient is considerable but insignificant. Additionally, it means that in the beginning merger and acquisitions have influential for greenfield FDI but in less extent.Although the theoretically positive relationship between trade openness and greenfield FDI has not been verified by the empirical results as the coefficient is statistically insignificant in the random-effect model. Moreover, negative sign of trade openness is also debatable in the literature. Usually, the parameter is expected to be positive when trade of a country increases it opens the new cosmos for investment. While in our study the reason behind this sign could be initial environment of economic uncertainty in Asean selectedcountries regarding the new investment as greenfield FDI. factor in this analysis as a determinant of GFDI is GDP. Similarly, a country that shows a fast economic growth tends to be host foreign investment through the establishment of new firms (GFDI). This outcome corroborates the findings of Neto *et al*. (2010) who stated that economic growth is an important

Table I. Summary statistics

Summary statistic				
Variables	Mean	SD	Min.	Max.
GFDI	8.814735	0.763995	5.863692	10.2589
M&A	7.92085	1.734579	2.162863	9.378196
TO	3.980657	0.480296	3.048893	4.748171
GFCF	25.05196	4.41486	18.73931	35.1069
GDP	7.873972	0.798233	6.167738	9.333183

Note: EViews8 is used

Table II. Correlation matrix (2002-2015)

Correlation matrix between used variables					
	GFDI	M&A	TO	GFCF	GDP
GFDI	1				
M&A	0.297629	1			
TO	0.585625	-0.140512	1		
GFCF	0.013807	-0.098698	0.342667	1	
GDP	0.362476	-0.39603	0.611403	-0.163882	1

Note: EViews8 is used

Table III. Dependent Variable – GFDI,Random-effects model

Variable	CoefficientRandom-effects	Std. Error	t-Statistic	Prob.
C	2.739313	0.967775	2.830526	0.0062
MNA	0.062639	0.11336	0.552567	0.5825
TO	-0.202275	0.16131	-1.25395	0.2144
GFCF	0.07372	0.014617	5.043621	0.0000
GDP	0.576281	0.133044	4.331509	0.0001
R-squared	0.529194			
Adjusted R-squared	0.500221			
F-statistic	18.26527			
Prob(F-statistic)	0			

Note: EViews8 is used

The estimation coefficient for GFCF is 0.07 and statistically significant means that GFCF have a considerable role to determine greenfield FDI.The positive sign of GDP and its high coefficient value shows that GDP influences the choice of greenfield FDI. The estimation coefficient is 0.57, means that 1% increase in GDP will increase greenfield FDI by 57%. Theestimation coefficient for GDP variable is statistically significant. It indicates that a high GDP growth attracts investments through greenfield FDI.

Conclusion

In order to achieve our objectives of this study regarding the determinates of greenfield FDI the regression paths between macro-economic variables and greenfield FDI were examined. The study applied the common effects, fixed-effects and random-effects models where the both Hausman, Breusch and Pagan Lagrangian multiplier tests favoured the use of the random-effects model. Merger and acquisitions show a positive but statistically insignificant effect in influencing greenfield FDI for the selected five Asean countries. Second variable is trade openness, which shows negative relationship between GFDI and TO meanwhile the result is insignificant. Furthermore, positive sign of GFCFreflects that increase in GFCF is encouraging situation to determine greenfield FDI in five selected Asean countries.Our results showed the positive impact of GDP on greenfield FDI, thus the most influential determinant in attracting FDI, but only in the mode of greenfield FDI. Based on our findings, the study suggests that countries should increase their GFCF to attract greenfield FDI. It is also recommended that amelioration in economic growth should be a goal in many perspectives specially to attract foreign investment in the form of greenfield FDI.

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