Greenfield Investments, Cross-border M&As, and Economic Growth in Emerging Countries

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Abstract

This paper investigates the effect of foreign direct investment (FDI) on economic growth in emerging countries through its two major entry modes: Greenfield investments and cross-border merger and acquisitions (M&As). We found that both Greenfields and M&As contribute positively to accelerate growth. Besides, emerging countries could obtain more benefits from Greenfields and M&As if the human capital levels are enhanced. We also found that while growth did not have any significant impact on Greenfields level, lower economic growth could lead to higher M&A flows.

Keywords: Cross-border M&As, Greenfield Investment, Economic Growth, Emerging Countries

JEL Classification: F21, O40, C36

1. Introduction

Economic research has devoted significant effort to examine the effect of FDI on economic growth. Nevertheless, empirical evidence on whether and how inward investment influences growth still remains to be debated.

Within the neo-classical model, FDI is hypothesed to promote economic growth through its contribution to capital formation (Solow, 1975). In latter papers, Herzer *el al.,* (2008) claim that supplementary capital brought about by FDI under Solow-type standard framework should has no long-run growth impact. The new endogenous growth model on the other hand emphasised the important of human capital and technology in the production function of the recipient economies. According to De Mello (1997), FDI might encourage the incorporation of new technologies and knowledge transfer from more developed nations to less developed one, leading FDI, as a bundle of money capital plus the augment of existing stock of knowledge through human capital spillover and technological diffusion, to have a permanent and

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positive effect on growth. Nevertheless, Alfaro *et al.* (2004) and Durham (2004) proposed that the impacts of FDI on growth may vary differently, depending upon the absorptive capacities of each nation.

Despite this large literature, researchers have looked only on the impact of total inward investment and not differentiated FDI by its type and mode of entry, making empirical studies in this tradition is surprisingly limited. The purpose of this paper is therefore to close the gap in literature by examining the effect of FDI on growth through its two major modes: Greenfield investments and cross-border M&As.

Investigating empirically, Wang and Wong (2009) found that Greenfields can boost growth while M&As might have a reverse effect. Although this is in line with what proposed earlier by UNCTAD (2000), the finding is somewhat conflict either with Blonigen and Slaughter's (2001) argument that Greenfield does not contribute to skill upgrading - an important driver of growth, or Agosin and Machado's suggestion (2005) that M&As could stimulate growth via additional investments in new sectors by the new-acquired firms. Yet again, findings are far from conclusive.

To the best of our knowledge, we are the first to empirically compare and analysis the impact of Greenfields and M&As on growth in emerging countries[2]. Emerging countries provide an interesting case study because although FDI inflows to those nations have increased immensely, empirical research is still neglected and results are mixed at best. Besides, while foreign MNEs could benefit from various emerged opportunities offered in fast-growing markets (Meyer, 2005), they might also expose to a number of rules and regulations set by the host country policy-makers (Agosin and Machado, 2005). Such rules and regulations could in-turn disfavor FDI, and subsequently discourage growth. This motivates us to expand previous studies (i.e. Wang and Wong, 2009) by looking at the potential bidirectional relationship between Greenfield/M&As and growth. Furthermore, by collecting Greenfield and M&As data from two separate datasets available from UNTACD database[3] over the 2003-2014 period, we not only can conduct the most up-to-date study, but also be able to overcome the problem of lacking reliable data claimed by Byun *et al.* (2012).

2. Model Specification

We investigate the two-way linkage between FDI and growth using a dynamic panel two-step GMM estimator. As suggested by Vallascas and Hagendorff (2013), this method is appropriate to deal not only with the problems of unobservable heterogeneity and simultaneity, but also the dynamic endogeneity issue.

Based on the existing literatures (i.e. Anwar and Nguyen, 2010), FDI and growth could be influenced by some other factors. Thus, we incorporate jointly in the *Growth* equation: *Population* (using population growth), *Export* (using export-to-GDP ratio), *Expenditure* (using government expenditure-to-GDP ratio), *Inflation*, *Exchange* (using real-exchange rate), *Human* (human capital, using gross primary enrollment-to-population ratio), *Technology* (to measure technology gap = US. GDP-per-capita – host country GDP-per-capita), *Geographic* (using coastline-to-area ratio) and *Agriculture* (using agriculture-value-added-to-GDP ratio).

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[2] List of countries: http://www.ftse.com/products/downloads/FTSE-Country-Classification-Update_latest.pdf.
Taiwan is excluded since data is not available.
[3] ULR: http://unctad.org/en/Pages/DIAE/World%20Investment%20Report/Annex-Tables.aspx

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Besides, we also examine the indirect effect of FDI through human capital spillover and technological diffusion by incorporating the interaction terms *FDI*Human* and *FDI*Tech* in the *Growth* equations.

In *FDI* equation, we add *Size* (market size, using GDP-per-capita), *Openness* (trade openness, using (Import+Export)/GDP ratio), *Infrast_1* (infrastructure_1, using Mobile Cellular Subscription rate), *Infrast_2* (Infrastructure_2, using internet users per 100 people), *Unemployment* (using unemployment rate), *Geographic*, *Inflation*, and *Exchange* as other determinants of FDI. Our data is collected from either the Worldbank or IMF databases.

Thus, our model is specified as followed:

$$Growth_t = \delta_0 + \delta_1 Growth_{t-1} + \delta_2 FDI_t + \delta_3 Population_t + \delta_4 Export_t + \delta_5 Human_t$$
$$+ \delta_6 Technology_t + \delta_7 Expenditure_t + \delta_8 Georaphic_t + \delta_9 Agriculture_t$$
$$+ \delta_{10} Inflation_t + \delta_{11} Exchange_t + \delta_{12}(FDI_t * Human_t) + \delta_{13}(FDI_t * Tech_t) + \mu_t$$

$$FDI_t = \gamma_0 + \gamma_1 FDI_{t-1} + \gamma_2 Growth_t + \gamma_3 Size_t + \gamma_4 Openness_t + \gamma_5 Infrast\_1_t$$
$$+ \gamma_6 Infrast\_2_t + \gamma_7 Unemployment_t + \gamma_8 Geographic_t + \gamma_9 Inflation_t$$
$$+ \gamma_{10} Exchange_t + \varepsilon_t$$

Where: *Growth* is annual GDP growth rate.

$FDI_t = \{Greenfield_t = Greenfield_t/GDP_t, M\&As_t = M\&As_t/GDP_t\}$.

Note that, *Infrast_1* and *Infrast_2* are used as instruments for *FDI* in *Growth* equations since we expect that these variables will be correlated with *FDI* and not correlated with the error-term μ. Public investment and domestic investment-per-capita are selected as instruments in *FDI* equations since they are assumed to have an effect on *Growth* but no influence on the error-term ε.

3. Empirical results

The results of our model are reported in Tables 1 and 2. Initially, the Hausman specification tests were utilised to test for the endogeneity and since the p-values are all statistically significant, endogeneity is a problem and two-step GMM will offer more consistent results than those reported by OLS. Also, the null hypotheses of Hansen J-tests for overidentification restriction cannot be rejected, while underidentification tests are all statistically significant, indicating that our selected instruments are valid.

Column 1.1 and 1.2 of Table 1 presents estimates for the impacts of Greenfields and M&As on growth, respectively. As can be seen from regression 1.1, Greenfields can directly and positively contributes to accelerate economic growth since the estimated coefficient on *Greenfields* is positive and statistically significant. Similar impact is observed in the case of M&As. While the positive effect of Greenfield on growth is traditionally expected (Agosin and Machado, 2005) due to its expectation to increase capital formation, productivity, and competitiveness level in the recipient economy, the positive M&As-growth nexus provided a somewhat interesting result and different from what found by Wang and Wong (2009). This perhaps is because M&As could also provide the recipient country with additional external financial resources as does Greenfield (Ashraf, 2015). And thus, if the new-acquired firms invest in emerged opportunities arise in new sectors of a fast-growing economy, it could lead to capital formation (Agosin and Machado, 2005).

Table 1: Impact of Greenfields and M&As on Growth

	Growth (1.1)	Growth (1.2)
Greenfields	10.48194 (0.039)*	
M&As		9.678472 (0.051)*
Growth$_{t-1}$	0.223347 (0.045)*	0.228377 (0.057)*
Population Growth	-0.561137 (0.115)	-0.285818 (0.365)
Export	-0.013774 (0.417)	-0.006520 (0.666)
Human	0.309946 (0.004)**	0.304149 (0.004)**
Technology	-0.000123 (0.350)	0.000054 (0.741)
Expenditure	-0.131895 (0.000)***	-0.1459141 (0.000)***
Geographic	-4.844537 (0.530)	-3.685028 (0.651)
Agriculture	0.175462 (0.007)**	0.072290 (0.277)
Inflation	0.08844 (0.118)	0.123417 (0.040)*
Exchange	-0.000209 (0.005)**	-0.000182 (0.010)*
Greenfield*Human	-9.466911 (0.055)*	
M&A*Human		-6.772255 (0.052)*
Greenfield*Technology	-0.001178 (0.651)	
M&A*Technology		-0.005687 (0.224)
Constant	-21.24904 (0.057)*	-27.9594 (0.066)*
Hausman Specification Test (P-value)	0.0828*	0.0727*
Underidentification Test (P-value)	0.0007**	0.0076*
Hansen J-statistic (P-value)	0.3256	0.7449
No. Obs.	158	158

Note: p-values are in parentheses
Significance at 10, 5, and 1% is denoted as *, **, ***, respectively

The coefficients attached to *Growth$_{t-1}$* show that lagged growth does have a consistently significant and positive impact on growth. Whilst human capital appears to be an important driver of growth, economic growth is not affected by technology gap. Government expenditure (*Expenditures*) exhibits a strong negative effect on growth in both Greenfields and M&As equations, and so does the exchange rate (*Exchange*). Inflation and agriculture come up to have no unmitigated impacts on growth, while other factors do not statistically appear to have any growth effect.

Testing for the indirect impacts of Greenfields and M&As on growth, we found that as far as the level of human capital is concerned, emerging countries have not reached the required minimum human capital threshold. Meanwhile, the insignificant and negative coefficients on both *Greenfields*Tech* and *M&A*Tech* show that the flows of advanced technologies brought along by either Greenfields or M&As did not contribute to stimulating economic growth through technological diffusion.

Table 2 reveals several interesting results for the influences of growth on Greenfields and M&As. As noted from Colum 2.1, growth has no influence on Greenfield flows since the estimated coefficient on *Growth* is insignificant. Meanwhile, regression 2.2 indicates that lower economic growth does lead to higher cross-border M&A values. This finding is consistent with what claimed by Byun *et al.* (2012) that

in financial difficult time, targeted-companies became dramatically cheaper due to a sharp depreciation in exchange rate and significant deterioration in firm values.

Table 2: Impact of Growth on Greenfields and M&As

	Greenfields (2.1)	M&As (2.2)
Growth	-0.057295 (0.209)	-0.213741 (0.028)*
M&As$_{t-1}$		0.293304 (0.003)**
Greenfield$_{t-1}$	(0.476723) 0.000***	
Size	0.000020 (0.354)	0.000017 (0.512)
Openness	0.001455 (0.604)	0.011293 (0.008)**
Unemployment	-0.029811 (0.192)	-0.027109 (0.330)
Geographic	-3.779611 (0.437)	7.209771 (0.127)
Inflation	-0.016719 (0.587)	0.0335843 (0.344)
Exchange	0.000019 (0.550)	-0.000012 (0.776)
Mobile Cellular Subscription	-0.004335 (0.307)	-0.021395 (0.019)*
Internet User	-0.000561 (0.960)	-0.007890 (0.477)
Constant	2.11121 (0.001)**	4.309337 (0.002)
Hausman Specification Test (P-value)	0.0000***	0.0000***
Underidentification Test (P-value)	0.2596	0.3059
Hansen J-statistic (P-value)	0.0167*	0.0476*
No. Obs.	220	220

Note: p-values are in parentheses
*Significance at 10, 5, and 1% is denoted as *, **, ***, respectively*

We also found that lagged values have positive and significant effect on Greenfields and M&As. Trade openness appears to directly stimulate M&As, but not Greenfield. Finally, except for infrastructure development in form of mobile cellular subscriptions, other variables appear to have no statistically significant impact on either Greenfields or M&As.

4. Conclusion

Using UNCTAD data, we present new empirical evidence on the impact of FDI in form of Greenfield investment and cross-border M&As on emerging countries' economic growth over the 2003-2014 period. We found that Greenfields and M&As do have positive homogenous effect on growth. Additionally, the enhancement of human capital is an important prerequisite for the host countries to take the most benefits of Greenfields and M&As. Also, there are empirical evidence of a two-way linkage between FDI and growth. However, the bidirectional relationship is existed only for the M&As-growth nexus.

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