Determinants of FDI inflows: Aggregate versus country-specific evidence from ASEAN-6

(iD) **Manh Hung Pham[1+]**

(iD) **Anh Duc Pham[2]**

(iD) **Chi Vu Phuong Dang[3]**

[1,2]*Vietnam Banking Academy, Hanoi, Vietnam.*
[1]*Email: hungpm@hvnh.edu.vn*
[2]*Email: anhpd@hvnh.edu.vn*
[3]*University of the West of England, Bristol, UK.*
[3]*Email: chidang0108@gmail.com*

(+ Corresponding author)

ABSTRACT

This paper seeks to explore the determinants of foreign direct investment (FDI) inflows into six countries of the Association of Southeast Asian Nations (ASEAN), namely Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam, from 1995 to 2019. Estimations for the aggregate model are conducted with the Driscoll–Kraay standard errors panel regression approach, while the country-specific analyses are based on the fully modified ordinary least squares (FMOLS) approach. At the aggregate level, gross domestic product (GDP) growth, trade openness, unemployment, working-age population and interest rate spread are the main drivers of FDI inflows into the ASEAN-6, while per capita GDP, real interest rate and the global financial crisis have no significant impact. The empirical analysis for the specific-country cases yields mixed results, implying that international corporations may have various criteria to evaluate before making investment decisions depending on the development stage of the host country. Our research findings offer several implications for policymakers to attract quality FDI: (i) fostering trade and investment liberalization through taking down trade barriers and tariffs across nations; (ii) enhancing the quality and capacity of the labor force through management policy renovations; (iii) stabilizing interest rates through monetary policy management to ensure macroeconomic stability.

Contribution/Originality: This study contributes to the extant literature by exploring potential drivers of the ASEAN-6's FDI attraction at both the aggregate and country-specific levels. Specifically, novel factors such as working-age population, interest rate spread, and crisis were incorporated in the research model.

1. INTRODUCTION

For the past few decades, the vast majority of countries have improved their corporate investment climate to spur foreign investment. Traditionally, developed countries have dominated both FDI inflows and outflows (Erfani & Berger, 2020). Nevertheless, FDI inflows into developing countries have grown both in size and scope since the early 1990s, when these countries changed their policies and opened their borders to others. Over the last few years, developing economies have proven to be among the most attractive locations for FDI inflows. Furthermore, despite the COVID-19 pandemic outbreak, FDI inflows in developing countries slightly declined by 8% compared with 58% in developed countries (United Nations Conference on Trade and Development (UNCTAD), 2021). According to Milner (2014), FDI has also become one of the most crucial flows in the global economy. It is also a vital source of capital for developing countries. It promotes innovation and financial development, which are important elements for developing countries (Hasli, Ho, & Ibrahim, 2015). Meanwhile, Grace (2019) asserts that FDI enhances market

competition, increases the skill levels of the workforce, and contributes to technology transfers and good governance.

Statistics show that Southeast Asia is one of the most dynamic regions in the world for attracting foreign direct investment. FDI inflows into the ASEAN region hit a record high of $182 billion USD in 2019, making the region the greatest recipient of FDI in the developing world. Figure 1 reveals the status of FDI inflows in six Southeast Asian countries from 1995 to 2019. During this period, FDI inflows to these countries have been on an increasing trend. In Vietnam, FDI inflows have increased by 805%, which is also the highest rate among these countries. Singapore and Indonesia are in second and third, with increases of 671% and 430%, respectively. It is noted that in 2008, when the financial crisis occurred, there was a surge in FDI inflows from Indonesia and Vietnam. Due to the size of the contribution, the rapid development rate, and the stability during crisis periods, it is essential to investigate the variables that influence FDI in Southeast Asia.

Against this backdrop, this paper investigates the determinants of FDI inflows into ASEAN-6 countries, namely Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam, using strongly balanced panel data during the 1995–2019 period offered by the World Bank. The determinants consist of GDP growth, GDP per capita, trade openness, unemployment rate, population, interest rate and interest rate spread, which are derived from "location-specific advantages" in Dunning's (1988) Eclectic Paradigm Theory (EPT). We also incorporate the effect of the 2008 financial crisis on FDI inflows. At the aggregate level, we find that GDP growth, trade openness, unemployment, working-age population and interest rate spread are the main drivers of FDI inflows into the ASEAN-6, while GDP per capita, the real interest rate and the global financial crisis have no significant impact. The findings regarding specific-country cases appear mixed, implying that international corporations may have various criteria to evaluate, depending on the economic growth of the host country, before making investment decisions.

The novelties of this research are reflected in several aspects. First, we enrich the existing knowledge regarding the determinants of countries' FDI attraction. Specifically, prior research has identified the drivers of FDI inflows; however, the contribution of this study is its investigation of potential variables at both the aggregate and country-specific levels. Second, factors such as population of working age, the interest rate spread and the global financial crisis, which have not been broadly researched in the ASEAN-6 in previous studies, have been considered for this study. Third, this research provides a scientific foundation for the design of supporting policies for further attracting high-quality FDI projects in the future.
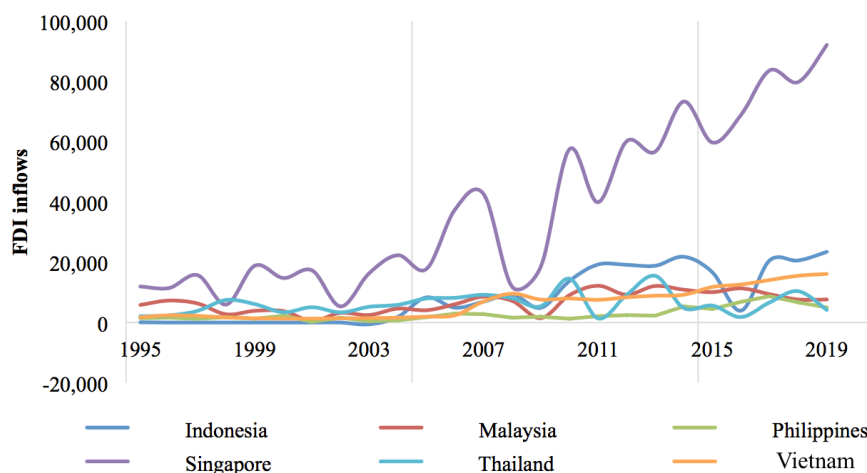

Figure 1. FDI inflows into ASEAN-6, 1995–2019 (in millions of USD).
Source: UNCTAD.

The paper is constructed as follows: Section 2 reviews the theoretical background and literature on FDI; Section 3 formulates the hypothesized relationships; Section 4 presents the data and methodology; Section 5 discusses the main results; and the concluding remarks and recommendations are provided in the last section.

2. LITERATURE REVIEW

FDI is regarded as the catalyst for a nation's economic development, and a huge range of studies have been put forward to explain the theoretical concepts behind FDI. The eclectic theory established by Dunning is among the most common frameworks explaining the nature of FDI attraction. Dunning's eclectic theory has become a typical analytical framework for understanding FDI since it incorporates knowledge of FDI's determinants with other theories associated with FDI, such as international trade theory, location theory, and the imperfect market approach. According to this theory, the scope and structure of multinational operations are influenced by three factors: ownership-specific advantages, location-specific advantages, and internalization benefits, also known as the ownership, location, and internalization (OLI) advantages.

Ownership-specific advantages explain the comparative advantages of unique and valuable resources that cannot be easily imitated and that motivate multinational enterprises (MNEs) to engage in manufacturing activities outside of their home country (Dunning, 2013). The greater the comparative advantages, the more investment the country receives. Ownership advantages include capital, technology, marketing, organization and management skills, along with the advantages of economies of scale. This explains why MNEs go abroad.

Second, location-specific advantages explain what specific advantage a country has to entice MNEs to invest in it over other countries (Dunning, 2013). This might include aspects such as the availability of resources and labor, possible markets, labor costs, market size, macroeconomic conditions, infrastructure, tax rates and tariffs. Therefore, it pinpoints the location, which can be beneficial.

Lastly, internalization-specific advantages illustrate the benefit of a country's production compared with products manufactured through a partnership agreement (Dunning, 2013). Investors have control of the economic features of production activities, organize the establishment, exploit the main competencies, and even make some interventions, specifically government intervention. As a result, internalization advantages describe how MNEs operate in a foreign nation.

According to Dunning, the three factors listed above may be classified into two categories: push factors (ownership and internalization advantages) and pull factors (location advantages). These advantages will alter over time depending on a country's level of development. Many studies have studied different aspects of drawing FDI into nations since Dunning initially introduced his eclectic theory. In the late 1980s, "non-traditional market FDI determinants," such as labor skills and the host country's trade policy, became key considerations aside from "traditional market-related drivers" of FDI (Nunnenkamp, 2002).

First, it is important to review the observable effects on the ability to attract FDI gauged in the previous literature, viz. macroeconomic stability, market size, infrastructure facilities and level of openness. Studying the inward FDI of 59 developing countries from 1996 to 2016, Sabir, Rafique, and Abbas (2019) found that trade openness and GDP per capita have positive and significant effects on FDI inflows, but inflation has a negative effect. These results are also in line with the study by Hoang, Nguyen, and Tran (2018), which found that the main factors positively impacting FDI are real GDP growth, low inflation, a high degree of trade openness and the improvement of infrastructure in the ASEAN-10 countries. Changwatchai (2010) and Yi, Idris, and Lily (2019) also corroborate the impact of these observed factors.

Recent studies have deepened the unobservable effects, which can be time-variant or time-invariant, such as labor productivity, licensing, organizational and management skills, law and government policies. As reported by Beloucif, Islam, and Boukhobza (2020), the labor productivity of Southeast Asia from 1996 to 2016 positively and significantly impacted FDI attraction, while the unemployment rate and natural resources were negatives in

attracting FDI. Grace (2019) found research and development (R&D) to have a positive effect on FDI inflows, yet human capital has an adverse connection, while, according to Kumari and Sharma (2017), R&D and human capital are important predictors of FDI inflows. Furthermore, current literature emphasizes financial variables as important considerations for enterprises to engage in FDI, such as loan availability (Klein, Peek, & Rosengren, 2002), financial market size (Di Giovanni, 2005), stock market values (Baker, Foley, & Wurgler, 2008) and the company's financial characteristics.

The literature regarding FDI in the ASEAN region is rather scarce, but there are a few notable exceptions, such as Ismail (2009); Changwatchai (2010); Ullah and Inaba (2014); and Xaypanya, Rangkakulnuwat, and Paweenawat (2015), and has not considered all ASEAN members over a long period. The research results are also inconsistent when considering different countries in the region. As demonstrated by Xaypanya et al. (2015), in Cambodia, Laos and Vietnam, infrastructure quality and the degree of openness are positive determinants, while the real exchange rate, gross domestic product, and net official development assistance have no impact on FDI. In the ASEAN-5 (Indonesia, Malaysia, Philippines, Thailand and Singapore), infrastructure quality and market size were found to have significant correlations with FDI attraction. To address such research gaps, this study seeks to explore and discuss the main factors affecting FDI inflows into the ASEAN-6 at both aggregate and country-specific levels in a panel data setting.

3. HYPOTHESIS DEVELOPMENT

Based on the theoretical grounding and literature review, several hypotheses were established regarding FDI inflow determinants for the empirical investigation.

GDP growth: GDP growth is defined as the annual percentage change in the real GDP. A positive GDP growth rate implies an expansion of the economy where business opportunities, employment and personal income are promising. This, in turn, attracts more FDI inflows since multinational corporations (MNCs) can take the opportunity to expand their businesses and increase their turnover and profitability. By studying four developing ASEAN countries from 1970–2003, Moudatsou and Kyrkilis (2011) pointed out that the economic growth of the host country encourages inward FDI. This result is similar to the studies by Changwatchai (2010); Tri, Nga, and Duong (2019) and Yi et al. (2019). According to Yi et al. (2019), stable economic growth signals that the host country has sound economic performance and is therefore more appealing to foreign investors. Hoang et al. (2018) also prove that real GDP growth is among the key drivers of FDI. It is expected that GDP growth has a positive influence on FDI inflows.

GDP per capita: GDP per capita is defined as the final value of the goods and services produced within the geographic boundaries of a country within a specified time period. This could be seen as a key indicator of the size and development of a national economy. As suggested by Sabir et al. (2019), the logarithm of GDP per capita has a positive and statistically significant relationship with inward FDI. It is thus hypothesized that GDP per capita impacts FDI positively. A growth in GDP per capita means that people's standards of living in that country tend to improve, which raises aggregate demand, leading people to consume more goods and services, thus motivating foreign investors to invest (Sabir et al., 2019). Foreign investors recognize this as a huge opportunity to increase their revenue, which increases the FDI inflows to these countries. These findings are comparable to those of Changwatchai (2010) and Erfani and Berger (2020).

Trade openness: Trade openness is the sum of exports and imports as a percentage of GDP. Reduced trade barriers, tariffs on imports and exports, infrastructure investment, and limited rules and regulations impacting market competitiveness are also examples of public policy decisions that are closely related to trade openness. Sabir et al. (2019) found that trade openness has a positive and significant effect on FDI inflows by analyzing inbound FDI in 59 developing countries from 1996 to 2016. Their study confirms the findings of Changwatchai (2010) and Yi et al. (2019) while contradicting the findings of Tri et al. (2019). We anticipate a positive association between

trade openness and FDI when free trade (i.e., a high degree of trade openness) reduces the cost of doing business, hence attracting a greater amount of FDI inflow.

Unemployment: Unemployment refers to the portion of the labor force that is unemployed but available for and seeking employment. Studies by Hasli et al. (2015) and Gawrysiak, Mazur-Pietrzak, and Stępień (2019) contend that a decline in the unemployment rate could stimulate FDI inflows. Thus, we expect that a high unemployment rate has a negative impact on FDI inflows. When the unemployment rate is high, the economy of the country is not healthy and might be in a recession. Employers are reluctant to hire new workers since they are unable to predict when the economy will revert to its pre-recession level. This can signal declining revenue and profitability for foreign investors, discouraging FDI inflows.

Population aged 15–64: This variable comprises the total population between the ages of 15 and 64 as a percentage of the total population, which encompasses all residents regardless of legal status or citizenship. The reason why this age group is chosen is that this group is the working-age population, which might influence FDI. When this rate rises, the labor force expands, making it simpler for MNCs to recruit new and appropriate personnel, and vice versa, encouraging FDI inflows. We expect that the population might have a positive impact on FDI inflows. This is consistent with the study conducted by Sfar and Kais (2015).

Real interest rate: The real interest rate is an interest rate that has been adjusted to remove the effects of inflation. When the real interest rate rises, or demand for credit remains high, all other things being equal, money will shift from consumption to savings. However, this can impact businesses since it becomes more difficult for them to obtain loans with higher interest payments. Whereas, when the real interest rate is low, demand will shift to investment and consumption. It also becomes easier for businesses since they can raise capital at lower rates to finance their investment activities, which, in turn, creates opportunities for business expansion and growth. Fazira and Cahyadin (2018) claim that the real interest rate has a positive and significant impact on FDI, which supports the study conducted by Cruz and Siy (2018). As a result, the real interest rate and FDI inflows are expected to be negatively correlated.

Interest rate spread: The interest rate spread, or the difference between the lending rate and the deposit rate, measures how efficiently the financial intermediation is running. A narrow spread indicates low transaction costs and a decline in the cost of investment funds, both vital to economic growth, while a wide spread refers to high costs of doing business, which could discourage FDI inflows. It is observed that interest rate spreads have a negative correlation with FDI inflows. Our prediction is in line with Addison and Heshmati (2002).

Financial crisis: This dummy variable is added to take into account the effect of the 2008 financial crisis on the FDI inflows into the ASEAN-6 countries. It is expected that the crisis negatively impacted FDI inflows.

4. METHODOLOGY

4.1. Data

This study synthesizes annual data from six ASEAN countries from 1995 to 2019. Data for FDI (dependent variable) were extracted from the World Bank's database, while the explanatory variables (GDP growth, GDP per capita, trade openness, unemployment rate, population, real interest rate, and interest rate spread) were taken from the World Bank's World Development Indicators.

4.2. Model Specification

The relationship between FDI and its explanatory variables is modeled as follows:

$$FDI_{it} = \beta_0 + \beta_1 GDPG_{it} + \beta_2 GDPPC_{it} + \beta_3 OPEN_{it} + \beta_4 UR_{it}$$
$$+ \beta_5 POP_{it} + \beta_6 IR_{it} + \beta_7 SPREAD_{it} + \beta_8 CRISIS_{it} + \varepsilon_{it}$$

Where subscripts *it* denote country and year, *β*s are the regression coefficients, and ε_{it} is the error term. The dependent variable, FDI (net inflows), is measured as a percentage of the GDP of country i and taken in logarithmic form. The explanatory variables include: GDPG – the real GDP growth rate; GDPPC – the logarithm of real GDP per capita (in constant 2010 US dollars) of country i; OPEN – trade openness, calculated as the logarithm of the total trade as a percentage of the GDP of country i; UR – unemployment rate of country i; POP – the percentage of the population aged 15–64 of country i; IR – lending interest rate of country i after being adjusted for inflation; SPREAD – interest rate spread, calculated as the lending rate less the deposit rate of country i; CRISIS – the crisis dummy variable, taking the value of 1 for the post-crisis period (2009–2019), and 0 otherwise. As discussed in Section 3, we hypothesize that $\beta_{1, 2, 3, 5} > 0$ and $\beta_{4, 6, 7, 8} < 0$.

4.3. Analysis Techniques

Regarding the aggregate model, we adopt the panel regression to examine the determinants of FDI inflows. By combining cross-sectional and time series data, this method enables estimates of changes across nations as well as over time. Typically, three types of panel models can be estimated: pooled ordinary least squares (POLS), the fixed effects model (FEM), and the random effects model (REM). To decide which is the best estimator, a Breusch–Pagan Lagrange multiplier (LM) test is performed to select between the POLS and the REM, while the Hausman test is applied to find out whether the FEM or the REM is the most appropriate (Hill, Griffiths, & Lim, 2018).

For the country-specific model, the main hypotheses are examined using the FMOLS model. This non-parametric approach could yield optimal results for small samples after addressing serial correlation and the endogeneity of regressors (Adedoyin, Bekun, Driha, & Balsalobre-Lorente, 2020; Phillips & Hansen, 1990). The FMOLS is also able to analyze the asymptotic bias contained in the OLS estimate by including necessary leads and lags in the series (Narayan & Narayan, 2005).

Table 1. Descriptive statistics of variables over the period from 1995–2019, aggregate level.

Variable	Obs.	Mean	Std. dev.	Min.	Max.
FDI (%)	150	5.641	6.729	-2.812	32.215
GDPG (%)	150	5.013	3.229	-13.134	14.502
GDPPC (US$)	150	3.567	0.579	2.442	4.824
OPEN (%)	150	154.152	103.578	37.421	437.327
UR (%)	150	3.273	1.645	0.234	8.125
POP (%)	150	67.461	5.496	57.102	78.797
IR (%)	150	3.898	4.192	-24.688	12.322
SPREAD (%)	150	3.707	1.544	-6.913	7.722

Note: FDI: foreign direct investment; GDPG: GDP growth rate; GDPPC: GDP per capita; OPEN: trade openness; UR: unemployment rate; POP: population aged 15–64; IR: lending interest rate; SPREAD: interest rate spread; CRISIS: the global financial crisis.

5. EMPIRICAL RESULTS

5.1. Descriptive Statistics

Table 1 displays the descriptive statistics of the variables of the six countries chosen. On average, FDI net inflows as a percentage of GDP from 1995 to 2019 is 5.64%. The average GDP growth rate is 5.01%. The mean of the logarithm of GDP per capita from 1995 to 2019 is US$3.57. The openness on average reached 154.15% with a very high standard deviation, meaning that there is a variation among the degree of openness in the six countries investigated. The average unemployment rate is 3.27%. The percentage of the population aged 15–64 is 67.46%. The real interest rate and the interest rate spread averages are 3.90% and 3.71%, respectively.

5.2. Aggregate Estimation

First, we adopt LM and Hausman tests to identify the most efficient estimator among three. The former recommends the employment of the REM, while the latter favors the FEM. Therefore, the main results will be

analyzed through the FEM estimators. As suggested by Hashmi and Alam (2019), the Driscoll and Kraay (1998) robust standard errors could be applied for all the models to address cross-sectional dependence, serial correlation and heteroscedasticity in the dataset.

Table 2. Regression results for the aggregate model (Dependent variable: FDI; N = 150).

Variable	(1) Baseline model	(2) Crisis effect
GDPG	0.173*** (0.063)	0.115** (0.052)
GDPPC	0.045 (0.994)	–0.813 (0.080)
OPEN	0.044*** (0.005)	0.052*** (0.006)
UR	0.075*** (0.021)	0.169*** (0.031)
POP	0.229*** (0.066)	0.182** (0.090)
IR	–0.041 (0.084)	–0.010 (0.078)
SPREAD	0.695*** (0.262)	0.718*** (0.219)
CRISIS	-	1.251 (0.813)
Constant	–20.205*** (4.538)	–15.935*** (5.597)

Note: Estimation method: Panel FEM; Driscoll–Kraay robust standard errors are in parentheses; *** and ** indicate significance at the 1% and 5% levels, respectively. GDPG: real GDP growth rate; GDPPC: real GDP per capita; OPEN: trade openness; UR: unemployment rate; POP: population aged 15–64; IR: lending interest rate; SPREAD: interest rate spread; CRISIS: the global financial crisis.

Table 2 reveals that GDP growth indicates a positive and significant impact on FDI, which is consistent with the results of Hoang et al. (2018) and Moudatsou and Kyrkilis (2011). This implies that by establishing a dynamic investment climate and a market expansion policy, a host country could draw in more FDI. Trade openness is found to be positively and significantly associated with FDI, which aligns with the findings of Tri et al. (2019) and Moudatsou and Kyrkilis (2011). Accordingly, a country with greater openness (or fewer trade barriers and tariffs) tends to encourage investment inflows from MNCs by offering low-cost access to the world markets for input materials and the ease of re-exporting the finished products to the source country as well as the rest of the world.

The coefficient for the unemployment rate is positive and significant at 1%, which is contrary to our hypothesis. This could be explained by the reality that the higher the unemployment rate, the easier it is for MNCs to recruit new workers, which, in turn, attracts more FDI and, to a certain extent, contributes to the growth of the domestic labor market (Bhatt, 2008; Strat, Davidescu, & Paul, 2015). In line with the study by Bennett (2005), the population who are of working age is found to be a positive and significant determinant of FDI inflows. This suggests that developing countries with abundant labor resources could be promising destinations for foreign investors as they have more possibilities for recruiting low-skilled workers at competitive rates.

The interest rate spread, proven by a significant positive coefficient, contradicts our prediction and previous literature (Addison & Heshmati, 2002; Albulescu & Ionescu, 2018). Theoretically, a larger interest rate spread may result from both sides, either a rise in the lending rate or a fall in the deposit rate. This could drive households to consume more and save less. Under these circumstances, MNCs investing in the host country could earn more from the upward tendency of domestic consumption. Our aggregate results reveal no concrete evidence regarding the impact of GDP per capita, real interest rate or the global financial crisis on FDI inflows in the ASEAN-6 countries.

5.3. Country-Specific Estimation

Table 3 reports the FMOLS estimation results for country-specific cases. It is evident that the primary drivers of FDI inflows vary considerably across ASEAN countries. GDP growth is found to be positively related to FDI in Malaysia and Singapore at the 10% and 5% significance levels, respectively. This implies that MNCs tend to prefer rapidly growing 'spotlights' when planning to invest in an emerging market area. Per capita GDP positively influences FDI in Indonesia and Vietnam at the 1% and 10% levels of significance. respectively. In countries with high levels of living standards and incomes, consumers tend to boost spending, particularly on foreign-produced commodities. This could be seen as a real market potential for MNCs to exploit and invest in. Remarkably, trade

openness does not appear to be a major determinant of FDI in ASEAN countries, except for its adverse impact witnessed in Vietnam. Under free trade, foreign investors would find it difficult to sustain a high level of income and profit as opposed to the earlier open-door era due to peer pressure in market share redistribution. This could subsequently reduce FDI.

Table 3. Regression results for country-specific models (Dependent variable: FDI).

Variable	Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam
GDPG	0.001	0.134*	-0.098	0.632**	-0.0329	0.387
	(0.993)	(0.084)	(0.245)	(0.025)	(0.693)	(0.398)
GDPPC	11.962***	-0.977	4.688	4.206	-3.023	15.072*
	(0.001)	(0.853)	(0.161)	(0.821)	(0.219)	(0.090)
OPEN	0.038	0.004	0.018	-0.056	0.002	-0.067*
	(0.451)	(0.865)	(0.418)	(0.298)	(0.963)	(0.088)
UR	0.635**	-1.708**	-1.215*	-3.034	1.146**	-0.005
	(0.028)	(0.046)	(0.059)	(0.135)	(0.047)	(0.996)
POP	-1.117***	-0.036	-0.387	-2.706***	0.680	-0.721
	(0.003)	(0.895)	(0.177)	(0.005)	(0.243)	(0.188)
IR	0.054	-0.090	-0.102**	-0.109	0.067	-0.109
	(0.319)	(0.270)	(0.025)	(0.822)	(0.592)	(0.627)
SPREAD	-0.278	-0.168	0.129	9.750***	-0.482	-0.242
	(0.129)	(0.809)	(0.262)	(0.006)	(0.321)	(0.540)
Constant	30.823*	14.381	13.182	191.093**	-34.661	17.452
	(0.079)	(0.398)	(0.361)	(0.037)	(0.249)	(0.431)
R-squared	0.977	0.923	0.895	0.942	0.837	0.981
Adjusted R-squared	0.843	0.814	0.775	0.830	0.776	0.855

Note: Estimation method: FMOLS; p-values are in parentheses; ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. GDPG: real GDP growth rate; GDPPC: GDP per capita; OPEN: trade openness; UR: unemployment rate; POP: population aged 15–64; IR: lending interest rate; SPREAD: interest rate spread; CRISIS: the global financial crisis.

Our results regarding the unemployment effect are mixed. Specifically, Indonesia and Thailand yield a significant positive link, which can be explained by the recruitment privilege afforded to MNCs from a large pool of job seekers in these countries. For Malaysia and the Philippines, however, the inverse link exists; rising unemployment is a warning of macroeconomic instability that could undermine investment plans and the development potential of MNCs, hence discouraging FDI.

Interestingly, the working population is found to have an adverse impact on FDI in all the countries studied (except for Thailand), with Indonesia and Singapore reaching statistical significance at 1%. This demonstrates that the availability of labor has not been a key motivation for attracting FDI. Rather, international investors may be more concerned with workforce quality and productivity, which have a direct impact on their business performance.

The real interest rate coefficient for the Philippines is statistically significant with a negative sign, which could be explained by the fact that an upsurge in the real interest rate may lead to a rise in the costs of operating a business (including loan interest), thereby preventing MNCs from expanding their investment abroad.

Lastly, among the ASEAN-6, only Singapore reaches the statistical significance of 1% for a positive association between interest rate spread and FDI. As discussed earlier, as the interest rate spread widens (i.e., deposit rates fall), individuals tend to consume more and save less. This presents an opportunity for MNCs investing in Singapore to increase their revenue and profit.

6. CONCLUSION AND IMPLICATIONS

This paper explores possible determinants of FDI across the ASEAN-6 countries. The aggregate regression analysis shows that FDI inflows are stimulated by GDP growth, degree of openness, unemployment, working-age population and interest rate spread. With a coefficient of 0.718, the impact of the interest rate spread on FDI inflow is the strongest, while the impact of trade openness is the weakest, with a coefficient of 0.052. When each country is

analyzed separately, the determinants appear inconsistent. This means that, subject to the development stage of a destination country in the ASEAN-6, foreign investors may examine distinct criteria before making investment decisions. Notably, no evidence was found regarding the impact of the global financial crisis on FDI.

Our research findings provide several policy implications for policymakers. First, since the degree of openness has a significant impact on FDI, the policymakers should concentrate on trade and investment liberalization by removing trade barriers and tariffs between nations without impeding internal markets and competition to facilitate FDI inflow. Second, the governments should establish policies to enrich the labor force, since this is always a major concern for foreign investors. Nevertheless, high unemployment and poor labor productivity could be detrimental to economic growth. Possible solutions to this issue include establishing an employment policy framework that encompasses benefits, compensation, healthcare, job availability and training; diversifying job segments; and promoting education. Finally, even though an increase in interest rate spread tends to encourage FDI, governments should stabilize interest rates through monetary policy management, as this is an obvious indication of macroeconomic stability which attracts FDI. The lending rate and deposit rate should be in equilibrium so that the interest rate spread is steady.

REFERENCES

Addison, T., & Heshmati, A. (2002). *Democratization and new communication technologies as determinants of foreign direct investment in developing countries.* Paper presented at the WIDER Conference on 'The New Economy in Development.

Adedoyin, F. F., Bekun, F. V., Driha, O. M., & Balsalobre-Lorente, D. (2020). The effects of air transportation, energy, ICT and FDI on economic growth in the industry 4.0 era: Evidence from the United States. *Technological Forecasting and Social Change, 160,* 120297. https://doi.org/10.1016/j.techfore.2020.120297

Albulescu, C. T., & Ionescu, A. M. (2018). The long-run impact of monetary policy uncertainty and banking stability on inward FDI in EU countries. *Research in International Business and Finance, 45,* 72-81. https://doi.org/10.1016/j.ribaf.2017.07.133

Baker, M., Foley, C. F., & Wurgler, J. (2008). Multinationals as arbitrageurs: The effect of stock market valuations on foreign direct investment. *The Review of Financial Studies, 22*(1), 337-369. https://doi.org/10.1093/rfs/hhn027

Beloucif, A., Islam, M. S., & Boukhobza, T. (2020). *An empirical study of FDI determinants: A panel data analysis of South and South-East Asia.* Paper presented at the Proceedings of the 2020 British Academy of Management Annual Conference.

Bennett, R. D. (2005). *The determinants of FDI in Sub-Saharan Africa.* BSc Thesis, New York University, NY.

Bhatt, P. R. (2008). Determinants of foreign direct investment in ASEAN. *Foreign Trade Review, 43*(3), 21-51.

Changwatchai, P. (2010). *The determinants of FDI inflows by industry to ASEAN.* Indonesia, Malaysia, Philippines, Thailand, and Vietnam: The University of Utah.

Cruz, J. J. D., & Siy, J. S. (2018). Economic and financial determinants of foreign investments: Competitiveness from a developing economy perspective. *Forum on Economics and Business, 21*(137), 80-99.

Di Giovanni, J. (2005). What drives capital flows? The case of cross-border M&A activity and financial deepening. *Journal of International Economics, 65*(1), 127-149. https://doi.org/10.1016/j.jinteco.2003.11.007

Driscoll, J. C., & Kraay, A. C. (1998). Consistent covariance matrix estimation with spatially dependent panel data. *Review of Economics and Statistics, 80*(4), 549-560. https://doi.org/10.1162/003465398557825

Dunning, J. (2013). *International production and the multinational enterprise (RLE international business).* Abingdon: Routledge.

Dunning, J. H. (1988). The theory of international production. *The International Trade Journal, 3*(1), 21-66.

Erfani, G. R., & Berger, J. (2020). Determinants of foreign direct investment in Asian countries: An empirical analysis. *International Journal of Economic Behavior, 10*(1), 3-13.

Fazira, D. R., & Cahyadin, M. (2018). The impact of interest rate, corruption perception index, and economic growth on foreign direct investment in ASEAN-6. *Journal of Finance and Banking*, *22*(4), 707-713. https://doi.org/10.26905/jkdp.v22i4.2355

Gawrysiak, M., Mazur-Pietrzak, A., & Stępień, S. (2019). The dynamics and determinants of foreign direct investment in selected ASEAN countries. *Annals of the University of Apulensis: Economic Series*, *21*(2), 32-41.

Grace, G. (2019). Factors affecting inward foreign direct investment: case of ASEAN countries. *Info Artha*, *3*(2), 119-132.

Hashmi, R., & Alam, K. (2019). Dynamic relationship among environmental regulation, innovation, CO_2 emissions, population, and economic growth in OECD countries: A panel investigation. *Journal of Cleaner Production*, *231*, 1100-1109. https://doi.org/10.1016/j.jclepro.2019.05.325

Hasli, A., Ho, C. S., & Ibrahim, N. A. (2015). Determinants of FDI inflow in Asia. *Journal of Emerging Economies and Islamic Research*, *3*(3), 9-17.

Hill, R. C., Griffiths, W. E., & Lim, G. C. (2018). *Principles of econometrics* (5th ed.): John Wiley & Sons.

Hoang, C. C., Nguyen, V. T., & Tran, T. N. T. (2018). Determinants of foreign direct investment inflows into ASEAN countries: A GLS estimation technique approach. *Journal of International Economics and Management*, *101*(January), 3-21. https://doi.org/10.23917/jep.v22i1.11180

Ismail, N. W. (2009). The determinant of foreign direct investment in ASEAN: A semi-gravity approach. *Transition Studies Review*, *16*(3), 710-722. https://doi.org/10.1007/s11300-009-0103-0

Klein, M. W., Peek, J., & Rosengren, E. S. (2002). Troubled banks, impaired foreign direct investment: The role of relative access to credit. *American Economic Review*, *92*(3), 664-682. https://doi.org/10.1257/00028280260136309

Kumari, R., & Sharma, A. K. (2017). Determinants of foreign direct investment in developing countries: A panel data study. *International Journal of Emerging Markets*, *12*(4), 658-682. https://doi.org/10.1108/ijoem-10-2014-0169

Milner, H. V. (2014). Introduction: The global economy, FDI, and the regime for investment. *World Politics*, *66*(1), 1-11. https://doi.org/10.1017/s0043887113000300

Moudatsou, A., & Kyrkilis, D. (2011). FDI and economic growth: Causality for the EU and Asean. *Journal of Economic Integration*, *26*(3), 554-577. https://doi.org/10.11130/jei.2011.26.3.554

Narayan, P. K., & Narayan, S. (2005). Estimating income and price elasticities of imports for Fiji in a cointegration framework. *Economic Modelling*, *22*(3), 423-438. https://doi.org/10.1016/j.econmod.2004.06.004

Nunnenkamp, P. (2002). *Determinants of FDI in developing countries: Has globalization changed the rules of the game?* Retrieved from Kiel Working Paper, No. 1122.

Phillips, P. C., & Hansen, B. E. (1990). Statistical inference in instrumental variables regression with I (1) processes. *The Review of Economic Studies*, *57*(1), 99-125. https://doi.org/10.2307/2297545

Sabir, S., Rafique, A., & Abbas, K. (2019). Institutions and FDI: Evidence from developed and developing countries. *Financial Innovation*, *5*(1), 1-20. https://doi.org/10.1186/s40854-019-0123-7

Sfar, S. B. E., & Kais, M. (2015). The determinants of FDI in Tunisia: An empirical study through a gravity model. *Asian Economic and Financial Review*, *5*(12), 1306-1314. https://doi.org/10.18488/journal.aefr/2015.5.12/102.12.1306.1314

Strat, V. A., Davidescu, A., & Paul, A. M. (2015). FDI and the unemployment-a causality analysis for the latest EU members. *Procedia Economics and Finance*, *23*, 635-643. https://doi.org/10.1016/s2212-5671(15)00448-7

Tri, H. T., Nga, V. T., & Duong, V. H. (2019). The determinants of foreign direct investment in ASEAN: New evidence from financial integration factor. *Business and Economic Horizons*, *15*(2), 292-303.

Ullah, M. S., & Inaba, K. (2014). Liberalization and FDI Performance: evidence from ASEAN and SAFTA member countries. *Journal of Economic Structures*, *3*(1), 1-24. https://doi.org/10.1186/s40008-014-0006-z

United Nations Conference on Trade and Development (UNCTAD). (2021). *World investment report 2021*. Retrieved from https://unctad.org/system/files/official-document/wir2021_en.pdf

Xaypanya, P., Rangkakulnuwat, P., & Paweenawat, S. W. (2015). The determinants of foreign direct investment in ASEAN: The first differencing panel data analysis. *International Journal of Social Economics, 42*(3), 239-250. https://doi.org/10.1108/ijse-10-2013-0238

Yi, C. F., Idris, S., & Lily, J. (2019). Determinants of foreign direct investment (FDI) in Asean-5 countries: A review. *Malaysian Journal of Business and Economics, 6*(2), 77-77.