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The determinants of China's outward foreign direct investment in ASEAN: A panel ARDL approach

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Abstract
Research aims: This paper aims to examine factors influencing China's outward foreign direct investment (FDI) in ASEAN economies.
Design/Methodology/Approach: The Kao panel cointegration approach and the Panel ARDL model were used in this study to estimate the long-run and short-run relationship between variables. This method is deemed superior to other panel models since it is advantageous when dealing with non-stationary variables at the level or I(1).
Research findings: The estimation results provide empirical evidence that in the long run, ASEAN market size, exchange rate, import and export levels between China and ASEAN countries, inflation rate, and institutional factors such as the index of corruption control and political stability are the primary determinants of the flow of outward foreign direct investments from China to ASEAN economies.
Theoretical contribution/Originality: This study provides additional evidence regarding the factors influencing direct investment flow from the home country to the host country, known as an outward foreign direct investment (OFDI). Previous studies have robustly proven that OFDI flows are influenced by factors such as the resources and market size of the host country, as predicted by location theory. This study further provides evidence that host country trade policy, the level of competitiveness demonstrated by favorable exchange rates, and institutional factors like corruption control and political stability are other important determinants in the context of China's OFDI in ASEAN countries.
Practitioner/Policy implication: Maintaining open trade policy, a competitive exchange rate and significant improvement in law and order would be suitable policies for ASEAN economies to attract more investment from China and other countries.
Research limitation/Implication: This study did not cover other variables, such as investment facilities provided by the host government. In addition, economic packages like tax holidays and import-tariff discounts are common policies ASEAN countries provide. Hence, this variable can be considered in future research.
Keywords: OFDI; Panel ARDL; China; ASEAN

Introduction

China's open-door policy, which was put into place more than 40 years ago, has significantly influenced the country's economic development. Increased foreign direct investment into China and rising foreign investment by Chinese enterprises have been two main forces behind decades of economic progress in China.

Investments made by Chinese companies abroad (from now on referred to as outward foreign direct investment, OFDI) have continued to increase not only in developed countries but also in developing countries, such as ASEAN countries. OFDI has also evolved into a means by which Chinese businesses can expand internationally, take advantage of global resources, and bypass trade barriers (Li et al., 2020). According to the World Bank report, China's cumulative net volume of OFDI reached $1.4 trillion for 2011–2021, growing at an average annual rate of 16.44%. Besides, China has increased its share in global FDI over the past five years, reaching 10% (Peng et al., 2023).

The literature on the determinant of FDI and OFDI is relatively broad, ranging from a macro-level approach in which economic factors in countries of origin and destination significantly influence OFDI from a micro-level perspective. Many studies have also focused on variations in economic factors (Babubudjnauth & Seetanah, 2019; Degong et al., 2023; Shah et al., 2022), institutional issues (Chengying et al., 2023; Peng et al., 2023; Rygh et al., 2023; Suryanta & Patunru, 2023; Wang et al., 2023), and other factors such as politics (Agarwal & Feils, 2007; Das, 2013; Jadhav, 2012; Kim, 2010; Kwaw-Nimeson & Tian, 2023; Meyer & Habanabakize, 2018; Sekkat & Veganzones-Varoudakis, 2007) at the macro-level. Meanwhile, the drivers of OFDI at the micro-study level examined numerous topics, such as the heterogeneity of enterprises making investments (Bhaumik et al., 2010; Huang et al., 2017; Ramasamy et al., 2012) and industry-based investment analysis (Bhaumik et al., 2010; Huang et al., 2017; Ramasamy et al., 2012).

In the context of Chinese OFDI research at a macro level viewpoint, Degong et al. (2023) identified that exchange rates, inflation, political stability, and corruption cases in destination nations negatively impacted Chinese OFDI flows in Pakistan. In another study, Zhang and Daly (2011) used the Pooled Least Square (POLS) approach to examine the determinants of Chinese OFDI in 23 countries throughout the globe from 2003 to 2009. Zhang and Daly (2011) discovered that China's exports to destination countries, destination countries' open trade policies, and destination countries' market size all positively affected OFDI to these nations. In contrast to Degong et al. (2023), Zhang and Daly (2011) found that the depreciation of the destination country's currency was not proven to affect the flow of Chinese OFDI to the countries.

Regarding China and ASEAN cases, several studies have shown varied outcomes. (Ma et al., 2020) investigated China's OFDI in ASEAN across 11 Industries using 2015-2016 data. According to the estimation results, market size, tax rate, and labor expenses are the most important elements influencing a company's investment decision. In another study, Wong et al. (2022) uncovered a bidirectional causality association between ASEAN exports and OFDI among ASEAN nations. Meanwhile, Ahmad et al. (2018) revealed that the exchange rate and income were the most important factors influencing OFDI in ASEAN countries.

Thus far, research on OFDI in ASEAN has been sparse, yielding inconsistent results regarding the major factors driving the flow of Chinese OFDI to this rapidly growing region. For that reason, this article aims to delve deeper into the short and long-run factors of OFDI in ASEAN countries. This paper contributes by employing the Panel Autoregressive Distributed Lag (ARDL) approach rather than a time series or a panel approach. The pooled

least squares method was not used in this paper because all variables were not stationary at levels, and there was cointegration among the variables in the model. Hence, pooled least squares were not appropriate for these reasons. Since the stationarity test results showed a different order of integration for each variable, using the Engle & Granger (1987) or Johansen (1991) technique would result in statistical issues. As a result, the ARDL approach (Pesaran et al., 2001) outperforms the preceding approach.

Further, this paper offers several contributions to literature and policy. Firstly, this study provides evidence of the factors influencing China's OFDI to ASEAN economies from various perspectives, including location-specific advantages, economic performance and policy, and institutional factors. Additionally, the authors incorporated dummy variables into the model to capture the shocks from the global financial crisis of 2008. Finally, this study employed the Panel ARDL approach, which is more suitable than other panel approaches, such as Fixed Effect and Generalized Method of Moment (GMM), when dealing with non-stationary time-series data.

This study's findings indicate that OFDI flows from one country to another are influenced not only by factors like resources and markets, as predicted by location theory, but also by factors like the destination countries' trade openness policy, the level of competitiveness demonstrated by the favorable exchange rate, and institutional factors like corruption control and political stability. From a practical perspective, this study suggests that maintaining open trade policy, competitive exchange rate and significant improvement in law and order will be suitable policies for ASEAN economies to attract more investment from China and other countries.

Literature Review and Hypotheses Development

From a theoretical perspective, several factors affect the decision of a company to invest in other countries (foreign direct investment). First, according to neoclassical theory, the difference in the rate of return on investment between the nations of origin and destination is the cause for corporations to do FDI (Aliber, 1970). According to Aliber (1970), investment flows from one country to another are caused by differences in capital returns between the two countries. Aliber (1970) asserted that the disparity in capital returns was due to resource endowment differences and exchange rate risk. Several studies have also demonstrated that a host country's depreciating currency encourages investment flows to that country (Alba et al., 2010; Kiyota & Urata, 2004; Klein & Rosengren, 1994; Lily et al., 2014; Zhang & Zhang, 2018). Therefore, the hypothesis can be formulated as follows.

H_1: The real exchange rate of ASEAN countries negatively affects the OFDI from China to ASEAN economies.

Second, according to location theory, firms choose FDI destinations based on market proximity and raw material availability (Dunning, 1977). Dunning (2000) also attempted

to comprehend the prevalence of FDI by combining several prior theories into a framework of ownership advantages, location advantages, and internalization benefits. According to the location theory, increased investment flows to the host country are caused by the country's ownership of the resource endowment and large market ownership. It denotes that FDI is influenced by the size of the market and cost competitiveness in the host country, as indicated by the inflation rate. In this context, Shahriar et al. (2019) investigated the key factors influencing China's outward foreign direct investment (OFDI) in the 64 partner nations of the Belt & Road program. Shahriar et al. (2019) found that GDP, per capita income, and distance are the main predictors of the OFDI using the panel gravity model. Unlike prior studies on FDI, Moon et al. (2011) addressed how FDI helps to stabilize the host country's economic growth during times of crisis. Their findings suggest that both inbound and outward FDI help stabilize economic growth during financial crises. Countries with higher amounts of FDI tend to have milder recessions. Hence, the hypothesis can be formulated as follows.

H_2: The GDP of ASEAN countries positively affects the OFDI from China to ASEAN economies.

H_3: The inflation rate of ASEAN countries negatively affects the OFDI from China to ASEAN economies.

Third, the host country's economic policy is also a significant determinant of investment flows (Azam et al., 2010; Canh et al., 2020; Hsieh et al., 2019). Another study by Zhang and Daly (2011) analyzed the determinants of Chinese OFDI in 23 countries from 2003 to 2009 using the Pooled Least Square (POLS) method. They discovered that China's exports to destination countries, open trade policies in destination countries, and market size in destination countries all favor OFDI to these countries. Unlike Degong et al. (2023), Zhang and Daly (2011) disclosed that the depreciation of the destination country's currency did not affect the flow of Chinese OFDI to the countries. Therefore, the hypothesis can be formulated as follows.

H_4: China's export level to ASEAN countries negatively affects the OFDI from China to ASEAN economies.

H_5: China's import level of ASEAN countries positively affects the OFDI from China to ASEAN economies.

Fourth, the literature also shows that the quality of the institution where the investment is made greatly influences investment flows (Daude & Stein, 2007; Jung, 2020; Sabir et al., 2019). In later research, An and Yeh (2020) examined the determinants of Taiwanese investment in six ASEAN nations (Singapore, Indonesia, Malaysia, the Philippines, Thailand, and Vietnam) regarding geography, economic, and institutional-political factors. The ARDL-Pooled Mean Group estimation panel was used in this work from 1998 to 2007. An and Yeh (2020) discovered that locational economic factors are key in the long run.

The close and long-standing trading relationship with Southeast Asia is beneficial in the long run. The host country's institutional quality has significant long-run and short-run favorable effects. Moreover, some research (Chen et al., 2016; Christofi et al., 2022; Kaushal, 2022; Li et al., 2020; Wang et al., 2014) examined the impact of institutional determinants on OFDI. For example, Li et al. (2020) did a Chinese OFDI study across 150 countries between 2003 and 2015. Their findings suggest that institutional variations in government performance and corruption control between China and the host country had a detrimental impact on China's OFDI. Li et al. (2020) also found that China's OFDI was unaffected by the One Belt, One Road plan. Therefore, the hypothesis can be formulated as follows.

H_6: The political stability in ASEAN countries positively affects the OFDI from China to ASEAN economies.

H_7: The control over corruption in ASEAN countries positively affects the OFDI from China to ASEAN economies.

H_8: The global financial crisis negatively affects the OFDI from China to ASEAN economies.

Some of the research mentioned demonstrate how institutional elements, geographic location, and economic considerations influenced the movement of OFDI from one nation. Nevertheless, studies specifically dealing with Chinese OFDI in ASEAN are still few in this area, and some discrepancies exist in the results. Moreover, Chinese research on foreign direct investment in ASEAN has not considered the behavior of OFDI both in the short and long run. Thus, this paper aims to fill this gap. Economic, institutional, and external shock elements were included as independent variables in this study. This paper also used the Panel ARDL model, which can predict OFDI behavior over the short and long run.

Research Method

Model Specification

This research applied Dunning's theoretical framework (Dunning, 1977, 2000) to examine how economic variables, institutions, and external shocks affected Chinese outbound investment in ASEAN nations. The long-run equation is presented as:

$$lnOFDI_{ijt} = \beta_0 + \beta_1 lnGDP_{jt} + \beta_2 lnEXR_{ijt} + \beta_3 INF_{jt} + \beta_4 lnEXP_{ijt} + \beta_5 lnIMP_{ijt} + \beta_6 PRISK_{jt} + \beta_7 CORR_{jt} + \beta_8 FC_{it} + \varepsilon_{it} \dots (1)$$

In equation (1), the dependent variable is OFDI from China to host nation *j*, namely ten ASEAN member countries in year *t* between 2003 and 2019. Meanwhile, the independent variables are as follows: the market size $lnGDP_{jt}$ of ASEAN countries, the exchange rates $lnEXR_{ijt}$ of each ASEAN member state against the Chinese Yuan (EXR), the ASEAN

countries' inflation rate INF_{jt}, the value of Chinese exports to ASEAN countries $lnEXP_{ijt}$, the value of Chinese imports from ASEAN countries $lnIMP_{ijt}$, the political stability index of ASEAN countries $PRISK_{jt}$, the corruption control index of ASEAN countries $CORR_{jt}$, and the dummy financial crisis variable FC_{it}. This study involved ten ASEAN countries: Indonesia, Malaysia, Singapore, Brunei Darussalam, Thailand, Philippines, Vietnam, Myanmar, Laos, and Cambodia.

Meanwhile, the short-run equation is formulated as follows.

$$
\begin{aligned}
\Delta lnOFDI_{ijt} = {} & \beta_0 + \Sigma_{i=1}^{p}\beta_1 \Delta lnOFDI_{ijt-a} + \Sigma_{i=0}^{p}\beta_2 \Delta lnGDP_{jt-a} + \Sigma_{i=0}^{p}\beta_3 \Delta lnEXR_{ijt-a} \\
& + \Sigma_{i=0}^{p}\beta_4 \Delta INF_{jt-a} + \Sigma_{i=0}^{p}\beta_5 \Delta lnEXP_{ijt-a} + \Sigma_{i=0}^{p}\beta_6 \Delta lnIMP_{ijt-a} \\
& + \Sigma_{i=0}^{p}\beta_7 \Delta PRISK_{jt-a} + \Sigma_{i=0}^{p}\beta_8 \Delta CORR_{jt-a} + \Sigma_{i=0}^{p}\beta_9 \Delta FC_{jt-a} + \lambda_0 lnGDP_{jt-a} \\
& + \lambda_1 lnEXR_{ijt-a} + \lambda_2 INF_{jt-a} + \lambda_3 lnEXP_{ijt-a} + \lambda_4 lnIMP_{ijt-a} + \lambda_5 PRISK_{jt-a} \\
& + \lambda_6 CORR_{jt-a} + \lambda_7 FC_{it-a} + \xi_{it} \dots (2)
\end{aligned}
$$

All the variables in equation (2) are the same as in equation (1), except that equation (2) gives a delta or first difference component, representing the short-run effect.

The GDP of ASEAN countries was used to estimate the size of the prospective market. Host nations with larger markets typically draw FDI based on market-seeking factors. The bigger market size also simultaneously demonstrates a rise in local consumer demand for goods and services in the host nation.

The model's exchange rate (EXR) is defined as the host country unit per Chinese yuan. The depreciation of the host country's currency against the Chinese yuan has the potential to reduce production costs faced by Chinese investors in the host country so that the company's profitability increases. Thus, the more depreciative the host country's currency can increase China's OFDI.

Inflation (INF) was measured using changes and the consumer price index. Host countries with high inflation rates show high production costs and signal economic uncertainty. This condition will reduce the flow of OFDI in the host country.

The value of China's exports to each ASEAN host country calculates exports (EXP). Expectations about the impact of exports on FDI are often ambiguous. When a host country imposes high international trade barriers, OFDI can increase in that region, acting as an export substitute. However, OFDI can increase in a region with a high trade openness policy, allowing global production in the host country.

Imports (IMP) were calculated using China's import value from each ASEAN host country. When imports of raw materials from ASEAN countries are increasingly hampered by host-country regulations, Chinese investors can use the OFDI instrument to reduce production costs. As a result, the greater China imports raw and semi-finished materials from ASEAN countries, the greater the incentive for OFDI.

The political risk index and corruption control impact on FDI is expected to be positive. A host country with a high political risk index and corruption control will foster a more favorable investment and business climate. This condition will not only enhance cost efficiency for foreign investors but also increase business certainty. Consequently, the higher the value of the two indices in the host country, the greater the OFDI flow. Meanwhile, the global financial crisis of 2008 negatively impacted China and ASEAN countries as investment destinations. As a result, the financial crisis is expected to negatively impact Chinese OFDI flows to ASEAN countries.

Moreover, this study employed a sample of 11 countries spanning 17 years, longer than the cross-sample unit and allowing for the possibility that the model's variables might not be stationary and had dynamic components. In addition, the panel-ARLD paradigm is deemed a better strategy in these circumstances. According to Pesaran and Smith (1995) and Pesaran et al. (1999), the panel-ARDL model is superior to dynamic panel models like fixed effects, instrumental variables, or GMM estimators (Anderson & Hsiao, 1981, 1982; Arellano, 1989; Arellano & Bover, 1995) in that it can produce reliable estimates of the average value of the parameters even when there is country-specific coefficient heterogeneity.

Data

This study used ten ASEAN member countries (Indonesia, Malaysia, Singapore, Brunei Darussalam, Thailand, Philippines, Vietnam, Myanmar, Laos, and Cambodia) as host countries over the period 2003-2019, adjusting for data availability, particularly in the case of China's OFDI to ASEAN countries. The variables, method of measurement, expected sign of each independent variable coefficient, and data source are listed in the Table 1.

Table 1 Variables, Measurement, Expected Sign, and Data Source

Variable	Measurement	Expected sign	Data Source
OFDI	Annual Chinese OFDI to host country (Million USD)		Ministry of Commerce People's Republic of China
GDP	Host Country GDP (USD)	+	World Bank
EXR	Exchange rate. Host country local currency per CNY, period average	-	World Bank
INF	Inflation. Change in consumer price index (%)	-	World Bank
EXP	Export. China's aggregate goods and service export to ASEAN countries	+/-	National Bureau of Statistics of China
IMP	Import. China's aggregate goods and service imports from ASEAN countries	+	National Bureau of Statistics of China
PRISK	Political stability and absence of violence index.	+	World Governance Indicators
CORR	Control of corruption index.	+	World Governance Indicators
FC	A dummy of the 2008 financial crises	-	

Estimation Method

The panel-ARDL was used as the primary estimation technique in this study. Using the Im-Pesaran-Shin (IPS) approach, a stationarity test was performed in the first stage. The Kao cointegration test was utilized to evaluate the cointegration of all variables to determine whether a long-run equilibrium existed. The Panel ARDL approach was then employed to estimate the short-run and long-run coefficients. By evaluating the coefficient of the estimated error correction term, diagnostic tests were carried out to ensure that any short-run deviations returned to long-run equilibrium.

Panel Unit Root Test

Several methods can be done for unit-root tests on data panels, including those developed by Hadri (2000), Breitung (2001), Levin et al. (2002), and Im et al. (2003). This study used Im, Pesaran, and Shin's (IPS) (2003) method to estimate the state of all variables in the model.

$$\Delta y_{i,t} = \alpha_i + \rho_i y_{i,t-1} + \sum_{j=1}^{p} \phi_{ij} \Delta y_{i,t-j} + \varepsilon_{i,t}; i = 1,2,\dots,N; t = 1,2,\dots,T \dots(3)$$

Where $y_{i,t}$ denotes each variable in the model, α_i indicates the fixed effect for each individual, and ρ signifies the residual, which is not correlated over time. The IPS test's null hypothesis is H0: $\rho_i = 0$ for all i while the alternative hypothesis is H1: $\rho_i < 0$ for some i such as $i = 1,2,\dots,N_1$, and $\rho_i = 0$ such as $i = N_1 + 1,\dots,N$. The following formula illustrates how IPS statistics are based on Augmented Dickey-Fuller (ADF) statistics average throughout the group.

$$\bar{t} = \frac{1}{N} \sum_{i=1}^{N} t_{iT} \dots (4)$$

Where t_{iT} denotes the ADF t-statistic for country i based on country-specific ADF regression. The t statistic has similar properties to the normal distribution. The use of the IPS method was because the method could relax the homogeneity in the unit root process among individuals. As a result, the emergence of IPS made it possible for each individual to have a different unit root process.

Kao Panel Cointegration Test

Two basic approaches exist for performing the panel cointegration test: residual-based and maximum-likelihood-based (Örsal, 2007). The residual-based cointegration test is described by McCoskey and Kao (1998), Kao (1999), and (Pedroni, 1997, 1999, 2004), whereas the maximum-likelihood test is elucidated by Groen & Kleibergen (2003), Larsson and Lyhagen (1999), and Larsson et al. (2001). This study used the Kao approach since Kao (1999) acknowledges heterogeneity between cointegration vectors in the short and long run, while the asymptotic equivalence principle allows for violating the endogeneity rule among independent variables.

Furthermore, Dickey-Fuller and Augmented Dickey-Fuller tests are used by Kao (1999). The Kao cointegration test's null hypothesis is the absence of cointegration. The Kao technique employs the following model in the bivariate instance (Çetin & Ecevit, 2015).

$$y_{it} = \alpha_i + \beta x_{it} + e_{it}, i = 1, \ldots, N; t = 1, \ldots, T$$
$$y_{it} = y_{it-1} + u_{it} \ldots(5)$$
$$x_{it} = x_{it-1} + \varepsilon_{it}$$

Where α_i is the fixed effect, which differs for each country, β is the slope parameter, y_{it} and x_{it} are random walk independent variables for each *i*. In the Augmented Dickey-Fuller test context, the estimated residual is defined as follows.

$$\widehat{e_{it}} = \rho \hat{e}_{it-t} + \sum_{j=1}^{p} \varphi_j \Delta \hat{e}_{it-j} + v_{itp} \ldots(6)$$

Afterward, the ADF statistic was calculated using the following formula.

$$ADF = \frac{t_{\bar{p}} + \sqrt{6N\hat{\sigma}_r/(2\hat{\sigma}_{0r})}}{\sqrt{\frac{\hat{\sigma}_{0r}^2}{(2\hat{\sigma}_r^2)} + (3\widehat{\sigma r}_r^2)/(10\hat{\sigma}_{0r}^2)}} \ldots (7)$$

where $\hat{\sigma}$ is the estimated variance.

Results and Discussion

The empirical results section begins with descriptive statistics for all variables used in the model, including the outward foreign direct investment of China in ASEAN countries, the real GDP of ASEAN countries, the currency exchange rates of ASEAN countries and the Chinese yuan, the ASEAN inflation rate, the level of Chinese exports to ASEAN countries, the level of Chinese imports from ASEAN countries, the ASEAN political risk index, the ASEAN corruption control index, and the financial crisis dummy. They are shown in the Table 2 as follows.

Table 2 Descriptive Statistic

Variable	Mean	Std. Dev.	Min	Max
OFDI	3.58e+09	7.72e+09	130000.0	5.26e+10
GDP	2.15e+11	2.48e+11	4.26e+09	1.20e+12
EXR	4355.135	6373.035	1.249567	23050.24
INF	4.534373	5.566655	-1.260506	36.58972
EXP	1.83e+10	2.05e+10	33890000	9.83e+10
IMP	1.59e+10	1.75e+10	11200000	7.19e+10
PRISK	43.87699	29.31087	3.000000	99.04762
CORR	40.54105	28.23645	0.473934	99.51923
FC	0.117647	0.323142	0.000000	1.000000

Then, the outcomes of the IPS unit-root tests are given in the Table 3. Except for inflation, the results revealed that all variables were non-stationary at the level. All variables were stationary or integrated of order 1 in testing at the first difference level. It implies that panel cointegration tests could be used to examine the long-run relationship between variables.

Table 3 Panel Unit-Root Test Results

Variable	Level	First difference
OFDI	2,8789	-6.1411***
GDP	1.6782	-1.6775**
EXR	-0.2228	-2.9077***
INF	-3.0142	-6.3335***
EXP	1.8859	-3.5379***
IMP	-1.2032	-3.3637***
PRISK	-1.2255	-3.8831***
CORR	0.2185	-3.4204***

Note: **indicates significance at 5%, *** indicates significance at 1%.

The Kao cointegration test results for the OFDI model are provided in the Table 4. According to the test results, H0 of no cointegration could be rejected at the 1% significance level. It suggests a long-run relationship existed between outward FDI, GDP, the exchange rate, the inflation rate, the export level, the import level, the political risk index, and the corruption control index.

Table 4 Kao Cointegration Test Results

Test	T-Statistic
Augmented Dickey-Fuller	-4.452132***
Residual Variance	0.161673
HAC Variance	0.160324

Note: *** indicates significance at 1%.

The long-run estimation results are displayed in the Table 5. The error correction term (ECT) coefficient could be used to perform diagnostic checks on the panel-ARDL. The estimation outcomes demonstrated that the significant ECT coefficient, which was -0.41, was present. It indicates that any deviations brought on by shocks in the short run would be adjusted toward a long-run balance of 41% in the subsequent period.

In general, the findings of the long-run equation estimate demonstrated that, except for the dummy coefficient of the financial crisis, all coefficients of the independent variables were statistically significant. Regarding GDP, the regression coefficient was positive and substantial, confirming the location hypothesis that FDI will expand in a country or region with a growing market size. In this case, ASEAN is one of the world's largest markets, with a combined GDP of 3.35 trillion US dollars and a population of 633.55 million. This study's estimation results corroborate the findings of Shahriar et al. (2019) in the context of Chinese OFDI in 16 countries from 2003 to 2009 and Zhang and Daly (2011) in 64 countries from 2004 to 2015 under the Belt and Road Initiative scheme.

As for the exchange rate, the estimation results showed a positive effect of the exchange rate between ASEAN countries and the Chinese Yuan. It denotes that the depreciation of ASEAN countries' currencies relative to the Chinese yuan would push OFDI into ASEAN countries. The depreciation of the host country's currency will reduce production costs, thereby increasing the competitiveness of companies operating in the host country. To benefit from the potential for greater product competitiveness on a global scale, OFDI flows from China are rising. This finding is consistent with research in the Chinese context with 64 countries (Zhang & Daly, 2011) and the Pakistani context (Qamruzzaman et al., 2019).

Concerning inflation, the estimation results suggest that inflation negatively affected China's OFDI to ASEAN countries. This finding aligns with Buckley et al. (2009) and Alam Iqbal et al. (2019). High inflation in the host country not only has the potential to raise production costs for foreign investors but also causes economic instability. This uncertainty will impact the level of domestic consumption in the host country, ultimately reducing the demand for products generated by foreign firms in the host country.

Table 5 Panel-ARDL Long-Run Estimation Results

Independent Variable	Coefficient and p-value
LnGDP	3.262621**
	(0.0000)
LnEXR	-0.172260**
	(0.0000)
INF	-0.057503**
	(0.0000)
LnEXP	-0.074863
	(0.5617)
LnIMP	0.381691**
	(0.0000)
RCORR	0.012825*
	(0.0988)
PRISK	0.014645**
	(0.0013)
FC	0.036510
	(0.7118)
ECT	-0.41***
	(0.0013)

Note: *indicates significance at 10%, **indicates significance at 5%, and *** indicates significance at 1%. p-value in parentheses

In the aspect of international trade, in the long run, exports had a negative effect on the flow of Chinese OFDI to ASEAN countries. It means that the higher China's exports to the ASEAN market, the lower the flow of Chinese OFDI to this region. It shows the substitution relationship between exports and OFDI because, with lower trade barriers created by ASEAN countries on products from China, companies in China are more inclined to export their goods than to make foreign direct investments in the ASEAN region. As for imports, the estimation results showed a positive influence of Chinese imports from ASEAN countries on China's OFDI in this region. These findings confirm the resource-seeking

theory expressed by Dunning (2015), in which FDI motivation includes seeking competitive resources in the host country. Therefore, China's increasing imports from ASEAN, dominated by primary products, will further encourage Chinese companies to invest in this region to reduce high import costs.

On the institutional aspect, both the corruption control and political stability indexes had a positive coefficient. It implies that increasing political stability and improving control of corruption in ASEAN countries would positively affect OFDI flows from China. These results align with those found by Mishra and Daly (2007) in a study of OFDI flows from OECD countries to Asian host countries and Tan and Goh (2018) in the context of OFDI studies between ASEAN countries. Finally, the estimation results also revealed that the financial crisis that occurred in 2008 did not affect the investment behavior of Chinese companies in ASEAN countries.

Table 6 Panel-ARDL Short-Run Estimation Results

Independent Variable	Coefficient and p-value
Constant	-28.01***
	(0.0006)
D(LnGDP)	0.84
	(0.7672)
D(LnEXR)	1.36
	(0.1348)
D(INF)	0.03
	(0.1081)
D(LnEXP)	0.63
	(0.3757)
D(LnIMP)	-0.41**
	(0.0066)
D(RCORR)	0.03
	(0.1614)
D(PRISK)	-0.02*
	(0.0537)
FC	0.02
	(0.9147)

Note: *indicates significance at 10%, **indicates significance at 5%, and *** indicates significance at 1%. p-value in parentheses

In the short run (Table 6), the estimation results uncovered that only China's import level from ASEAN countries and the political stability index significantly affected China's OFDI in this region. The nature of investment and investment decisions, which tend to fall in the long-run time dimension, is one of the reasons why various factors like GDP, exchange rate, and inflation rate were found to be insignificant. Before making an investment decision, investors typically use long-run information and data to determine whether factors in the host country are consistent. Meanwhile, short-run considerations are typically associated with transient but significant events, such as political risk and import continuation. As a result, the political risk and import level coefficients were significant. In the short run, investors will tend to wait and see whether this risk will persist for an extended period. If these events take place temporarily, in the long run, investors will

again observe crucial factors, such as GDP, exchange rate, and inflation rate, in determining investment decisions in ASEAN countries.

Conclusion

This study deals with the determinants of OFDI China in ASEAN economies, using a data set covering 2003-2019. This study used the Kao panel cointegration approach to test the long-run relationship between variables in the model. This study also utilized the panel-ARDL model to estimate the long-run and short-run relationship among variables. This approach is considered superior to other panel models due to its advantage when dealing with non-stationary variables at level or I (1).

This study provides evidence that OFDI flows from China to ASEAN countries are influenced not only by factors like resources and markets, as predicted by location theory, but also by factors such as the destination countries' trade openness policy, the level of competitiveness demonstrated by the favorable exchange rate, and institutional factors like corruption control and political stability. This study also confirms that the global financial crisis in 2008 did not significantly impact the flow of China's investment in the ASEAN region. From a practical perspective, this study suggests that maintaining open trade policy, a competitive exchange rate and significant improvement in law and order would be suitable policies for ASEAN economies to attract more investment from China and other countries.

Further, this study contributes to increasing the understanding of China's OFDI determinants. However, this study did not cover other variables, such as investment facilities provided by the host government. Economic packages like tax holidays and import-tariff discounts are also common policies ASEAN countries provide. Hence, this variable can be considered in future research.

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