

# Will the increased trade friction between China and the US affect China's direct investment in ASEAN?

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**Abstract:** Based on OFDI panel data of China and ten ASEAN countries from 2010 to 2020, this paper empirically analyzes the impact of Sino-US trade friction on China's direct investment in ASEAN, and studies the moderating effects of China's opening to the outside world and bilateral economic and trade relations on this impact. The results show that: (1) In general, under the background of Sino-US trade friction, China's direct investment in ASEAN increased. (2) China's openness to the outside world and bilateral economic and trade relations have a positive moderating effect, among which the greater the export volume of China's foreign trade, the more obvious the impact of Sino-US trade friction on China's direct investment in ASEAN. The closer the bilateral economic and trade relationship, the more China's direct investment in ASEAN increases in the context of Sino-US trade friction. In general, this article improves the internal logic of China's direct investment to ASEAN under the Sino-US trade friction, and effectively explains the rationality and scientific nature of China's opening up process. China should actively deal with Sino-US trade frictions and further increase economic and trade exchanges and investment cooperation with ASEAN countries.

**Keywords:** Sino-us trade frictions; China's direct investment in ASEAN; Panel model

## 1. Introduction

Under the background of industrial hollowing out, the continuously increasing domestic market demand in the United States leads to the aggravation of the trade deficit in the United States, and the financial industry lacking the support of the real economy leads to the concentration of financial risks. In order to bring manufacturing back to the United States, the United States started a trade war with China by imposing tariffs. At the end of 2017, the US National Security Strategy Report released by the Trump administration identified China as a "strategic competitor". Since 2018, trade frictions between China and the United States have escalated to the full range of fields, including trade, science and technology, finance, diplomacy, geopolitics, international public opinion, and international rules. The US trade policy towards China has turned to strategic friction, which has intensified the uncertainty of Sino-US trade policy. Although China and the United States reached the first phase of the economic and trade agreement on December 13, 2019, and the bilateral trade relations have eased somewhat, the Sino-US trade friction has had an important impact on China's and the world's foreign trade, accelerating the redistribution of the global industrial chain division of labor, and also promoting the transformation of China's foreign trade regional structure and foreign direct investment. On the one hand, Sino-US trade frictions will have a significant trade diversion effect, prompting China's foreign trade exports to shift to ASEAN, the EU and other regions of the world, which may benefit from Sino-US trade frictions and show varying degrees of economic growth and welfare improvement <sup>[1]</sup> <sup>[2]</sup>. On the other hand, due to Sino-US trade friction, China's domestic market saturation, overcapacity, the Chinese government began to enhance the foreign investment policy supply, improve the enthusiasm of Chinese enterprises to participate in foreign direct investment. In general, Sino-US trade frictions have accelerated the transfer of Chinese industries to other countries and further promoted economic and trade exchanges and investment cooperation between China and other countries.

Asean countries and China are geographically adjacent, with similar cultural customs and close trade exchanges. Therefore, ASEAN countries are an important region for Chinese enterprises to go out and make international capital investment. In recent years, with the official entry into force of RCEP and the launch of China-Asean Free Trade Area version 3.0, trade and investment cooperation between China and ASEAN countries has become closer. At the same time, the report of the 20th National Congress of

the Party clearly proposed to promote a high level of opening up, in the context of a high level of opening up, China and ASEAN regional economic cooperation is of great importance. Therefore, the research question of this paper is how Sino-US trade friction affects China's direct investment in ASEAN, and the moderating effect of China's opening to the outside world and bilateral economic and trade relations on this impact. The research conclusion has theoretical guiding significance for China's resolution of international trade dilemma in the context of Sino-US trade friction. It is realistic for China to promote China-Asean economic and trade cooperation, develop high-quality open economy and actively participate in the reform of the global economic governance system under the background of the new Sino-US economic and trade relations.

The possible marginal contributions of this article may include the following: First of all, existing literature has explored how the aggravation of Sino-US trade friction, an exogenous event, affects China's OFDI, but there is no literature on how Sino-US trade friction affects China's OFDI to ASEAN. This paper expands the literature on China's OFDI to explore the impact of Sino-US trade friction on China's OFDI to ASEAN. Secondly, there have been literatures on the impact of Sino-US trade friction on China's OFDI, mainly from the perspective of investment motivation of China's OFDI. This paper creatively puts the intensification of Sino-US trade friction, China's openness to the outside world and bilateral economic and trade relations into the same framework, and studies whether the impact of Sino-US trade friction on China's OFDI of ASEAN is regulated by China's openness to the outside world and bilateral economic and trade relations. The structure of this paper is as follows: The second part is the theoretical hypothesis; The third part is the model and data description; The fourth part is the empirical results; Finally, the conclusion.

## 2. Theoretical Hypothesis

### 2.1. *Sino-us trade friction and China's OFDI in ASEAN*

Sino-us trade friction intensifies the investment risk of Chinese enterprises in the United States, forcing Chinese enterprises to shift the location strategy of foreign investment to ASEAN region. In general, the impact of Sino-US trade friction on China's OFDI to ASEAN is mainly divided into three types.

First of all, China's OFDI of trade barrier avoidance to ASEAN. The trade friction between China and the United States has raised trade barriers to exports from both sides. When the United States imposes high tariffs on Chinese exports, Chinese enterprises may lose the opportunity to export to the United States in the future, which leads to the reduction of the product market of the enterprises subject to tariffs<sup>[3]</sup>. In order to avoid high tariffs and ease the pressure brought by anti-dumping, affected enterprises may pay more attention to the ASEAN market, and then increase direct investment in the third market such as ASEAN, and expand overseas sales market.

The second is OFDI caused by trade between China and ASEAN. The intensification of Sino-US trade friction has changed the global trade pattern, prompting China's foreign trade to shift to the EU, ASEAN and other parts of the world<sup>[2]</sup>. There is a complementary relationship between export and OFDI<sup>[4]</sup>, and China's export shift to ASEAN can promote China's trade induced OFDI in ASEAN.

Finally, China's OFDI of capacity transfer to ASEAN. Sino-us trade frictions may lead to adjustments in the global supply chain, leading to overcapacity in the manufacturing industry where China has a competitive advantage. According to the marginal industry expansion theory of Japanese scholar Kiyoshi Kojima in 1987<sup>[5]</sup>, the transfer of China's relatively disadvantaged industries to ASEAN countries for production and sales can not only optimize China's industrial structure, but also help promote China's OFDI growth to ASEAN.

Based on the above analysis, this paper proposes hypothesis 1.

Hypothesis 1: Sino-US trade friction promotes China's OFDI in ASEAN.

### 2.2. *China's opening to the outside world and the impact of Sino-US trade friction on China's OFDI of ASEAN*

Sino-us trade friction is characterized by both "Sino-US relations" and "trade friction". Therefore, this paper focuses on the impact of China's opening to the outside world on the effect of Sino-US trade friction.

On the one hand, when China encounters the trade protection barriers of the United States, the greater the degree of China's opening up to the outside world, the more foreign economic exchanges China will have. The environment of trade and investment liberalization promotes China to reduce its dependence on the American market, so that Chinese enterprises can enter the ASEAN market more conveniently, and China's OFDI for ASEAN will increase accordingly.

On the other hand, Sino-US trade frictions may lead to the rise of global trade protectionism, while China's opening-up policy enables China to strengthen cooperation with other countries, reduce the impact of unilateralism and protectionism, enhance the stability and predictability of international trade, improve China's confidence in ASEAN direct investment, and promote China's OFDI to ASEAN.

Based on the above analysis, hypothesis 2 is proposed in this paper.

Hypothesis 2: China's opening to the outside world positively moderates the impact of Sino-US trade friction on China's OFDI of ASEAN.

### **2.3. Bilateral economic and trade tightness and the impact of Sino-US trade friction on China's OFDI of ASEAN**

On the one hand, in the context of Sino-US trade friction, there are trade barriers between China and the United States. The better the original economic and trade relations between China and ASEAN, the ASEAN countries will provide an environment of trade and investment liberalization for Chinese enterprises, and trade facilitation and investment liberalization will promote the increase of China's OFDI to ASEAN.

On the other hand, Sino-US trade friction may lead to the rise of global trade protectionism, and the better the original economic and trade relations between China and ASEAN, the economic and trade cooperation between China and ASEAN will have stable expectations, improve China's confidence in ASEAN direct investment, and promote China's OFDI to ASEAN.

Based on the above analysis, hypothesis 3 is proposed in this paper.

Hypothesis 3: The economic and trade relationship between China and ASEAN positively moderates the impact of Sino-US trade friction on China's OFDI of ASEAN.

## **3. The model and data description**

### **3.1. Model design**

In order to test the impact of Sino-US trade friction on China's OFDI of ASEAN, this paper constructs the following benchmark regression model:

$$OFDI_{it} = \alpha_0 + \beta_1 TPU_t + \beta_n X_{it} + \gamma_t + \mu_i + \varepsilon_{i,t} \quad (1)$$

In model (1),  $i$  represents the ten ASEAN countries,  $t$  represents the 44 quarters from 2010 to 2020.  $OFDI_{it}$  represents the amount of China's investment in  $i$  country at  $t$  time.  $TPU_t$  represents the intensity of trade friction between the United States and China at  $t$  time.  $X_{it}$  represents a series of control variables, including factors that may affect China's OFDI, mainly including market size, corruption perception index and financial development index in ASEAN (this paper does not add control variables such as geographical distance and cultural distance to the control variables, because such variables that do not change with region and time will be controlled by fixed effects).  $\gamma_t$  is the year fixed effect,  $\mu_i$  is the country fixed effect,  $\alpha_0$  represents the constant term,  $\beta_1$  represents the elasticity coefficient of US-China trade friction intensity to China's OFDI,  $\beta_n$  represents the elasticity coefficient of a series of control variable changes to China's OFDI to ASEAN.  $\varepsilon_{i,t}$  is a random error term.

### **3.2. Data declaration**

This paper expects to study the impact of Sino-US trade frictions on China's OFDI of ASEAN from the macro level. Empirically, balanced static panel data is adopted for analysis. Considering the availability and representativeness of data, quarterly data of China's OFDI of ten ASEAN countries from 2010 to 2020 are finally selected, with a total of 440 observed values. In order to eliminate the difference of heteroscedasticity and order of magnitude, the natural logarithms of China's opening to the outside world, the original economic and trade relations between China and ASEAN and the market size of

ASEAN are taken.

### 3.2.1. Explained variable: China's outbound Direct Investment (OFDI)

Referring to the research of Jin Dan and Zhang Yufu<sup>[7]</sup> the level of China's OFDI is represented by the data of China's direct investment in ten ASEAN countries, and quarterly data is obtained by frequency conversion of annual data through the method of "quadratic function - match and match"<sup>[6]</sup>. Since there are negative values in the level of China's direct investment in ASEAN, this paper uses conversion units to eliminate the difference of orders of magnitude. Data are from CEIC database. Use 18-point font for the title of article, aligned to the left and font bold, with single linespace and all the initial letters capitalized. No formulas or special characters of any form or language are allowed in the title.

### 3.2.2. Explanatory variable: US Trade Policy Uncertainty Index (TPU)

The US Trade Policy Uncertainty Index measures the intensity of US trade friction with China based on the perspective of uncertainty. Data from <http://www.policyuncertainty.com/>.

### 3.2.3. Regulated variable

One is China's openness to the outside world (trade), which is expressed as the natural logarithm of the amount of China's trade imports and exports in each quarter. The other is the bilateral economic and trade closeness (relate) before the Sino-US trade friction, expressed as the natural logarithm of the total trade volume between China and ASEAN countries from 2001 to 2011. Data are from CEIC database.

### 3.2.4. Control variable

Inflation (inflation) is measured by the consumer price index of ASEAN countries. Labor structure (labor) is represented by the inverse of the total number of labor. Market size (pgdp), measured by the per capita GDP of ASEAN countries, the larger the per capita GDP, the larger the market size. The Corruption Perceptions Index (incorrupt) and the finance Development Index (finance) are derived from the CEIC database.

The descriptive statistical results of each variable are shown in Table 1.

Table 1: Descriptive statistics of variables

Variable type	Variable symbol	observed value	mean value	standard deviation	least value	maximum value
Explained variable	OFDI	440	2.574	3.779	-1.353	27.353
Explanatory variable	TPU	440	4.585	1.116	2.931	7.052
Regulated variable	trade	440	13.818	0.151	13.334	14.125
	relate	440	7.100	2.031	1.972	10.083
Control variable	inflation	440	3.117	2.954	-2.149	19.233
	labor	440	0.0006	0.0014	7.32e <sup>(-6)</sup>	0.005
	pgdp	440	7.133	1.286	5.129	9.753
	incorrupt	440	40.300	18.820	14.063	87.813
	finance	440	0.390	0.222	0.0777	0.784

## 4. The empirical results

### 4.1. Benchmark regression

F test is used to determine that the individual effect is better than the mixed effect, and Hausman test is used to determine that the fixed effect is better than the random effect. In order to verify whether the selection of control variables will affect the robustness of the results, the control variables are gradually added to Model (1) for regression, and the results are shown in Table 2. According to the regression results, the coefficient of explained variable TPU is positive and passes the significance test at the level of 1%, indicating that Sino-US trade frictions can promote China's direct investment in ASEAN countries, and Hypothesis 1 is verified.

Table 2: Benchmark regression results

Variable	(1) OFDI	(2) OFDI	(3) OFDI	(4) OFDI	(5) OFDI	(6) OFDI
TPU	2.603*** (0.736)	2.463*** (0.730)	2.578*** (0.734)	3.382*** (0.827)	3.603*** (0.808)	4.114*** (0.835)
inflation		-0.163*** (0.056)	-0.151*** (0.057)	-0.187*** (0.059)	-0.149** (0.058)	-0.148** (0.058)
labor			1,677 (1,154)	2,832** (1,277)	2,524** (1,248)	2,975 ** (1,257)
pgdp				-1.905** (0.918)	-1.508* (0.900)	-1.542* (0.895)
incorrupt					-0.211*** (0.047)	-0.224*** (0.047)
finance						-12.073** (5.342)
Constant	-9.532*** (3.495)	-8.494** (3.480)	-10.052*** (3.636)	-0.957 (5.683)	3.725 (5.644)	6.684 (5.764)
Individual fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Sample size	440	440	440	440	440	440
Number of countries	10	10	10	10	10	10
R <sup>2</sup>	0.179	0.197	0.201	0.210	0.250	0.260

Note: Standard error is in (). \*\*\*, \*\* and \* are significant at the levels of 1%, 5% and 10%. Same as after.

4.2. Robustness test

4.2.1. Add lag term

The impact of Sino-US trade frictions on China's OFDI in ASEAN may have a certain time lag, that is, the Sino-US trade frictions cannot have an immediate impact on China's OFDI in ASEAN. In this paper, the lagged one, lagged two and lagged three periods of TPU are used as the core explanatory variables to re-estimate, and the following model is constructed:

$$OFDI_{it} = \alpha_0 + \beta_1 L.TPU_t + \beta_n X_{it} + \gamma_t + \mu_i + \varepsilon_{i,t} \tag{2}$$

$$OFDI_{it} = \alpha_0 + \beta_1 L2.TPU_t + \beta_n X_{it} + \gamma_t + \mu_i + \varepsilon_{i,t} \tag{3}$$

$$OFDI_{it} = \alpha_0 + \beta_1 L3.TPU_t + \beta_n X_{it} + \gamma_t + \mu_i + \varepsilon_{i,t} \tag{4}$$

The results are shown in Table 3. It can be seen that the lagged term of China-US trade frictions still has a significantly positive impact on China's direct investment in ASEAN, which verproves the robustness of the benchmark regression to a certain extent.

Table 3: Add lag term

Variable	(1) OFDI	(2) OFDI	(3) OFDI
L.TPU	7.227*** (1.578)		
L2.TPU		4.646*** (1.102)	
L3.TPU			2.108*** (0.543)
Control variable	Yes	Yes	Yes
Constant	-7.600 (6.872)	1.346 (6.204)	10.337* (6.195)
Individual fixed effects	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
Sample size	430	420	410
Number of countries	10	10	10
R <sup>2</sup>	0.254	0.246	0.238

4.2.2. Test for endogeneity

In order to control the possible endogeneity and heteroscedasticity problems in Model (1), according to the GMM estimation method proposed by Arelano and Bond<sup>[8]</sup>, this paper uses the first-order lag term of explanatory variable as instrumental variable to re-estimate Equation (1) by difference GMM and

system GMM. The results are shown in Table 4, Columns (1) and (2) show the estimation results obtained by using the difference GMM and system GMM methods, respectively. For the core explanatory variables, both the sign and significance of the estimated coefficient maintain high consistency. This shows that after excluding the interference of endogenous problems, the impact of China-US trade frictions on China's OFDI in ASEAN is robust. In addition, the Hansen J statistic accepts the null hypothesis that there is no overidentification problem with instrumental variables.

Table 4: Test for endogeneity

	(1)	(2)
Variable	OFDI	OFDI
TPU	0.392*** (0.046)	0.195** (0.090)
Control variable	Yes	Yes
Constant		-10.461 (15.415)
Hansen J	4.80	2.70
Sample size	420	430
Number of countries	10	10

### 4.3. Moderating effect test

In order to verify Hypothesis 2 and Hypothesis 3, this paper sets the following model to explore the positive moderating effect of China's opening up and bilateral economic and trade relations.

$$OFDI_{it} = \alpha_0 + \beta_1 TPU_{it} + \beta_2 TPU_{it} * trade_{it} + \beta_n X_{it} + \gamma_i + \mu_t + \varepsilon_{i,t} \quad (5)$$

$$OFDI_{it} = \alpha_0 + \beta_1 TPU_{it} + \beta_2 TPU_{it} * relate_{i,t} + \beta_n X_{it} + \gamma_i + \mu_t + \varepsilon_{i,t} \quad (6)$$

In model (5) and (6),  $trade_{it}$  is the degree of China's opening to the outside world,  $relate_{i,t}$  is the economic and trade relations between the two sides,  $TPU_{it} * trade_{it}$  is the cross multiplication of the variable of Sino-US trade friction and China's opening to the outside world,  $TPU_{it} * relate_{i,t}$  is the cross multiplication of the variable of Sino-US trade friction and the economic and trade relations between the two sides. The coefficient of the interaction term represents the moderating effect of China's opening-up.

Table 5: Moderating effect test

	(1)	(2)
Variable	OFDI	OFDI
TPU	-22.513* (12.290)	2.100* (1.208)
TPU*trade	1.601** (0.753)	
TPU*relate		0.102* (0.053)
Control variable	Yes	Yes
Constant	20.706* (11.433)	5.782 (6.283)
Individual fixed effects	Yes	Yes
Year fixed effect	Yes	Yes
Sample size	440	440
Number of countries	10	10
R <sup>2</sup>	0.216	0.223

The results are shown in Table 5. The regression results in Column (1) show that the coefficient of the interaction term between China-US trade frictions and China's opening up is positive at the significance level of 5%, indicating that with the increase of China's opening up, the impact of China-US trade frictions on China's OFDI with ASEAN is more obvious, that is, China's opening up has a positive moderating effect. The regression results in Column (2) show that the coefficient of the interaction term between China-US trade frictions and the economic and trade relations between China and ASEAN is positive at the significance level of 10%. This shows that the better the economic and trade relations between China and ASEAN are, the more obvious the impact of Sino-US trade frictions on China's OFDI with ASEAN is, that is, the bilateral economic and trade relations have a positive moderating effect.

## 5. The conclusion

### 5.1. Research conclusions

This paper integrates China-US trade frictions, China's direct investment in ASEAN, China's opening to the outside world and bilateral economic and trade relations into a unified analytical framework to explore the impact of China-US trade frictions on China's OFDI in ASEAN and the moderating effect of China's opening to the outside world and bilateral economic and trade relations on this impact. The main conclusions are as follows: (1) Sino-US trade friction has promoted China's direct investment in ASEAN. (2) The moderating effect test shows that China's opening-up degree and bilateral economic and trade relations have a positive moderating effect.

### 5.2. Policy advice

In general, this paper improves the internal logical relationship of China's direct investment in ASEAN under the Sino-US trade friction, and effectively explains the rationality and scientificity of China's opening up process. Based on the empirical result that the Sino-US trade friction has promoted China's direct investment in ASEAN, this paper puts forward the following suggestions.

First, Sino-US trade frictions are essentially a game between a rising power and a standing power in the Thucydides trap, so Sino-US trade frictions may exist for a long time. In the face of such a complex international environment, China should establish a long-term awareness of dealing with Sino-US trade frictions and actively seek ways to solve them. Against the background of Sino-US trade frictions, China's OFDI turns to ASEAN region, which is the performance of China's active response to Sino-US trade frictions.

Secondly, the Sino-US trade frictions have increased the risks and uncertainties of China's OFDI, while China's opening policy has enhanced the stability and predictability of China's trade to a certain extent, improved the confidence of China's OFDI, and created more convenient conditions for China's OFDI with ASEAN. Therefore, against the background of Sino-US trade frictions, China should continue to develop high-quality open economy and further increase economic and trade exchanges and investment cooperation with ASEAN countries.

Third, the key industries suppressed by the US in this trade friction against China are high-end industries, with the purpose of curbing China's high-tech development. China transfers low-end industries to ASEAN countries through OFDI, which promotes the transformation of China's industrial chain to high-end and further promotes the high-quality development of China's economy. Therefore, under the background of Sino-US trade friction, China should actively seek to reconstruct the division of labor system of global value chain, promote the establishment of new international economic order and new international economic and trade rules, build a new China-Asean regional value chain, and increase China's direct investment in ASEAN.

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