Foreign Direct Investment in Indonesia: What is the Effect on Policy Variables and Neighbouring Countries?

Vietha Devia SS and Faishal Fadli*

Lecturer, School of Economics and Business Brawijaya University, Malang Indonesia.

Abstract: This study analyses how the effects of implementing monetary policy and the factor of neighbouring countries can affect the value of FDI in Indonesia in the long and short term by using the ECM method. The result is that the variable IDR, SGD, and loan interest rates in Thailand have a positive relationship to FDI in Indonesia in the long term. Meanwhile, variables MYR, THB, BI Rate, loan interest rates in Malaysia, and loan interest rates in Singapore have a negative relationship to Foreign Direct Investment in Indonesia in the long term. The CBT, DID, and PSM methods are used to analyse the effect of implementing fiscal policies on FDI in Indonesia. The result is that the implementation of the tax allowance can increase real interest rates and FDI in Indonesia. Thus, the increase in the value of FDI in Indonesia can be achieved by implementing a tax allowance policy accompanied by an increase in the BI rate at the right time.

Keywords: Foreign Direct Investment, Exchange Rate, Interest Rate, Tax Allowance, Monetary Policy, Fiscal Policy.

1. INTRODUCTION

Investment, in general, can be interpreted as a form of investment to make a profit. However, experts have different definitions of investing. According to Laopodis (2021), investment is related to the efficient management of money or financial wealth in the present with the hope of receiving more money (returns) in the future. Furthermore, Gazali & Toni (2019) said that investments can be made for the short term and long term.

Policy factors can influence investment decisions. An example is the imposition of taxes as an instrument from the fiscal side. Abizadeh in Edame & Okoi (2014) suggests that the imposition of taxes can hinder investment levels through corporate and personal income taxes and the imposition of taxes on capital gains. At a low level of uncertainty, tax incentives are positively related to average investment (Guceri and Albinowski 2021). On the other hand, when uncertainty is high, tax incentives will be responded to differently for each company.

The government has implemented tax incentives for several periods. In 2015, the government implemented a tax holiday and tax allowance. The tax holiday is a policy in the form of exemption and reduction of corporate income tax through PMK no. 159 of 2015 which is devoted to industry pioneers (InsideTax Magazine - 34 2015). Tax allowances function in the same way as tax holidays, namely in the form of tax deductions. If the tax holiday is a tax facility that applies to newly established companies and is given within a certain period, the tax allowance is a tax reduction calculated on the amount of investment invested (Lathifa 2019).

*Address correspondence to this author at the Lecturer, School of Economics and Business Brawijaya University, Malang Indonesia.
Tel: +6281333345655. E-mail: faishalfadli@ub.ac.id

In monetary policy, Bank Indonesia as the central bank in Indonesia has a single goal, namely inflation stability. Inflation is the general rise in the prices of goods and services (Mankiw 2016). To achieve this single goal, Bank Indonesia has an instrument in the form of BI Rate. Changes in central bank interest rate policies are often used to achieve inflation targets (Bruna and Tran 2020). However, in setting interest rates, Bank Indonesia must also pay attention not to be too high. High-interest rates make investments more volatile (Aysun and Kabukcuoglu 2018). Apart from achieving inflationary stability, exchange rate stability must also be maintained. If the exchange rate is stable, it will reduce uncertainty and minimise transaction costs so that Foreign Direct Investment (FDI) will increase (Harms & Knaze, 2021). FDI is negatively related to the value of the dollar (Ando and Wang 2020; Sharifi-Renani and Mirfatah 2012). The more stable the currency, the more foreign investment comes in (Lavorschi 2014)

The geographical factors are important to consider when investing in a portfolio (Cubillos-Rocha, Gomez-Gonzalez, and Melo-Velandia 2019a). They found evidence that the contagion effect was very high in one regional country such as South Korea and Indonesia (Asia), the UK, and Germany (Euro Area). Other studies have also shown that countries in the same region tend to influence each other. The value of Asian currencies has shown a weakening trend in the last three years, including the Rupiah (IDR), MYR, and THB (Kirrane 2018; McAleer and Nam 2005). During the 1997 Asian financial crisis, the Rupiah also weakened after THB, MYR, PHP, and SGD due to speculators (Klyuev and Dao 2016; Orlov 2009).

Singapore, Malaysia, and Thailand are the closest neighbours and have almost the same economic structure. Thailand is the third-largest supplier of imported goods to Indonesia, including machinery and commodities for automotive parts,

plastics, steel, organic chemicals, and wheat (Royal Thai Embassy 2017). Furthermore, Indonesia is the third-largest recipient of investment after Singapore and Malaysia which emphasises the importance of connectivity because it is a neighbouring country to Thailand (Chirathivat and Cheewatrakoolpong 2015; Sasana and Fathoni 2019).

There are many examples of cases that occurred in neighbouring countries which affect Indonesia. One example occurred in March 2018, when the increase in interest rates in Singapore encouraged investors to invest in bonds and other securities in Singapore due to expectations of higher yields (Agustio 2018a). Another example was in July 2018, wherein Malaysia there was an increase in capital inflows, while in Indonesia there was a decrease in capital inflows. This phenomenon is thought to be due to Bank Indonesia maintaining its interest rate at the level of 5.25% (Agustio 2018b). Meanwhile, Malaysia raised its benchmark interest rate for the first time since July 2014 to curb inflation (Wirayani 2018).

Based on this background, the authors are interested in studying how the influence of the tax allowance as fiscal incentives and monetary policy (exchange rate and BI Rate) on Foreign Direct Investment (FDI). The authors also added the influence of the exchange rate and lending rate from neighbouring countries. The case study was taken in Indonesia. Indonesia is the only ASEAN country that is a member of the joint G-20 which controls 75% of world trade. Standard Chartered also ranks Indonesia as the fourth-largest economy in the world in 2030 with a value of USD10.1 trillion below China, India, and the US (Koran Sindo 2021). Minister of Industry Airlangga Hartarto said Indonesia is still the main destination for investment (BPKM 2017). In fact, according to the Borderless Business Studies Survey conducted by Standard Chartered, it shows that United States (US) and European companies place Indonesia in 4th place in Southeast Asia as the most preferred country in terms of development opportunities (econ.go.id 2021).

2. LITERATURE REVIEW

According to Putri (2017), in determining the allocation of capital, there are two stages carried out by investors. The first stage is to choose a country based on the size of the market, access to raw materials, availability of labour, and so on. After the first stage is carried out, the second stage is to evaluate tax rates, guarantees, and various incentives that will be obtained in a country. Furthermore, Sofyanto & Sa'adah (2018) revealed that tax is one of the policies that influence increasing investment. Tax cuts are expected to reduce production costs, capital costs, and increase competitiveness.

Regarding interest rates, in IS-LM theory, interest rates are negatively related to investment (Mankiw 2016). Furthermore, Hendrayana (2018) stated that interest rates are the cost of capital for companies; when interest increases, the cost of capital increases and company profits fall. This will reduce investor interest, especially in the real sector. From the investor's perspective, interest rates are an opportunity cost. So, investors should be more interested in giving dividends at least equal to the average deposit interest, with a risk premium. Pholphirul in Kiptanui Bett (2017) proves that capital tends to move from countries with low-level rates of return to countries with high rates of return. Ysmailov (2021) emphasises that high (low) interest rates are associated with high (low) short-term investments and low (high) cash due to the opportunity cost of holding the latter.

Exchange rates can affect Foreign Direct Investment in several ways, depending on the purpose for which the goods are produced. If investors aim to serve the local market, then the movement of Foreign Direct Investment is a substitute. So, when there is an appreciation of the exchange rate in the local currency, this can increase Foreign Direct Investment because the purchasing power of local consumers becomes higher. Or, if Foreign Direct Investment aims to produce for export (complement), then the appreciation of the local currency will reduce the inflow of Foreign Direct Investment through low competitiveness due to higher labour costs (Becker et al. 2020; Bénassy-Quéré, Fontagné, and Lahrèche-Révil 2001)

The contagion effect exists because of international trade and financial relations (Jiang, Tang, Li, et al., 2022). Moreover, the contagion effect is very strong in influencing capital flows, whether in Foreign Direct Investment or investment in other forms (Cubillos-Rocha, Gomez-Gonzalez, and Melo-Velandia 2019b; Lee, Park, and Byun 2013). When there is a change in economic variables in one country, it will have an impact on the economic development of other countries. For example, in the United States, when interest rates in other developed countries are lower, more capital flow will enter the United States (Ammer et al. 2019). This finding has important policy implications as it shows that low-interest rates can lead to shifts in the volume and composition of foreign investment (Hussain et al. 2019; Joseph Onwe and Rahman Olarenwaju 2014).

3. DATA AND RESEARCH METHOD

The data used is monthly data. In terms of monetary policy, this study uses the BI 7 Days Reverse Repo (BI 7DRR) variable, interest rate spread, lending interest rate, IDR/U$D, MYR/U$D, THB/U$D, and SGD/U exchange rates, $D. All data is transformed into a natural logarithm so that it can be used in a linear model using the Error Correction Model (ECM) method. The research period starts from 2010to 2020. Meanwhile, in terms of fiscal policy, the government has implemented tax incentives in the form of tax holidays and tax allowances in 2015. This year was used as the base year for experimental tests using the difference in differences (DID) and propensity score matching (PSM).

3.1. Error Correction Model (ECM)

ECM is an analysis of time-series data that is used for variables that have dependencies, often called cointegration (Baltagi, Badi H. 2010; Gallant 2019). The ECM method is used to balance the relationships between variables in the short run to variables that have long-run relationships (Fadli 2014). Residual stationary indicates the state of integration in the ECM model. The ECM requires that variables are not stationary at the level. However, it takes a stationary at the level of the residual/error (e) regression equation for these variables.

Long-run equation:

$$INDOFDI_t = \beta_0 + \beta_1 BIRATE_t + \beta_2 IDR_t + \beta_3 MYR_t + \beta_4 THB_t e_t + \beta_5 SGD + \beta_6 MALAYLEND_t + \beta_7 THAILEND_t + \beta_8 SGPLEND_t + e_t \quad (1)$$

Residual:

$$e_t = INDOFDI_t - \beta_0 - \beta_1 BIRATE_t - \beta_2 IDR_t - \beta_3 MYR_t - \beta_4 THB_t - \beta_5 SGD - \beta_6 MALAYLEND_t - \beta_7 THAILEND_t - \beta_8 SGPLEND_t \quad (2)$$

INDOFDI is Foreign Direct Investment that refers to direct investment equity flows in the reporting economy at the t month. BIRATE is the reference interest rate determined by Bank Indonesia through the Board of Governors' Meeting every t month. IDR, MYR, THB, and SGD are official exchange rates that refer to the exchange rate determined by national authorities (Indonesia, Malaysia, Thailand, and Singapore) or to the rate determined in the legally sanctioned exchange market (local currency units relative to the U.S. dollar) at the t month. MALAYLEND, THAILEND, and SGPLEND are the lending rate that is the country bank rate (Malaysia, Thailand, and Singapore) that usually meets the short- and medium-term financing needs of the private sector at the t month.

Short-run equation:

$$\Delta INDOFDI_t = \beta_0 + \beta_1 \Delta BIRATE_t + \beta_2 \Delta IDR_t + \beta_3 \Delta MYR_t + \beta_4 \Delta THB_t e_t + \beta_5 \Delta SGD + \beta_6 \Delta MALAYLEND_t + \beta_7 \Delta THAILEND_t + \beta_8 \Delta SGPLEND_t + \gamma e_{t-1} + v_t \quad (3)$$

Where ΔBIRATEt, ΔIDRt, ΔMYRt, ΔTHBt, ΔSGDt, ΔMALAYLENDt, ΔTHAILENDt, and ΔSGPLENDt are variable, BIRATE, IDR, MYR, THB, SGD, MALAYLEND, THAILEND, and SGPLEND are differentiated in the first order. Nevertheless, et-1 is a long-run residual or error equation in period and t-1. vt is an error of short-run equations. The coefficient γ in the above equation is the speed of the residual / error (e) in the previous period to correct the change in variable y to the balance in the next period (the speed of adjustment) (Fadli 2014). The coefficient γ must be significant and negative (Baltagi, Badi H. 2010).

3.2. Chow Breakpoint test (CBT)

This method was first proposed by an econometrician named Gregory Chow in 1960. The Chow Test is used to test whether two or more regressions are different (Gallant 2019; Gujarati 2004). Usually, this method is used to test for the presence of a structural break at a period that can be assumed to be known a priori (for instance, a major historical event or policy implementation). When used to evaluate a program or policy, the Chow test is often used to determine whether the independent variables have different impacts on different subgroups of the population. The Model Stability Test is conducted to test within a certain period from the entire range of estimated periods, whether the model can still be used as a valid prediction. Usually, if there is a policy variable, then the equation model assessment can predict well from the policy issuance period to the end of the observation period.

The model used

$$y_t = a + bx_{1t} + \varepsilon \quad (5)$$

The model is divided into two

$$y_t = a_1 + b_1 x_{1t} + \varepsilon \quad (6)$$

And

$$y_t = a_2 + b_2 x_{2t} + \varepsilon \quad (7)$$

The null hypothesis of the Chow test confirms that $a_1=a_2$, $b_1=b_2$, and $c_1=c_2$. The assumption is that the model errors ε are independent and identically distributed from a normal distribution with unknown variance. SSR_C is the sum of squared residuals from the combined data, SSR_1 is the sum of squared residuals from the first group, SSR_2 is the sum of squared residuals from the second group. N_1 and N_2 are the numbers of observations in each group and k is the total number of parameters (in this case 2, i.e., 1 independent variables coefficient + intercept). Then the Chow test statistic is:

$$\frac{(SSR_C - (SSR_1 + SSR_2))/k}{(SSR_1 + SSR_2)/(N_1 + N_2 - 2k)} \quad (8)$$

The test statistic follows the F-distribution with k and N_1+N_2 -2k degrees of freedom.

When using dummy variables:

Examine the two data sets which are being compared. There is the "primary" data set i= {1, …, n_1} and the "secondary" data set i= {n_1+1, … n}. Then there is the union of these two data sets: i= {1, …, n}. When there is no structural change between the primary and secondary data sets a regression can be run over the union without the issue of biased estimators arising.

$$y_t = \beta_0 + \beta_1 x_{1t} + \beta_3 x_{2t} + \cdots + \beta_k x_{kt} + \gamma_0 D_t + \sum_{i=1}^{k} \gamma_i x_{it} D_t + \epsilon_t$$

Which is run over i= {1, …, n}. D is representing the dummy variable taking a value of 1 for i= {n_1+1, …, n} and 0 otherwise. If both data sets can be explained fully by (β_0, β_1, … β_k) then there is no use in the dummy variable as the data set is explained fully by the restricted equation. That is, under the assumption of no structural change we have a null and alternative hypothesis of:

H_0: $\gamma_0=0$, $\gamma_1=0$, …, $\gamma_k=0$

H_1: otherwise

The null hypothesis of joint insignificance of D can be run as an F-test with n-2(k+1) degrees of freedom. That is:

$$F = \frac{(RSS^R - RSS^U)/(k+1)}{RSS^U/DoF}$$

3.3. Difference In Difference (DID)

The difference in differences (DID) is a statistical technique used in econometrics and quantitative research in the social sciences. The technique attempts to mimic an experimental research design using observational study data to evaluate the differential effects of a treatment on a 'treatment group' versus a 'control group' in a natural experiment (Angrist and Pischke 2008; Goodman-Bacon 2018). Researchers usually use the DID model to examine the influences of policies and government intervention in the economy (Fadli, Maski, and Sumantri 2020). The model assesses the impact of treatment (policy or government intervention) on a result (the dependent variable) by identifying the average change after a period in the result variable for the treatment group against the average change after a period for the control group. DID rejects exogenous impacts and isolates the real treatment effect. The model is as follows:

$$FDI_{it} = \beta_i + \beta_t + \theta Treated_i \; X \; Post_t + \delta IR_{it} + u_{it} \quad (6)$$

Where the dependent variable is the Foreign Direct Investment (FDI), the country i is at date t. βi represents country-specific, time-invariant fixed effects, and β_t represents time-specific, country-invariant fixed effects. $Treated_i$ denotes a vector of dummy variables of $Treated_i$ = 1 for the treatment group and $Treated_i$ = 0 for the control group. The treatment group is Indonesia, and the control group is Malaysia. $Post_t$ denotes a vector of dummy variables where $Post_t$ = 1 in the post-treatment period after the implementation of the earmarking policy was implemented at date $t \geq 0$, and $Treated_i$ = 0 otherwise. u_{it} are the error terms. Interest Rate (IR) country i at date t is the control variable. Using a control variable manages a potentially confounding size effect (Fadli et al. 2020).

This research utilises two sources of variation to distinguish θ. Initially, θ is recognised to utilise the variety between the treatment group and the control group. Secondly, θ is distinguished to utilise the variety inside each group, both before and after the earmarking policy was implemented.

DID methodology uses the common trend assumption, commonly known as the parallel assumption. The common trend assumption is the assumption set that states that no treatment results from the treatment group and the control group will give the same trend (Fadli et al. 2020). Common train assumption predominantly uses pre-treatment data to show the same trend.

This research uses Malaysia for the control group because it is a country that has similar characteristics to Indonesia and is geographically close to Indonesia. Furthermore, most Malaysians, like Indonesians, are Muslim, and therefore the customs and culture of Malaysia are also similar to those of Indonesia. Moreover, Malaysia and Indonesia are still part of a unitary Malay race. These reasons make the structure of Malaysian society like Indonesian society. Although, in general, Malaysia is different from Indonesia, this study compares the implementation of tax allowance policies in Indonesia that are not applied in Malaysia.

3.4. Propensity Score Matching (PSM)

The selection of a control group must be chosen to eradicate selection bias. The Propensity Score Matching (PSM) method is used to minimise the possibility of selection bias. PSM can reduce to a one-dimensional score of various multidimensional matching variables (Fadli et al. 2020; Yan and Hongbing 2018).

The first order in applying the PSM method is to use logistic regression models as this distribution is often approximately normal (Morgan 2018; Rosenbaum and Rubin 1985). Given the observed covariate vectors (xi), as conditional probabilities for specifying certain treatments (wi = 1) versus non-treatment (wi = 0), PSM will define the trend scores for individuals. The covariates in vector X are called matching variables.

$$P(x_i) = pr(w_i = 1 | X = x_i) \quad (7)$$

The second-order matches treated subjects to non-treated subjects which supports the calculable propensity scores. The main matching methods are nearest neighbour matching, radius matching, kernel matching, and stratification matching.

The third order is balance assessment, which checks whether the propensity scores are balanced across treatment and matched groups and whether the matching variables are balanced across treatment and matched teams among the strata of the propensity scores.

4. RESULTS AND DISCUSSIONS

4.1. Error Correction Model

If the data to be used is stationary, then OLS regression can be used, but if it is not stationary, the data needs to be seen for stationarity through the degree of integration test. Furthermore, data that is not stationary at the level can be cointegrated, so it is necessary to carry out a cointegration test. Then if the data has been cointegrated, ECM testing can be done.

To find out whether the time series data used is stationary or not, a unit root test is used. The unit root test was carried out using the Dicky Fuller (DF) method. Based on Table **1**, all variables are not stationary at the level. However, when the second stage of differentiation is carried out, all the variables are stationary. Therefore, the cointegration test stage can be carried out.

After knowing that the data is not stationary, the next step is to identify whether the data are cointegrated. Cointegration tests are conducted to test the integration of long-run correlation between the research variables. The cointegration test in

Table 1. Data Stationarity Results.

Variable	Level		1st difference		2nd difference	
	Prob.	Result	Prob.	Result	Prob.	Result
LOGINDOFDI	0.6704	Non-stationary	0.0004	Stationary	0.0001	Stationary
LOGBIRATE	0.6008	Non-stationary	0.0361	Stationary	0.0000	Stationary
LOGIDR	0.8576	Non-stationary	0.0000	Stationary	0.0000	Stationary
LOGMYR	0.8379	Non-stationary	0.0489	Stationary	0.0012	Stationary
LOGMALAYLEND	0.8478	Non-stationary	0.9982	Non-stationary	0.0000	Stationary
LOGSGPLEND	0.8583	Non-stationary	0.0042	Stationary	0.0006	Stationary
LOGSGD	0.9929	Non-stationary	0.0000	Stationary	0.0001	Stationary
LOGTHB	0.2781	Non-stationary	0.0913	Non-stationary	0.0000	Stationary
LOGTHAILEND	0.9992	Non-stationary	0.3227	Non-stationary	0.0000	Stationary

this research used the ADF test on residual values. The results are as follows:

Table 2. Cointegration Test Results.

Augmented Dickey-Fuller test statistic		t-Statistic	Prob.*
		-3.182973	**0.0233**
Test critical values:	1% level	-3.481623	
	5% level	-2.883930	
	10% level	-2.578788	

Cointegration test results are obtained by forming a residual obtained by regressing the independent variable to the dependent variable by OLS. The residual must be stationary at the level to be said to have cointegration. According to Table **2**, the cointegration test results show that the residual value is stationary at the level.

Based on the results of Table **3** above, the entire dependent variable influences the independent variable. The positive relationship (4.12) of the IDR variable to INDOFDI in the long term indicates that when the rupiah exchange rate depreciates, Foreign Direct Investment in Indonesia will increase in the long term. The weakening of the rupiah exchange rate or the strengthening of the US dollar will result in smaller business costs borne by companies such as transportation costs, labour, and raw materials to increase company profits when exporting their products abroad (Sari and Baskara 2018). A depreciating exchange rate will increase the number of exports because the prices of goods are relatively cheaper than foreign goods (Stevens 1998; Sugiharti, Esquivias, and Setyorani 2020). However, this can happen in the long term because it must go through the production process first before the goods can be exported abroad. Following the currency areas hypothesis theory, foreign companies that have a stronger exchange rate (currency) than other countries tend to invest because countries with weak currencies are generally unable to invest. After all, the risks they may face will be high (Robert A. Mundell 1961). It can be said that the source of Foreign Direct Investment (FDI) is a country with a stronger currency value and a country with a weaker currency will be the recipient or destination country of FDI (Harms and Knaze 2021b).

The negative relationship (-0.08) between the BIRATE and INDOFDI variables in the long term indicates that a lower benchmark interest rate provided by Bank Indonesia will result in an increase in Foreign Direct Investment in Indone-

Table 3. Long-Run Correlation Results.

Variable	Coefficient	R-squared	t-Statistic	Prob.	F-statistic	Prob(F-statistic)
LOGIDR	4.124287	0.738465	7.653864	0.0000	43.41249	0.000000
LOGBIRATE	-0.084513		-4.239693	0.0000		
LOGMYR	-8.778812		-7.231303	0.0000		
LOGMALAYLEND	-1.872751		-2.996176	0.0033		
LOGSGD	14.59205		5.655004	0.0000		
LOGSGPLEND	-39.70474		-5.638994	0.0000		
LOGTHB	-8.619370		-5.267981	0.0000		
LOGTHAILEND	4.311028		5.843378	0.0000		
C	7.232737		8.474814	0.0000		

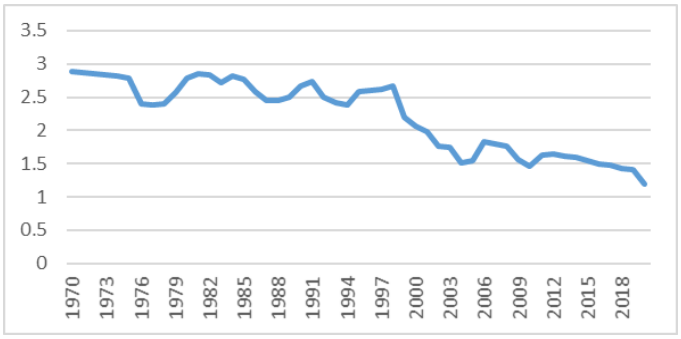

Fig. (1). Thailand Lending Rate.

sia in the long term. The high-interest rates in Indonesia will make investors reluctant to invest in Indonesia, or in other words, foreign investment will also decline (Hussain et al. 2019; Trisnawati 2012). The interest rate is the rate that is paid or charged for the use of funds or in other words the cost of borrowing (David-Pur, Galil, and Rosenboim 2020). Rising interest rates occur as a result of a decrease in investment and vice versa: when interest rates decrease, the investment will increase due to a decrease in the cost of the investment (Lin et al. 2018). High-interest rates will cause the amount of investment to be small, and vice versa: when interest rates are low, the investment will increase. Rising interest rates will make the cost of capital charged by the company also increase, thus preventing investors from investing or carrying out their projects (Lin et al. 2018). Changes in interest rates affect public demand for goods and services and, therefore, boost investment spending (Guasoni and Wang 2019). Lower interest rates lower borrowing costs, which encourages businesses to increase investment spending (Sitanggang and Hidayat 2017). Lower interest rates also give banks more incentives to lend to businesses and households, allowing them to spend more (Dewi and Cahyono 2016). More spending from businesses and households will encourage production growth which will encourage investment both abroad and domestically (Ammer et al. 2019). However, the process of implementing the policy takes time to produce this effect (Lag), so that the influence can be felt in the long term.

The negative relationship (-8.77 and -8.61) between MYR and THB against INDOFDI in the long term means that the higher the value of the Malaysian currency (MYR) and Thailand (THB) experiencing appreciation, the higher the impact of Foreign Direct Investment in Indonesia. This can happen because the appreciation of the value of MYR and THB is an increase in the value of these currencies against the US Dollar. As a result, the prices of foreign goods are relatively cheaper than in Malaysia and Thailand as well as the prices of production factors (Harms and Knaze 2021b). Because the production process takes time until the goods are ready to be marketed, the effect occurs in the long term. This has encouraged increased investment abroad in Malaysia and Thailand. Due to the depreciation of the Indonesian exchange rate, investment inflows from Malaysia and Thailand have increased due to the appreciation of the exchange rates of the two countries.

Meanwhile, the Singapore exchange rate (SGD) has a positive (14.59) relationship with Foreign Direct Investment (INDOFDI) in Indonesia in the long term. This can happen because Singapore is the largest investor country in Indonesia (Anon 2021a). According to the Ministry of Investment, Singapore is in first place with a total investment in the first quarter of 2021 of USD 2.6 billion. However, according to Deputy for Investment Implementation Control at BKPM, Farah Indriani, the investment from Singapore was not purely from that country, because many investments from other countries such as South Korea, China, the United States, and Europe invested in Indonesia through Singapore (Anon 2021a). Therefore, it is natural that the SGD depreciates, increasing Foreign Direct Investment in Indonesia, as other countries will be interested in investing in Indonesia through Singapore.

The negative relationship (-1.87 and -39.70) of MALAYLEND and SGPLEND with INDOFDI in the long term means that when loan interest rates in Malaysia and Singapore are low, there will be an increase in Foreign Direct Investment in Indonesia. The low-interest rates provided by banks can attract investors to use bank funds in making their investments (Angelina and Nugraha 2020; Pantelous 2008). The low-interest rates on loans at banks in Malaysia and Singapore can attract investors in these countries to apply for loans at banks and then the loan funds are invested in Indonesia. Investors from Malaysia and Singapore will get the results from the difference between the interest provided by the banks in those countries with the investment results in Indonesia. Further, the positive relationship (4.31) between THAILEND and INDOFDI in the long term means that the higher interest rates on bank loans in Thailand will result in higher levels of Foreign Direct Investment in Indonesia in the long term and vice versa. When referring to Figure 1, Thailand's loan interest rate has a downward trend from 1979 to 2020 (Anon 2021b). A decrease in the loan interest rate in Thailand should lead to an increase in investment both at home and abroad. However, the rejection of the policies of the new government and king led to massive demonstrations by the Thai people that lasted for months (Sriring 2021). As a result, Thai investors are reluctant to use loan funds from banks even at low fees. Investors in Thailand prefer to wait and see until the situation returns to normal (Abbott 2021). Therefore, there is a positive relationship between Thailand's lending rate and Indonesia's Foreign Direct Investment in the long term.

Based on Table **4** above, the independent variables BIRATE and MALAYLEND are not significant in the short term to the independent variable INDOFDI. Monetary policy, one of

Table 4. Short-term Analysis with the 2nd Level Difference Results.

Variable	Coefficient	R-squared	t-Statistic	Prob.	F-statistic	Prob(F-statistic)
D(D(LOGIDR))	22.98306	0.917171	11.08024	0.0000	146.4098	0.000000
D(D(LOGBIRATE))	-0.004090		-0.471677	0.6380		
D(D(LOGMYR))	12.45345		2.046886	0.0429		
D(D(LOGMALAYLEND))	-0.006117		-0.002097	0.9983		
D(D(LOGSGD))	-28.24979		-2.397439	0.0181		
D(D(LOGSGPLEND))	-115.2177		-14.35409	0.0000		
D(D(LOGTHB))	-11.21515		-8.220824	0.0000		
D(D(LOGTHAILEND))	-7.316153		-2.930653	0.0041		
D(D(E1(-1)))	-0.094877		-2.286148	0.0240		
C	-0.000206		-0.666199	0.5066		

Table 5. Singapore Robustness Check.

Variable	Coefficient	R-squared	t-Statistic	Prob.	F-statistic	Prob(F-statistic)
LOGSGD	0.332759	0.870790	0.223347	0.8236	103.6171	0.000000
LOGSGPSPRD	-12.01937		-4.678569	0.0000		
LOGMYR	0.597099		0.691397	0.4906		
LOGMALAYLEND	1.443788		5.927542	0.0000		
LOGTHB	-1.299119		-1.307195	0.1936		
LOGTHAILEND	1.544882		4.435908	0.0000		
LOGINDOLEND	-0.464176		-0.715550	0.4756		
LOGIDR	0.948174		5.351946	0.0000		
C	3.004878		11.76483	0.0000		

which is through changes in interest rates (BI Rate), does have an impact on investment only in the long term (Albulescu and Ionescu 2018; Dang, Pham, and Tran 2020). Meanwhile, the interest rate on loans granted by banks in Malaysia in the short term does not affect Foreign Direct Investment in Indonesia. Malaysia is the largest country investing in the telecommunications sector in Indonesia (Anon 2021a). The telecommunications sector is a real sector whose impact can be felt in the long term. Meanwhile, the SGPLEND relationship has a negative effect (-115.21) in the short term on INDOFDI as well as in the long term. THAILEND's relationship with INDOFDI in the short term turned negative (-7.31) due to unstable political conditions in Thailand resulting in the movement of investment from domestic to Indonesia which was carried out in a short period (short term) to secure investment funds.

The positive relationship (22.98) of the IDR variable to INDOFDI in the short term indicates that when the Indonesian rupiah exchange rate appreciates, Foreign Direct Investment in Indonesia will increase in the short term. The appreciation of the rupiah exchange rate can cause capital flows from abroad to enter (Maryatmo 2015; Thorbecke 2021). This can happen because the appreciation of a country's exchange rate reflects the improving economy in a country (Ribeiro, McCombie, and Lima 2020). According to signal theory, this is a signal for investors to be able to invest in the country (Connelly et al. 2011; Kromidha and Li 2019; Sewell 2011). As a result, it can increase investment in the financial sector through the purchase of Indonesian securities by foreigners because the flow of capital out and into the financial market can occur quickly so that a positive relationship can occur in the short term.

The positive relationship (12.45) of the MYR variable to INDOFDI in the short term indicates that when the Malaysian ringgit exchange rate depreciates, Foreign Direct Investment in Indonesia will increase in the short term. Thus, when the value of the Malaysian ringgit is depressed, according to this signal theory, it is indicative of a decline in economic performance in the country (Corsi et al. 2018; Sewell 2011; Taj 2016). Therefore, investors will invest in neighbouring countries, which in this case is Indonesia.

Meanwhile, the short-term negative (-28,24) relationship between SGD and THB variables on INDOFDI means that when the exchange rate of the Singapore dollar and Thai baht appreciate, the higher the Foreign Direct Investment there is in Indonesia. Suppose a representative of a foreign

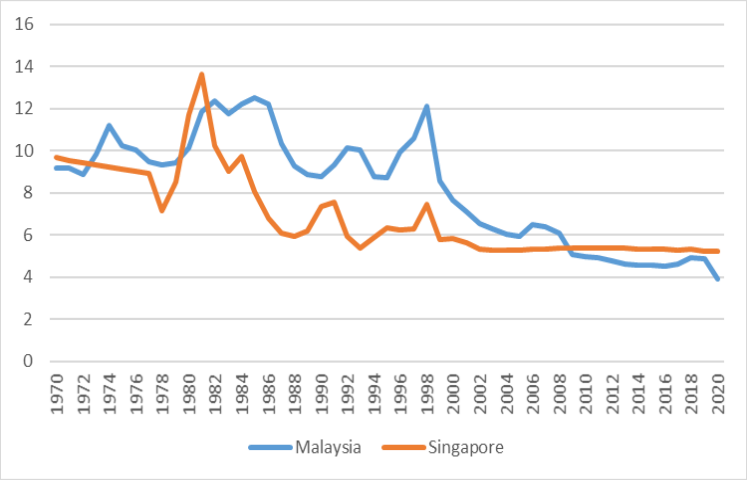

Fig. (2). Malaysia and Singapore Lending Rate.

company and a domestic company (Indonesia) bid for a foreign target company with company-specific assets, depreciation in the real exchange rate of the foreign currency could increase the domestic acquisition of this target company. Thus, the depreciation of foreign currencies will lead to an increase in FDI into the foreign economy (Stevens 1998). This can happen because an increase in a country's exchange rate against the dollar can increase the purchasing power of investors in that country (Maryatmo 2015; Rehan et al. 2019). The strengthening of the value of the Singapore dollar and Thai baht caused the price of securities in Indonesia to be relatively cheaper. The result in the short term is that there are capital inflows from Singapore and Thailand to Indonesia through financial markets. Moreover, Singapore is the largest investor country in Indonesia and the political situation in Thailand is not conducive.

This study uses Singapore and Thailand as robustness checks. Based on the results in Table **5**, the SGD, MYR, THB, and INDOLEND variables do not have a significant relationship to the SGDFDI variable. This is because the main sources of investment in Singapore are not from Malaysia and Thailand but the USA and China (Anon 2021a). Meanwhile, loan interest rates in Indonesia cannot affect the value of Foreign Direct Investment in Singapore because according to the deputy foreign minister of Indonesia, Mahendra Siregar, most of the owners of large capital in Indonesia place their funds in Singapore (Arbar 2020). This can happen because Singapore is a leading country in financial services in the ASEAN Region. Therefore, the interest rate on loans in Indonesia will not influence the level of foreign investment in Singapore.

The relationship between SGPSPRD and SGDFDI shows a negative relationship (-12.01). This means that the higher the difference between the lending rate minus the deposit rate in Singapore, the lower the value of Foreign Direct Investment in Singapore. This relationship aligns with the relationship between BIRATE and INDOFDI in Table **4** above.

The relationship between MALAYLEND and THAILEND with SGDFDI shows a positive relationship (1.44). This means that higher interest rates on loans provided by banks in Malaysia and Thailand will increase the value of Foreign Direct Investment in Singapore. The relationship between THAILEND and SGDFI is in line with the relationship between THAILEND and INDOFDI. However, in the case of Malaysia, this can happen due to the strong trade and financial relations between the two countries (Hennessy and Winanti 2022; Ho, Pham, and Nguyen 2021; Liew and Wafa 2007). Figure 2 shows a similar trend in the lending rate between Singapore and Malaysia. In 2020 Malaysia's lending rate (3.29%) is below Singapore's (5.25%). The difference in interest rates on these loans attracts investors to make loans in Malaysia and then place their funds in Singapore, while the positive relationship (0.94) between IDR and SGDFDI means that when the Indonesian rupiah exchange rates depreciate, the higher the level of Foreign Direct Investment there is in Singapore. This is in accordance with the relationship between SGD and INDOFDI in Table **3** above.

Based on Table **6**, the variables MYR, SGD, THB, and INDOLEND do not have a significant relationship with MYRFDI the same as in Table **5**. Although Singapore and Thailand are countries no. 1 and 2 in the Foreign Direct Investment rating in Malaysia, the Services Sector and Manufacturing is the main contributor to FDI flows in 2020, followed by the Mining and Quarrying sector (Anon 2021c). Investments in the Services sector are mainly in financial and utility activities, while Manufacturing is mostly in the electricity, transportation equipment, and other manufacturing subsectors. These sectors are long-term investments so that exchange rate movements cannot affect the value of the foreign direct investment. Meanwhile, the loan interest rate in Indonesia cannot affect the value of Foreign Direct Investment in Malaysia because the Indonesian financial market is not large enough to affect the Malaysian financial market as, according, to the Indonesian Finance Minister Sri Mulyani, the financial market deepening in Indonesia is still low compared to Malaysia, Singapore, and the Philippines (Anggraeni 2021).

The relationship between MALAYSPRD and MALAYSFDI shows a negative relationship (-3.28). This means that the higher the difference between the lending rate minus the deposit rate in Singapore, the lower the value of Foreign Direct Investment in Singapore. This relationship is in line with the relationship between BIRATE and INDOFDI in Tables **4**,**10**, and **11** above.

Table 6. Malaysia Robustness Check.

Variable	Coefficient	R-squared	t-Statistic	Prob.	F-statistic	Prob(F-statistic)
LOGMYR	14.93625	0.818044	0.223347	0.8236	69.12362	0.000000
LOGMALAYSPRD	-3.284488		-4.678569	0.0000		
LOGINDOLEND	9.866382		0.691397	0.4906		
LOGIDR	-5.584061		5.927542	0.0000		
LOGSGD	-23.30746		-1.307195	0.1936		
LOGSGPLEND	24.35485		4.435908	0.0000		
LOGTHB	-12.12809		-0.715550	0.4756		
LOGTHAILEND	-7.980019		5.351946	0.0000		
C	4.483012		11.76483	0.0000		

Table 7. Thailand Robustness Check.

Variable	Coefficient	R-squared	t-Statistic	Prob.	F-statistic	Prob(F-statistic)
LOGTHB	9.942551	0.542057	0.223347	0.8236	18.19904	0.000000
LOGTHAISPRD	4.266282		-4.678569	0.0000		
LOGSGPLEND	29.23589		0.691397	0.4906		
LOGSGD	22.98002		5.927542	0.0000		
LOGMALAYLEND	3.358137		-1.307195	0.1936		
LOGMYR	-17.46357		4.435908	0.0000		
LOGINDOLEND	-16.42342		-0.715550	0.4756		
LOGIDR	2.299461		5.351946	0.0000		
C	-2.971874		11.76483	0.0000		

While the negative relationship (-5.58) between IDR and MALAYFDI means that the lower the Indonesian Rupiah exchange rate, the higher the level of Foreign Direct Investment in Malaysia. This is under the relationship between MYR and INDOFDI in Table **3** above. The relationship between SGPLEND and MALAYFDI shows a positive relationship (24.35). This is following the relationship between MALAYLEND and SGPFDI in Table 3 above. While the relationship between THAILEND and MALAYFDI shows a negative relationship. This is under the relationship between THAILEND and INDOFDI in Table **4** above.

Based on Table **7**, the variables THB, SGPLEND, MALAYLEND, INDOLEND do not have a significant relationship with THAIFDI. All foreign bank loan interest rates (Singapore, Indonesia, and Malaysia) do not affect Foreign Direct Investment in Thailand due to a downward trend in loan interest rates applied by the Bank of Thailand, as in Fig. (**1**), exceeding the interest rates applied by banks in other countries (Singapore, Indonesia, and Malaysia). The Thai state exchange rate does not affect Foreign Direct Investment in its own country because Thailand's strategy to increase its Foreign Direct Investment is using an export growth strategy accompanied by gradual reductions in export tariffs and taxes (Anon 2021d). As a result, FDI stocks soared following the Plaza Accord in 1985, leading to a devaluation of the baht relative to the US dollar and other Asian currencies.

What is different here is that the results of THAISPRD have a positive relationship (4.26) to THAIFDI. This means that the higher the difference between the lending rate minus the deposit rate in Thailand, the higher the value of Foreign Direct Investment in Thailand. An increase in the interest rate can cause the currency to rise, thereby attracting foreign capital which can increase foreign investment. This is because investors will be interested in investing in countries that can provide greater returns (Rafi and Ramachandran 2018; Singhania and Gupta 2011). Some studies have produced a positive relationship, but some have produced a negative relationship. Because there are other variables such as the political conditions of a country, the exchange rate, and fiscal policy can also determine the movement of FDI in a country (Albertus, Glover, and Levine 2021; Giofré 2021; Harms and Knaze 2021b). Political conditions in Thailand are not conducive because there are large-scale demonstrations against the policies of the King of Thailand. Moreover, Thailand implemented a policy of exchange rate devaluation to encourage foreign investment. Besides that, the interest rate in Thailand also experienced a downward trend as in Fig. (**1**).

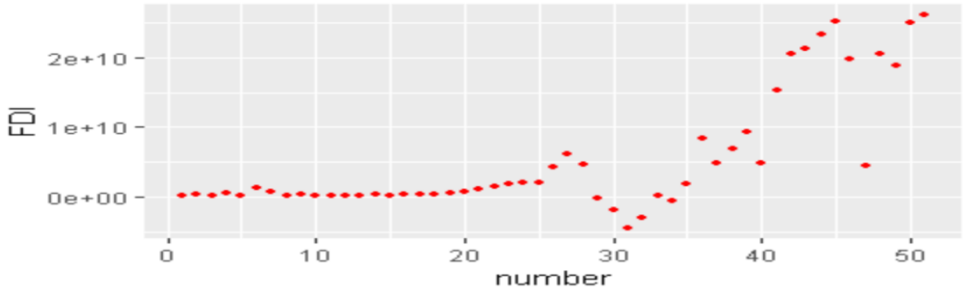

Fig. (3). GGPLOT Indonesian FDI.

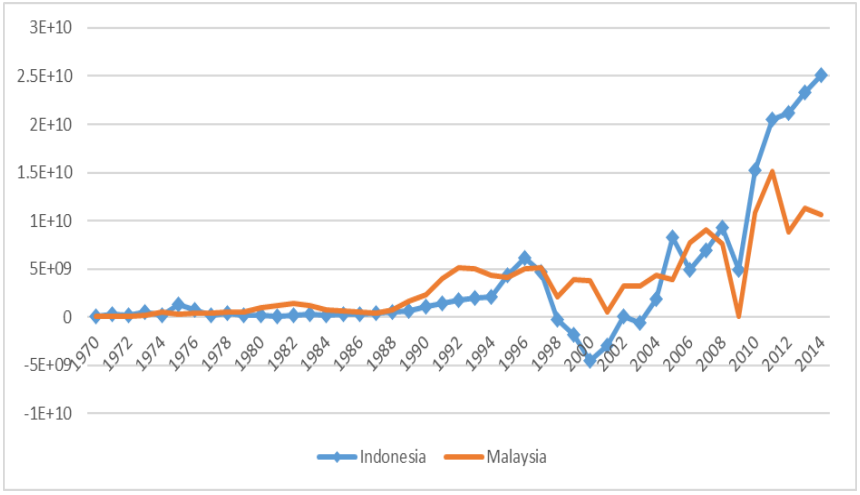

Fig. (4). Common Trend Inspection.

Meanwhile, the IDR and SGD variables had a positive relationship (2.29 and 22.98) to THAIFDI. The higher the value of IDR and SGD equates to the lower the value of the currency against the USD. The weakening of the IDR and SGD values can be a bad signal for investors to move their investment funds to other countries (Corsi et al. 2018; Sewell 2011; Taj 2016). This increases the foreign investment towards neighbouring countries, namely Thailand. The negative relationship (-17.46) between the MYR variable and THAIFDI indicates the appreciation of the MYR value will increase the Foreign Direct Investment in Thailand. This can happen because the strengthening of the MYR value can increase the purchasing power of investors in that country (Maryatmo 2015). The result is capital inflows from Malaysia to Thailand through the financial markets.

4.2. Chow Breakpoint Test

In Fig. (**3**), at number 46, in 2015 there was a surge in the value of Foreign Direct Investment in Indonesia. This illustrates how, in 2015, the tax allowance policy implemented by the government influenced Foreign Direct Investment in Indonesia. However, for more details, statistical calculations are carried out using the Chow Breakpoint Test method.

The Chow Breakpoint Test gives an F statistical value for FDI 5.2432 > F table 4.03 with a probability of 0.008801. The conclusions were obtained to accept the hypothesis that the parameters are unstable for both periods before 2015 and after 2015 at a 5% significance level. These results indicate that for both periods the parameters change significantly or in the period of the application of the tax allowance policy has an impact on the Foreign Direct Investment movement.

4.3. Difference in Differences

The use of the DID method is to ascertain whether the period of the application of the tax allowance policy has an impact on the Foreign Direct Investment movement. Before applying the DID method, a common trend assumption test was performed. The common trend assumption is the assumption set where no treatment results from the treatment group and the control group have the same trend (Fadli et al. 2020). Common trend assumption usually uses pre-treatment data to show the same trend. The inspection results for the common trend assumption show that all variables of the treatment and control group follow the same trend pattern before the implementation of the treatment.

The results of the Difference in Differences method are in Table **14**. The coefficient value shows positive and significant results, shown in the results of Table **14** which shows the coefficient value of 1.571e+10 with a probability value (P> t) 2.84e-09 below 5%. These results indicate that in the period after the implementation of the tax allowance policy, the Foreign Direct Investment movement has increased. The implementation of the tax allowance policy can attract investors both abroad and domestically to invest in Indonesia (Hong and Smart 2010; Tian 2018).

A second way to test the assumption of equal trends would be to perform what is known as a “placebo” test (Maski, Fadli, and Sumantri 2020; Shu and Cai 2017). The placebo

Table 8. Difference in Differences Results.

Test	Coef.	Std. Err	T	P>|t|
DID	1.571e+10	2.403e+09	6.537	2.84e-09
DID Transformation	26184491841	3443304094	7.604	1.841e-11
Placebo	-5.849e+09	6.108e+09	-0.958	0.340581

test performs additional difference-in-difference estimates using a "sham" treatment group, that is, the group not affected by the program (Angrist and Pischke 2008; Goodman-Bacon 2018). This research uses Foreign Direct Investment data from Thailand as a treatment group and Singapore as a control group with the same period as the DID test. Thailand and Singapore are used because they are neighbouring countries and have direct borders with Indonesia and are included in ASEAN countries. The inequality of the results from the placebo test also strengthens the results of the analysis. The application of the tax allowance policy only has an impact on the inflation rate in Indonesia. Moreover, it has shown with placebo test probability 0.340581 above 5%.

Classical Assumptions Test:

1. Normality Test

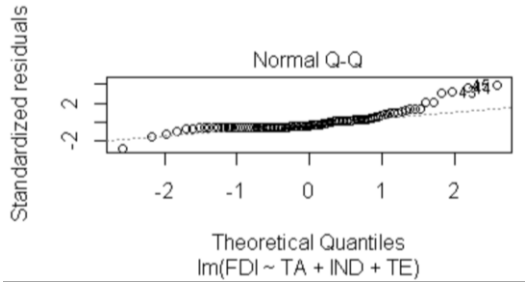

Fig. (5). Normal Q-Q.

Based on Fig. (**5**) Normal Q-Q shows the data points are around a straight line. Then it can be said to be normally distributed, so it can be said that the regression model meets the assumption of normality.

2. Multicollinearity Test

The VIF value for the treatment effect (TE) is 1.066667 which is below 2, so it can be said that there is no multicollinearity, and our model fulfills the assumption of multicollinearity.

3. Heteroscedasticity Test

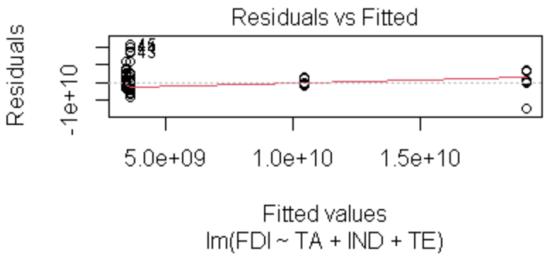

Fig. (6). Residuals *vs.* Fitted.

In Fig. (**6**), Residuals vs Fitted, the data are scattered and do not form a certain pattern, so it can be said that there is no difference in residual variance and that the model meets the Heteroscedasticity assumption test.

4. Autocorrelation Test

The value of the Durbin-Watson test results in DW=0.587 and p-value 3.202e-14 less than 0.05, so it can be said that there is autocorrelation in the model. Therefore, a transformation must be carried out. The model is derived from its autocorrelation coefficient (ρ) using the Cochrane Orcutt method. The result of the transformation resulted in the value of DW=2.60102 and p-value 9.989e-01.

4.4. Propensity Score Matching

Table 9. Descriptive Statistic.

No	Variable	Mean
1	Treatment	0.05882
2	FDI	21.42
3	IR	1.1317

The results of the descriptive statistics in Table **9** above show that the average variable affected by the treatment is 5%, while the average FDI variable used in this study is 21.42. The average IR variable used in this study is 1.1317.

Table 10. Propensity Score Model.

Probit Model	Estimate	Std. Error	z value	Pr(>|z|)
IR	1.1268	0.5720	1.970	0.048859
Treatment Effect	Estimate	AI SE	T-stat	p.val
ATT	3.1667	0.48479	6.5321	6.484e-11
ATE	2.3797	0.88205	2.6979	0.0069775

Based on Table **10**, the results of the propensity score model using the probit model showed positive results (1,126) and were statistically significant (0.048 <5%) for the confounded variable interest rate. This means that when the tax allowance policy is implemented, besides having a positive effect on Foreign Direct Investment, it also has a positive effect on the interest rate. Because the high-interest rate is accompanied by the implementation of the tax allowance policy, it can attract foreign investors (Hong and Smart 2010; Singhania and Gupta 2011). The results of the average treatment on the treated effect and the average treatment effect also showed statistically significant positive results

(6,484e-11 and 0.006 <5%) (3,166 and 2,379). This is following the results of the propensity score model.

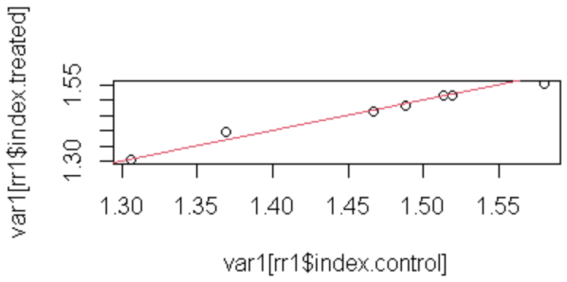

Fig. (7). Checking the balancing property.

In Fig. (**7**) above, the x-axis is the control variable, and the y-axis is the treatment variable. Fig. (**7**) shows that the distribution of the dots is on the red line, which means that both the control variable and the treatment variable are perfect matches.

Table 11. Checking the Balancing Property.

Match Balance	Before Matching	After Match
mean treatment	1.4525	1.4525
mean control	1.1116	1.4543
Genetic Matching	Before Matching	After Match
mean treatment	1.4525	1.4525
mean control	1.1116	1.4543

Next is checking the balancing property by using match balance and genetic matching for the confounded interest rate variable. It can be seen in Table **11** that the results of both methods are the same. The mean treatment results for both before and after matching are also the same. Meanwhile, the difference between the mean treatment and the mean control before and after matching is also not too far (1,452-1,453). The mean control before and after matching for the interest rate variable also increased according to the results of the propensity score model above. So, it can be said that using Malaysia as a control variable for the tax allowance policy applied in Indonesia can be done.

Table 12. Sensitivity Test.

Wilcoxon Signed-Rank P-Value			Hodges-Lehmann Point Estimate		
Gamma	**Lower bound**	**Upper bound**	**Gamma**	**Lower bound**	**Upper bound**
1.00	0.0090	0.0090	1.00	3.0905	3.0905
1.05	0.0077	0.0105	1.05	2.9905	3.1905
1.10	0.0065	0.0120	1.10	2.9905	3.1905
1.15	0.0056	0.0137	1.15	2.9905	3.1905
1.20	0.0048	0.0154	1.20	2.8905	3.1905
1.25	0.0041	0.0171	1.25	2.8905	3.1905

A sensitivity test is used to determine the effect of the unobserved factor by using the gamma value, where Gamma is Odds of Differential Assignment to Treatment Due to Unobserved Factors. By using the Wilcoxon Signed-Rank P-Value and Hodges-Lehmann Point Estimate methods, Table 12 has given a gamma value of 1 to 1.25. According to Table 12, the higher the gamma value, the wider the distance between the lower bound and the upper bound. However, the difference between the lower bound and the upper bound in Table 12 is not large. So, it can be concluded that the effect of unobserved variables is very small.

5. CONCLUSION

The results of this study using the ECM method are that in the long-term, monetary policy represented by the domestic exchange rate, Singapore dollar, and loan interest rates in Thailand has a positive relationship to Foreign Direct Investment in Indonesia. Meanwhile, monetary policy represented by the variables Malaysia ringgit, Thailand Bath, domestic interest rates, loan interest rates in Malaysia, and loan interest rates in Singapore has a negative relationship to Foreign Direct Investment in Indonesia in the long term. Based on these results, the Indonesian government can regulate its exchange rate against the US dollar in the long term so that it remains stable, especially against neighbouring countries such as the largest investors in Indonesia, namely Singapore. The positive relationship between loan interest rates in Thailand and Foreign Direct Investment in Indonesia coupled with the unfavourable situation in Thailand can be a momentum for Indonesia to attract investors from the country. The negative relationship between loan interest rates in Malaysia and loan interest rates in Singapore can be used as a signal in implementing monetary and fiscal policies to attract foreign investors. The results of checking the relationship between the exchange rate and in neighbouring countries also produce a positive relationship with foreign direct investment. The relationship between Foreign Direct Investment in Singapore and the Indonesian rupiah is also positive in line with ECM results in the long term. When loan interest rates in the two countries decline, it is time to take advantage of this momentum to provide incentives to foreign investors through the application of tax allowance as a representation of expansionary fiscal policy. Based on the results of the CBT, DID, and PSM methods, the application of a tax allowance policy that represents fiscal policy can increase the real interest rate and the value of Foreign Direct Investment in Indonesia so that the implementation of the tax allowance policy accompanied by an appropriate increase in the BI rate in terms of the timing of its implementation is expected to have a multiplier effect in massively increasing Foreign Direct Investment in Indonesia.

Meanwhile, the short-term relationship results in monetary policy, which is represented by the Indonesian rupiah exchange rate variable and the Malaysian ringgit exchange rate and has a positive impact on Foreign Direct Investment in Indonesia. Meanwhile, monetary policy represented by the Singapore dollar exchange rate variable, Singapore loan interest rate, Thai bath exchange rate, and Thailand loan interest rate has a negative relationship on Foreign Direct Investment in Indonesia in the short term. Implementing a monetary policy to encourage a stable and strong exchange rate position in both the short and long term can increase the confidence of foreign investors to increase Foreign Direct In-

vestment in Indonesia. Meanwhile, the influence of the Singapore Dollar, Malaysian Ringgit, and Thai bank loan interest rates that differ in the short and long term can be used as a signal by the central bank to implement expansionary monetary policy in the long term and contractionary in the short term. Therefore, the moment of appreciation of the Singapore dollar exchange rate, depreciation of the Malaysian ringgit, and a decrease in interest rates on Thai bank loans in the short term can be used to attract investors from these countries to Indonesia.

CONFLICT OF INTEREST

The authors reported no potential conflict of interest.

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