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**Article**

## Determinants of foreign direct investment in 31 Asian countries for the 2002 - 2017 period

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# Determinants of Foreign Direct Investment in 31 Asian Countries for the 2002 - 2017 Period

Thareeq Adhi Chandra and Rossanto Dwi Handoyo

## ABSTRACT

This research aims to analyze the determinants of Foreign Direct Investment (FDI) in 31 Asian countries in 2002 - 2017. The determinant variables of FDI are political stability, inflation rate, trade openness, exchange rate, market size and interest rate. This study uses the Generalized Method of Moment (GMM) method or dynamic panel. The study results show that political stability, trade openness, and market size has positive relationship with the FDI inflows of the country. The inflation rate variable has a negative relationship with the entry of FDI in the host country. In comparison, exchange rates and interest rates do not relate to the host country's inflow of FDI. This study contributes to the government by providing several crucial determinants of FDI, as FDI benefits the host country.

## KEY WORDS:

Foreign direct investment, political stability, inflation rate, market size, trade openness, interest rate, exchange rate.

**JEL Classification:** P45, D25, E22.

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## 1. Introduction

Investment in foreign and domestic investment is needed by developing countries to increase productivity and increase economic growth. Economic growth can be improved with sufficient capital. Foreign direct investment (FDI) is a form of investment in the form of international capital flows that play an essential role in economic growth (Kamran et al., 2016). Direct investment is a real investment in factory construction, land capital goods, inventories that involve capital, entrepreneurship, and the investors can utilize the invested capital. According to Dhahri and Omri (2020), FDI is more than just a process of transferring capital internationally but also an international production form.

FDI is the main driver for technology transfer and contributes to economic growth (Sari et al., 2016).

FDI not only increases investment but also cre-

ate new jobs and increases the production capacity and also leads to transferring intangible assets such as management skills and technology to the host country and provides new sources of organizational techniques. FDI has a relationship with the economy (Cui & Xu, 2019). The presence of FDI through MNCs benefits the host country through knowledge transfer, which can increase domestic companies (Xu & Sheng, 2012). Castaño et al. (2016) state that sufficient capital will lead to economic growth and bring prosperity to the people, especially for entrepreneurs who need an injection of funds to develop business and enhance production results.

Several studies on the determinants of FDI have focused on economic, socio-political factors, and institutional quality. Economic factors which has relationship with the FDI are market size, trade openness, and economic stability. Economic stability includes interest rate, inflation rate, and exchange rate that relate to the investment. In most of the empirical research market size is a commonly accepted determinant of FDI (Bhavan et al., 2011). For mar-

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ket size the used proxy is real GDP, which explains that a higher purchasing power, where firms receive higher returns on their investment (Jadhav, 2012). A Research by Asamoah, Mensah, and Bondzie (2019) uses GDP growth as a market size measure. Regardless of the measurement of market sizes, these studies prove that large market size can increase FDI of the country.

In recent developments, the World Bank Group (2013) noted that at the end of 2011, some developing countries focus on facilitating the entry of FDI and continue to implement policy changes to liberalize. In the framework of economic variables, a macroeconomic stability policy as measured by the inflation rate, then a trade openness policy measured using World Bank data, namely the trade to GDP ratio. Asamoah et al. (2016) document that the inflation rate has a negative relationship with FDI inflow, while there is positive relationship with the trade openness. This result is in line with other studies Meidayati (2017) that document that trade openness has a positive relationship with FDI. This result, due to export-oriented multinational corporations (MNCs) prefers to invest in countries with open economies. This pattern arises as closed economies generally have higher transaction costs associated with exports.

Doing business abroad is easier when there is a country has stable exchange rate because the return on investment is determined easily. However, exchange rate fluctuations can lead to the destabilization of investment decisions made by MNCs', thus it is difficult to predict relative and absolute profits (Asamoah et al., 2016). The Indonesian authorities switched to the free-floating exchange rate system after the East Asian financial crisis since July 1997 ((Kusumawardani & Mubin, 2019; Usman et al., 2012). These changes impact the current account and other economic variables as these variables are influenced by the exchange rate (Marsela, 2014; Reviane, 2017; Purwono et al., 2018). In connection with FDI, Asamoah et al. (2016) found that there is negative relationship between exchange rate and net flows of FDI. Apart from the exchange rate, interest rates are also an essential factor in making decisions to invest or not in the future. Each country has a different interest rate. Interest rate is the rate charged or

paid for the use of money, more precisely, the cost of borrowing. Dewi and Triaryati (2015) found that a higher interest rate will have a negative relationship with FDI net inflow in the host country.

A country that has the good institutional quality and political stability has the potential to increase FDI. Mohamed and Sidiropoulos (2010) explain that institutions are the primary determining variable for FDI in MENA countries. Political risk and stability generally have influence on the decision of whether to invest or not. Political risk indicates political actions that detriment the industry sales, cause loss to property, induce riots, operational restrictions that hinder the ability to take specific actions, and expropriate property by the government According to World Governance Indicator (WGI) data, presence of terrorism and violence, political instability provide the rational that government of the country is not stable and it would be overthrown by the unconstitutional or violent forces, which include politically motivated violence and terrorism (Kraay et al., 2010). These arguments support that political stability and institutional quality have a positive impact on the net inflows of FDI (Asamoah et al., 2016).

Previous research discussed the relationship between institutional quality with FDI (Asideu, 2006). He examined the relationship of market size, natural resources, institutional quality, government policy, and political instability with FDI in 22 African countries for 1984-2000. He found that inefficient institutions have a negative relationship with FDI. Asamoah et al. (2016) examined the relationship between exchange rates, institutional quality, infrastructure, economic growth, and natural resources with FDI in sub-Saharan Africa using the GMM method. Their research concluded that good institutional quality could attract more FDI. Furthermore, Jadhav (2012) ended that voice & accountability and rule of law have a relationship with FDI. Particularly, the rule of law has a positive relationship, and voice & accountability have a negative relationship.

This study aims to examine the determinants of FDI in 31 Asian countries. This study uses a model from Jadhav (2012) and Asamoah et al. (2016). The model is including inflation rate, trade to GDP ratio, political stability and absence of violence or terrorism, GDP growth, exchange rate, and interest rate as

independent variables on FDI net inflow (percentage of GDP) as the dependent variable in 31 Asian countries for the period 2002 - 2017. This study will use the Generalized Method of Moment (GMM) analysis method or dynamic panel regression utilizing STATA 13 software. The results show that the variables political stability, trade openness, the market size has a positive relationship with the entry of FDI in the host country. The inflation rate variable has a negative relationship with the entry of FDI in the host country. Meanwhile, the exchange rate and interest rate have no relationship with FDI entry in the host country. The research results are expected to provide new insights into the direction of trade policy and economic development, especially international economic theory in the investment world.

The remainder of the study is organized as follows. The second section discusses the prior studies (literature review) and develops research hypotheses. The third section explains the variables, sample and research design. The fourth section shows and explains the empirical results. While the fifth section summarizes the study and then conclusion is provided in the last section.

## 2. Literature Review and Hypothesis Development

### 2.1. Political Stability, Absence of Violence or Terrorism, and Foreign Direct Investment

The indicators of political stability and absence of violence or terrorism from the World Governance Indicators describe political stability. The greater the value of the WGI indicator, the better the country's political stability (Kaufmann, 2010). Political policies, events, or conditions in host countries that are less stable and will adversely affect the business environment (Nuradi et al., 2017). This undesired situation tends to make foreign investors experience assets lose or reduced profit margins. Therefore, MNCs in choosing destination countries will consider the political risks of destination countries. MNCs will choose countries with good stability to protect assets and profit margins. We hypothesize that the relationship between the political stability variable and the FDI net inflow variable is positive. The value of the WGI indicator for high political stability will

increase the inflow of FDI into the host country. Abdulrahman and Saif (2019) have also examined the relationship between political stability, absence of violence and FDI in the Arab economies. It is believed that those countries which are concentrating on the stability, and financial abundance have their more flow of FDI towards the Arab countries as well. Al-Samman and Mouselli (2018) have explored both short term and long-term risk factors in the country context to analyze its impact on the FDI in the GCC economies. It is believed that there is a positive impact of crating stability and hosting more FDI from different economies in the local market of GCC. The findings of the study suggest the fact that policy makers need to analyze the trends in FDI and its association with the country risk factors. Based on the above discussion, following hypotheses are developed and empirically tested.

$H_1$ : Political stability and absence of violence or terrorism have a positive relationship with FDI net inflow

### 2.2. Trade Openness and Foreign Direct Investment

Trade openness is measured using the amount of imports and exports of goods and services which is measured as a percentage of GDP. This trade openness variable describes the level of trade openness of a country. The greater the value of trade openness illustrates; the more open a country's economy is. Export-oriented MNCs prefer to be in countries with more open economies because trade barriers result in higher transaction costs associated with exports (Jardhav, 2012). This behavior made an openness of the country's economy will lead to more FDI net inflow will be. Ali et al. (2020) have discusses common correlated effects of trade openness along with FDI, and dynamics of institutional performance for the environmental quality in OIC economies. Mainly, pollutants like the emission of SO<sub>2</sub> and CO<sub>2</sub> are observed as main environmental indicators in the study. However, ecological footprint is also selected as the indicator of environmental quality as well. Thus, we hypothesize that the relationship between trade openness and FDI is positive.

$H_2$ : Trade openness has a positive relationship with FDI net inflow.

### **2.3. Market Size and Foreign Direct Investment**

MNCs will choose countries with large and fast-growing markets for their products (Safari et al., 2020). The motive of MNCs to select large and developing markets is categorized by Carbaugh (2009), as a demand factor. MNCs are driven to find new markets to increase a company's profit. Countries with extensive emerging markets will attract MNCs to invest in the country in response to market searches for their products. Market size shows the level of people's purchasing power in a country (Jhardav, 2012). This MNCs selection will increase the inflow of FDI into the host country. Ayomitunde et al. (2020) aim to investigate the critical macroeconomic variables that determine the inflows of foreign investment in the economy of Nigeria during 1990 to 2017. It is found that such trend is not analyzed in the earlier studies. Consequently, their research study have utilized data from UNCTAD, CBN statistical Bulletin, World Bank database for the implication of Autoregressive Distributed Lag (ARDL) model for analyzing the trends of the variables in the study. Furthermore, some recommendations for both the investors and policy makers of Nigeria are also given by the authors. For example, policy markers need to focus on policy measures by which the market size and growth of the country will be expanded and also leads to the stability in exchange rate. Thus, we hypothesize that the relationship between market size and FDI net inflow is positive.

H<sub>3</sub>: Market size has a positive relationship with FDI net inflow.

### **2.4. Inflation Rate and Foreign Direct Investment**

Companies will find it difficult to determine the product's cost and price when the inflation rate is high. When the high inflation rate persists for a long time, foreign companies will tend to reduce the resources invested in that country (Asamoah et al., 2016). A high inflation rate will tend to reduce the inflow of FDI into the host country. The relationship between the inflation rate and FDI is negative. In other terms, a low inflation rate will increase FDI. This relationship due to production costs and prices of MNCs' products will tend to be relatively cheaper when the inflation rate is low. Ayomitunde et al. (2020) have also analyzed the impact of inflation rate in the economy of Nigeria for the trends in FDI over a longrun. Through apply-

ing some good statistical technique, it was found that due to high level of inflation some adverse impact on the FDI net inflow is found in the economy of Nigeria. Mustafa (2019) has investigated the trends in FDI along with the inflation and other macroeconomic dynamics. It is observed that there is a one way causal relationship between the inflation and FDI inflow in the economy of Sri Lanka. Saepuloh and Mulatsih (2019) have focused on the FDI trends along with the inflation and other variables for the economy of Indonesia during 2010-2017. The study findings have provided a good evidence to declare that there is a significant impact of inflation on the FDI net flow in Indonesian economy.

H<sub>4</sub>: Inflation rate has a negative relationship with FDI net inflow.

### **2.5. Exchange Rate and Foreign Direct Investment**

Exchange rate distortions can lead to a decrease in the value of assets invested by foreign citizens, especially in the context of greenfield FDI or the development of production facilities in other countries (Asamoah et al., 2016). A stable exchange rate makes doing business in a foreign country easier because the return on investment can be determined. However, fluctuations in exchange rates can destabilize the investment decisions of MNCs, thus making absolute and relative profits are unpredictable (Asamoah et al., 2016). Marsela (2014) states that the exchange rate relates to the current account and other economic variables. These arguments are also supported by Asamoah et al. (2016), who found that the exchange rate negatively affects FDI net inflow. Eregha (2019) explains the fact that exchange-rate movements are very much uncertain due to various reasons, and this tends to affect both trade and inflow of foreign investment in any country as well. This is because outside investors are unclear on the returns to investment decisions because of higher risk involved in it. Therefore, his study has investigated the impact of exchange rate and uncertainty on FDI inflow in West African monetary zone. The time duration of his study was 1980–2014, and the within estimator for the fixed effect regression model was applied. The findings of the study show that exchange-rate movements in the selected economies are countries are more of unanticipated than anticipated innovations which

are further affecting the trends and patterns in FDI inflow. Therefore, it is quite important to note that policies aimed at targeting exchange-rate stability are essential in the WAMZ economies. For this reason, investment uncertainties must be kept at a lower possibility rate. Meanwhile, policies should be geared towards the diversification of the export sectors as well. Based on the above discussion, following hypothesis is developed to analyze the relationship between exchange rate and FDI inflow.

H<sub>2</sub>: Exchange rate has negative relationship with FDI net inflow

### 2.6. Interest Rate and Foreign Direct Investment

Investments will be carried out if the invested capital's return rate is greater or equal compared to the interest rate. If the interest rate increases, it will reduce the MNCs' tendencies to invest (Marsela, 2014). MNCs must increase their expenditure to finance their investment funds so that in general, the profits they get will be reduced. Dewi and Triaryati (2015) found that a higher interest rate will have a negative relationship with FDI net inflow in the host country. The higher the interest rate value, the lower the FDI inflow in the host country will be. When the interest rate decreases, FDI inflow in the host country will increase. Tan and Tang (2016) aims to analyze the trends in 5 ASEAN economies, during the time of 1970-2012 while examining the long-term relationship between the interest rate and FDI along with other macroeconomic variables. It is observed that both interest rate and FDI inflow are associated to each other. Adebayo and Gambiyo (2020) have analyzed those factors along with the interest rate which have their somehow influence on the FDI inflow in the economy of Nigeria. Ergano and Rambabu (2020) have also focused on the FDI inflow to the economy of Ethiopia from India and China during the time of 1997 to 2016. The key factors which were observed to analyze the trend in FDI were economic growth, GDP, FDI openness and real interest rate as well. It is found that FDI from the Indian economy is affected by the various economic variables like real interest rate and trade openness in the region of Ethiopia. Based on the above literature findings, following hypothesis is developed.

H<sub>3</sub>: Interest rate has negative relationship with FDI net inflow

## 3. Research Methodology

### 3.1. Sample and Data Source

This study uses a quantitative approach. The type of data used in this study is secondary data. The data used uses panel data, including annual data (time series) and between countries (cross-section). Annual data in data starts from 2002 to 2017. Meanwhile, country data covers 31 developing countries in the Asian continent, namely Afghanistan, Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Kazakhstan, Kyrgyz Republic, Lao PDR, Malaysia, Maldives, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Tajikistan, Thailand, Timor Leste, Turkmenistan, Uzbekistan, Vietnam, Iran, Iraq, Jordan, Lebanon, Syrian Arab Republic, West Bank and Gaza, and Yemen. The choice of observations is based on data availability, political conditions, and geography in developing countries in Asia. Data sources were obtained from several international websites, namely the World development indicators of the World Bank's, International Financial Statistics, International Monetary Fund, International Debt Statistics, OECD, and World Bank's World Governance Indicators

### 3.2. Operational Definition and Variable Measurement

#### 3.2.1. Foreign direct investment (FDI)

FDI is an international flow of capital where companies from a one country expand and establish their structure to other country. It is stated by the World Development Indicators that FDI is the net inflow of investment for earning the sustainable management interest (10% or more on the sharing) in operating companies and investors. In this study, FDI is the amount of FDI net inflow from 31 developing countries in Asia. This measurement means the sum of equity capital, earning on re-investment, other long and short-term capital which are shown on the balance of payments. The FDI net inflow data used in this study shows the net inflows (new investment inflows minus dis-investment) from the foreign investors which is then divided by total GDP.

#### 3.2.2. Political Stability and Absence of Violence / Terrorism

Political stability and absence of violence or terrorism variables are indicators of the World Governance In-

indicator (WGI). The WGI indicator is measured in the form of a percentile rank with a range of 0 (lowest) to 100 (highest). The higher the value of the WGI indicator, the better the political stability of the country. This variable is formed from various sources of indicators, as shown in Table 1. From these multiple sources, the indicators are aggregated using the unobserved components model (UCM) methodology (Kaufmann, 2010). UCM addresses the problem of indicators that have a wide variety of different parameters. So, from this method, the variable indicators used in the study are formed.

### 3.2.3. Trade Openness

Trade openness is calculated by using a total imports and exports of services and goods as share of the total GDP of the country. The greater the percentage of total exports and imports to GDP, the more open the country will be.

### 3.2.4. GDP Growth

GDP growth of the country is the FDI determinant, namely the market size. GDP of the country is measured by adding the gross value which is made by all the residents of the country plus the taxes and subsidies of products which are not in the value of the products. By looking at this measure, MNCs can see the growing market as consideration for determining company decisions. Growth of the GDP is an annual growth rate of GDP in percentage terms at constant value of market price which is based on local currency. GDP growth is a calculation which is made without any depreciation or deductions of fabricated assets or natural resource's degradation and depletion (Hussain et al., 2018).

### 3.2.5. Inflation Rate

In this study inflation rate is the measurement made by using the consumer price index which reflect the annual change of percentage in costs for average consumer for purchasing a certain service or goods which is changed or repaired at specified intervals. This study uses formula of Lasper for deriving this variable.

### 3.2.6. Exchange Rate

In this study exchange rate is an official exchange rate between the host country in terms of US \$. Here exchange rate is the one which is determined by the

national authority or exchange rate which is approved and determined by the exchange rate market. The exchange rates here are calculated as annual averages which are developed on monthly basis (local currency units relative to the US) (Abdul Hadi et al., 2018).

### 3.2.7. Interest Rate

The interest rate referred to in the research is the real interest rate (%). This real interest rate shows that the GDP deflator measures the inflation-adjusted interest rate. The terms and conditions attached to loan interest rates differ from country to country but limit their comparisons.

## 3.3. Research Design

This study uses the generalized method of moment (GMM) analysis method or dynamic panel regression using STATA 13 software. In addition, a partial test (t-test) and simultaneous test (prob>F) were carried out. The analysis model in this study is formulated as follows:

$$FDI_{it} = \alpha + \gamma LFDI_{it-1} + \beta_1 INFLA_{it} + \beta_2 TRADE_{it} + \beta_3 PS_{it} + \beta_4 GDPG_{it} + \beta_5 LNEXCHANGE_{it} + \beta_6 INTEREST_{it} + \varepsilon_{it} \quad (1)$$

To understand the concept of methods of moments, normally researchers consider the mean of distribution by the sample and variance by the sample variance. The population moment condition is

$$E[y] - \mu = 0 \quad (2)$$

The sample moment condition is:

$$\left(\frac{1}{N}\right) \sum_{i=1}^N y_i - u = 0 \quad (3)$$

The research question implies q population moment:

$$E[m(w_i, \vartheta)] = 0 \quad (4)$$

Where FDI in the above Equation 1 is net foreign direct investment inflow (% of GDP), INFLA is inflation rate (annual %), TRADE is trade openness which represents the export share and import, PS is the political stability and absence of violence or terrorism from WGI (percentile rank), GDPG is GDP growth (annual %), LNEXCHANGE is the official exchange rate (LCU

**Table 1.** List of Sources and Indicator Variable that Represent Political Stability and Absence of Violence or Terrorism Variable

Data Sources	Indicator
	Orderly transfer
Economist Intelligence Unit Riskwire & Democracy Index	Armed conflict Social unrest Tensions developed Internationally/ threats from the terrorists
World Economic Forum Global Competitiveness Report	Terrorism cost
Cingranelli Richards Human Rights Database and Political Terror Scale	Political terror scale
iJET Country Security Risk Rating	Security risk rating
Institutional Profiles Database	Internal conflict intensity: Regional, ethnic, or religious Violent activities Intensity made by the political organizations  Intensity of social conflict
Political Risk Service International Country Risk Guide	Government stability Internal conflict External conflict Ethnic tensions
Global Insight Business Conditions and Risk Indicators	Protest and riots Terrorism Interstate war Civil war

per US \$ in monthly's average period), INTEREST is the real interest rate (%), and  $\varepsilon$  is the error term.

## 4. Result and Discussion

### 4.1. FDI Inflow Development

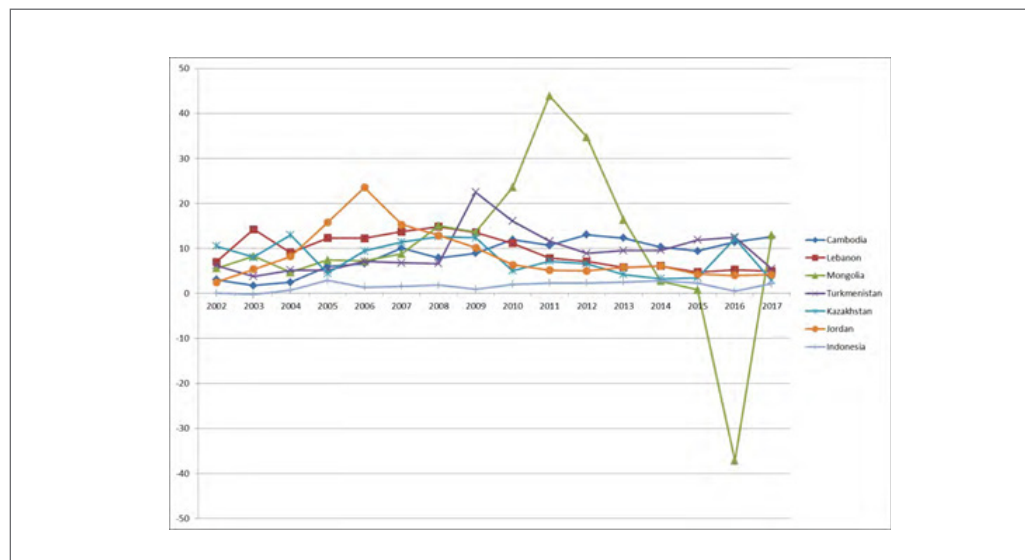
Figure 1 shows the movement trend in 6 developing countries in Asia with the highest average plus Indonesia. The development of FDI inflow shows a fluctuating trend. Mongolia had a FDI net inflow of 43.9% of GDP in 2011. However, Mongolia's FDI net inflow continued to decline until 2016, which has a FDI net inflow of -37.1% of GDP. The minus figure for FDI net inflow by the Mongolian state shows that the disinvestment was quite large that year. In 2002,

Indonesia's FDI net inflow was 0.07% of GDP, then Indonesia's FDI net inflow increased to 2.1% of GDP in 2017. From figure 1, we can conclude that Indonesia's FDI net inflow continued to increase.

### 4.2. Political Stability and Absence of Violence or Terrorism Development

Figure 2 shows the development of the political stability variable in developing Asian countries with the largest average of FDI net inflow plus Indonesia. The development of political stability shows a fluctuating trend. Mongolia has a reasonably good political stability with an average value of the political stability indicator above 50%. Mongolia has a fairly high FDI net inflow value of 43.9% of GDP and a political





**Figure 1.** FDI net inflow development with highest average in 31 Asian developing countries for period 2002 - 2017 (in percentage).

stability indicator value of 65.8% in 2011. The value of the political stability indicator in Indonesia continues to increase. Indonesia has a political stability indicator value of 8.9% in 2002 and then increased to have a political stability indicator value of 28.4% in 2017. The political stability of the Indonesian State continues to show an increasing trend of movement. However, the value of the State of Indonesia's political stability indicator is still below the value of 50%, which indicates relatively poor political stability.

#### 4.3. Trade Openness Development

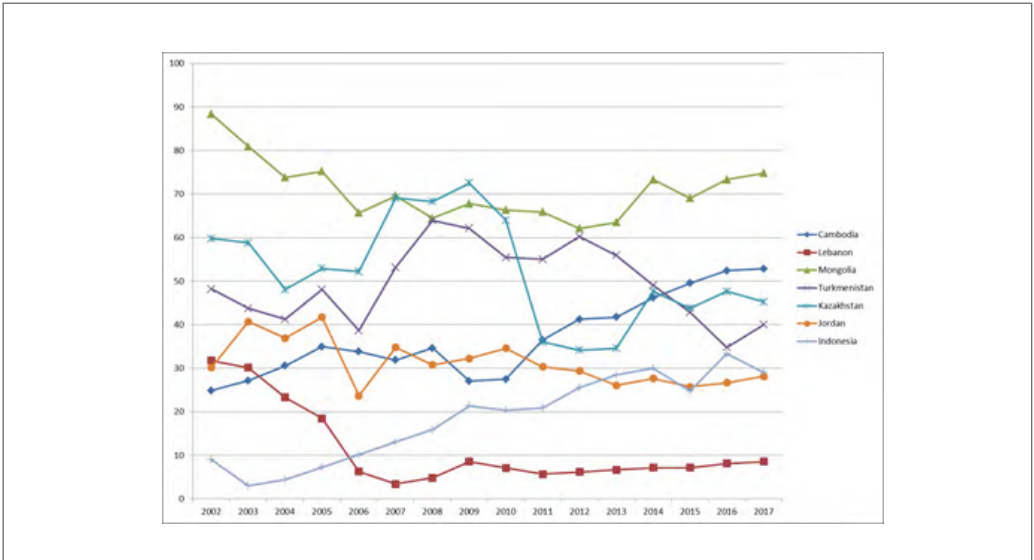
Figure 3 shows the development of the variable trade openness in developing Asian countries with the largest average FDI net inflow plus Indonesia. The development of trade openness shows a fluctuating trend of movement. Jordan has a high trade openness value of 145.3% of GDP in 2008 and shows a downward trend. The country of Cambodia had a high trade openness value of 130% of GDP in 2013. Indonesia's trade openness had a value of 58.5% of GDP in 2008. Unfortunately, Indonesia's trade openness showed a downward trend of movement after 2008, Indonesia has a trade openness value of 39.5% of GDP in 2017.

#### 4.4. Inflation Rate Development

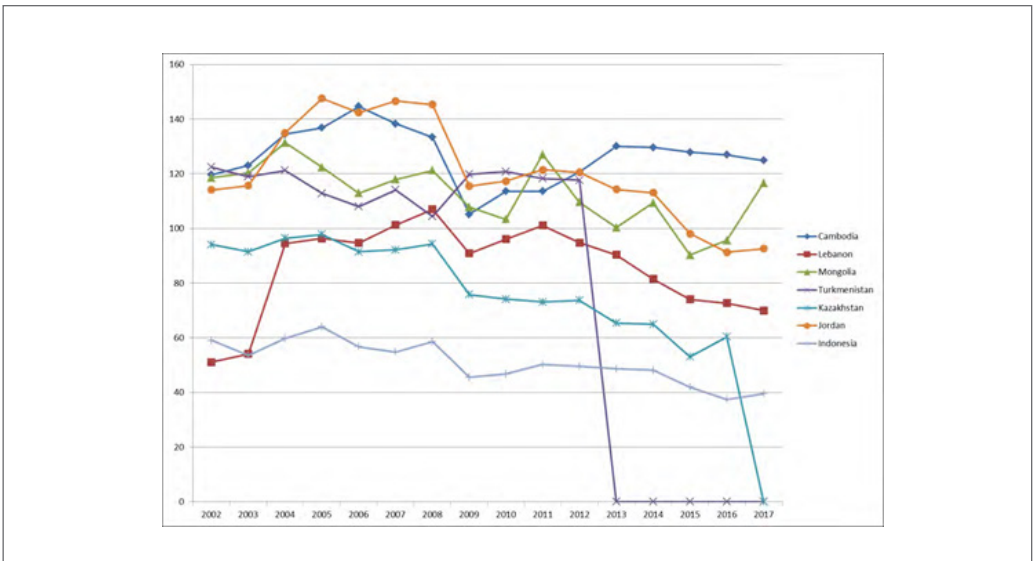
Figure 4 shows the development of the inflation rate variable in developing Asian countries with the largest average FDI net inflow plus Indonesia. The development of the inflation rate exhibits a fluctuating trend of movement. The country of Turkmenistan had a fairly high inflation rate of 59.7% in 2008. Some countries also experienced an increase in the inflation rate in 2008 and decreased again in 2009. However, Mongolia's inflation rate increased drastically by 39.7% in 2010 and continued to experience a trend movement of an inflation rate that decreases in the following year. The country of Indonesia had an inflation rate of 5.8% in 2002. Indonesia's country is consistent with a stable inflation rate of under 20%, which until 2017, Indonesia only had an inflation rate of 4.2%.

#### 4.5. Market Size Development

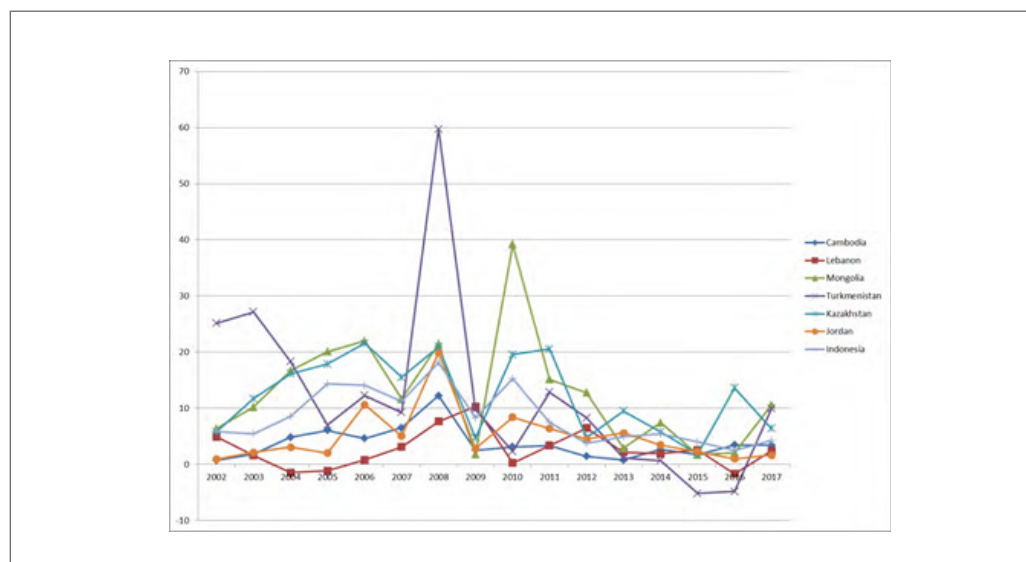
GDP growth is a proxy measure of market size. Figure 5 shows the development of market size variables in developing Asian countries with the largest average FDI net inflow plus Indonesia. The development of market size shows a fluctuating trend of move-



**Figure 2.** Political stability and absence of violence or terrorism development with highest average of FDI net inflow in 31 Asian developing countries (in percentile).



**Figure 3.** Trade openness development with highest average of FDI net inflow in 31 Asian developing countries for period 2002 - 2017 (in percentage).



**Figure 4.** Inflation rate development with highest average of FDI net inflow in 31 developing Asian countries for period 2002 – 2017 (in percentage).

ment. Several countries experienced a decline in GDP growth in 2009, such as Mongolia had a GDP growth value of -1.2% in 2009. However, the development of GDP growth in the State of Mongolia again increased drastically to 17.2% in 2011. Indonesia tends not to have a sufficient decline in GDP growth in 2009. The country of Indonesia had a GDP growth value of 4.6% in 2009. Indonesia's country had a GDP growth value of 6% in 2008 and a GDP growth value of 6.2% in 2010.

#### 4.6. Exchange Rate Development

Figure 6 shows the development of the exchange rate variable in developing Asian countries with the largest average FDI net inflow plus Indonesia. The development of the exchange rate shows a relatively stable movement trend. Countries that have a stable exchange rate are Cambodia, Mongolia, and Lebanon. Notably, Lebanon has a fixed exchange rate from 2002. In contrast to Cambodia, Mongolia, and Lebanon, the State of Indonesia has a fluctuating exchange rate.

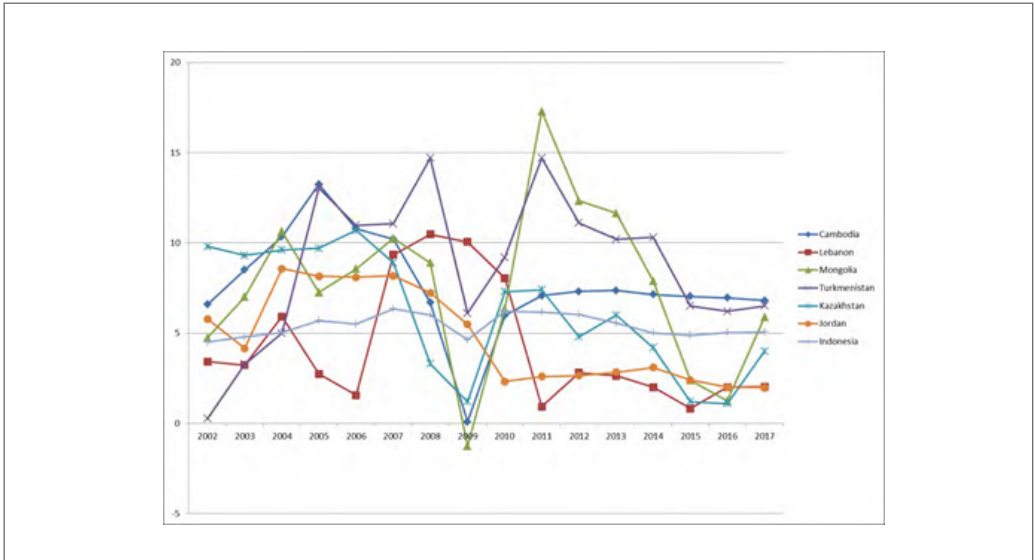
#### 4.7. Interest Rate Development

Figure 7 shows the interest rate's development in developing Asian countries with the largest average FDI net inflow plus Indonesia. The development of interest rates shows a fluctuating trend of movement. Mongolia had a fairly high-interest rate of 19.4% in 2009 compared to others. Lebanon had the highest interest rate in 2010 at 7.6%, and Indonesia has the highest interest rate in 2011 at 4.5%.

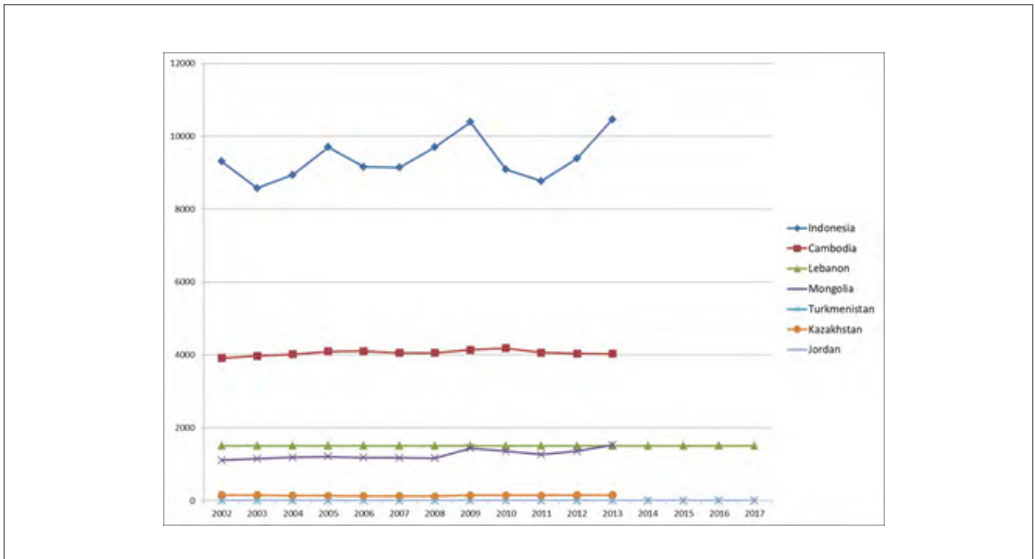
#### 4.8. Generalized Method of Moment (GMM) Estimation Result

Based on the results of panel data processing using GMM-sys, it can be seen that AR (1) has a p-value of 0.068 (<0.100). This value means that there is autocorrelation in the first order. The AR test (2) shows a p-value of 0.156 (> 0.100). Then, AR (2) shows the absence of autocorrelation in the second order. The p-values of the Sargan and Hansen tests are 0.668 and 0.999. These values show that in the Sargan and Hansen test, the exogenous model and the model are considered valid.

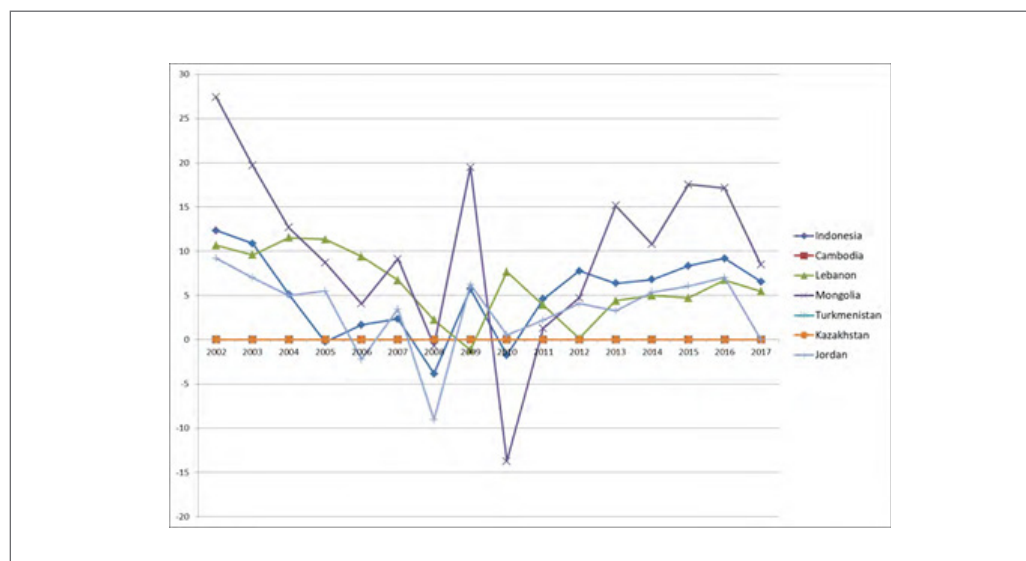
The GMM method requires three requirements to determine the model is valid. First, AR (1) is significant ( $p < \alpha$ ). This requirement indicates that the influ-



**Figure 5.** GDP growth development with highest average value of FDI net inflow in 31 Asian developing countries for period 2002 – 2017 (in percentage).



**Figure 6.** Exchange rate development with highest average of FDI net inflow in 31 Asian developing countries for period 2002 – 2017 (in lcu per us\$).



**Figure 7.** Real interest rate development with highest average of FDI net inflow in 31 Asian developing countries for period 2002 – 2017 (in percentage).

ence of individuality still exists at the first difference level. The two AR (2) are insignificant ( $p > \alpha$ ). This requirement indicates that the effect of individuality does not exist in the second-order due to the influence of the first difference lag. Third, the Sargan and Hansen tests which do not reject  $H_0$  ( $p > \alpha$ ). In the Sargan and Hansen test, the greater the p-value, the more valid the model and the model's exogenous model.

#### 4.9. Partial t-Test

The LFDI variable is significant at the 1% level, with a coefficient value of 0.25. These results indicate that the year t analysis is still influenced by year t-1 so that this model has a dynamic relationship. The political stability variable based on the results from Table 2 has a p-value of 0.034 ( $< 0.050$ ) with a coefficient value of 0.014. These results indicate that political stability has a statistically significant positive relationship with FDI net inflow, and hypothesis 1 is accepted. The same thing is shown by trade openness and GDP growth, which also proved to have a statistically significant positive relationship with FDI net inflow. Both have a p-value of 0.000

( $< 0.010$ ) with a coefficient value of 0.027, 0.159, respectively. Therefore, hypotheses 2 and 3 are accepted. It is different from the inflation rate variable, which has the opposite direction, which is proven to have a statistically significant negative relationship with FDI net inflow. This result concludes that hypothesis 4 is accepted. This conclusion is because the test results show a p-value of 0.000 ( $< 0.010$ ) with a coefficient value of -0.032. Meanwhile, the exchange rate and interest rate variables were not proven to have a relationship with FDI net inflow. This result is shown because the p-value is 0.365 and 0.364 ( $> 0.100$ ). So that hypotheses 5 and 6 are rejected.

#### 4.8. Simultant Test (Prob>F)

Based on Table 2, the GMM two-step system estimation results show that the prob> F value is 0.000. This value indicates that the probability value in the  $H_0$  area is rejected with a significance level of 1% so that the political stability, trade openness, inflation rate, market size (GDP growth), exchange rate, and interest rate variables are simultaneously related to the FDI net inflow.

**Table 2.** GMM Two-Step System Estimation Result.

Variable	GMM-SYS	
	Coeff.	Prob.
LFDI	0.250	0.000
INFLA	-0.032	0.000
TRADE	0.027	0.000
PS	0.014	0.034
GDPG	0.159	0.000
LNEXCHANGE	0.048	0.365
INTEREST	0.006	0.364
AR (1)		0.068
AR (2)		0.156
Sargan Test		0.668
Hansen Test		0.999
Prob-F		0.000

## 5. Discussion

### 5.1. Relationship between Political Stability and Absence of Violence or Terrorism with FDI Net Inflow

Political stability has a positive relationship with FDI net inflow. This result follows previous research where the quality of political institutions or stability will increase FDI inflow in the host country (Asamoah et al., 2016b). The higher the value of a country's political stability variable, the less likely it will experience destabilization. The political stability variable is a reference for MNCs' political risk analysis before investing in the destination country to get a large ex-

pected rate of return. The concept of political risk is a possibility that political policies, events, or conditions in the host country will relate to the business environment so that foreign investors will experiencing assets loss or reduced profit margins. The high value of a country's political stability variable will ensure that the country protects the assets of foreign investors when investing in that country. Safe investment activities will tend to increase the rate of return for MNCs. MNCs will tend to select countries with a high level of political stability. The increase in the value of the political stability variable will increase the FDI inflow in the host country.

### ***5.2. Relationship between Trade Openness with FDI Net Inflow***

Trade openness has a positive relationship with FDI net inflow. This study's results support previous research were increasing the value of trade openness will increase FDI inflow in the host country (Asamoah et al., 2016; Ullah & Khan, 2017). The greater the value of trade openness, the more open a country's economy is. MNCs try to increase the level of profit by reducing production costs (Carbaugh, 2013). Export-oriented MNCs prefer to be in countries with more open economies because trade barriers result in higher transaction costs associated with exports (Jardhav, 2012). MNCs will choose countries with a high level of trade openness in response to their export needs. The more a country has a value of trade openness, the greater it can attract FDI in the host country.

### ***5.3. Relationship between Market Size with FDI Net Inflow***

The results showed that there was a positive relationship between GDP growth and FDI net inflow. This result is in line with the research of Jhardav (2012), Asideu (2013), Asamoah et al. (2016), as well as Ullah and Khan (2017), where an increase in market size will increase FDI inflow in the host country. Market size shows the level of purchasing power of people in a country (Jhardav, 2012). MNCs will invest in countries with large and rapidly growing markets to consume the products they produce. MNCs are encouraged to seek new markets to increase their profits. A large market will be profitable for MNCs to investing assets in the destination country. Countries with large markets will get more returns for MNCs (Jhardav, 2012). These arguments conclude that GDP growth as a high market size proxy can substantially increase FDI net inflow.

### ***5.4. Relationship between Inflation Rate with FDI Net Inflow***

The inflation rate has a negative relationship with FDI net inflow. The results of this study support previous research (Asideu, 2013; Asamoah et al., 2016), where an increase in the value of the inflation rate will reduce FDI inflow in the host country. MNCs, see the inflation rate as an analysis of economic risks

related to the investment destination country (Carbaugh, 2009). As an economic variable, inflation is considered a marker of economic stability because inflation is an indication of price stability. MNCs will find it difficult to determine the costs and prices of products when the inflation rate is high. When the high inflation rate persists for a long time, foreign companies will tend to reduce the resources invested in that country (Asamoah et al., 2016). Therefore, a high inflation rate will tend to reduce the inflow of FDI into the host country. In other terms, the relationship between the inflation rate variable with FDI is negative. A low inflation rate will increase FDI because the production costs and prices of MNCs' products will tend to be relatively cheaper when the inflation rate is low.

### ***5.5. Relationship with Exchange Rate with FDI Net Inflow***

The results of this study explain that the exchange rate had no relationship with FDI net inflow. Distortions in exchange rate can decrease the value of assets which are invested by the foreign investors, especially in the context of greenfield FDI or the development of production facilities in other countries (Asamoah et al., 2016). It is easier to do business when the exchange rate of the country in relation to the foreign currency is stable because in this way the return on the investment is determined. Yet, fluctuations in the exchange rate can make the investment decisions for MNCs thus make the relative and absolute profit unpredictable (Asamoah et al., 2016).

### ***5.6. Relationship between Interest Rate with FDI Net Inflow***

As the exchange rate, the interest rate is also not proven to have a relationship with FDI net inflow. Investments will be carried out if the rate of return on invested capital is greater or equal with the interest rate. If the interest rate increases, it will reduce the MNCs' decision to invest (Marsela, 2014). MNCs must increase their expenses to finance their investment funds so that, in general, the profits they obtained will be reduced. Dewi and Triaryati (2015) found that a higher interest rate will have the impact of decreasing FDI net inflow in the host country. However, the research results show something differ-

ent. Other variables are thought to be more capable of being determinants and have a relationship with FDI net inflow, such as inflation rate and market size.

## 7. Conclusion

This study aims to examine the determinants of FDI in 31 Asian countries from 2002 to 2017. These determinants are inflation rate, trade to GDP ratio, political stability, and absence of violence or terrorism, GDP growth, exchange rate, and interest rate. Several conclusions can be drawn using the generalized method of moment (GMM) analysis method or dynamic panel regression with STATA 13 software. First, the variables political stability, trade openness, the market size has a positive relationship with the inflow of FDI in the host country. Second, the inflation rate variable has a negative relationship with FDI entry in the host country. Third, the exchange rate and interest rate have no relationship with the entry of FDI in the host country. The limited number of data and state objects in this study means that this study cannot use other variables that represent the determinants of FDI inflow. During its development, there are many variables as determinants of foreign direct investment, such as the availability of natural resources, democracy, corruption, and other institutions' quality. Further research is expected to be carried out using other variables to represent economic variables and institutional quality variables as determinants of FDI in Asian countries.

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