

Macroeconomic Variables and Capital Market Performance: Evidence in Asia Pacific Region

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ABSTRACT

The capital market is a very important part of the national economy. The capital market, which has an increasing trend, identifies that economic conditions in the country are also improving. The capital market conditions in Asia Pacific countries during the last few years experienced an unstable growth trend. In fact, some capital markets have experienced slowing growth.

The samples in this study are BSESN, N225, SSEC, HIS, AORD, JKSE and STI during the period 2010 to 2017. The variable used is the performance of the capital market as the dependent variable. Inflation, interest rates, exchange rates, and foreign direct investment as independent variables that represent the state's financial stability and stock price variables in the United States as independent variables representing the world's largest capital market. The data analysis used was panel data analysis consisting of Pooled Least Square, Fixed Effect, and Random Effect, while the selection of the best model used the chow test, lagrange multiplier (LM) test, and hausman test.

The results of the analysis show that inflation, interest rates, and foreign direct investment have a negative and significant impact on the performance of capital markets in Asia Pacific countries. Exchange rates have a negative and insignificant impact on the performance of the capital market. The share price at DJIA has a positive and insignificant impact on the performance of capital markets in Asia Pacific countries. Based on these findings, the most appropriate steps that can be taken to improve the performance of the capital market are to maintain conditions of inflation, interest rates, and foreign direct investment so that they are stable and not too high.

Keywords: Capital Market Performance, Macroeconomic, DJIA Stock Market

INTRODUCTION

The capital market is one of the markets whose activities are to sell and buy long-term capital goods. Products sold on the capital market, namely stocks, bonds, and mutual funds. In an effort to develop a company, a lot of capital is needed. By selling stocks and / or bonds and / or mutual funds, companies that need capital will find it easier to get funds. The capital market is a means for companies and other institutions to obtain long-term capital, besides that the capital market is also a forum for investing activities.

The capital market plays an important role in the economy of a country. The capital market is one indicator that reflects the economic condition of a country. A healthy capital market is closely related

to the conditions of national economic growth. Kumari (2011) states that a country's economy is said to be efficient if it has a good stock market that shows an upward trend.

To see the condition of the capital market, it can be seen in the performance of the capital market. One of the indicators of capital market performance is the price of shares sold and / or the volume of sales of shares. If the stock price and / or share sales volume shows an increasing trend, it means that the stock market is in good condition.

Capital market conditions in Asia Pacific countries can be expressed in the following graphic image.

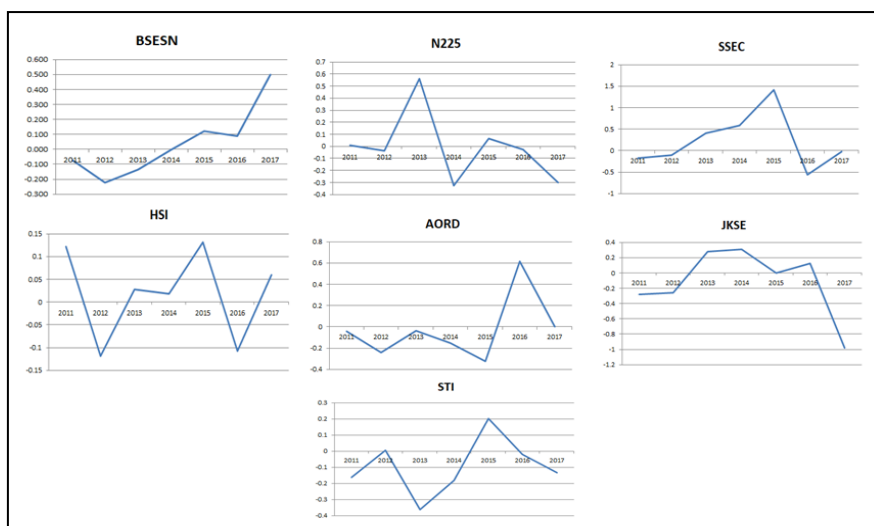


Fig.1:Capital Market Conditions in Asia Pacific Countries

Source: capital market reports published on finance.yahoo.com, 2019

Figure 1 above, shows that the condition of the capital market in Asia Pacific countries during the period 2010 to 2017 shows a fluctuating growth trend. This condition identifies that the capital markets in the Asia Pacific countries are in an inefficient condition. Basically, these conditions occur due to several factors including inflation, interest rates, exchange rates, foreign direct investment, and the DJIA stock price. This is as found by Tripathi and Seth (2014); Chauqe and Rayappan (2018); Rashid (2008); Okwuchukwu (2015); Boachie, Mensah, Frimpong, and Ruzima (2016); Ho (2017) who found that inflation has an effect on the performance of the capital market.

Several other researchers such as Tripathi and Seth (2014); Rashid (2008); Adebowale and Akosile (2018); found that interest rates affect the performance of the capital market. Tripathi and Seth (2014); Chauqe and Rayappan (2018); Arnes (2014); Rashid (2008); Boachie, Mensah, Frimpong, and Ruzima (2016); Adebowale and Akosile (2018); Usman and Adejare (2014) found that the exchange rate has an effect on the performance of the capital market. Malcus, Persson, and Akay (2018); Adam and Tweneboah (2008) found that foreign direct investment has an effect on capital market performance.

In contrast to the research results above, several other researchers also found that inflation, interest rates, exchange rates, and foreign direct investment have no effect on stock market performance (Upadhyay, 2017; Omodero and Ekwe, 2017; Drazenovic and Kusanovic, 2016; Al-Abbadî and Khalid, 2017; Njane, 2017; Abubakar and Danladi, 2018; Boachie, Mensah, Frimpong, and Ruzima, 2016; Usman and

Adejare, 2014; Okwuchukwu, 2015; Lakhani, 2019; and Ali 2014).

The results of the above research indicate a research gap regarding the factors that affect the performance of the capital market. So it is interesting to do research, especially on the capital market in Asia Pacific countries. In contrast to previous studies that made inflation, interest rates, exchange rates, and foreign direct investment as independent variables, this study adds an independent variable stock price to the DJIA. The share price variable in the DJIA was chosen because DJIA is one of the largest capital markets in the world, all activities of the DJIA are responded to by other capital markets in the world including capital markets in Asia Pacific countries.

LITERATURE REVIEW

Chauqe and Rayappan (2018) found that the exchange rate and inflation rate have a significant and significant effect on stock market performance. He further stated that in the long term there is a significant negative relationship between exchange rates and stock market performance. Pervaiz, Masih, and Jian-Zou (2018) found that stock returns on the capital market

Malcus and Persson (2018) found that there is no strong contemporary relationship between foreign direct investment and stock market development. Meanwhile, foreign direct investment during the previous quarter significantly and negatively affected the stock market. This means that foreign direct investment can be considered as a short-term substitute for the stock market.

Ullah, Islam, Alam, and Khan (2017) found that macroeconomic variables consisting of exchange rate and foreign currency reserve have a positive and significant effect on stock market performance. Meanwhile, the inflation, interest rate, and money supply variables have an effect but not significantly on the stock market performance. Omodero and Ekwe (2017) found that foreign direct investment has no significant effect on the economy and macroeconomic variables such as Gross Domestic Product, Stock Exchange Transactions, Treasury Bills, Share Price Index, Money Supply, Consumer Price Index, and Exchange Rate. which determines the performance of the stock market.

Al-Abbadi and Khalid (2017) found that there is a relationship in the short and long term between inflation (which is expressed as the GDP deflator) and stock market performance (which is expressed in terms of trading value). He further explained that every positive shock occurs to the value of trade, it will increase the GDP deflator. However, if there is a positive shock to the GDP deflator, it will not have a significant impact on the value of trade.

Adebowale and Akosile (2018) found that interest rates have a negative and significant effect on stock market development. Meanwhile, the foreign exchange rate has a positive and insignificant effect on stock market development. Tsaurai (2018) found that foreign direct investment, economic growth, infrastructure development, savings, inflation, trade openness, exchange rates, trade sector development, and stock market liquidity are the main determining factors for the development of the stock market.

Ho (2017) found that in the long run, inflation and trade openness have a negative effect on stock market development. However, in the short term inflation, real interest rates, and the current period of trade positively have a negative influence on the development of the stock market. Kvietkauskienė and Plakys (2017) suggest that indicators that can affect stock market returns are real GDP (positive); monetary policy average (positive); CPI (positive and negative); inflation (positive and negative); gold price (negative); silver price (negative); oil price (negative); pension fund market size (positive); investment fund market size (positive); country credit rating (negative); government debt level (positive and negative); employment rate (positive); unemployment rate (positive); exchange rate (positive and negative); economic sentiment indicator (positive); purchasing manager indicator (positive); ZEW (positive); market capitalization (positive) and P / E index ratio (negative).

Upadhyay (2017) found that there is no relationship between the inflation rate and the stock price. He further stated that the change in share prices was due to other factors available in the market. Islam, Mustofa, and Tithi (2017) found that the performance of the capital market was not significantly affected by the inflation variable and foreign direct investment as a macroeconomic determinant. In his research, states that the ones that have an effect and are significant on the performance of the capital market are the consumer price index (CPI) and gross domestic product (GDP).

Bayar (2016) found that in the long term inflation has a negative impact on the development of the stock market. Barakat, Elgazzar, and Hanafy (2016) found that in Egypt there is a causal relationship between the consumer price index (CPI), exchange rate, money supply, and interest rate with the stock market. Unlike Egypt, in Tunisia only the exchange rate, money supply and interest rate have a relationship with the stock market. Meanwhile, the consumer price index (CPI) has no causal relationship with the stock market. Boachie, Mensah, Frimpong, and Ruzima (2016) found that liquidity growth, exchange rate and inflation have a strong influence on the stock market. Meanwhile, the interest rate has no significant effect on the stock market during the research period. Acquah-Sam (2016) found that GFI and T-Bills have a positive and negative effect on stock market developments. Meanwhile, foreign direct investment, inflation, and GDP growth have an effect but not significantly on the development of the stock market.

Rakhal (2015) found that interest rates and exchange rates have a negative and significant effect on stock market performance. Meanwhile, remittances and the money supply had a positive and significant effect on stock market performance. Aigbovo and Izeke (2015) found that in the short term the stock market index is influenced by inflation, interest rate, money supply, industrial production index, and oil prices. the exchange rate variable has a negative and insignificant effect on the stock market index. In the long run, the exchange rate, inflation, interest rate, and industrial production index are not significant in influencing the stock market index. Meanwhile, the money supply and oil price have a negative and positive effect on the stock market index.

Tarigan, Suhadak, and Topowijono (2015) found that the stock price index in the United States stock market (DJIA) has a positive and significant effect on the stock price index in the Indonesian capital market (JKSE).

Shrestha and Subedi (2014) found that stock market performance was positively and significantly affected by inflation and money circulation growth variables. Meanwhile, the variable interest rate has a negative and significant effect on stock market performance. Tripathi and Seth (2014) found that macroeconomic variables consisting of inflation, interest rates, and exchange rates have a significant effect on stock price performance. Although, these variables are not the only ones that have an effect. This means that there are still other macro dimensions in the economy.

Arnes (2014) found that the real exchange rate in the long run has a positive and significant effect on stock price performance. Meanwhile, in the short term, the real exchange rate has a negative and insignificant effect on stock price performance. Jahur, Quadir, and Khan (2014) found that inflation, interest rates, and foreign direct investment have an impact on stock market performance at alpha 0.1. while the exchange rate has a positive and significant impact on stock market performance.

Zafar (2013) found that foreign direct investment and value traded have a positive impact on stock market performance. Real interest rates have a negative impact on stock market performance. Meanwhile, the development of the banking sector has no impact on stock market performance. Daferighe and Charlie (2012) found that inflation has an impact on stock market performance. The indicators used in measuring the performance of the stock market are market capitalization, total value traded ratio, change in all-share index, and turnover ratio.

Aurangzeb (2012) found that foreign direct investment and exchange rate have a positive and significant impact on stock market performance. Interest rates have a negative and significant impact on stock market performance. Meanwhile, inflation has a negative and insignificant impact on the stock market performance.

Ali, Rehman, Yilmaz, Khan, and Afzal (2010) found that there is no causal relationship between macroeconomic indicators consisting of inflation, interest rates, and the trade balance and stock prices. He further stated that the performance of macroeconomic indicators cannot be used to predict stock prices.

Rashid (2008) found that there is a two-way relationship between stock prices and industrial production, exchange rates, and market interest rates. However, inflation only leads to share prices. In the short term, stock prices are influenced by interest rates. Therefore, he also stated that the relationship between stock market health and economic health is a long-term

phenomenon. Adam and Tweneboah (2008) found that foreign direct investment has a significant and significant effect on stock market development.

Naceur, Ghazouani, and Omran (2007) found that inflation has a negative and significant effect in determining the stock market. Furthermore, he stated that inflation plays a significant role in the capitalization of the stock market. Al-Sharkas (2004) found that there was an impact of macroeconomic variables consisting of the real economic activity, money supply, inflation and interest rate on the Amman Stock Exchange. Garcia and Liu (1999) found that inflation has a negative and insignificant effect on stock market developments through the market capitalization indicator. He further stated that macroeconomic stability does not play an important role in determining market capitalization.

METHODOLOGY

The variables used are capital market performance in Asia Pacific countries consisting of BSESN, N225, SSEC, HIS, AORDJKSE,, and STI during the period 2010 - 2017 as the dependent variable. Meanwhile, the independent variable uses macroeconomic variables consisting of inflation, interest rate, exchange rate, and foreign direct investment. In addition, to determine how the response of capital markets in Asia Pacific countries to world capital market conditions, the authors added the stock price index variable in the United States capital market (DJIA). If macroeconomic conditions are stable and stock prices in the DJIA are stable, it is expected that the capital market performance in Asia Pacific countries will be good. Thus, foreign investors will be interested in investing in the capital market.

Capital market performance is measured using the average volume of sales of shares, Exchange Rate is measured based on the exchange rate of each country against the US Dollar, and DJIA is measured in US Dollars. The data used in this study are sourced from:

- a) Word Bank Database, 2010 - 2017
- b) International Fund Statistics (IFS), International Monetary Fund (IMF), 2010 - 2017
- c) Bank Indonesia, 2010 - 2017
- d) Publication by finance.yahoo.com

To examine the factors that influence the performance of capital markets in Asia Pacific countries, this study uses panel data analysis consisting of Pooled Least Square (PLS), Fixed Effect, and Random Effect. Meanwhile, to choose which model is the best, model selection analysis is used through the Chow test, Lagrange Multiplier (LM) test, and Hausman test. The panel

data equation model, can be expressed as follows:

$$fmp = f(\text{inf}, \text{IR}, \text{ER}, \text{fdi}, \text{SPUS}, \text{pol})$$

$$fmp = \beta_0 + \beta_1 \text{inf} + \beta_2 \text{IR} + \beta_3 \text{ER} + \beta_4 \text{fdi} + \beta_5 \text{DJIA} + \varepsilon$$

Information:

fmp = Financial Market Performance
 inf = Inflation
 IR = Interest Rate
 ER = Exchange Rate
 fdi = Foreign Direct Investment
 DJIA = Stock Price at DJIA

The variables above, can be explained as follows: Financial Market Performance is the annual average number of shares sold on capital markets in Asia Pacific countries, published by finance.yahoo.com

Inflation as measured by the annual growth rate of the GDP implicit deflator, shows the rate of price change in the economy as a whole. The GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency (world bank).

Interest Rate is the lending interest rate adjusted for inflation as measured by the GDP deflator. The terms and conditions attached to lending rates differ by country, however, limiting their comparability (world bank).

Exchange Rate or Official Exchange Rate refers to the exchange rate determined by national authorities or to the rate determined in the legally sanctioned exchange market. It is calculated as an annual average based on monthly averages (local currency unit relative to the US dollar) (world bank)

Foreign Direct Investment are the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor (world bank).

Stock Price at DJIA is a stock price index on the United States capital market (Dow Jones Industrial Average = DJIA) obtained from stock performance reports published on finance.yahoo.com

RESULT

The results of the fixed effect panel data analysis can be seen in the following table.

Table 1. Panel data analysis results using Eviews (fixed effect)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-18.70658	4.209051	-4.444370	0.0001
INF?	-0.315808	0.154398	-2.045442	0.0468
IR?	-0.835556	0.254386	-3.284597	0.0020
ER?	-0.702787	1.303288	-0.539242	0.5924
FDI?	-0.395636	0.188827	-2.095231	0.0419
DJIA?	0.141809	0.664467	0.213417	0.8320
Fixed Effects (Cross)				
_BSES--C	4.957835			
_N225--C	4.664924			
_SSEC--C	4.324798			
_HSI--C	-4.438243			
_AORD--C	-2.195110			
_JKSE--C	-8.974337			
_STI--C	1.660133			
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.978023	Mean dependent var		-16.58110
Adjusted R-squared	0.972529	S.D. dependent var		4.127020
S.E. of regression	0.684032	Akaike info criterion		2.265786
Sum squared resid	20.58760	Scwarz criterion		2.699790
Log likelihood	-51.44200	Hannan-Quinn criter		2.434048
F-statistic	178.0078	Durbin-Watson stat		1.238900
Prob (F-statistic)	0.000000			

Source: author's analysis

The table above, shows that the statistical F value is greater than the F table value. This identifies that the macroeconomic variables consisting of

inflation, interest rate, exchange rate, foreign direct investment, and stock prices on the DJIA market simultaneously have an impact on the

performance of capital markets in Asia Pacific countries. However, partially, only inflation, interest rates, and foreign direct investment have a negative and significant impact on the performance of the capital market. Meanwhile, the exchange rate has a negative and insignificant impact on the performance of the capital market and DJIA's share price has a positive and insignificant impact on the performance of capital markets in Asia Pacific countries.

Table 1 above, can be expressed in the following equation model.

$$fmp = -18.707 - 0.316inf - 0.836IR - 0.703ER - 0.396fdi + 0.142DJIA + \varepsilon$$

The model above explains that an increase in inflation, interest rate, exchange rate, and foreign direct investment will only add to the downturn in capital market performance. However, if these variables can be controlled and maintained in order to be stable, it will have an impact on improving the performance of the capital market. Meanwhile, an increase in share prices in the DJIA Capital Market will have a positive impact on the capital market performance of countries in Asia Pacific. Conversely, if the stock price in the DJIA capital market decreases, investors will invest in the DJIA capital market while the average annual number of shares on the capital market in Asia Pacific countries will experience a decline.

The value of each intercept on the capital market can be written as follows:

BSEN	of	-18.70658 + 4.957835 =	-13.748745
N225	of	-18.70658 + 4.664924 =	-14.041656
SSEC	of	-18.70658 + 4.324798 =	-14.381782
HSI	of	-18.70658 - 4.438243 =	-23.144823
AORD	of	-18.70658 - 2.195110 =	-20.90169
JKSE	of	-18.70658 - 8.974337 =	-27.680917
STI	of	-18.70658 + 1.660133 =	-17.046447

Based on the above intercept values, it can be said that the performance of capital markets in Asia Pacific countries has different characteristics. BSEN (India) is the capital market that has the best performance because even though the variables of inflation, interest rate, exchange rate, foreign direct investment, and stock prices in the DJIA Capital Market are considered to be in a fixed condition, BSEN's capital market performance has only decreased by 13,749. The second capital market performance is N225

(Japan), then SSEC (China), STI (Singapore), HIS (Hong Kong), AORD (Australia), and finally JKSE (Indonesia).

DISCUSSION

Capital market performance is one of the national economic activities that can reflect the economic conditions of a country. If the performance of the capital market is good, it means that the economic condition of a country is also good, on the other hand, if the condition of the capital market is not good, this indicates that the economic condition of the country is also not good. The capital market is very sensitive to certain conditions, sometimes the capital market even responds to certain issues.

The analysis found that inflation has a negative and significant impact on the performance of capital markets in Asia Pacific countries. This analysis identifies that when the inflation rate changes, the capital market will respond by decreasing or increasing the performance of the capital market. This occurs because in conditions of increasing inflation, resulting in decreased interest in investing, money that could have been used for investment is diverted to meet the needs of daily life.

These findings are consistent with research conducted by Murni (2015); Min, Shyan, Siang, Ying, and Yee (2017); Aigbovo and Izeke (2015); Shrestha and Subedi (2014); Tsaourai (2018); Al-Sharkas (2004); Jahur, Quadir, and Khan (2014); Pay (2016); El-Nader and Alraimony (2012); Khumalo (2013) and Daferighe and Charlie (2012) state that the performance of the capital market is significantly and negatively affected by inflation.

Interest rates have a negative and significant impact on the performance of capital markets in Asia Pacific countries. This analysis identifies that when loan interest has increased, the capital market will respond by decreasing the average number of shares sold. Loan interest is a fee that must be paid by customers to financing companies. When the loan interest policy has increased, the finance companies will respond by increasing the loan interest, in this condition the customer must pay the increase. The excess money that should have been used for investment has been diverted to pay for the increase in interest on the loan. This has an impact on the average number of annual shares sold on the stock market. Supposedly, the average number of shares sold increased, but due to this condition, the average annual sale of shares decreased.

These findings are consistent with research conducted by Murni (2015); Aigbovo and Izeke (2015); Shrestha and Subedi (2014); Tsaourai

(2018); Rakhil (2015); Barakat, Elgazzar, and Hanafy (2016); Al-Sharkas (2004); Zafar (2013); Jahur, Quadir, and Khan (2014); El-Nader and Alraimony (2012); and Aurangzeb (2012) which states that interest rates have a negative and significant effect on capital market performance.

Exchange rates have a negative and insignificant impact on the performance of capital markets in Asia Pacific countries. This analysis identifies that an increase in the exchange rate will be responded negatively by the capital market, but the response is not significant. This means that the increase or even decrease in the exchange rate of the currency against the US dollar does not significantly affect the performance of the capital market. This condition could happen, because when the exchange rate against the dollar strengthens, the public will shift their investment to the short-term financial sector. Thus causing public interest in making long-term investments in the capital market has decreased.

These findings are consistent with research conducted by Pal and Mittal (2011); Murni (2015); Rakhil (2015) and stated that the exchange rate has a negative and insignificant impact on the performance of the capital market.

Foreign Direct Investment has a negative and significant impact on the performance of capital markets in Asia Pacific countries. This analysis provides the understanding that when foreign direct investment increases, the performance of the capital market decreases. This can happen, because foreign direct investment is the flow of foreign investment, both management investment and direct capital investment in certain domestic companies. So when foreign investors invest in foreign direct investment, the annual average number of shares sold will decrease.

These findings are consistent with research conducted by Jahur, Quadir, and Khan (2014) that foreign direct investment has a negative and significant effect on capital market performance. In contrast to these findings, Aurangzeb (2012) and Zafar (2013) state that foreign direct investment has a positive and significant effect on capital market performance.

Share prices at the DJIA have a positive and insignificant effect on the performance of capital markets in Asia Pacific countries. This analysis identifies that when the DJIA share price increases, the performance of the capital market in Asia Pacific countries will also increase. This is because if the stock price in the United States capital market decreases, investors will flock to invest in that capital market. Due to these conditions, the annual average number of shares sold on the capital market in Asia Pacific countries has decreased. On the other hand, if the share

price in DJIA increases, foreign investors will try to divert their investment to other countries, even in this condition, some investors will sell their shares and then invest in the capital markets of other countries, including Asia Pacific countries.

The results of these findings are not committed to the research conducted by Paranita, Suhaji, and Setyawan (2017); Tarigan, Suhadak, and Topowijono (2015) state that the stock price index in the United States capital market (DJIA) has a positive and significant effect on the Composite Stock Price Index.

CONCLUSION

This study discusses the macroeconomic impact of Asia Pacific countries, which consists of inflation, interest rates, exchange rates, and foreign direct investment as well as stock prices in the DJIA on capital market performance. The analysis found that inflation, interest rates, and foreign direct investment had a negative and significant impact on the performance of the capital market. Meanwhile, the exchange rate has a negative and insignificant impact on the performance of the capital market. The share price at DJIA has a positive and insignificant effect on the performance of the capital market.

The capital market is an economic activity that is very important in the economy of a country. Therefore, the performance of the capital market must increase and be stable. When the performance of the capital market is not good, investors, both domestic and foreign, may withdraw their funds, causing a deterioration in the national economy. The government as a policy maker can do several things so that this condition can be prevented. One of the steps that can be taken by the government is to maintain the stability of the national macroeconomic variables that have a significant impact on the capital market, such as inflation, interest rates, and foreign direct investment. To prevent further inflation, the government can issue policies that support domestic producers to be able to compete, reduce import activities, increase domestic security, increase the growth of foreign tourists, foster a love for domestic products, and maintain food security. domestic. To prevent an increase in interest rates, the government can issue policies that can increase productive credit. Meanwhile, to keep foreign direct investment from being too high, the government can make policies that support the increase in domestic direct investment. Apart from the government, the public as potential investors must also participate in supporting the implementation of government policies.

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