Pengaruh Pengeluaran Modal Terhadap Investasi Domestik dan Investasi Asing dengan Inflasi Sebagai Variabel Moderasi

THE EFFECT OF CAPITAL EXPENDITURE ON DOMESTIC INVESTMENT AND FOREIGN INVESTMENT WITH INFLATION AS A MODERATING VARIABLE

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ABSTRAK

Kata kunci: Belanja Modal, Penanaman Modal Dalam Negeri, Penanaman Modal Asing, Inflasi

ABSTRACT
This research aimed to know how the effect of capital expenditure and inflation variable to the Domestic and Foreign Investment in Indonesia especially Provinces in Java Island in 2016 to 2020. This research used the panel data regression method with time-series data from the Central Bureau of Statistics (BPS) and the Directorate General of Fiscal Balance's portal data. The results of this study are the inflation variable partially significant effect on Foreign Investment in provinces in Java Island. On the contrary, the capital expenditure variable does not have a significant effect both on domestic and foreign investment, while the inflation variable strengthens the relationship between capital expenditures and domestic investment.

Keywords: Capital Expenditure, Domestic Investment, Foreign Investment, Inflation

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INTRODUCTION

Foreign and domestic investment is the first step in development activities and economic growth. However, in reality, Indonesia is still experiencing difficulties in terms of providing sufficient capital to carry out economic development. Indonesia cannot rely solely on foreign loans to obtain sufficient capital. This situation encourages developing countries such as Indonesia to look for other alternatives besides foreign loan assistance by promoting investment, especially Foreign Investment (PMA). According to Fuady (2008:67), what is meant by direct investment is an investment model in which foreign or domestic parties buy directly (without going through the capital market) shares of national companies or establish new companies, either through the Investment Coordinating Board (BKPM) or through another department.

The picture above shows how the development of PMDN and PMA in Indonesia. It can be seen that the rate of PMDN and PMA in general has the same upward and downward trend. Sufficient capital will lead to economic growth and will improve people’s welfare, especially for entrepreneurs who need financial support to develop their businesses. Through investment, foreign and domestic capital, can make a better contribution to the process of development and economic growth. Investors will certainly conduct a feasibility study, including forecast, prediction, and projection before investing their capital in one place (Sondakh, 2009:11). In investing, investors certainly want to get the maximum profit with the minimum amount of expenditure. The ability of investors to understand and predict future macroeconomic conditions is very useful in making profitable investment decisions. Macroeconomics describes economic changes that affect many parties such as society, companies, governments and the foreign sector. Kuncoro (2009) revealed that to show a country’s performance and potential for PMDN and PMA is to look at various indicators, one of which is macroeconomic indicators in this case inflation and the feasibility of a region’s infrastructure.

Source: BKPM

Figure 1. Progress of Investment Realization 2015 – 2020: per Quarter
Inflation is an increase in commodity prices in general caused by out of sync between commodity procurement programs (production, pricing, printing money, etc.) with the level of income owned by the community (Putong, 2002:147). The high inflation rate causes goods and services to become less competitive which causes the profits obtained by the company to decrease, which in turn will inhibit new investment. Therefore, in his research, Letarisky (2014) revealed that the higher the inflation rate, the lower the amount of foreign direct investment entering Indonesia.

Source: Regional Budget Perda, Directorate General of Regional Financial Development, Ministry of Home Affairs, 2017-2021

Figure 2. Shopping Group Trends

Regional expenditure, which is government expenditure, is an important component in order to overcome this. Regional expenditures are used by regional governments to manage the regional economy. Regional expenditures that will have an impact on economic growth both directly and indirectly include expenditures used for education, infrastructure, housing, health, subsidies, technology, and transfers.

The core issues that will be discussed in this study are (1) whether capital expenditures have a significant effect on PMDN and PMA, (2) whether inflation has a significant effect on PMDN and PMA, and (3) whether inflation strengthens the relationship between capital expenditures on PMDN and capital expenditures against PMA.

The aims of this study are (1) to determine the effect of Capital Expenditure on PMDN and PMA, (2) to determine the effect of Inflation on PMDN and PMA, and (3) to determine whether Inflation strengthens the relationship between Capital Expenditure on PMDN and Capital Expenditure on PMA.

RESEARCH METHODS

Types Of Research

This research uses explanatory research with a quantitative approach.

Research sites

The data for research activities are taken from the website of the Central Statistics Agency (BPS) and the data portal of the Directorate General of Fiscal Balance.

Measurement Variable

a. Capital Expenditure
Based on PP No. 71 of 2010 concerning Government Accounting Standards, Sholikhah and Wahyudin (2014), the measurement of capital expenditure variables is measured by a ratio scale. Capital expenditures can be measured by calculating:

\[
\text{Capital Expenditure} = \text{Land Expenditure} + \text{Equipment and Machinery Expenditure} + \text{Building and Building Expenditure} + \text{Road, Irrigation and Network Expenditure} + \text{Other Fixed Assets Expenditure} + \text{Other Asset Expenditure}.
\]

Capital expenditure data is taken from the data portal of the Directorate General of Fiscal Balance.

b. Domestic Investment (PMDN)

Data on foreign investment in this study is the value of foreign capital entering Indonesia by economic sector. The data used is data every year taken from BPS in billions of rupiah.

c. Foreign Investment (PMA)

Data on foreign investment in this study is the value of foreign capital entering Indonesia by economic sector. The data used is data every year taken from BPS in units of Million USD.

d. Inflation

Inflation data used in this study is the percentage value of the inflation rate based on the Consumer Price Index (CPI) issued by Bank Indonesia every quarter for 9 years, starting from the first quarter of 2006 to the fourth quarter of 2014 in percentage terms (%).

Population and Research Sample

a. Population

The population used in this study is the overall data published by the Central Statistics Agency and the data portal of the Directorate General of Fiscal Balance regarding the variables studied.

b. Sample

Sampling in this study using purposive sampling technique. Purposive sampling is a sampling technique with certain considerations, Sugiyono (2011: 85).

Data Collection Technique

The data used in this study is secondary data in the form of time series. Because the data used is secondary data, the data collection technique used in this study is the documentary method.

Data Analysis Technique

Data analysis in this study used a quantitative approach, namely analysis using statistics. The analytical tools used are descriptive statistical analysis and inferential statistical analysis.

a. Descriptive Statistical Analysis

The main use of descriptive analysis is to describe the answers
to observations. The use of descriptive statistics can facilitate observations through the calculation of the average data and standard deviation, so that an overview of the research data is obtained.

b. Inferential Statistical Analysis
Inferential analysis is the development of descriptive analysis which is used to test the hypothesis of the statistical formula. Inferential analysis in this study uses the help of the Eviews 10 application for testing.

1. Panel Data Regression Model Testing
   a) Chow test
   Chow test is a test to determine whether the Common Effect (CE) or Fixed Effect (FE) model is the most appropriate for estimating panel data. The hypothesis in the Chow test is:
   
   H0 : model using Common Effect Model
   H1 : model using Fixed Effect Model

   The hypothesis uses a comparison between the F-statistics and the F-table. H0 is rejected if F statistical results are greater than F table so it can be concluded that the Fixed Effect Model is better for use in this study. On the other hand, H0 is accepted if the F statistical result is smaller than F table, which means it can be concluded that the Common Effect Model is better to use (Widarjono, 2009).

   b) Hausman test
   Hausman test is a statistical test to choose whether the Fixed Effect or Random Effect model is the most appropriate to use. The hypothesis in the Hausman test are:
   
   H0 : model using Fixed Effect Model
   H1 : model using Random Effect Model

   H0 is rejected if the Hasuman value is greater than the critical value so that the appropriate model used is the Fixed Effect Model. H0 is accepted if the Hasuman value is smaller than the critical value so that the appropriate model used is the Random Effect Model.

   c) Lagrange Multiplier Test
   The Lagrange Multiplier (LM) test is a test to determine whether the Random Effect model is better than the Common Effect (PLS) method used. This test was developed by Breusich Pagan based on
the OLS method of residual values. The hypotheses in the Lagrange Multiplier (LM) test are:
H0 : model using Common Effect Model
H1 : model using Random Effect Model
H0 will be rejected if the Lagrange Multiplier (LM) value is greater than the critical value of the chi-squares statistic, so it can be concluded that the Random Effect Model is more suitable to be used than the Common Effect Model. Vice versa, H0 will be accepted if the value of Lagrange Multiplier (LM) is smaller than the critical value of the chi-squares statistic, so that it is concluded that the Common Effect Model is more suitable to be used than the Random Effect Model.

3. Hypothesis test
a) Coefficient of Determination Test (R2)
The simplest measure to measure the extent to which the role of the independent variable in influencing the dependent variable is to use the coefficient of determination R2. Has a limit value of 0 R2 1. If R2 is close to 1, the independent variable is increasingly able to explain the variation of the dependent variable.
b) Simultaneous Test (F Test)
The F statistical test basically shows whether all the independent variables included in the model have a joint effect on the dependent variable (Kuncoro, 2007: 82).
c) Partial Test (t test)
The t-test was used to partially prove the effect of the independent variable on the dependent variable.

4. Interaction Test (Moderated Regression Analysis / MRA)
Moderated Regression Analysis (MRA) in this study is used to test the quasi
moderator which is done by making interaction regression and the moderator variable also functions as an independent variable.

RESULTS AND DISCUSSION

Sampling Method

The sample in this study was obtained from the calculation of annual data.

<table>
<thead>
<tr>
<th>Kriteria pemilihan sampel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time-Series</td>
</tr>
<tr>
<td>2016 – 2020 (5 tahun)</td>
</tr>
<tr>
<td>Cross section</td>
</tr>
<tr>
<td>Provinsi di Pulau Jawa:</td>
</tr>
<tr>
<td>1. DKI Jakarta</td>
</tr>
<tr>
<td>2. Jawa Barat</td>
</tr>
<tr>
<td>3. Jawa Tengah</td>
</tr>
<tr>
<td>4. DI Yogyakarta</td>
</tr>
<tr>
<td>5. Jawa Timur</td>
</tr>
<tr>
<td>6. Banten</td>
</tr>
</tbody>
</table>

Figure 3. Sample Selection Criteria

Meanwhile, the selection of Java Island as the sample location was based on the realization of domestic and foreign investment based on data from the BKPM.

Source: BKPM

Figure 4. Realization of the Fourth Quarter of 2020 by Location

Data Analysis Results

<table>
<thead>
<tr>
<th>X</th>
<th>Z</th>
<th>Y1</th>
<th>Y2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3169.364</td>
<td>2.877667</td>
<td>29541.71</td>
</tr>
<tr>
<td>Median</td>
<td>1798.920</td>
<td>2.815000</td>
<td>30483.15</td>
</tr>
<tr>
<td>Maximum</td>
<td>14118.61</td>
<td>4.200000</td>
<td>62094.80</td>
</tr>
<tr>
<td>Minimum</td>
<td>836.870</td>
<td>1.400000</td>
<td>294.6000</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>3439.327</td>
<td>0.809643</td>
<td>1833.723</td>
</tr>
<tr>
<td>Skewness</td>
<td>2.135675</td>
<td>-0.222658</td>
<td>-0.058475</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>6.245387</td>
<td>2.087274</td>
<td>1.843895</td>
</tr>
</tbody>
</table>

Test Results on the Dependent Variable of Domestic Investment (Y1)

a. Model Test

1. Chow Test

If the value of Prob. Cross-section Chi-square < 0.05 then the Fixed Effect Model is selected. Based on the test results, the value of Prob. The cross-section Chi-square is 0.0000, then the model chosen is the Fixed Effect Model.

2. Hausman Test

If the p-value < 0.05 then the method chosen is Fixed Effect Model. Based on the test results, the p-value is 0.8836, so the model chosen is the Random Effect Model.
3. Lagrange Multiplier Test

If \( p \)-value > 0.05 then the method chosen is Common Effect Model. Based on the test results, the \( p \)-value is 0.0000, so the model chosen is the Random Effect Model.

b. Classic Assumption Test

1. Normality Test

Based on the results of the normality test, the probability value is 0.4790 (\( p > 0.05 \)), then the data is normally distributed.

2. Multicollinearity Test

Based on the multicollinearity test, the value of the Capital Expenditure (\( X \)) and Inflation (\( Z \)) variables does not exceed 0.9 (\( n < 0.9 \)) so there is no multicollinearity in the data.

3. Heteroscedasticity Test

Based on the graph above, no heteroscedasticity was found in the processed data.

4. Autocorrelation Test

Based on the autocorrelation test, the Durbin-Watson statistic value is between 1.21380 < \( dW \) < 1.64981 which is 1.3565; so that there is no autocorrelation in the processed data, the test can be continued to test the hypothesis.

c. Hypothesis Testing

1. Coefficient of Determination Test (R2)

In testing the coefficient of determination (R2), the result of Adjusted R2 (coefficient of determination) is 0.0353. This means that 3.53% of PMDN variables in Indonesia are influenced by the independent variables, namely Capital Expenditures (\( X \)) and
Inflation ($Z$). While the remaining 96.47% of PMDN variables are influenced by other variables that are not discussed in this study.

2. Simultaneous Test (F Test)

Based on the regression results, the probability $F$ value of 0.2343 has been obtained, so the $F$-Statistic $Prob$ is greater than 0.05, thus it can be concluded that the independent variables together have no effect on the dependent variable.

3. Partial Test (t test)

The table above shows that the probability values generated are 0.1331 and 0.2369, respectively ($Prob > 0.05$), so both capital expenditure ($X$) and inflation ($Z$) have no effect on the dependent variable.

d. Interaction Test (Moderated Regression Analysis / MRA)

From the results of the MRA test, the probability value for the moderating variable is 0.0014, the inflation variable strengthens the relationship between capital expenditures and PMDN.

Test Results on the Dependent Variable of Foreign Investment ($Y_2$)

a. Model Test

1. Chow test

<table>
<thead>
<tr>
<th>Effects Test</th>
<th>Statistic</th>
<th>d.f.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section F</td>
<td>69.364045</td>
<td>(5,22)</td>
<td>0.0000</td>
</tr>
<tr>
<td>Cross-section Chi-square</td>
<td>84.578006</td>
<td>5</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

If the value of $Prob$. Cross-section Chi-square <0.05 then the Fixed Effect Model is selected. Based on the test results, the value of $Prob$. The cross-section Chi-square is 0.0000, then the model chosen is the Fixed Effect Model.

2. Hausman test

<table>
<thead>
<tr>
<th>Test</th>
<th>Chi-Sq. Statistic</th>
<th>Chi-Sq. d.f.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section random</td>
<td>2.248238</td>
<td>2</td>
<td>0.3249</td>
</tr>
</tbody>
</table>

If the p-value < 0.05 then the method chosen is Fixed Effect Model. Based on the test results, the p-value is 0.3249, so the model chosen is the Random Effect Model.

3. Lagrange Multiplier Test
If p-value > 0.05 then the method chosen is Common Effect Model. Based on the test results, the p-value is 0.0000, so the model chosen is the Random Effect Model.

b. Classic assumption test

1. Normality test

Based on the results of the normality test, the probability value is 0.5338 (p > 0.05), then the data is normally distributed.

2. Multicollinearity Test

Based on the multicollinearity test, the value of the Capital Expenditure (X) and Inflation (Z) variables does not exceed 0.9 (n < 0.9) so there is no multicollinearity in the data.

3. Heteroscedasticity Test

Based on the graph above, no heteroscedasticity was found in the processed data.

4. Autocorrelation Test

Based on the autocorrelation test, the Durbin-Watson stat value was at 1.7631; so that there is no autocorrelation in the processed data, the test can be continued to test the hypothesis.

c. Hypothesis testing

1. Coefficient of Determination Test (R2)

In testing the coefficient of determination (R2), the result of Adjusted R2 (coefficient of determination) is 0.2035. This means that 20.35% of PMA variables in Indonesia are influenced by the independent variables, namely
Capital Expenditures (X) and Inflation (Z). While the remaining 79.65% of PMA variables are influenced by other variables not discussed in this study.

2. Simultaneous Test (F Test)

Based on the regression results, the probability F value of 0.0176 has been obtained, so the F-Statistic Prob is smaller than 0.05, thus it can be concluded that the independent variables jointly affect the dependent variable.

3. Partial Test (t test)

The table above shows that the probability values generated are 0.2290 and 0.0466, respectively (Prob > 0.05), so the capital expenditure variable (X) has no effect on the dependent variable, while inflation (Z) has an influence on the dependent variable.

d. Interaction Test (Moderated Regression Analysis / MRA)

From the results of the MRA test, the probability value for the moderating variable is 0.1501, so the inflation variable does not moderate the relationship between capital expenditures and FDI.

**CONCLUSION**

Based on the results of the research and discussion that have been described in the previous section, the following conclusions can be drawn: (1) Capital expenditures have no effect on PMDN and PMA in the Provinces of Java for the period 2016 – 2020, (2) Inflation has no effect on PMDN, on the other hand, has a significant effect on PMA. This means that if there is an increase in inflation, it will reduce FDI in Provinces in Java Island for the period 2016-2020, and (3) inflation strengthens the relationship between capital expenditures and PMDN, but does not moderate capital expenditures and in Provinces in Java for the period 2016-2020.

Based on the results of the research and the conclusions that have been formulated, several
suggestions from this research are put forward as follows: (1) Increasing government efforts in maintaining inflation stability in Java (2) Reviewing and reducing regulations that are burdensome for investors to invest in Indonesia, both domestic investment and foreign investment.

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