Monetary Policy and Investment in ASEAN-5 Countries

Cep Jandi Anwar, Devi Khairiyah, Indra Suhendra, and Vadilla Mutia Zahara

ABSTRACT

Central bank policy interest rate has a role in economic activity such as investment in 5 ASEAN countries. The occurrence of the Asian Financial Crisis (AFC) in 1997-1998 changed the number of investments in the ASEAN-5 countries that were previously the destination of investors from developed countries. The declining level of economic and industrial stability in ASEAN-5 countries has reduced investor interest in investment. However, after AFC, from 2000 to 2019, 5 Southeast Asian countries (Singapore, Indonesia, Malaysia, the Philippines, and Thailand) experienced an increase in investment. This study aims to analyze the effect of Central bank policy interest and macroeconomic variables such as GDP, Exchange Rate, Inflation, and Labor rate on investment in 5 ASEAN countries. The analytical method used in this study is Panel Autoregressive Distributed Lag (ARDL) with Pooled Mean Group (PMG) estimation. The results showed that the Central bank policy interest rate, Inflation, and Labor have a positive and significant effect on investment in the long term. Meanwhile, in the short-term, GDP has a positive and insignificant effect on investment.

Keywords: Exchange rate, interest rate, investment, PMG estimation.

I. INTRODUCTION

Monetary policy is a policy which is implemented by the central bank using monetary tools to achieve high macroeconomic performance (Anwar et al., 2023). The macroeconomic performance can be shown by higher investment in the host country. Thus, monetary policy should attract investment to domestic countries. Investment is one indicator that is quite vital in determining the development of a country, where the development of the country's development can be seen increasing or decreasing in each period (Jushi et al., 2021). Many investment policies are made to regulate investment activities that are regulated directly by the government to help potential investors and investors so that investment activities run effectively and efficiently because investment has a large contribution to economic development in a country. Investment is defined as spending to purchase capital goods and production equipment aimed at replacing the main capital goods in an economy that can be used to produce goods and services in the future (Magdalena & Suhatman, 2020). Thus, investment is a spending activity to increase the production capacity of an economy.

Investment has several driving factors, including domestic factors and global factors (Sadeghi et al., 2019). Domestic factors are conditions created by a country to attract foreign investors to invest their capital, among others, by maintaining the stability and efficiency of the macroeconomic environment. Global factors, namely factors from the investor country (origin of capital) or conditions that occur in the global economy, for example, the condition of lowering interest rates in the US, can cause a slowdown in the global economy (Anwar et al., 2022).

Investment is considered an important factor in economic growth. Economists and economic policymakers make the main determining factor of the level of investment, one of the determinants of which is the interest rate (Kou et al., 2021). According to Zhang et al. (2020), interest rates are services that customers obtain because they have purchased or used bank products. Interest rates have an important role in determining the investment activities that will be carried out by investors; where investors will choose a country with a low interest rate for the offered return because this will generate profits for investors. Interest rates affect investment activity, whereas current interest rates can also affect the scale of future investments by adjusting savings. The effect of interest rates on the investment scale is operated as an investment opportunity cost (Agrawal & Hockerts, 2021).
Based on Table I, it can be seen that in 2009, the investment level of the Indonesian state was 31.89%, the Philippines was 18.60%, Thailand was 22.91%, Singapore was 39.44%, and Malaysia was 17.89%. In contrast, the five countries’ investment levels increased in 2010. Then, it began to fluctuate in 2011, when Thailand and Singapore experienced a decrease in investment levels, but three other countries continued to experience increases. In 2012, the Philippines experienced a decrease from the previous year, which was 21.60% to 20.79%, and in the following year, there was an increase in investment again until 20109. The country of Malaysia experienced a steady increase until 2013, but in 2014, the country of Malaysia experienced a decrease in investment of 1.31%. However, the following year, the investment rate increased and fell again in 2017. Previously, in 2016, the investment rate was 30.47% to 28.48% and continued to decrease so that in 2019, the investment rate was 23.54%. The country of Indonesia experienced a lot of fluctuating investment values where in several years, there were increases and decreases in investment values; in 2016, there was a significant decrease of 2.01%, then increased in 2017 by 1.38% and in 2019 again decreased where in 2018 the investment level was 36.37 % to 35.69%.

We can see from Table I that the country with the highest investment is Singapore. This happens because this country is a destination for many investors. The advantages of Singapore are a friendly business environment, world-class infrastructure, stable government, safe environment, and the best tax system in the world that creates a strong economy. Meanwhile, the country with the lowest level of investment is Malaysia.

### TABLE II: INTEREST RATES IN ASEAN-5 COUNTRIES

<table>
<thead>
<tr>
<th>Year</th>
<th>IND</th>
<th>PHL</th>
<th>THA</th>
<th>SGP</th>
<th>MYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>5.75</td>
<td>5.67</td>
<td>4.57</td>
<td>2.35</td>
<td>11.78</td>
</tr>
<tr>
<td>2010</td>
<td>4.75</td>
<td>3.16</td>
<td>0.24</td>
<td>4.23</td>
<td>-2.11</td>
</tr>
<tr>
<td>2011</td>
<td>4.59</td>
<td>2.64</td>
<td>1.28</td>
<td>4.28</td>
<td>-0.47</td>
</tr>
<tr>
<td>2012</td>
<td>7.75</td>
<td>3.61</td>
<td>3.22</td>
<td>4.89</td>
<td>3.75</td>
</tr>
<tr>
<td>2013</td>
<td>6.37</td>
<td>3.63</td>
<td>3.22</td>
<td>5.86</td>
<td>4.47</td>
</tr>
<tr>
<td>2014</td>
<td>6.79</td>
<td>2.40</td>
<td>3.46</td>
<td>5.63</td>
<td>2.07</td>
</tr>
<tr>
<td>2015</td>
<td>8.35</td>
<td>6.34</td>
<td>3.98</td>
<td>2.22</td>
<td>3.31</td>
</tr>
<tr>
<td>2016</td>
<td>9.22</td>
<td>4.31</td>
<td>1.76</td>
<td>4.62</td>
<td>2.83</td>
</tr>
<tr>
<td>2017</td>
<td>6.50</td>
<td>3.23</td>
<td>2.39</td>
<td>2.43</td>
<td>0.80</td>
</tr>
<tr>
<td>2018</td>
<td>6.47</td>
<td>2.29</td>
<td>2.64</td>
<td>2.17</td>
<td>4.23</td>
</tr>
<tr>
<td>2019</td>
<td>8.62</td>
<td>6.28</td>
<td>3.31</td>
<td>5.15</td>
<td>4.81</td>
</tr>
</tbody>
</table>


Based on Table II, it can be seen that interest rates are the most important instrument for a country’s economy. The highest interest rates in 2009 were Malaysia at 11.78%, then Indonesia at 5.75%, the Philippines at 5.67%, Thailand at 4.57%, and finally Singapore at 2.35%. Indonesia’s highest interest rate occurred in 2016 at 9.22%. In 2017 - 2018, interest rates decreased again and again increased in 2019 to 8.62%. In 2009, the Philippine interest rate was 5.67% and then decreased the following year to 3.16% in 2010. In the 2010-2013 period, the Philippine interest rate was quite stable but increased in 2014 to 6.34% and was the highest interest rate in the world. The Philippines.

In general, the interest rates of the other 5 ASEAN countries are also quite volatile. Based on the Table above, it can be seen that the development of Malaysia’s interest rate in early 2009 reached 11.78% and was the highest interest rate during the year of study. According to research conducted by Asiamah et al. (2019), interest rates play an important role in investing, where investors will choose a destination country with a small interest rate or lower than the return generated because, with these, investors earn profits. In other words, low interest rates will encourage investment value to increase.

### II. LITERATURE REVIEW

Prior papers investigated the impact of macroeconomic variables on investment. Cloyne et al. (2023), using US firm-level data, found that monetary policy has a positive impact on firm investment. Ottonello
and Winberry (2020) and Givens and Reed (2018), using VAR estimation, found that the response of firm investment to monetary policy shock is positive. Durante et al. (2022) concluded that monetary policy has a positive impact on firm investment. Zhang et al. (2020) confirmed that US monetary policy has an inline impact on firm investment in China. Döttling and Ratnovski (2023) found that intangible corporate investment has a negative relationship with monetary policy. Nikitina et al. (2018) examined the impact of interest rates on investment. They found a negative link between interest rates and investment.

Njindan Iyke and Ho (2017) investigated the link between exchange rate uncertainty and domestic investment in Ghana using the ARDL method. This study examined the long-term and short-term effects of the variable exchange rate uncertainty on investment, supported by several variables, including GDP, interest, and exchange rates. The results of this study indicated that exchange rate uncertainty has a different impact on domestic investment in the short term but has a positive effect in the long term. Afriyanto (2017) investigated the impact of crime on foreign direct investment using the pool least squares method. In his study, he uses other macroeconomic variables such as crime rate, cumulative FDI, PMDN, GDP per capita, population, length of Road Infrastructure, Manpower, UMR, and Unemployment, which affected investment. The results of his research were that the crime rate and minimum wage variables had a significant adverse effect on investment, and the other variables studied had a positive effect.

Mahroowal and Ahmadzai (2020) investigated the impacts of political stability, inflation, and some macroeconomic variables on FDI in Afghanistan. This study used multiple regression methods, and the study results were significant positive GDP and export variables, significant negative import variables, negative inflation variables, and positive balance of payments variables. Zakari (2017) analyzed the relationship between exchange rate, GDP variables and investment using the multiple regression analysis method. The study results showed a positive relationship between investment and the exchange rate, as well as a weak positive relationship between investment and GDP.

Previous studies have examined the link between economic growth and investment, such as Rashid et al. (2017), Sayari et al. (2018), Jaiblai and Shenai (2019), Sengupta and Puri (2020), and Anwar et al. (2023). Rashid et al. (2017) observed that from 2000 to 2013, 15 nations had an increase in FDI inflow due to GDP. Similar findings were made by Sayari et al. (2018), who discovered in Central and Eastern Europe that economic growth and investment increased. In contrast, according to Sabir et al. (2019), the GDP of 39 developing and 44 advanced countries had a negative influence on FDI from 1996 to 2016. According to Jaiblai and Shenai (2019), GDP had a positive influence on investment in ten Sub-Saharan economies from 2003 to 2017. Furthermore, Sengupta and Puri (2020) showed that GDP and FDI in South Asian countries had a positive association. Anwar et al. (2023) discovered that FDI is positively and significantly impacted by economic growth.

The impact of interest rates on investment was examined by Musyoka and Ocharo (2018), Hossain and Ahmed (2018), Albulescu and Ionescu (2018), Islam and Sahajalal (2019), Awad (2020), and Suhendra et al. (2022). Hossain and Ahmed (2018) demonstrated that the impact of interest rates on foreign direct investment in Bangladesh is negative. Musyoka and Ocharo (2018) established a negative correlation between investment and interest rates in Kenya. For 16 EU nations, Albulescu and Ionescu (2018) discovered a negative relationship between interest rates and investment. Additionally, Awad (2020) found that interest rates had a detrimental influence on investment in Malaysia. According to Suhendra et al. (2022), interest rates significantly and negatively affect investment.

The impact of inflation on investment was investigated by Agudze and Ibahgui (2021), Sajilan et al. (2019), Jaiblai and Shenai (2019), Ambaw and Sim (2018), and Babaide and Lawal (2016). Previous studies investigated the influence of exchange rates on investment, including Polat and Payaslıoğlu (2016), Khandare (2016), and Deseatnicov and Akiba (2016). Other studies are Lee and Brahmasrene (2020) and Nguyen and Do (2020).

III. Method

A. Data

Time-series quarterly data from 2000 to 2019 were utilized in this analysis, and some additional secondary data were collected online from the World Bank's Global Financial Development Database, the IMF's International Financial Statistics publications, the Central Bureau of Statistics of Indonesia, and Bank Indonesia. The data used is data on investment, central bank interest rates, economic growth, inflation, Exchange Rate, and employment in ASEAN-5 countries for the period between the first quarter (Q1) of 2000 to the last quarter (Q4) of 2020.

The central bank interest rate, which is often stated as a percentage (%), was defined as the interest rate established by the central bank as a benchmark for commercial banking institutions when issuing credit. This rate has been assumed by Cloyne et al. (2023), Ottonello and Winberry (2020), Givens and Reed (2018), Durante et al. (2022), Zhang et al. (2020), and Döttling and Ratnovski (2023) to have a negative
effect on investment due to higher interest rate. According to earlier research, several control factors having sizable impacts on investment were introduced, such as Suhendra et al. (2022) and Anwar et al. (2023) found the positive impact of economic growth on investment due to the increasing demand for credit. Inflation was also added as an explanatory variable and defined as an increase in the consumer price index. The effect of inflation on investment was investigated by Sajilan et al. (2019) and Agudze and Ibhagui (2021). The exchange rate, as observed by Lee and Brahmasrene (2020), is the bilateral rate against the US Dollar. We follow Rong et al. (2020) for the effect of employment on investment.

B. Methodology

Numerous macroeconomic variables that impact investment were incorporated when assessing the effect of monetary policy on investment. The model of this study is:

\[
Inv_{it} = \alpha_0 + \beta^t CB\ Rate_{it} + \gamma^t X_{it} + \varepsilon_{it}
\]

(1)

Where Inv is investment as a dependent variable, CB Rate is central bank interest rate, \(i = 1, 2, ..., 5\) developing countries and \(t = 2000, ..., 2020\). \(\alpha_0\) represents the intercept; \(\beta\) and \(\gamma\) are the vectors of coefficients; \(X_{it}\) is a matrix of explanatory variables (economic growth, inflation, exchange rate, employment) and \(\varepsilon_{it}\) is the error term.

In pool mean group estimation, Equation (1) becomes:

\[
Inv_{it} = \alpha_i + \sum_{j=1}^{q_1} \beta_{ij} Inv_{i,t-1} + \sum_{j=0}^{q_i} \delta_{ij} CB\ Rate_{i,t-j} + \sum_{j=0}^{p_i} \theta_{ij} X_{i,t-j} + \varepsilon_{it}
\]

(2)

\[
\Delta Inv_{it} = \phi_i \left(Inv_{i,t-1} - \alpha_i^* - \delta_i^* CB\ Rate_{it} + \theta_i^* X_{it}\right) + \sum_{j=1}^{p_i} \beta_{ij}^* Inv_{i,t-j} + \sum_{j=0}^{q_i} \delta_{ij}^* CB\ Rate_{i,t-j} + \sum_{j=0}^{k_i} \theta_{ij}^* X_{i,t-j} + \varepsilon_{it}
\]

(3)

IV. RESULTS AND DISCUSSION

The results of PMG estimation are presented in Table III. These results show that the central bank interest rate has a positive and significant effect on investment in the long term, with a coefficient of 11.464. This means that in the long term, an increase in the central bank interest rate of 1% affects an increase in investment by 11.46%. The results of this study illustrate that increasing interest rates affect investment in ASEAN-5. This means that in the long term, an increase in interest rates is accompanied by an increase in investment. Classical and Keynesian theories explain that if interest rates fall, it will cause investment demand to increase. However, the results of the research on the interest rate variable have a positive and significant contribution to the increase in investment. This means that an increase in interest rates will be followed by an increase in investment in the ASEAN-5 region. The results of this study are in accordance with previous research conducted by Awad (2020) and Suhendra et al. (2022), in which the results show that in the long term, interest rates have a positive and significant effect on investment. However, in the short run, the central bank interest rate has a positive but insignificant effect on investment. This indicates that the interest rate has no significant positive effect on investment.

<table>
<thead>
<tr>
<th>Table III: Pool Mean Group Estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variable</strong></td>
</tr>
<tr>
<td>--------------------------------------</td>
</tr>
<tr>
<td>Long-Run Coefficients</td>
</tr>
<tr>
<td>CB Rate</td>
</tr>
<tr>
<td>Economic Growth</td>
</tr>
<tr>
<td>Inflation</td>
</tr>
<tr>
<td>Exchange Rate</td>
</tr>
<tr>
<td>Employment</td>
</tr>
<tr>
<td>Short-Run Coefficients</td>
</tr>
<tr>
<td>Error Corrections</td>
</tr>
<tr>
<td>(\Delta Inv) (-1)</td>
</tr>
<tr>
<td>(\Delta CB\ Rate) (-1)</td>
</tr>
<tr>
<td>(\Delta CB\ Rate) (-1)</td>
</tr>
</tbody>
</table>

DOI: http://dx.doi.org/10.24018/ejdevelop.2023.3.5.309
Δ Economic Growth 1.1801 (0.5883)
Δ Economic Growth (-1) 1.2532 (3.9323)
Δ Inflation 4.5034 (10.4400)
Δ Inflation (-1) 5.9206 (6.8812)
Δ Exchange Rate 1.9604 (1.7329)
Δ Exchange Rate (-1) 0.5330 (0.3566)
Δ Employment -0.0003 (0.0009)
Δ Employment (-1) -0.0006 (0.0010)

*** p < 0.01.

Economic growth has a positive impact on investment and is significant at a 1% level in the long term with a coefficient of 1.500360. This means that in the long run, an increase in economic growth by 1% affects the increase in investment by 1.5%. High economic growth can produce good infrastructure capacity and can provide large returns for investors, which can increase investment. The results of this study are in line with the results of previous research conducted by Sengupta and Puri (2020) and Anwar et al. (2023), who state that economic growth has a positive influence on investment. However, in the short run, it can be seen that economic growth has a positive but insignificant effect on investment. This indicates that economic growth has no significant positive effect on investment.

The effect of inflation on investment in the long term is positive and significant, with a coefficient of 1.5947. This means that in the long run, an increase in inflation of 1% increases investment by 1.5947%. An investor will invest if the inflation rate in a country tends to be stable. This is because the stability of the inflation rate means that the price value of goods and services, in general, does not decrease or increase by a significant amount. In this case, it can make investors feel more secure in investing in a country where inflation tends to be stable or low. The results of this study are in line with previous research conducted by Agudze and Ibhagui (2021), Sajilan et al. (2019), Jaiblai and Shenai (2019), Ambaw and Sim (2018), and Babajide and Lawal (2016) who find a positive relationship between inflation and investment. However, in the short run, it can be seen that inflation has a positive but insignificant effect on investment. This indicates that inflation has no significant positive effect on investment.

The employment rate has a positive and significant effect on investment in the long term, with a coefficient value of 0.0001. This means that in the long run, an increase of 1% in the employment rate increases investment by 0.0001%. Employment is an important factor in production activities because employment is an economically active population that can produce goods and services. A workforce that is qualified in skills and has sufficient numbers can be a driving factor in investing activities. Thus, the relationship between employment and investment is positive. An increase in employment increases production capacity, which can increase investment. The greater the number of workers, the higher the opportunity for increased investment. The results of this study are in accordance with research conducted by Rong et al. (2020) and Jude and Silaghi (2016), who found that the workforce has a positive and significant effect on investment. However, in the short run, employment has a positive but insignificant effect on investment. This indicates that employment has no significant positive effect on investment.

V. CONCLUSION

The study has investigated the effect of monetary policy on investment in ASEAN-5 countries. Monetary policy is found to have a long-run effect on investment in ASEAN-5 countries. In addition, the core finding of this study showed that central bank policy rate, economic growth, inflation, exchange rate and employment rate have a significant positive effect on investment in the long run, but in the short run, those variables have no significant effects on investment. These findings have implications that to assure investment, authorities must maintain a low and steady central bank interest rate. Therefore, careful monetary policy management is required by policymakers to prevent a long-term decline in investment.

CONFLICT OF INTEREST

The authors declare that they do not have any conflict of interest.

REFERENCES


