

THE EFFECT OF FINANCIAL DEEPENING, FOREIGN DIRECT INVESTMENT, AND INTEREST RATES ON ECONOMIC GROWTH IN INDONESIA

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Abstract

Economic growth determines the extent to which the activities of the economy are able to manifest additional income and sustainable economic development. Therefore, it cannot be separated from the existence of the financial sector, foreign direct investment, and interest rates for the economy. This study aims to determine the effect of financial deepening, foreign direct investment, and interest rates on economic growth in Indonesia in 1988-2020. Empirically, this study uses time series data with the Error Correction Model Engle-Granger (ECM-EG) method. The results show that financial deepening, FDI, and interest rates have a significant effect on economic growth. The variables of FDI and interest rates have a positive and significant effect on economic growth, while financial deepening has a negative and significant effect on economic growth. Likewise, national economic policies must be directed at maintaining overall economic activity and achieving sustainable growth.

Keywords: Economic Growth, Financial Deepening, Foreign Direct Investment, Interest Rates

1. INTRODUCTION

Economic growth can be used to characterize a country's success in terms of development. Economic growth determines the extent to which the activities of the economy are able to manifest additional income. In other words, economic growth shows how the economy generates income for the community using several factors of production so that the resulting output can be the driving force of an economy in a certain period of time. This economic performance can therefore serve as a standard for comparing the rate of economic growth between different periods.

Economic development and the financial sector are two sectors that cannot be separated, both of which play an important role in carrying out their function as an intermediary function. Economic growth in a country will be largely determined by the development of its financial sector. In the development of the financial sector, a country will be faced with two conditions, namely the financial sector experiencing shallow finance or the financial sector experiencing financial deepening. Financial deepening was needed to prove an increase in activities and the role that financial services play in the economy.

Financial deepening is one of the keys that can encourage the rate of growth. However, the effect of this strategy needs to be determined and examined from time to time, especially for developing countries. In this case, Indonesia as a developing country has the same achievement goals as other countries. The Indonesian state has a goal,

namely the existence of a high level of economic growth with the same character of achievement in general countries. Emphasis on a problem in Indonesia is faced with the fact that the depth of the financial sector (financial deepening) is still low.

The problem in Indonesia revolves around the limited capital that is minimal in financing the investment process for its development. If the development of the financial sector has good capabilities, a country can be said to be successful in its economic development when financial sector problems can be resolved and the ability to provide savings for development investment (Fitri, 2022). Strategic efforts are needed to increase the role of the financial sector in these problems in order to achieve financial deepening conditions. Various efforts have been made with the aim of increasing the role of the financial sector so that development financing is more independent. This effort is made so that financial deepening in Indonesia does not depend on other countries.

Based on Figure 1, Indonesia has the fifth lowest level of entry into the financial sector in the ASEAN region, namely; Malaysia, Singapura, Brunei, the Philippines and then Indonesia. Figure 1 shows that in 2020 Indonesia is still low in financial deepening compared to Malaysia and Singapura. As such, the depth of the financial sector in Indonesia is still a problem that must be addressed immediately, so that the condition of the financial sector in Indonesia can encourage an increase in a rational rate of return.

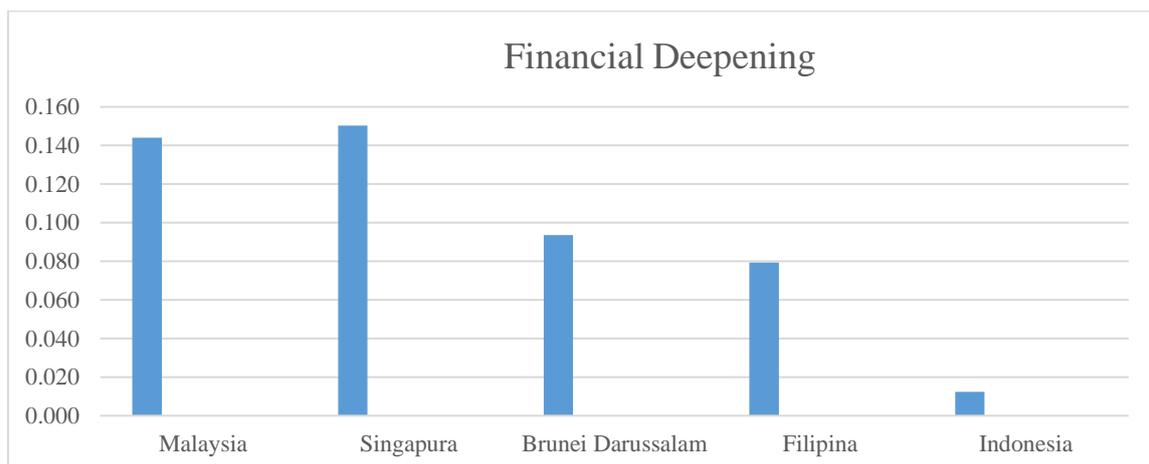


Figure 1. ASEAN Financial Sector Depth in 2020

Based on the data that has been explained regarding the financial deepening condition in Indonesia. When compared to countries that have entered into financial deepening, both in the ASEAN region are shown in Figure 1, namely; the condition of Indonesia being the lowest country and still apprehensive when compared to Malaysia and Singapura, the financial sector must be strived for alleviation. Because from various indicators, the shallowness of the Indonesian financial sector is reflected in the development of its financial system which is still relatively low, which is less than 50%. Indonesia's financial sector is considered shallow (shallow finance), the occurrence of this shallowness, among others, occurs due to limited alternative financing and investment.

The above factors reflect that the activities of the economic sector have not been able to produce an efficient allocation, seen from the still low level of health in the financial sector which is also related to the ability to credit with credit interest rates. According to data in the Bank Indonesia report, the cause of the shallowness of the

financial sector in Indonesia is due to two main factors, namely the low level of intermediation carried out by financial sector institutions and the relatively small use of the capital market in investment financing activities. Indonesia's limited ability in the financial sector makes the ratio to GDP relatively low when compared to other ASEAN member countries.

Such condition was a crucial issue considering that financial deepening was an important step in efforts to develop a country's financial market. The role of the financial sector depends on how its role can encourage economic growth. Looking at the problems above, Indonesia needs to encourage more efforts to catch up with ASEAN countries and other developing countries.

According to G.C Aye (2015) there were several hypotheses of the relationship between economic growth and finance. The existence and development of financial markets provide a higher level of investment and increase capital accumulation. The second hypothesis of the relationship argues that the financial sector that functions as a stimulus can expand liquidity, encourage an increase in overall high economic efficiency, and stimulate the growth of other economies. Backed by arguments Marashdeh (2014) and Lukis Panjawa (2018) shows that it supports the hypothesis that financial deepening stimulates and spurs economic growth.

It was redeveloped on the Harrod-Domar Theory which emphasized the need for investment for economic growth, because investment will increase the stock of capital goods which in turn will have an impact on high output. Increasing the productivity of a country that is supported by investment can increase economic growth in the long term that is sustainable. This is one of the reasons for the need for foreign direct investment (FDI) for developing countries that face the problem of lack of capital accumulation for development.

The flow of foreign direct investment (FDI) into Indonesia is basically needed in order to develop productivity which will have an impact on increasing national income in the form of Gross Domestic Product in addition to improving performance in economic development. The inflow of FDI in a country can be used as state capital in carrying out economic activities. With this, the state seeks to increase its development as a form of recovery in its financial sector.

Indonesia often experiences turmoil in terms of maintaining economic stability. If the amount of investment value in a country decreases, this will certainly cause national income to decrease as well. This is an illustration of economic growth which will ultimately affect the stability of activities in an economy, namely as a wheel of development. These economic activities certainly cannot be separated from how a country carries out its financial sector activities. One of the efforts made by the government in increasing the relatively high rate of economic growth from year to year is through the development of the financial sector which is increasingly rapidly nowadays.

On the other hand, development requires a large expenditure of funds and it cannot be denied that the increasing development activities are characterized by growth in state expenditures and causing inflation. One of the factors that influence changes in inflation in Indonesia is interest rates or in other words the BI Rate which is a signal for banks to set their interest rates. In the event of a sluggish economic condition, Bank Indonesia may use an expansionary monetary policy by lowering interest rates to encourage economic activity and development through lower interest rates. A decrease in interest rates will

reduce the company's cost of capital in making investments. All of this will increase the financial sector and foreign investment will be more enthusiastic in economic activity.

Panjawa & Widianingrum (2018) conducting research on "Financial deepening relationship and economic growth; Empirical Studies in Indonesia" in their research, they analyzed the effect of financial deepening variables, interest rates, and the rupiah exchange rate on economic growth in Indonesia using a causal approach. From this study, it was found that the depth of the financial sector has a one-way relationship with economic growth, namely economic growth affects financial deepening. This means that financial deepening has a one-way influence on economic growth in Indonesia.

In addition, Liu et al. (2020) researched on "Does Financial Deepening Attract Foreign Direct Investment (FDI)? New Evidence from Panel Analysis" in their study which investigated the relationship between financial deepening and foreign direct investment in the context of the panel finding that financial deepening has a significant and positive impact in attracting foreign direct investment. This finding implies that in order to maximize the benefits of FDI, economies in a region must deepen the financial sector. Interestingly, the financial sector systems of emerging markets and low-income countries in the sample significantly and positively affect FDI, but this relationship does not occur in markets in developed countries.

Based on the description of the background of the problem above, several research questions can be formulated, namely how the influence of financial deepening, foreign direct investment, and interest rates on economic growth in Indonesia. Therefore, the authors are interested in conducting a study on some of these variables. This study aims to analyze the effect of financial deepening, FDI, and interest rates in Indonesia for its economic growth. The study in this study uses the Engle Granger Error Correction Model (ECM) analysis method to see the short-term and long-term relationships of the variables used.

2. LITERATURE REVIEW

2.1. Economic growth

Economic growth shows how far economic activity can generate additional income for the community in a certain period. Economic activity itself is a series of uses of various kinds of production factors that are useful for producing output, so that in the series there is a cycle that produces a flow also in the form of services to the factors it provides that are owned by the community (Mankiw, 2003). According to Afandi (2014) Economic growth is an increase in total output which has a long period of time regardless of the value of the increase or the amount of population growth and changes in the structure of the economy. There are three important factors in economic growth. These three factors include technological progress, capital accumulation, and population growth. The accumulation of own capital includes all forms and various types of new investments that are invested in various forms such as human resources as well as physical equipment and land. Population growth which in the next few years will have an impact on growth also in the labor force sector. Besides these two things, there are also technological advances that must be followed along with the times (Todaro, Michael P, 2003). The indicator that is used to measure economic growth itself is derived from the selection of Gross Domestic Product (GDP). There are various reasons that form the basis that through the selection of economic growth, GDP is used differently than other

indicators. GDP itself is the amount of added value between the values generated from all production activities in the economy, meaning that every increase in GDP also describes an increase in remuneration for some of these production factors.

Trade between countries in this world is divided based on comparative quality which is profitable because it contains every country doing speculation (Sukirno, 2004). Economic growth itself is defined as the development of activities in the economy which results in an increase in various kinds of goods and services produced by the community. Economic growth can be said as a form of increase in the real Gross Domestic Product in a country.

2.2. Financial Deepening

Financial Deepening is a process that shows an increase in the quantity, quality, and efficiency of financial intermediary services (Sackey & Nkrumah, 2012). Financial deepening is one of the references used to show an increase in the participation of financial sector services in the economy. Lynch (1996:33) states that there are 5 indicators to determine the development of the state financial sector, namely:

1) Structural Size

Structural measures analyze indicators in the financial system and determine the importance of different elements of the financial system. The ratios used in this indicator are the ratio of money in a broad sense to GDP and the ratio of spending on money securities markets in a broad sense as well.

2) Quantitative Measures

Quantitative measures are used to measure the depth of the financial sector and to measure development. These indicators are credit and monetary in nature, such as the ratio of money in the narrow sense to GDP, the ratio of money in the broad sense to GDP, and the ratio of private sector credit to GDP.

3) Product Scale

Indicators on the product scale are seen from the various types of financial instruments contained in the financial market. Examples include investment products, financial and business products, foreign exchange rates, and risk management products.

4) Transaction Fee

The indicator on transaction costs is seen based on the interest rate spread.

5) Financial Sector Prices

The indicator on the price of the financial sector is seen from the interest rate on loans and real sector loans.

2.3. Foreign Direct Investment (FDI)

There are two forms of foreign investment in Indonesia, namely portfolio investment and direct investment. Portfolio investment can be done through the form of the capital market which uses securities such as bonds and stocks. This investment results in the flow of funds entering the company to issue securities or issuers. Then foreign direct investment is called foreign direct investment (FDI) which has various advantages compared to portfolio investment. This direct investment is long term or permanent.

Foreign direct investment (FDI) will take place due to imperfections in product and market factors which will enable foreign companies to conduct operations with more advantages in foreign markets compared to local competitors (Hymer, 1976).

International investment theory itself explains the flow of international trade. However, this theory explains that there is a close relationship between international trade and international investment, as is the case with the stages of the International Product Life Cycle (IPLC). In other words, internationalization theory can be interpreted as a company that transfers knowledge to its foreign branch offices rather than selling it on the open market. The purpose of this theory is to get a return that is higher than the value of the investment.

According to the basic concept of FDI itself carried out by various foreign investors in the world, there is a theory that explains that there are market imperfections (Hymer, 1976). This theory explains that FDI was the beginning of the direct effect of conditions caused by market imperfections. In this condition, the imperfect market will create its own advantages and disadvantages. Likewise, FDI can be said to be successful if it can overcome and reduce existing weaknesses and can increase the benefits obtained. In the theory of internalization and the eclectic approach, it has similarities with FDI which is an instrument in taking host country profits. However, in the eclectic approach, it was explained that the benefits sought are on the side of ownership, locational advantage, and internalization. In addition, this approach has a fairly broad scope, in addition to determining the determinants of traditional FDI, this theory also plays a role in government policies and infrastructure which are the main objectives of research. Investors or investors who will invest in the form of FDI in a country will be influenced by the conditions of the FDI recipient country. These conditions include policies related to trade and industry, market conditions, competitiveness, resources, and FDI policies.

2.4. Real Interest Rate

According to Case et al. (2012) Interest is the payment for the use of money. The real interest rate is the nominal interest rate minus the inflation rate. Interest is the interest payment on the year's loan expressed as a percentage of the loan, that percentage is then equal to the amount per year and divided by the loan amount.

3. RESEARCH METHODS

This study uses a quantitative approach. Quantitative method refers to a method with a scientific approach that looks at a reality that can be classified and measured by the causal relationship between variables and the research is in the form of data in the form of numbers. In this study, the main focus was on explaining the relationship between economic growth as the dependent variable and financial deepening, FDI, interest rates as independent variables in Indonesia using time series data in the 1988-2020 observation period.

Table 1. Variable Operational Definition

| Variable | Definition | Unit | Source |
|-----------------|----------------------------|----------------------|---------------|
| EG | Economic growth | % of GDP growth | World Bank |
| M2 | <i>Financial deepening</i> | % of GDP | ADB |
| FDI | Foreign Direct Investment | Net Inflows % of GDP | World Bank |
| IR | Interest Rate | % real interest rate | BI |

Source: data processed by the author

The dependent variable in this study is economic growth. By using the value of Gross Domestic Product (GDP) and the proxy used is the percentage of the value of the constant annual GDP growth rate in Indonesia. GDP growth data is taken from The World Bank. In the independent variable, first using financial deepening. This variable was used to reveal the development of the financial sector in development by using the ratio between domestic financial assets to GDP (such as: the ratio M1/GDP; M2/GDP; M3/GDP; M4/GDP), then the development in the ratio of financial assets to GDP shows financial deepening. The proxy for the financial deepening variable is represented using M2 in a broad sense whose data is obtained from the Asian Development Bank (ADB). Liu et al. (2020), financial deepening is used to measure the money supply in a broad sense (M2). Second, FDI is the long-term exposure of foreign companies to the economic conditions and infrastructure conditions of the host country so that foreign investors believe that investing can generate large profits. The proxy for the FDI variable is represented by FDI inflows as a percentage of GDP in Indonesia, the data being taken from The World Bank. Third, the interest rate variable is the annual loan interest payment expressed as a percentage of the loan. The proxy for the interest rate variable is represented by the real interest rate to a percentage of GDP whose data is taken from the Indonesian Financial Economic Statistics (SEKI) published by Bank Indonesia. Alshubir (2021), FDI financial liberalization is measured by foreign direct investment, as % of GDP.

In this study, using the Error Correction Model Engle-Granger (ECM-EG) analysis method in estimating the short-term and long-term relationships between financial deepening, FDI, and interest rates variables on economic growth. According to Granger in Gujarati (2009) cointegration test can be considered as a pre-test to avoid spurious regression. In a single equation, it can explain two relationships, namely short-term and long-term. The ECM-EG error correction model, which will be estimated in the following equation, can be written below:

$$\Delta EG_t = \alpha_0 + \alpha_1 \Delta EG_t + \alpha_2 EC_t + \varepsilon_t$$

Where:

$$EC_t = Y_{t-1} - \beta_0 - \beta_1 X_{t-1}$$

In this case the coefficient α_1 is a short-term coefficient while β_1 as in the equation is a long-term coefficient.

The formation of the complete ECM-EG model can be started from the development of an initial equation model that describes the long-term equilibrium relationship according to the applicable theory, namely:

$$EG_t = \beta_0 + \beta_1 M2_t + \beta_2 FDI_t + \beta_3 BIR_t + et$$

However, in general, the imbalance is described by the Error Correction Term (ECT) value which is formulated as follows:

$$ECT_t = EG_t - \beta_0 + \beta_1 M2_t + \beta_2 FDI_t + \beta_3 BIR_t + et$$

Information:

EG = Gross domestic product
M2 = Financial deepening
FDI = Foreign Direct Investment
IR = Real Interest Rate

4. RESULTS AND DISCUSSION

4.1. Analysis Results

4.1.1. Stationarity Test

In time series data or time series data stationarity testing can use the Augmented Dickey Fuller (ADF) test. By doing a unit root test we can find out whether the data used in the study is stationary or not using the Augmented Dickey-Fuller (ADF) test. Various data can be said to be stationary if the value of the average time series data variance does not change systematically over time. The test used not only uses the Augmented Dickey-Fuller (ADF) there is a similar test such as the Phillips-Perron test, both tests indicate a null hypothesis at the unit root. The results of the unit root test in data processing were carried out using the Eviews 10 software as the results are shown in the table.

Table 2. Stationary Test Result

| Variable | Model | Prob | T-stat | Information |
|--|------------------|----------|-----------|----------------|
| Economic Growth (EG) | Level | | | |
| | Intercept | 0.0083* | -3.727947 | Stationary |
| | Trend Intercept | 0.0359* | -3.712732 | Stationary |
| | First Difference | | | |
| | Intercept | 0.0000* | -6.704028 | Stationary |
| | Trend Intercept | 0.0000* | -6.594236 | Stationary |
| Financial deepening(M2) | Level | | | |
| | Intercept | 0.0002 | -5.093471 | Stationary |
| | Trend Intercept | 0.0011* | -5.146589 | Stationary |
| | First Difference | | | |
| | Intercept | 0.0000** | -9.009783 | Stationary |
| | Trend Intercept | 0.0000** | -8.859155 | Stationary |
| Foreign Direct Investment (FDI) | Level | | | |
| | Intercept | 0.2021 | -2.224140 | Not Stationary |
| | Trend Intercept | 0.3996** | -2.344648 | Not Stationary |
| | First Difference | | | |
| | Intercept | 0.0001 | -5.332780 | Stationary |
| | Trend Intercept | 0.0010* | -5.238288 | Stationary |
| Interest Rate (IR) | Level | | | |
| | Intercept | 0.0001 | -5.473476 | Stationary |
| | Trend Intercept | 0.0006* | -5.393713 | Stationary |
| | First Difference | | | |
| | Intercept | 0.0000* | -10.56717 | Stationary |
| | Trend Intercept | 0.0000* | -6.722840 | Stationary |

Description: *stationary at 5%, **stationary at 10%

Source: results of Eviews 10 data processing, processed

Based on the table above which was carried out using the Augmented Dickey-Fuller (ADF) test, we can see that at the level or $I(0)$ it does not show stationary data on the value of the ADF probability at the level of almost all variables lower than alpha 5% or 0,05 and alpha 10% or 0,1, except for the FDI variable so that it can be said to be not stationary. And the probability value of ADF at the first difference level shows that all variables are lower than alpha 5% or 0,05 and alpha 10% or 0,1. It can be concluded that at the first difference level, all variables are in a stationary condition. The results show that in the stationarity test all variables are at the same stationary level, namely in the $I(1)$ first difference and not in the second difference, according to the requirements of the ECM EG model, it was in accordance with the provisions.

4.1.2. Cointegration Test

Table 3. ECT Cointegration Test Results in Level Forms

| | t-Statistics | Prob.* |
|---|--------------|--------|
| Augmented Dickey-Fuller test statistics | -3.069299 | 0.0392 |
| Test critical values: 1% level | -3.653730 | |
| 5% level | -2.957110 | |
| 10% level | -2.617434 | |

Source: Eviews 10 (2022) data processing results

Furthermore, this study uses the Engle-Granger (EG) cointegration test. The cointegration test results show that the residual value in the multiple linear regression equation shows that the absolute value of the ADF statistic is lower than alpha 5% or 0,05 and alpha 10% or 0,1. The basis for making decisions was to compare the ADF statistical value with a critical value of 5% alpha. If the statistical value is greater than the critical value, the variables observed will be cointegrated, in this case, they have a long-term relationship and vice versa. The results of the estimation of the data obtained by the statistical ADF value $-3.069299 >$ critical value = 5% (-2.957110) then the probability value is 0.0392, so it can be concluded that the cointegration test using the ECM model used in this study is valid. Based on the speed of adjustment, the ECT (error correction terms) value has a negative coefficient value and is statistically significant with a probability value.

4.1.3 Model Estimation

1) Long Term ECM Analysis

In the processing of the cointegration test that had previously been carried out, the results showed that there had been cointegration in the financial deepening, FDI, and interest rate variables. Afterward, in looking at the coefficients in the long-term test, the Ordinary Least Square (OLS) method was tested so that we can see how big the long-term relationship between the variables studied is.

Table 4. Long Term Analysis

| Variable | Coefficient | Std. Error | t-Statistics | Prob. |
|----------|-------------|------------|--------------|--------|
| C | 2.453672 | 0.813793 | 3.015106 | 0.0053 |
| M2 | -4.20E-06 | 3.98E-06 | -1.055804 | 0.2998 |
| FDI | 0.469600 | 0.424936 | 1.105107 | 0.2782 |
| IR | 0.324276 | 0.072161 | 4.493783 | 0.0001 |

Source: Eviews 10 (2022) data processing results

In the results of the long run coefficient shown in the table above, there are several variables that have a long-term effect on economic growth. The estimation results in the long term obtained show that the interest rate variable has a positive and significant influence on economic growth, which means an increase in interest rates will increase economic growth in the long term. Meanwhile, the financial deepening variable has a negative and insignificant effect. In contrast, FDI variable has a positive and insignificant effect on economic growth.

2) Short Term ECM Analysis

After doing the long-term regression, the results show that there is a cointegration relationship between the variables studied, namely economic growth with financial deepening, FDI, and interest rates. Then further testing is carried out in the short term. In the short-term ECM-EG approach, we can estimate the measured model by looking at the value of the ECT. In processing this data, it can be seen the influence between the dependent variable and the independent variable in the short term and the validity of the estimation model can be known from the Error Correction Term (ECT) coefficient. If the regression value of ECT is significant, it means that the error correction model is a valid model and the variables studied are cointegrated and stationary.

Table 5. Short Term Analysis

| Variable | Coefficient | Std. Error | t-Statistics | Prob. |
|----------|-------------|------------|--------------|--------|
| C | -0.011835 | 0.481404 | -0.024585 | 0.9806 |
| D(M2) | -8.83E-06 | 3.87E-06 | -2.284182 | 0.0304 |
| D(FDI) | 1.105198 | 0.500887 | 2.206480 | 0.0360 |
| D(IR) | 0.384349 | 0.066979 | 5.738337 | 0.0000 |
| ECT(-1) | -0.872809 | 0.257246 | -3.392904 | 0.0021 |

Source: Eviews 10 (2022) data processing results

Based on the above results, it can be stated that in the short term, the variables that have a significant effect on economic growth are the three variables, namely financial deepening, FDI, interest rates, and the ECT variable at the 5% alpha significance level and has a sign as expected. The variables of FDI and interest rates have a positive and significant effect on economic growth, hence an increase in FDI and interest rates will increase economic growth in the short term. On the other hand, in the short term, the

financial deepening variable has a negative and significant effect on economic growth at a significance level of 5%.

While the ECT variable has a significant effect, this can be shown by the value above so that the ECT variable has a significant effect on the 5% alpha level and has a negative sign. This strengthens the evidence of a cointegration relationship and a long-term relationship between the independent variable and the dependent variable.

4.1.4. Model Fit Test

1) Autocorrelation Test

A regression model is said to be good if it is free from autocorrelation symptoms. In this test, the Breusch-Godfrey Serial Correlation LM Test was carried out.

Table 6. Breusch-Godfrey Serial Correlation LM Test Results

| | | | |
|---------------|----------|----------------------|--------|
| F-statistics | 2.115253 | Prob. F(2,25) | 0.1417 |
| Obs*R-squared | 4.631332 | Prob. Chi-Square (2) | 0.0987 |

Source: Eviews 10 (2022) Data Processing

The results of the data processing test using the Breusch-Godfrey Serial Correlation LM Test, as seen in the table it is known that the value of the Probability Chi-Square is 0.0987, which means the value is greater than the probability value (= 5% or 0.05). Hence, it can be concluded that the data used in the study does not have a relationship or correlation between observations in one variable.

2) Heteroscedasticity Test

This test is carried out with the aim of seeing whether in the processing model equation there is an inequality of variance (heterogeneous) from the residual of one observation to another observation. Heteroscedasticity test in this study using Breusch-Pagan Godfrey. The presence or absence of heteroscedasticity is based on the Chi-Square Probability value.

Table 7. Heteroscedasticity Test Results

| | | | |
|---------------|----------|----------------------|--------|
| F-statistics | 0.756127 | Prob. F(2,13) | 0.5628 |
| Obs*R-squared | 3.223509 | Prob. Chi-Square (2) | 0.5211 |

Source: Eviews 10 (2022) Data Processing

The results of data processing on the Breusch-Pagan Godfrey test as seen in the table it is known that the value of the Chi-Square Probability is 0,5211, meaning that the value is greater than the probability value ($\alpha = 5\%$ or 0,05). In other words, it is assumed that there is no heteroscedasticity in the regression model and the results of the heteroscedasticity test are accepted.

3) Multicollinearity Test

After testing the multilinerity test on the independent variables, it can be shown by all these variables in the proposed model that this research is free from multicollinearity. This multicollinearity test uses the Variance Inflation Factor (VIC) method. The multicollinearity test can be said to pass the test, when the VIC value in each

independent variable is less than 10 so it can be concluded that there is no multicollinearity in this model.

Table 8. Multicollinearity Test Results

| Variable | Coefficient Variance | Centered VIF | Conclusion |
|----------|----------------------|--------------|---------------------------|
| C | 0.231750 | 1.020450 | Free of multicollinearity |
| D(M2) | 1.49E-11 | 2.513773 | Free of multicollinearity |
| D(FDI) | 0.250888 | 1.117123 | Free of multicollinearity |
| D(IR) | 0.004486 | 2.046288 | Free of multicollinearity |
| ECT(-1) | 0.066175 | 1.500266 | Free of multicollinearity |

Source: Eviews 10 (2022) Data Processing

The results of this multicollinearity test data processing using the Variance Inflation Factor (VIC) method on the studied variables whose values are smaller than 10 so that it can be concluded in this test that there is no multicollinearity in this model.

4.1.5. Test Specification Error

Ramsey's Test

To perform the error specification test, it is necessary to do a Ramsey test to determine whether the variable is linear with the dependent variable. The test in this study was carried out using the results of the Ramsey Reset Test.

Table 9. Ramsey RESET Test

| | Value | df | Probability |
|--------------|----------|--------|-------------|
| t-statistics | 1.167278 | 26 | 0,2537 |
| F-statistics | 1.362537 | (1,26) | 0,2537 |

Source: Eviews 10 (2022) Data Processing

The results on the Ramsey Reset Test show a probability value of 0,2537 which means that the value is more than the probability value ($\alpha = 5\%$ or 0,05) in both the t-statistic and F-statistic values. Thus, that the variables in this study are linear with the dependent variable.

4.1.6. Model Stability Test

Cusum Test and Cusum of Squares

To see if the model used is stable from shocks, it is necessary to do the Cusum and Cusum of Squares test. The structural stability test was carried out using the cumulative sum of squares of recursive residues (CUSUMQ) and the cumulative sum (CUSUM). In formulating long-term parameters, it is necessary to combine short-term dynamics by testing the Cusum Test and Cusum of Squares Test. The test is based on the first observation on the cumulative amount of residue. The Cusum Test results are said to be stable if the estimated coefficient test is at a significance level of 5%. Similarly, the Cusum of Squares Test uses the same procedure as the Cusum Test which is based on quadratic recursive residues.

Table 10. Cusum Test Results

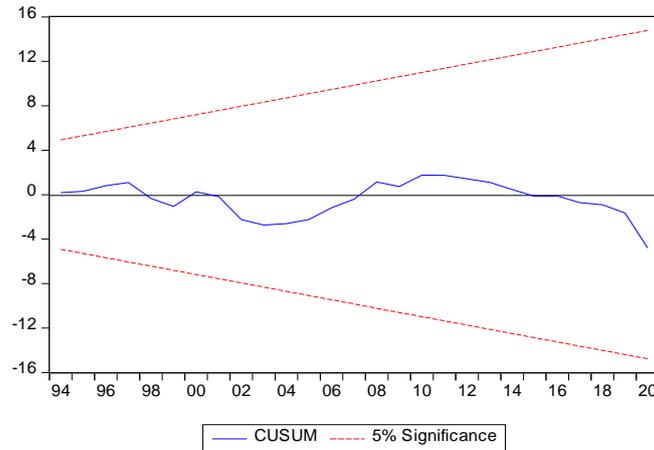
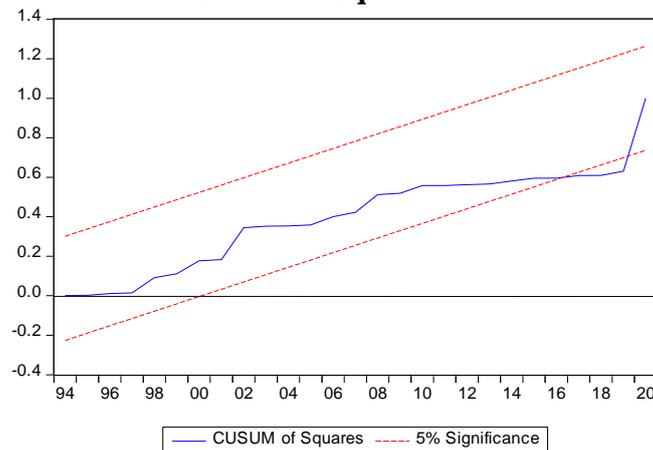


Table 11. Cusum of Squares Test Results



Source: Eviews 10 (2022) Data Processing

In the second test, Cusum uses a 5% confidence level, hence the stability of the model was determined by looking at the position of the Cusum Test and Cusum of Squares Test lines which were between the red line of 5% significance. In the results of the Cusum Test and Cusum of Squares Test above, it can be seen that the lines in the two Cusum tests are between the 5% significant line (in red), which is between the straight line at the very top and bottom or the cusum line of each image. Thus, it can be concluded that the model in this study tends to be stable.

4.2. Discussion

The results of the above data processing on the Foreign direct investment (FDI) variable have a positive and significant influence on economic growth. The results of this study are in line with Bagas Prawira (2019) that the FDI variable has a positive and significant effect on economic growth. Supported by Purba (2020) who examines FDI, exports, foreign debt and economic growth using time series data resulting in a variable. Foreign direct investment (FDI) has a positive and significant effect on economic growth. Furthermore, the interest rate variable obtained positive and significant results on

economic growth. The research is in line with Sari (2019) obtained the results that interest rates have a positive and significant effect on economic growth.

The results of the above data processing show that the financial deepening variable (M2) has a negative and significant influence on economic growth. This findings was supported by previous research conducted by Ramadanti et al. (2022) namely financial deepening in Indonesia has a significant influence on economic growth. The study found that the larger the existing GDP will have an impact on the greater the money supply needed by the community. With the increasing ratio of money supply (M2) to GDP will increase as a consequence of the increase in incentives in the form of banking interest rates. On the other hand, it will have implications for the increasing level of monetary liquidity in the economy. Supported by Wasiaturrahma et al. (2019) The study uses the annual ARDL time series data model from 1975 to 2016. The results found that financial deepening has a negative and significant effect on economic growth. Similar results by Prabowo (2021) it is found that the money supply ratio (M2) has a negative and significant influence both in the long and short term on economic growth.

The dynamics of the global economy in 2019 showed that economic data was facing pressure as a result of the Covid-19 pandemic. The IMF in the World Economic Outlook predicts that world economic growth will contract by 3% with growth in emerging markets also projected to contract by 1%. Observing the problems that occur in the integration of the global economy, the dynamics that occur in the financial market are very responsive and the volatility is very high.

Observing the stability of the financial services sector in the midst of the Covid-19 pandemic, it was noted that Indonesia was still in a well-maintained condition. This can be evidenced by the existence of financial sector intermediation which posted positive performance and the risk profile of the financial services industry remained under control. Through a number of anticipatory government policies (pre-emptive) and forward-looking assessments reflected in the financial sector stimulus, Indonesia was able to control volatility in the financial market, which had risen in line with the increase in the spread of Covid-19.

In response, the monetary authority will carry out a trade-off policy. In other words, it is carried out in order to maintain stable public financial liquidity. In this case, the Central Bank will make policy changes by increasing domestic banking interest rates. These efforts were made to provide incentives to the public so that the financial sector stimulus would provide better conditions. With this condition, the financial deepening in the national economy will be maintained.

5. CONCLUSION

Based on the results of data analysis and discussion in this study, it can be concluded that Financial deepening, FDI, and interest rates have a simultaneous effect on Indonesia's economic growth for the period 1988-2020. Among the existing variables, the Financial Deepening variable has a negative and significant influence on economic growth in Indonesia in 1988-2020. Meanwhile, Foreign Direct Investment (FDI) and interest rates have a significant and positive influence on economic growth in Indonesia, which means these variables have the greatest influence on economic growth.

REFERENCES

- Afandi. (2014). Analisis Pengaruh Investasi, Tenaga Kerja, Dan Pengeluaran Pemerintah Terhadap Pertumbuhan Ekonomi Di Provinsi Jawa Timur (Studi Kasus Tahun 2001 – 2010). *Jurnal Ilmiah Mahasiswa FEB Universitas Brawijaya*, 2(1).
- Alshubiri, F. (2021). Financial Deepening Indicators and Income Inequality of OECD and ASIAN Countries. *The Journal of Economic Asymmetries*, 24, e00211.
- Bagas Prawira, S. N. S. & G. J. (2019). Pengaruh Foreign Direct Investment (FDI), Ekspor dan Impor Terhadap Pertumbuhan Ekonomi Indonesia 1998-2017 (The Effect of Foreign Direct Investment (FDI), Export and Import on Indonesia's Economic Growth 1998-2017. *DINAMIC (Directory Journal of Economic Volume)*, 1(1), 1–10.
- Case, Karl, Fair, R., & S, M. O. (2012). Principles of Economics. England: Pearson Education. *Journal of Economic, Business and Management*, Vol 6(2).
- Fitri, R. A. (2022). The Effect Of Foreign Direct Investment, Inflation, And Export On Economic Growth In Indonesian. *Journal Of Management, Accounting, General Finance And International Economic Issues (MARGINAL)*, 2(1), 109–125.
- G.C Aye. (2015). Causality between Financial deepening and Economic Growth in Negeria: Evidence form a Bootstrap Rolling Window Approach. *Journal of Economic, Business and Management*, vol.3, No.8.
- Gujarati. (2009). *Basic Econometrics, Fifth Edition* (Fifth edit). New York : McGraw Hill Jhingan.
- Hymer, S. H. (1976). The international operations of national firms: A study of direct foreign investment. *Cambridge: MIT Press*.
- Liu, H., Aminul, M., Asif, M., Ph, K., & Finance, D. (2020). Research in International Business and Finance Does financial deepening attract foreign direct investment ? Fresh evidence from panel threshold analysis. *Research in International Business and Finance*, 53(February), 101198. <https://doi.org/10.1016/j.ribaf.2020.101198>
- lukis Panjawa, J. (2018). Hubungan Financial Deepening dan Pertumbuhan Ekonomi: Studi Empiris di Indonesia. *Jurnal Penelitian*, 12(1).
- Lynch, D. (1996). Measuring Financial Sector Development : A Study of Selected Asia Pacific Countries. *Journal Developing Economies*, XXXIV (1), 3–33.
- Mankiw, N. G. (2003). *Macro economics*.
- Marashdeh, H. A.-A.-M. (2014). Financial deepening and Economic Growth in Saudi Arabia. *Journal of Emerging Market Finance*, Vol.3, No.2.
- Panjawa, J. L., & Widianingrum, I. F. (2018). Hubungan Financial Deepening dan Pertumbuhan Ekonomi : Studi Empiris Di Indonesia A . Pendahuluan meningkatkan pertumbuhan ekonomi . Financial deepening telah dapat mempercepat laju pembangunan . Namun , efek dari strategi berkembang lainnya . Tujuan penc. *Jurnal Penelitian*, 12(1), 45–64.
- Prabowo, B. H. (2021). Analisis Pendalaman Keuangan di Indonesia. *Jurnal Manajemen Jayanegara*, 13(April).
- Purba, B. (2020). Analisis Tentang Pertumbuhan Ekonomi Indonesia Periode Tahun 2009 – 2018. *Jurnal Humaniora*, 4(2), 74–87.
- Ramadanti, A., Putra, M. R., Yurillita, R., & Panorama, M. (2022). Analisis Finansial Deepening Terhadap Pertumbuhan Ekonomi di Indonesia. 1(3), 287–298.
- Sackey, F. G., & Nkrumah, E. M. (2012). Financial sector deepening and economic

- growth in Ghana. *Journal of Economics and Sustainable Development*, 3 (8), 122–140.
- Sari, S. (2019). Analisis utang luar negeri, sukuk, inflasi dan tingkat suku bunga terhadap pertumbuhan ekonomi Indonesia Tahun 2014-2019. *Jurnal Riset Pendidikan Ekonomi (JRPE)*, 5(2), 92–100.
- Sukirno, S. (2004). *Teori Pengantar Makro Ekonomi Edisi Ketiga* (Edisi Ketu). PT RAJAGRAFINDO.
- Todaro, Michael P, dan A. S. (2003). “*Pembangunan Ekonomi di Dunia Ketiga*”. Edisi 8. Jilid 2. Jakarta: Erlangga.
- Wasiaturrahma, MuhammadRizal, R., & Ajija, S. R. (2019). Financial Deepening And Economic Growth In Indonesia. *Journal Media Trend*, 14(1), 24–32.