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The Analysis of the Effect of Financial Deepening on Indonesia's Economic Growth: A Longitudinal Analysis

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Abstract

Economic development cannot be separated from the financial sector. Financial deepening has been identified as a way to accelerate economic growth. The purpose of this study was to analyze the effect of financial deepening, the rupiah exchange rate and interest rates on economic growth in Indonesia in 1995-2018. This study uses secondary time series data from the World Bank. This study uses Error Correction Model (ECM) analysis through the EViews 10 program. The results of this study indicate that the performance of the financial sector in Indonesia is still shallow. In the long and short term, financial deepening and exchange rates have a negative and significant effect. Meanwhile, interest rates have a positive and significant effect on economic growth both in the long term and in the short term.

Keywords

Financial deepening, Rupiah Exchange Rate, Interest Rates, Economic Growth.

1. Introduction

Economic development in developing countries cannot be separated from the development of the financial sector. Where the financial sector has an important role in encouraging economic activity in order to increase economic growth. However, one of the obstacles to developing the financial sector in order to achieve high economic growth is the limited capital to finance development investment. Furthermore, in the development of the financial sector, it is always faced with a financial condition that is experiencing shallow finance and a financial sector that is experiencing financial deepening (Fry, 1995).

One way to accelerate economic development that has been identified is through financial deepening. The definition of financial deepening is the ratio in the form of a country's financial assets to gross domestic product. The economic conditions of developing countries which are heavily affected by global economic conditions make their financial sector experience shallowing or deepening. For this reason, financial deepening strategies in developing countries need to be reviewed and re-examined from time to time so that the monetary policies adopted by the government are appropriate and accurate with the conditions of a country's financial sector in order to be able to pump up economic development.

The component in the financial deepening ratio consists of broad money or M2 divided by GDP. For this reason, the role of the financial sector is very decisive in regulating monetary policy so that there is effectiveness in spurring economic growth, especially money circulating in the wider community. The greater the amount of money circulating in society, of course, the greater the success of financial deepening (Trabelsi & Cherif, 2017). According to the coordinating minister for the Economy Darmin Nasution when opening the 2019 initial stock trading at the Main Hall of the Indonesian Stock Exchange (IDX), financial market deepening has not been successful enough, one of the obstacles is from the demand and supply side. The saving behavior of the community causes the rotation to take a long time. Meanwhile, according to research conducted by Panjawa (2018) stated that the performance of the financial sector in Indonesia is still low, seen from the ratio of the money supply to GDP.

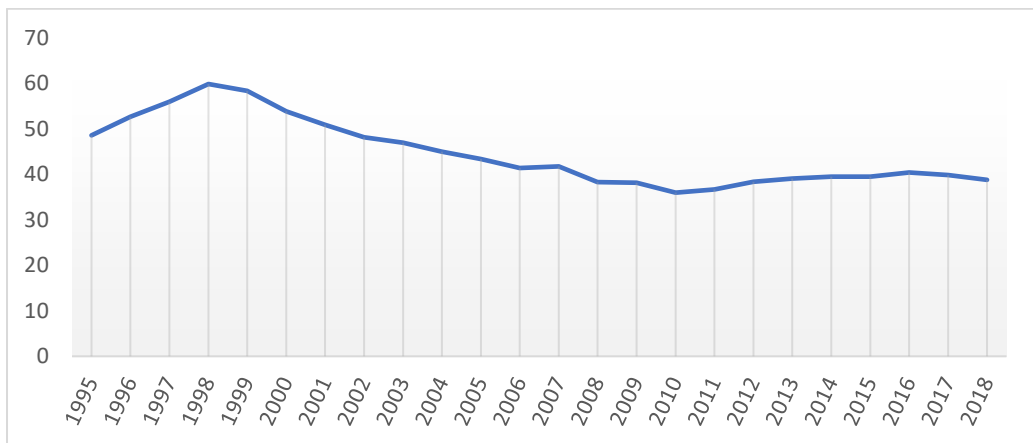


Figure 1. Indonesia's Financial Deepening 1995-2018

Source: World Bank (data processed)

Based on Figure 1, it can be seen that from 1995-2018 there was a downward trend towards financial deepening in Indonesia. This reflects the siltation of the ratio of the money supply to the Gross Domestic Product or GDP. Therefore, further research and study is needed regarding the impact of the siltation of the financial sector, whether it will have an impact on the country's economy or not when the ratio of the money supply decreases to GDP.

On the other hand, there are several indicators that influence the money supply in a country, including interest rates and the rupiah exchange rate. Interest rates have a very important role in controlling the money supply where when there is too much money circulating in society and inflation occurs, interest rates will increase. By increasing interest rates, it will indirectly suppress and reduce the money supply in society. This is because high interest rates will attract people's interest in saving.

Meanwhile, in terms of the rupiah exchange rate, it has an important role in the macro economy where one sector and another will influence each other. The rupiah exchange rate tends to fluctuate so that it will have an impact on the economy. If the economy is stable, of course it will attract many investors to invest their capital, but if the economy is unstable, it will certainly reduce the amount of investment where investment is an indicator for a country's economic growth. Thus, an efficient financial system is needed so that policies can run with the desired economic growth target.

The purpose of this research is to analyze the relationship between financial deepening, interest rates, and the rupiah exchange rate on economic growth in 1995-2018. With this research, it is hoped that it can be taken into consideration in determining policies so that economic growth targets can be achieved.

2. Literature Review

2.1. Economic Growth Theory

Economic growth is one indicator that is often used to determine economic development in a country. Economic growth in a nutshell can be interpreted as a process of increasing/increasing output per capita in the long term. So that there are 3 aspects that need to be underlined in economic growth, namely process, output per capita and long term. Meanwhile, according to Kuznets (1961), economic growth is a long-term increase in the country's ability to provide more and more types of economic goods to the population. Economists agree to define economic growth with an increase in GDP income due to increased output issued by producers in the long term.

Economic development always refers to the development of a country's economic activities which can lead to an increase in goods and services produced in society. In addition, economic growth can also be characterized by increased social welfare and prosperity as well as a better standard of living than in previous years in the long term. Economic growth in a country is a sign and characteristic that the country is experiencing a development process. For this reason, economic growth can be used as a measure of the success of the country's development. Physically, economic growth can also be seen from the increase in industrial production, the number of public facilities and also manufacturing developments. Meanwhile, in terms of finance, it can be seen from the values of the existing economic sector.

According to Kuznets (1973), there are six characteristics of the economic growth process that are found in almost all developed countries, namely:

- a. The growth rate of output per capita and high population growth.
- b. High rate of increase in total factor productivity
- c. High degree of economic structural transformation.

- d. High degree of social and ideological transformation.
- e. There is a tendency for developed countries to try to penetrate other parts of the world as marketing and sources of raw materials.
- f. Limited spread of economic growth which only reaches a third of the world's population

2.2. Financial Liberalization Theory

The pioneers of the first financial liberalization theory were McKinnon (1973) who thought that financial sector liberalization was an effective way to increase economic growth. Meanwhile, according to Lynch (1996), there are 5 indicators to determine the development of the state financial sector, namely:

- a. Quantitative Measures are useful for measuring the development and depth of the financial sector. These quantitative indicators are both monetary and credit 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.
- b. Structural Measures are useful for analyzing the structure of the financial system and determining the importance of the different elements of the financial system. The indicator is the ratio of money in a broad sense to GDP, the ratio of securities market spending to money in a broad sense.
- c. Prices for the financial sector (Financial Prices) are seen from interest rates on real sector loans and loans.
- d. Product Scale (Product Range) is seen from the various types of financial instruments available on financial markets, such as financial and business products (commercial paper, corporate bonds, listed equity), investment products, risk management products and foreign exchange rates.
- e. Transaction costs can be seen from the spread of interest rates in financial institutions.

Financial Liberalization Theory, also known as Financial Liberalization hypothesis, is an economic concept that revolves around the idea of removing or easing government regulations and restrictions on the financial sector. The theory suggests that by liberalizing financial markets and allowing for greater financial freedom, a country can experience economic growth, increased investment, and overall development.

Historically, many developing countries had strict regulations and controls on their financial systems. These regulations included fixed interest rates, restrictions on foreign investments, high reserve requirements for banks, and limited access to international financial markets. Proponents of financial liberalization argued that these restrictions hindered the efficiency and effectiveness of financial intermediation, leading to suboptimal allocation of capital and resources.

According to Akyüz (1993), the primary objectives of financial liberalization are as follows:

1. Enhance Financial Efficiency: By reducing government interference, it is believed that financial markets can operate more efficiently. This would lead to improved allocation of capital and resources, facilitating economic growth and development.

2. **Attract Foreign Investment:** Financial liberalization can attract foreign investors by providing them with more opportunities to invest and access financial markets. This, in turn, can lead to an inflow of foreign capital, contributing to economic growth.
3. **Encourage Competition:** Financial liberalization is expected to increase competition among financial institutions, which can lead to better services, lower costs, and innovative financial products.
4. **Foster Economic Growth:** By enabling more efficient allocation of resources and encouraging investment, financial liberalization is thought to promote overall economic growth and development.

However, it is essential to note that financial liberalization is a complex and controversial topic, and its implementation has not always yielded positive results. Critics of the theory argue that rapid and poorly managed liberalization can lead to financial instability and crises, especially in countries with weak institutions and underdeveloped financial sectors (Batuo et al., 2018).

Auerbach & Siddiki (2004) said that some of the potential challenges and risks associated with financial liberalization include:

1. **Financial Instability:** Sudden and poorly managed liberalization can lead to speculative bubbles, asset price volatility, and financial crises, as seen in some emerging market economies in the past.
2. **Unequal Distribution of Benefits:** The benefits of financial liberalization may not be evenly distributed, potentially leading to increased income inequality.
3. **Lack of Regulatory Capacity:** Inadequate regulatory capacity can result in insufficient oversight of financial institutions, leading to risky behavior and potential systemic risks.
4. **Capital Flight:** In some cases, financial liberalization may lead to capital flight, where investors move their funds out of the country to seek better opportunities elsewhere.

Given the potential risks, many economists and policymakers advocate for a cautious and gradual approach to financial liberalization, tailored to the specific circumstances and needs of each country. This approach allows for the development of necessary regulatory and institutional frameworks to support a more stable and sustainable financial system (Anthony et al., 2015).

2.3. Financial Deepening

Financial deepening is an improvement to financial services with a wide choice of services aimed at all people who use financial services for their daily activities. The more liquid money, the greater the opportunity for sustainable growth. In addition, financial deepening will also encourage investment and rapid economic growth (Lei et al., 2022). Thus, the creation of financial sector strategies and policies capable of increasing the M2/GDP ratio is a goal that is in line with the goals of developing countries to increase economic growth.

Financial deepening refers to the process of expanding and strengthening a country's financial system by increasing the breadth and depth of its financial markets and services. It involves increasing the availability and accessibility of financial products and services to a broader segment of the population, as well as fostering the development of a more sophisticated and

diversified financial sector. Financial deepening is considered essential for promoting economic growth, reducing poverty, and achieving overall financial stability (Kiyotaki & Moore, 2005).

According to Mohan (2008), the key elements of financial deepening include:

1. **Increased Financial Inclusion:** One of the primary objectives of financial deepening is to ensure that a larger portion of the population has access to formal financial services. This includes providing access to savings accounts, credit facilities, insurance, and other financial instruments to previously underserved or unbanked segments of the population.
2. **Expanding the Range of Financial Services:** Financial deepening involves diversifying the types of financial products and services available. This may include the introduction of innovative financial instruments, such as microfinance products, mobile banking, and peer-to-peer lending platforms, to cater to the specific needs of different groups in the economy.
3. **Development of Capital Markets:** A crucial aspect of financial deepening is the growth of capital markets, including stock markets and bond markets. These markets provide businesses with opportunities to raise capital for expansion and investments. Additionally, they offer individuals a platform to invest and participate in the ownership of companies, contributing to wealth creation and asset diversification.
4. **Enhanced Financial Intermediation:** Financial intermediaries, such as banks and other financial institutions, play a vital role in connecting savers and borrowers. A well-functioning financial system efficiently allocates savings to productive investments, spurring economic growth. Financial deepening supports the development of a robust and stable banking sector.
5. **Improved Access to Credit:** Deepening the financial system can lead to increased access to credit for individuals and businesses. This access to credit facilitates entrepreneurial activities, boosts business expansion, and stimulates economic growth.
6. **Facilitating Long-Term Investment:** By providing a wide range of investment options and channels, financial deepening encourages long-term investments. This is particularly important for financing large-scale infrastructure projects and fostering economic development.
7. **Strengthening Financial Stability:** A deep and well-regulated financial system can contribute to financial stability by reducing the risk of financial crises and facilitating efficient risk management.

Financial deepening is a complex and gradual process that requires supportive macroeconomic policies, a robust regulatory framework, and a stable and transparent financial infrastructure (Harisuddin & Hartono, 2019). It is often pursued alongside financial liberalization, but the two concepts differ. While financial liberalization focuses on reducing government intervention and regulations, financial deepening aims to expand the overall scope and inclusivity of the financial system (Apergis et al., 2007).

2.4. Rupiah exchange rate

According to the Bank Indonesia dictionary, the exchange rate is the exchange rate of one country's currency unit against another country. Meanwhile, according to Samuelson & Nordhaus

(2009) the exchange rate is the number of units of currency needed to be exchanged per unit of another currency or can also be called the price of one currency against another. Meanwhile, according to Itskhoki (2021), the exchange rate is the price at which a currency is exchanged for another currency in the exchange market. Currency fluctuations have an effect on the economy.

The Rupiah exchange rate refers to the value of Indonesia's national currency, the Indonesian Rupiah (IDR), relative to other currencies in the foreign exchange market. As a floating exchange rate system, the value of the Rupiah fluctuates based on supply and demand dynamics in the foreign exchange market, influenced by various economic and geopolitical factors (Carissa & Khoirudin, 2020).

According to Uddin et al (2013), factors influencing the Rupiah exchange rate include:

1. **Interest Rates:** Central banks, such as Bank Indonesia (BI), can adjust interest rates to control inflation and stimulate economic growth. Higher interest rates often attract foreign investors seeking higher returns, leading to increased demand for the Rupiah and potentially strengthening its exchange rate.
2. **Inflation Rate:** A higher inflation rate in Indonesia relative to other countries can erode the purchasing power of the Rupiah and lead to a depreciation of the currency. Conversely, lower inflation rates can support a stronger exchange rate.
3. **Economic Performance:** Indonesia's economic performance, including its GDP growth, trade balance, and fiscal policies, plays a significant role in determining the Rupiah's exchange rate. Strong economic growth and positive economic indicators may bolster confidence in the currency and attract foreign investment.
4. **Political Stability:** Political stability is a crucial factor for foreign investors and traders. Uncertainty or political unrest can lead to capital outflows and weaken the Rupiah.
5. **Foreign Investment Inflows and Outflows:** The inflow of foreign direct investment (FDI) and portfolio investment can influence the demand for the Rupiah. Increased foreign investment often strengthens the currency, while significant outflows can lead to depreciation.
6. **Trade Balance:** Indonesia's trade balance, which is the difference between exports and imports, can affect the demand for the Rupiah. A trade surplus can increase demand for the currency, while a trade deficit may put downward pressure on its value.
7. **External Shocks:** Events such as changes in global commodity prices, geopolitical tensions, and financial crises in other countries can impact the Rupiah exchange rate through investor sentiment and risk appetite.
8. **Central Bank Interventions:** On occasion, central banks may intervene in the foreign exchange market to stabilize their currency. Bank Indonesia might buy or sell Rupiah to influence its value and maintain stability.

It's essential to note that exchange rates are subject to fluctuations and can experience periods of volatility, especially in emerging market economies like Indonesia. As a result, individuals and businesses engaged in international trade or foreign investments may need to consider exchange rate risks in their financial planning and decision-making (Rasbin et al., 2021).

2.5. Interest Rates

The interest rate is a percentage of the capital borrowed from outside parties or the profit rate obtained by savers at the bank or the level of costs incurred by investors who invest their funds in stocks (Black, 1995). According to Arifiyani & Sukirno (2012) payment for capital borrowed from other parties is called interest. Interest expressed as a percentage of capital is called the interest rate. The interest rate has a role in determining the monetary policy taken by the central bank in order to maintain the stability of the country's economy. This is done by taking into account global conditions so that the interest rate set can encourage development through investment.

According to Homer & Sylla (1996) there are types of Interest Rates:

1. **Nominal Interest Rate:** The nominal interest rate is the stated rate of interest without adjusting for inflation. It represents the straightforward percentage charged or earned on a loan or investment.
2. **Real Interest Rate:** The real interest rate is the nominal interest rate adjusted for inflation. It indicates the actual purchasing power of the interest earned or paid, taking inflation into account.
3. **Policy Interest Rate:** Also known as the benchmark or official interest rate, this is the rate set by a country's central bank to influence economic conditions. Central banks use policy interest rates to control inflation, stimulate economic growth, or manage exchange rates.
4. **Prime Rate:** The prime rate is the interest rate that commercial banks charge their most creditworthy customers, usually large corporations or high-net-worth individuals. It serves as a benchmark for other lending rates in the economy.

Factors Influencing Interest Rates (Janda & Zetek, 2014):

1. **Monetary Policy:** Central banks, such as the Federal Reserve in the United States or the European Central Bank in Europe, use monetary policy tools to set and adjust policy interest rates. By raising or lowering these rates, central banks can influence borrowing costs, spending, and investment in the economy.
2. **Inflation Expectations:** If individuals and businesses anticipate higher future inflation, lenders may demand higher nominal interest rates to compensate for the expected loss in purchasing power.
3. **Economic Conditions:** Interest rates are affected by the state of the economy. During periods of economic growth, central banks may raise interest rates to prevent overheating and control inflation. Conversely, during economic downturns, central banks may lower interest rates to encourage borrowing and stimulate economic activity.
4. **Supply and Demand for Credit:** The availability of credit and the demand for loans also impact interest rates. When there is high demand for credit but limited supply, interest rates tend to rise, and vice versa.
5. **Central Bank Interventions:** In certain situations, central banks may directly intervene in the financial markets to influence interest rates. For instance, they may conduct open market operations by buying or selling government bonds to adjust the money supply and affect interest rates.

6. **Global Economic Conditions:** Interest rates in one country can be influenced by international factors, including global economic trends, geopolitical events, and fluctuations in currency exchange rates.

Interest rates have far-reaching implications on various sectors of the economy, including housing markets, consumer spending, business investment, and foreign exchange rates. For borrowers, lower interest rates mean cheaper borrowing costs, which can encourage spending and investment. Conversely, higher interest rates can lead to reduced borrowing and higher savings returns but may dampen consumer spending and business investment (Ferrari et al., 2018).

2.6. Previous Research

Various studies and research that have been done before, with various samples, populations and case studies have had different results. As an example in research conducted by Ruslan (2011) which explains that GDP and interest rates have a significant effect on financial deepening in the Indonesian economy. Meanwhile, according to research conducted by Panjawa (2018) shows that Indonesia's financial sector is still shallow and the relationship between financial deepening and economic growth has a one-way relationship, namely economic growth affects financial deepening. Meanwhile, Bakang's research (2015) uses liquid liability variables, credit to the private sector, commercial bank assets, and commercial bank deposits with the dependent variable being real GDP. The results show that the banking sector in Kenya has an important role in the process of economic growth in Kenya.

Quoted from Alshubiri's research (2021) which examines financial deepening of income inequality using GDP and money supply proxies. The results show that the two proxies work in parallel by strengthening the formal and informal financial sectors and show that regulatory agencies are gradually reducing high levels of inequality in OECD and Asian countries. Then for the interest rate variable it has a significant positive effect, while the rupiah exchange rate has a non-significant negative effect.

3. Research Methods

This research is a descriptive study using a quantitative approach. The data used in this research is secondary data obtained from the World Bank. The data used in this study is time series data, starting from 1995-2018 (25 years) in Indonesia, which is then analyzed using the ECM (Error Correction Model). This study focuses on explaining the relationship between financial deepening variables, the rupiah exchange rate and interest rates on economic growth in Indonesia. In this Error Correction Model, there are several tests that must be carried out, namely Stationarity Test, Cointegration Test, ECM Model, and Classic Assumption Test.

- a. **Stationarity Test.** This test is carried out using the Unit Root Test to assess whether there is stationarity in the data used, considering that the data used is time series data, of course stationarity is very important.
- b. **Cointegration Test.** In this study, a cointegration test was carried out using the Johansen Cointegration Test to determine whether there is a relationship between variables in the short and long term.

- c. Error Correction Model (ECM) test. The ECM model is a model for determining long-term and short-term equilibrium regression equations, as well as the consistency or lack of existing models in the model. Furthermore, the ECM model tries to solve data problems such as spurious and non-stationary time series data. Systematically, the basic model used in this study is as follows:

The basic Error Correction Model:

$$Y = f(\text{FD}, \text{KURS}, \text{SB}) \dots \dots \dots (1)$$

Long-Term Model Equations

$$EG_t = \beta_0 + \beta_1 \text{FD}_t + \beta_2 \text{KURS}_t + \beta_3 \text{SB}_t + \varepsilon_t \dots \dots \dots (2)$$

Short Term Model Equations

$$D(EG_t) = \beta_0 + \beta_1 D(\text{FD}_t) + \beta_2 D(\text{KURS}_t) + \beta_3 D(\text{SB}_t) + \beta_4 \text{ECT}_t + \varepsilon_t \dots (3)$$

Information:

- EG : Economic Growth
- FD : Financial Deepening
- KURS : Exchange Rate
- SB : Interest Rate
- ECT : Lag 1 period of residual value (ε_{t-1})
- ε : error term
- D : Differentiation
- t : time series

- d. Classic assumption test.

In this study, 4 classical assumption tests were carried out, namely the normality test, heteroscedasticity test, autocorrelation test, and linearity test.

1. The normality test is used to see whether the residuals are normally distributed or not.
2. The Heteroscedasticity Test used in this study is the White Test with the aim of answering the problems of variables that experience variance disorders. If the irregular variable does not have a zero mean, then it does not affect the slope, but affects the intercept.
3. The autocorrelation test used in this study uses the LM Breusch-Godfrey Serial Collection test with the aim of showing the relationship between research variables.
4. The linearity test was carried out using the Ramsey-Test to find out whether the model used is linear or not. If the probability is above 5% or 0.05, then it can be said that the model is appropriate in linear form.

4. Results

4.1. Stationarity Test

The results of the unit root test at the level, it can be seen that only one variable is stationary, namely the interest rate variable, while the other variables are not stationary at the level (Table 1). This can be seen from the probability value of each variable which is greater than 0.005 or 5% except for the interest rate variable. Because only one variable is stationary at the level, the test is continued through testing at the first difference level. At the first difference level, it can be seen that all the variables used are stationary. Here it can be seen that the probability value of each

variable is also less than 0.05 or 5%. So it can be said that in this study the data is stationary at the first difference level. Because all variables are stationary at the first difference level, the next step is to carry out a cointegration test to find out whether or not there is cointegration between variables.

Table 1. Stationarity Test Results Using the Unit Root Test

Variable	Probabilities		Conclusion
	Level	First Difference	
EG	0.0165	0.0001	Stationary
FD	0.7514	0.0134	Stationary
KURS	0.07	0.0001	Stationary
SB	0.0002	0.0000	Stationary

Source: EViews 10, edited

4.2. Cointegration Test

Based on the cointegration test results above, it shows that the t-statistic value is -4.247705 with a probability of 0.0032 which is much smaller than 0.05 or 5%, so the residual of the equation is stationary at the zero degree of integration (Table 2). So that the variables above can be said to be integrated or there is an indication of a long-term relationship. After it is said to have passed the cointegration test, to find out whether there is a long-term relationship or not, it needs to be tested using the Error Correlation Model (ECM).

Table 2. Cointegration Test Results

Category	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.2577	0.0032
Test critical values:	1% level	-3.7529
	5% level	-2.9981
	10% level	-2.6388

Source: EViews 10, edited

4.3. Error Correlation Model (ECM)

Error Correlation Model (ECM) is one of the approaches used to analyze the time series model seen from the consistency approach between the short-term relationship and the long-term relationship of the variables tested. Therefore, to see if the model used is correct or not, the error correction term coefficient must be significant.

a. Error Correlation Model in the Long Term

Table 3. Error Correlation Model (ECM) Test Results in the Long Term

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	29.2156	4.61557	6.3298	0.0000
FD	-0.4203	0.07392	-5.6854	0.0000
KURS	-0.0008	0.00017	-4.6217	0.0002
SB	0.28639	0.05346	5.35756	0.0000
R-squared	0.81709	F-statistic		29.781
Adjusted R-squared	0.78965	Prob(F-statistic)		0.0000

Source: EViews 10, edited

Based on the long-term ECM test results above, it shows that the financial deepening variable has a probability of 0.0000 or less than 0.05 so that it can be said that the financial deepening variable has a significant negative effect on economic growth variables. Then for the rupiah exchange rate variable denoted by KURS in the table it has a coefficient of 0.0002 or less than 0.05, so it can be said that the rupiah exchange rate variable has a significant negative effect on economic growth in the long term. Meanwhile, the interest rate variable denoted by SB shows a probability value of 0.000 or less than 0.05. This means that the interest rate variable has a significant positive effect on economic growth in the long run. Then to determine the effect of financial deepening variables on economic growth in the short term, it is necessary to conduct short-term trials.

b. Error Correlation Model in the Short-term

Table 4. Error Correlation Model (ECM) Test Results in the Short Term

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.33524	0.39171	0.85585	0.4033
D(FD)	-0.4052	0.18062	-2.2435	0.0377
D(KURS)	-0.0014	0.00032	-4.4734	0.0003
D(SB)	0.17704	0.04625	3.82759	0.0012
ECT (-1)	-0.7601	0.22929	-3.315	0.0039
R-squared	0.90922	F-statistic		45.0692
Adjusted R-squared	0.88904	Prob(F-statistic)		0.00000

Source: *EViews 10, edited*

Based on the results of the short-term ECM analysis, it shows that the specification model used in the study is valid, this can be seen from the ECT coefficient which has a negative value and the range of values is between 0 and -1, namely -0.760106 and the probability value is smaller than 0.05 that is 0.0039. What's more, the value of the Adjusted R-square in the ECM test results above is 0.889004. This shows that 80% of economic growth variables can be explained by variations in the independent variables, while the remaining 20% of economic growth variables are explained by variations in other variables outside the research model. Furthermore, the financial deepening variable has a coefficient of 0.0377 so that it can be interpreted that the financial deepening variable has a significant negative effect on economic growth in the short term because the coefficient is smaller than 0.05 or 5%.

Then for the rupiah exchange rate variable it has a coefficient of 0.0003 which is smaller than 0.05 or 5%, this shows that the rupiah exchange rate has a significant negative effect on economic growth in the short term. Meanwhile, the interest rate variable has a coefficient of 0.012 which is less than 0.05 or 5%, this shows that the interest rate variable has a significant positive effect on economic growth in the short term.

4.4. Classical Assumption Test

Based on the results of the normality test above using Jarque Bera it shows that the probability of Jarque Bera is 0.794479 greater than 0.05 or 5% so that it can be said that the residual data used in this study is normally distributed. Then to test heteroscedasticity is done using ARCH. The ARCH results show that the Chi-square probability of 0.9783 is greater than the 5% alpha so that it can be said that there is no heteroscedasticity (Table 5).

Table 5. Classical Assumption Test Results

Classical Assumption	Information	Conclusion
Normality	Prob. Jarque Bera $0.79 > 0.05$	Pass normality
Heteroskedasticity	Prob. Chi-square $0.9783 > 5\%$	There is no heteroscedasticity
Autocorrelation	Prob. Chi-square $0.0527 > 5\%$	There is no autocorrelation
Linearities	Nilai f-statistic $0.1074 > 5\%$	Linear

Source: *EViews 10*, edited

Based on the results of the autocorrelation test above using the Breusch-Godfrey Serial Correlation LM Test, the Prob. The chi-square of 0.0527 is greater than the 5% alpha so that it can be said that there is no autocorrelation problem in the short term model. As for the linearity test, which was carried out using the Ramsey test, it is known that the value of the f-statistic is 0.1074 which is greater than 0.05 or 5%, which means that the model used is appropriate in linear form.

5. Discussion

5.1. The Impact of Financial Deepening on Indonesia's Economic Growth in 1995-2018

Based on the results of the research above, it shows that Financial Deepening for the 1995-2018 period in the short term has a significant negative effect on economic growth with a probability value of 0.0377 which is smaller than the significance level of 0.05 or 5%. and the coefficient -0.405219. Meanwhile, in the long term financial deepening has a significant negative relationship to economic growth with a probability of 0.0000 which is smaller than 0.05 or 5% with a coefficient of -4.420268. This means that both in the long term and in the short term when there is an increase in economic growth, financial deepening shows a downward trend.

The results of this study are in line with the hypothesis and theories used. These results are also supported by research conducted by Putri and Mubin (2021) and Rachmawati et al. (2021), which state that the financial deepening ratio in Indonesia has a significant negative relationship with economic growth. The negative relationship can occur due to the shallow financial system in Indonesia, which is not fully capable of driving and stimulating the country's economic growth through financial deepening strategies. However, this is not in line with the study by Durusu-Ciftci et al. (2017), which shows a significant positive impact on economic growth.

The inability of financial deepening to enhance economic growth in Indonesia is due to the limited reach of the financial market's productivity in remote areas. This condition is referred to in a publication by the Ministry of Trade of the Republic of Indonesia (2018), stating that financial circulation (M2) in Indonesia has tended to decline until 2018. The low circulation of M2 in society leads to a continuous decrease in the prices of goods and services or deflation. Furthermore, the clear impact is the global crisis of 1998 and 2008, which caused economic shocks and created serious financial difficulties, leading to economic stagnation (Central Bureau of Statistics, 2018). In general, the economic crises of 1998 and 2008 had a negative impact on the circulation of M2 money supply in society. The high interest rates implemented to stabilize the exchange rate and control inflation resulted in reluctance among the public to borrow and a preference for holding cash. As a consequence, the circulation of M2 money supply decreased, and the economy weakened. Referring to the theory of Financial Liberalization, it states that productivity will affect the financial sector's effectiveness in driving economic growth. Thus, the

low financial productivity in Indonesia indirectly affects the low level of activity in the financial system to stimulate economic growth.

5.2. The Impact of the Rupiah Exchange Rate on Indonesia's Economic Growth in 1995-2018

Based on the results of the research above, it shows that the rupiah exchange rate for the 1995-2018 period in the long term has a significant negative relationship to economic growth with a probability of 0.0000 which is smaller than 0.05 or 5% with a coefficient value of -0.000789. Whereas in the short term the rupiah exchange rate has a significant negative relationship to economic growth with a probability of 0.0003 which is smaller than 0.05 or 5% with a coefficient value of -0.001444. This means that if there is an appreciation in the value of the rupiah then economic growth will decrease, conversely if there is a depreciation in the value of the rupiah it will encourage economic growth.

The results of this study are in line with the hypothesis and theories used. These results are also supported by studies conducted by Suselo et al. (2008), Ahmad et al. (2013), and Putri and Mubin (2021), which stated that exchange rate depreciation has a negative impact on economic growth. The negative impact of the exchange rate variable on economic growth is due to the fact that domestic depreciation of the exchange rate affects the prices of goods, which subsequently suppresses economic growth and reduces export capacity. During the research period, there were financial crises in 1998 and 2008, which significantly affected the depreciation of the Indonesian rupiah exchange rate.

World financial crises have an impact on the domestic economy, including the economy and the depreciation of the rupiah exchange rate against the US dollar. As quoted from Pransuamitra (2022), in 1998, the rupiah exchange rate plummeted to a record low of Rp 5,400/US\$ to Rp 16,800/US\$. Besides 1998, exchange rate fluctuations also occurred during the 2008 financial crisis. The 2008-2009 financial crisis was triggered by subprime mortgage defaults in the US property sector, which caused the rupiah exchange rate to decline from around Rp 9,000/US\$ to Rp 12,000/US\$. However, unlike in 1998, Indonesia's economy remained relatively strong due to improved economic structures. This is consistent with the movement of the Rupiah exchange rate against the US Dollar from 1995 to 2018, which tended to experience depreciation. The depreciation of the exchange rate subsequently directly impacts exports and imports. Depreciation of the exchange rate reduces the value of imports as a result of reduced import demand due to the increased prices of imported goods caused by the depreciation of the rupiah against foreign currencies (US Dollar).

5.3. The Impact of Interest Rates on Indonesia's Economic Growth in 1995-2018

Based on the results of the research above, it shows that interest rates for the 1995-2018 period in the long term have a significant positive relationship to economic growth with a probability of 0.0000 which is smaller than 0.05 or 5% with a coefficient value of 0.286393. Meanwhile, in the short term, interest rates have a positive and significant relationship to economic growth with a probability of 0.0012, which is less than 0.05 or 5% with a coefficient of 0.177043. This means that if there is an increase in interest rates it will significantly encourage economic growth.

The results of this study are consistent with the hypothesis and theories used. These results are also supported by a study conducted by Ruslan (2011), which stated that the interest rate has

a significant influence on economic growth. However, this study is not in line with the research by Putri & Mubin (2021), which stated that the interest rate does not have an impact on economic growth. The significant positive influence of the interest rate on economic growth in Indonesia from 1995 to 2018 is due to the increase in interest rates, which will suppress consumption and increase investment desires.

The interest rate can affect the balance between public savings and investment in the real sector, which in turn affects employment and unemployment rates. Furthermore, its implications can affect people's income and contribute to economic development. This is consistent with the condition in Indonesia, which has seen a tendency of increasing investments every year. Even in a publication by the Coordinating Ministry for Economic Affairs of the Republic of Indonesia (2019), it is explained that the Investment Coordinating Board released data on Domestic Direct Investment (DDI) and Foreign Direct Investment (FDI) for the year 2018, reaching IDR 721.3 trillion, an increase of 4.1% compared to 2017. This increase in investment, as a result of the interest rate stimulus, is believed to contribute to the economic development of Indonesia. Moreover, despite the crises in 1998 and 2008, Indonesia's current economic fundamentals are relatively solid and better compared to other developing countries currently facing crises. This is evidenced by the stability of Indonesia's interest rate in 2008 compared to previous years, which stood at 9.25 percent. Since 2008, Indonesia's interest rate has consistently remained below 10 percent, ranging from 4 to 7 percent (Bank Indonesia, 2018).

6. Conclusion

Based on the discussion and interpretation of the analysis above, several conclusions can be drawn. First, the financial sector in Indonesia for the 1995-2018 period was still shallow, this was reflected in the ratio of the money supply to gross domestic product. Second, in the long run the financial deepening variable and the rupiah exchange rate variable have a significant negative relationship to economic growth. Meanwhile, the interest rate variable has a significant positive relationship to economic growth. Third, in the short term, financial deepening and the rupiah exchange rate have a significant negative relationship to economic growth. Meanwhile, the interest rate variable has a significant positive effect on economic growth both in the long term and in the short term.

Based on the research results, the advice that can be given by researchers is the need to increase financial literacy to the public because literacy can increase knowledge, understanding and trust in the banking system. Therefore, the active role of the government and related institutions is needed to disseminate financial literacy to the public. In addition, policy synchronization between financial institutions is needed to boost productivity in financial markets and liquidity so that state revenues are positively stimulated.

The limitation in this study is the lack of previous research regarding the effect of financial deepening on economic growth in Indonesia. Furthermore, the period used in this study is also not long because to see financial deepening also requires a long discussion and a longer period. Then for the shortcomings in this study is the limited data obtained.

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