

FINANCIAL DEEPENING ANALYSIS ON ECONOMIC GROWTH IN INDONESIA

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Abstract : Financial deepening is an effort to increase the financial sector to reduce dependence on foreign savings. Efforts are made by increasing the volume of financial institutions and the number of instruments available in the market and increasing the number of services. The purpose of this study was to determine the effect of the ratio of the money supply, the ratio of bank credit, and the ratio of domestic savings to economic growth in both the short and long term. Empirically this study uses secondary data in the form of quarterly annual data during 2008Q1-2018Q4. This study uses the Error Correction Model (ECM) method. Based on the research results, the money supply ratio variable in the short and long term has a positive and significant effect. The bank credit ratio variable in the short term has a positive and significant effect. In contrast, it has a negative and insignificant effect; the domestic savings ratio variable in the short and long term. Long has a positive and significant effect on economic growth in Indonesia.

Keywords: Economic Growth, Ratio Money Supply, Ratio Credit Bank, Ratio Domestic Saving, ECM

JEL Classification : C0, C33,G21, G11

1 INTRODUCTION

Economic growth in a country can be seen from the progress and stability of the economy. An economy can be stable when there is no continuous decline or increase (ideal conditions), and economic variables fluctuate, especially in commodity prices and moving income in reasonable conditions (United Nations,2020). To advance and stabilize the country's economy, the financial sector is needed as an intermediary function. The financial sector's development is expected to reduce macroeconomic volatility, reduce poverty, and promote economic growth (Bhattacharyya,2019).

Keynes explained that economic growth is influenced by aggregate demand, one of which is influenced by

investment spending (O'Connor,2014). In line with Keynes, Harrod-Domar explained that economic growth could be steady; it requires income to grow steadily, accompanied by smooth investment. Harrod-Domar explained that the capital stock owned by the community increases output. The output realized is not the same as the potential output because it is influenced by the amount of aggregate demand (Kurihara, 2014).

Solow understood differently from Keynes and Harrod-Domar. Solow said that economic growth is influenced by technology. According to Solow, economic growth is influenced by exogenous factors, namely technology (Ashford & Hall,2018). Technological advances in this modern era are increasingly empowering the people's economy from developing the digital economy. With the digital economy's presence, many trading businesses based on applications (e-commerce) and electronics have sprung up due to fintech services so that people feel easy access to invest.

Financial deepening is needed in the financial sector to achieve high economic growth (Zhu,2012). The impetus for the financial sector has a positive impact on the economy, and conversely, the weakening of the financial sector will hamper the economy. It is hoped that financial deepening in the banking sector will contribute well in raising funds. With the expansion of financial institutions and the money market to distribute productive and investment credit in large numbers, the financial sector is getting better at mobilizing funds to increase economic growth.

The financial sector needs banking as a system for channeling funds and for more productive reinvestment. Financial intermediaries are a function of increasing the financial sector over a certain period of time to show financial deepening. Financial deepening is an increasing process in the financial sector, which is marked by an increase in the volume of financial institutions and the number of instruments available on the financial market coupled with an increase in the number of services (Wright & Zeiler,2014).

Financial deepening can be measured using monetary aggregate indicators, the money supply, and the ratio of total credit to GDP as a representation to measure the rate of monetization and intermediation in the economy to increase real interest rates. The presence of financial deepening in the financial sector has a positive impact on the economy. Financial intermediaries in the financial sector can improve the function and effectiveness of the financial sector (Maier & Pischke,2013).

Deepening in the financial sector can reduce dependence on foreign savings because the financial sector can mobilize people's savings to be an alternative source of funding during a crisis. So the existence of productive

activities in the financial sector implies that the ratio of financial deepening in a country has increased.

The main objective of financial deepening is to increase income by increasing the national saving ratio. Financial deepening in the financial sector can improve the monetary system's size with the hope of providing a favorable climate for investors so that savings allocation and mobilization can expand (Kohsaka,2015).

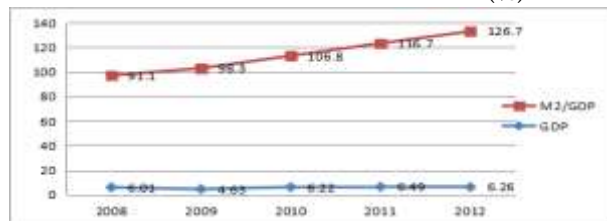
The low financial depth in the financial sector is partly due to high temperatures. The financial sector's lack of financial deepening is due to limited costs and alternatives on the investment side, insurance protection facilities (risk), and value protection facilities for bedding.

Financial deepening and economic growth are directly proportional to being able to utilize resources effectively and efficiently to reduce dependence on foreign capital and be able to survive from exposure to global issues. However, Financial deepening and economic growth have no reciprocal relationship, namely the money ratio, which has a negative and insignificant effect on GDP.

Financial deepening in the financial sector is one of the important factors in economic growth (Baland,et al.,2020). Financial deepening can be measured by bank credit, savings, and domestic savings to achieve economic growth. The relationship between bank credit and economic growth is mutually stimulating.

Banking credit increases business and investment enthusiasm (Chang,et al.,2019). Where investment can directly stimulate demand for new credit and ultimately provide a multiplier effect. In line with bank credit, the amount of money has a positive impact on economic growth—the more people who transact indirectly, the greater amount of money, the more rapid the economic movement. And domestic saving has a causal relationship with economic growth. Keynes explained that the interest rate's effect is very complex on domestic saving. The higher the domestic saving, the greater the government's source of funds to support the economy. So it can be said that the bank credit ratio, the amount of money ratio, and the domestic saving ratio have a causal relationship with economic growth.

Figure 1. Economic Growth and Financial Deepening Movements in Indonesia 2008-2012 (%)



Source : Bank Indonesia, 2020

Figure 1 above illustrates that Indonesia's financial deepening movement for 2008-2012 has a positive trend.

Even though financial deepening continues to increase, it is not the opposite with economic growth. In the 2008-2012 period, economic growth fluctuated. Because at the end of 2008, it was due to economic turmoil, namely subprime mortality that occurred in 2008, which changed the world economic order. This crisis was caused by the desire of the "Lehman Brother" banking industry to get high profits by providing housing loans to people with low or non-permanent income, which could be called subprime mortgages, with the hope of increasing income by channeling housing loans (KPR) by estimating the benefits obtained from an investment. In the real estate market. However, it did not go smoothly, and The Fed raised interest rates to control the inflation rate, so it impacted interest rates and mortgage installments. As a result, the subprime mortgage community stated that they were unable to pay. This condition made "Lehman Brothers" bankrupt because mortgage installments bound the community that was more than the house's value so that people were unable to pay; in the end, it impacted the US economy (Ball,2018).

Indonesia has also felt the impact of the global financial crisis, especially in institutional institutions that invest in America's financial sector, which indirectly reduces liquidity and increases interest rates. Causing commodity prices to fall and weak resource growth, and ultimately, the level of consumer and investor confidence. After the 2008 financial crisis or the subprime mortgage crisis, several countries attempted to restore economic conditions by aggressively easing monetary (Posen & Changyong,2013).

Based on the explanation above, explicitly, the purpose of this study is to determine the effect of financial deepening as measured by the ratio of the money supply, the ratio of bank credit, and the ratio of domestic savings to economic growth short and long term.

2 LITERATURE REVIEW

Economic growth is an increase in production capacity, which is reflected in the increase in national income due to goods and service production activities, resulting in the same amount of output (goods and services). Economic progress indicates society's welfare, as seen from the growth of economic growth on the output side. Kuznets explained that economic growth is an increase in the capacity to provide goods for the population. Advances in technology, institutions, and ideology are increasing in goods' capacity (Oryani,et al.,2020) . Schumpeter explained that the main factor affecting economic growth is the emergence of innovation (Bazhal,2017). The more innovations that are created, the greater the output produced. Because more and more innovations will be accompanied by technological developments.

According to Neo-Classics, economic growth is based on the increase in the supply of production factors (capital accumulation, population, and labor) and the level of technological advancement (Chisholm,2015). This theory has developed since the 1950s; neo-classical views the economy based on its analysis assumptions. That the economy will experience (full employment) or use of the full level of labor and use of capital in the form of equipment capacity to be used throughout the period.

Keynes explained that economic growth is influenced by aggregate demand (Foxon,2017). Where the aggregate demand includes: consumption expenditure, investment expenditure, and expenditure for the government.

In John Maynard Keynes's theory, the amount of current consumption expenditure (current consumption) in the household sector is influenced by current disposable income (current disposable income). Where is disposable income, namely the amount of boiling income that is ready to be consumed after deducting tax costs and transfer fees.

Keynes, explaining the amount of one's consumption, is absolutely influenced by income level or known as the absolute income hypothesis. The greater the income received, the greater the consumption. Keynes considered the magnitude of economic fluctuation in a country based on consumption and expenditure income in the household sector. Expenditures for consumption in the household sector continue even though they do not have income; it can be called autonomous consumption expenditure or autonomous consumption.

According to Keynes, aggregate spending always changes from one period to another. This change is due to an acceleration in consumption, namely the change level due to investment changes. The higher the acceleration of consumption, the faster the economy runs; this is due to the big changes in new production capacity.

Keynes explained that fiscal policy expands through aggregate demand, which is influenced by the interest rate, which can push the level of investment or be called the Keynes effect, namely the investment multiplier rate. Investment occurs due to the use of money to increase production capacity, hoping to increase the level of national income. The size of the investment that comes out does not provide additional value to national income.

The amount of money demanded by the average price level in the economy and the great public demand for transaction purposes, then by the price of goods and services. The higher the price level, the more money it takes care of.

The high selling price of the demand for money, when the demand for large money equals the quantity of

money coming in, is equilibrium. This explanation is in line with the theory of the quantity of money (the quantity theory of money), which explains that the price level changes with changes in the quantity of money coming in. In general terms, the theory of the quantity of money explains the effect of the amount of money in circulation to determine the value of money in the economy.

Financial deepening or financial deepening is the accumulation of financial assets, the more liquid the accumulation of wealth. Financial deepening is a strategy to increase the rate of economic growth by deepening the financial sector (Ho,et al.,2018).

Economic growth in a country describes economic growth in the growth of goods and services in a region in a certain period (Reyes & Sawyer,2015). With the high growth of economic growth in the region, the resulting output growth is getting higher. There are four theories of economic growth. According to Keynes, the first is the theory of growth, the second according to Neo-classical, the third according to Harrod-Domar, and the fourth to economic growth according to Solow.

The Neo-classical theory explains that the economic growth of the stock of production factors (population, labor, and capital accumulation) and the rate of technological progress. Keynes explained that, according to him, economic growth is based on demand by aggregate demand. The aggregate demand from the expenditure is consumption, investment spending, and government spending. The money demand-side built these three instruments.

Keynes Liquidity Preference theory divides into three motives: the money motive for transactions, the precautionary money motive, and the money speculation motive. Also, the money demand theory states by Irving-Fisher pursuing his theory. Quantity of Money explains what affects the demand for money, namely price changes.

The higher the price, the demand for money will increase—the amount of money is directly proportional to price changes (Bawono & Prestianawati, 2019). Economic growth can also affect the amount of bank credit, where Solow explained that to achieve output required technological progress, labor, and additional capital, where someone needs capital. One of the steps taken is borrowing funds or bank credit. There are three types of bank credit, namely consumption, investment, and working capital purposes. Furthermore, Harrod-Domar explained to achieve steady growth is kept. Of these 3 variables, the amount of money taken, bank credit, and savings are derived from each theory to influence the Indonesian economy's growth.

3 RESEARCH OBJECTIVE AND METHODOLOGY

This type of research is quantitative research. Quantitative research is a type of research that focuses more on numerical data (Baldwin,2018), which are then reprocessed using statistical methods. This quantitative research is widely used because of the desire to know about the facts of a concept or theory that describes the relationship between the dependent variable and the independent variable in statistical form.

This study uses secondary data, namely time series data with variables using the 2008Q1 - 2018QIV time frame, and the research object used is Indonesia's state. The use of data with a time span is based on several reasons above, for economic reasons and the methodological reasons used. First, for economic reasons, at the beginning of 2008, a subprime mortgage crisis originating in the United States caused a global financial crisis that affected the Indonesian economy, especially in the weakening economic growth. Second, it is intended for the reported error data with the selected time frame and can meet the VBLUE (Best Linear Un bias Estimator) assessment criteria. The data sources used are from the official websites of FRED, OJK, BPS. The research variables used are economic growth, bank credit ratio, money entry ratio (Total Money Supply), and domestic tube ratio.

The research model specification is aimed at solving problems in research. Where this research aims to determine the effect of the money supply ratio (M), domestic savings ratio, and banking credit ratio in the short and long term on economic growth in Indonesia. This study, adopting a model from the research of Ningrum (2015) and Ramadhani (2017) so; it can be written as follows:

$$Y = f(M2/GDP,BC/GDP,DS/GDP)$$

Then the model is transformed into an econometric model, namely

$$GDP_t = \alpha_0 + \alpha_1 M2_t + \alpha_2 BC_t + \alpha_3 DS_t$$

information :

GDP = determinant economic growth in period t

M2t = the ratio of the Money Supply in period t

BCT = ratio of total bank credit in period t

DST = the ratio of total domestic savings in period t

$\alpha_0, \alpha_1, \alpha_2, \alpha_3$ = short term coefficient

This study uses descriptive and quantitative analysis methods that aim to support the analysis results and answer empirical questions in the study. Quantitative research is the result of data processing collected and then analyzed to produce new facts and produce actual information.

Quantitative analysis in this study is used to analyze the effect of the dependent variable on economic growth in Indonesia in the short and long term, using the Error Correction Model (ECM) analysis. This method will estimate the parameters of economic growth and determine the dynamic relationship between economic growth and the dependent variable used to influence it.

The specification of the model used in the VINIV research is the error correction model or ECM (Error Correction Model). Where is the short-run coefficient, is the equilibrium correction coefficient, and is the long-run coefficient.

The advantages highlighted by the ECM method have advantages in analyzing phenomena, both in the short and long term, compared to other dynamic methods. This ECM model is an empirical model consistent in testing economic theory and can deal with non-stationary data, irregular regression, or sharp correlation in econometric analysis. However, the ECM method also has drawbacks; namely, there is a bias in the first step and will be re-tested at the second step. Furthermore, it will be reformulated in the ECM both in the short and long term. Then the ECT calculation can be done with the following equation:

$$ECT = \beta_0 + \beta_1 DM_{t-1} + \beta_2 DBC_{t-1} + \beta_3 DDS_{t-1}$$

Information:

ECT = Error Correction Term

DM2 = Difference in the Money Supply period t-1

DBC = Bank Credit Differentiation t-1 period

DDS = Domestic Savings Differentiation for period t

In the ECM model, the ECT equation is needed to be used as a basis for long-term measurements. Because ECT is used to see the value and significance of the ECM model.

4 RESULTS AND DISCUSSION

To find out the estimation model results, the Error Correction Model (ECM) can be known by comparing the t-statistic value with the t-table. It is connected with the magnitude of each independent variable with the dependent variable in the research model. Also, there are other ways to determine the estimation results, namely looking at the VR-square adjustment, the probability of the F-statistic, and its ECT (Error Correction Model) value. Furthermore, it can be seen the value of the estimation results from the variable coefficient value that partially describes the dependent variable and the independent variable. The following short-term ECM test results can be seen in the table below as follows:

Table 1 Short-Term ECM Estimation Results

Variable	coefficient	t-statistics	probability
C	0.003015	0.111672	0.9117
D(M)	-0.782150	-9.108111	0.0000
D(BC)	0.094254	2.320644	0.0258
D(DS)	0.068408	7.761726	0.0000
U(-1)	-0.712055	-4.531226	0.0001
Adjusted R-squared		0.925862	
Prob.F-statistics		0.000000	

The short-term Error Correction Model (ECM) test results show that the money supply ratio (M) variable affects economic growth. This is reflected in the probability value <5%, which is 0.0000. The independent variable of

the money supply ratio (M) affects Y (GDP), reflected in the significant p-value at the level of $\alpha = 5\%$ with a coefficient value of -0.782150. These results indicate that the money supply ratio (M) hurts economic growth (GDP) in the long run. Meanwhile, the bank credit ratio and domestic savings ratio positively and significantly affect economic growth. Evidenced by the probability value $< \alpha = 5\%$, the bank credit ratio with a probability value of 0.0258, and the domestic savings ratio with a probability value of 0.0000. And it can be seen by comparing the t-statistic value with the t-table.

This shows that partially the independent variable, namely the money supply ratio (M), the ratio of bank credit, and the ratio of domestic savings, have a short-term effect on economic growth.

When the independent variable and the dependent variable are not in the same direction, partially the independent variable, namely the ratio of the amount of money based on, the banking credit ratio and the domestic saving ratio have a proportion to explain the dependent variable. The independent variable's abilities that the dependent variable is supported by a probability value of F-statistic of 0.000000, reflecting the independent variable, can explain the dependent variable. With an adjusted R-square value of 0.925862, the independent variable explains the dependent variable by 92%. The rest is influenced by other factors outside the research model, which is reflected in calculating the degree of freedom.

Table 2 Long-term ECM Estimation Results

Variable	coefficient	t-statistics	probability
C	7.263661	223.7143	0.0000
M	-0.659067	-5.646251	0.0000
BC	0.109789	1.934084	0.0602
DS	0.054446	4.662681	0.0000
Adjusted R-squared		0.817514	
Prob.F-statistics		0.000000	

The money supply ratio (M) variable affects economic growth. This is reflected in the probability value $< 5\%$, which is 0.0000. The independent variable of the money supply ratio (M) affects Y (GDP) as reflected in the significant p-value at the level of $\alpha = 5\%$ with a coefficient value of -0.659067. These results indicate that, in the long run, the money supply ratio (M) hurts economic growth (GDP). It is also assumed that every 5% change in the money supply ratio will reduce economic growth (GDP) by 0.6%.

Another independent variable is the ratio of significant domestic savings to GDP. The probability value proves this $< 5\%$, namely 0.0000. The domestic saving ratio's independent variable has a positive effect on Y or economic growth (GDP) with a significant p-value at the level of $\alpha = 5\%$. These results indicate that partially the

domestic saving ratio variable affects long-term economic growth (GDP). It is also estimated that every 5% change in the domestic saving ratio will increase economic growth (GDP) by 0.05%.

Based on the estimation results, the bank credit ratio variable shows no effect on GDP. The probability value evidence this $> 5\%$, namely the bank credit ratio variable of 0.0602. Then the independent variable bank credit ratio does not affect variable Y or economic growth (GDP) in the long run. The result is that the p-value is not significant at the 5% level. It can be concluded that partially the bank credit ratio does not affect economic growth in the long term.

The F-statistic probability value's power reflects the strength of the independent variable in influencing the dependent variable simultaneously. And the adjusted R-square value is 0.817514, reflecting calculating the degree of freedom, where all independent variables can explain in detail the dependent variable by 81%, and other factors explain the remaining 19% in the research model.

The existence of a reciprocal relationship between financial deepening and economic growth in Indonesia is known by using the Error Correction Model (ECM) method approach, which shows that 3 variables become indicators in financial deepening, namely the ratio of the money supply, the banking credit ratio and the domestic savings ratio. In research, it certainly has good short-term and long-term effects, the results of which create a positive or negative response from each of the variables used in the study. This response can be seen from the short-term estimation results and the long-term estimation results in the Error Correction Model (ECM). By looking at the estimation results, one can read the effect and the deepening response in the financial sector to economic growth as well as empirical conditions in Indonesia can be used as a consideration in making government policies related to financial deepening to become one of the sectors that contribute to the establishment of the Indonesian economy.

Based on the test results using the Error Correction Model (ECM) in the short term, both in the long term, the domestic savings ratio variable has a positive and significant impact on the domestic saving variable on economic growth in Indonesia. In the domestic economy, saving has a positive and significant relationship in the economy. This study's results are by the Harrod-Domar theory, which states that to achieve steady economic growth requires saving and national savings in the amount of total investment. Harrod-Domar explained that investment would increase the stock of capital in the long run, which means that society's productivity affects the increase in aggregate supply. The higher the saving rate, the higher the output growth because saving is positively correlated with output growth.

In 2008, in line with the global financial crisis, domestic

savings and deposits declined in line with weakening economic growth. It is undeniable that the financial crisis impacts the level of the domestic saving ratio, due to lower levels of exports and commodity prices, as a result of the continuing global financial crisis. However, in 2009 the ratio of domestic savings showed a stable development; however, in 2012-2014, the ratio of domestic savings fluctuated. In the form of spending, energy subsidies, and external liabilities. Country. On the public side, due to the depreciation of the rupiah exchange rate, reduced income, the difference is for savings due to the weakening of the rupiah, then used for consumption purposes.

Judging from the last 3 years, 2016-2018, the domestic saving ratio shows a positive trend. In 2016, a stable level of economic growth was supported by fiscal stimuli and the positive impact of easing monetary and macroprudential policies so that consumer confidence could maintain household consumption levels. This condition has a positive impact on the domestic saving ratio. The condition of the deposit ratio reflects the conditions of economic stability. Although global uncertainty has increased, giving rise to the US dollar, stronger trade tensions, and crises in several developing countries, domestic economic growth and the domestic saving ratio have strengthened domestic economic growth.

This applies to an appreciated exchange rate and a low rate of inflation. The results of production activities carried out by the community produce a high output; the higher the community's production activities and activities, the resulting output increases, and the income received increases.

The amount of income is directly proportional to public consumption because the greater the income received, the greater the money spent on consumption. And saving by increasing income is by Keynes's theory, namely the Absolute Income Hypothesis theory, which explains that the size of average consumption or APC will decrease when income increases. The high domestic saving ratio encourages the level of intermediation in the financial sector. The positive impact of the domestic saving ratio has been responded well to financial deepening. This is because this domestic ratio will be used as an alternative resource in the economy. Therefore, the higher the domestic saving ratio, the deeper the financial sector will be and reflect the domestic economy's stability because one of these economic growths is supported by financial sector stability.

Based on the results of the empirical estimate of the Error Correction Model (ECM). This shows that in the short term, the ratio of the amount of money has a positive response while stating that the ratio of the amount of money in (Total Money Supply) has a positive and

significant effect, the results of the study with ECM are brief. The term is following the hypothesis. And in the long term, the variable ratio of the sum insured (Total Money Supply) gets a positive response so that the long-term ECM research results follow the hypothesis.

According to the Error Correction Model (ECM) estimation results, the bank credit ratio variable empirically shows that the credit ratio charged in the short term has a positive and significant response so that it is following the hypothesis. Whereas in the long term, the bank credit ratio has a negative and insignificant response; it does not follow the hypothesis in the long term. Furthermore, the domestic saving ratio variable, both short and long term has a positive response; the study results follow the hypothesis.

5 CONCLUSION

The discussion results have been described in the form of test estimates using the Error Correction Model (ECM) regarding the effect of financial deepening on economic growth in Indonesia. In this study, Financial Deepening is in the financial sector, which is proxied by the ratio of the money supply, bank credit ratio, and the ratio of domestic savings. The money supply ratio (M2) variable is the variable used as a proxy for financial deepening. In short and long-term testing, the money supply ratio (M2) has a negative and insignificant effect. Positive, which means that an increase in the ratio of the amount of money in circulation in the community can reduce economic growth. The bank credit ratio variable, in the short term ECM test, bank credit has a positive and significant effect. In contrast, in the long term, the bank credit ratio has a negative and insignificant effect on economic growth in Indonesia. The domestic saving ratio variable, using ECM both in the short and long term, has a positive and significant effect on economic growth in Indonesia.

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