The Effect Of The Banking Activity Of The Economic Growth : Case In Indonesia

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Abstract: The objective of this study is to examine the impact of banking activities on Indonesia's economic growth (Gt) in both the short and long term. Banking activity variables are related to bank (CR) and savings (S) domestic credit to the private sector, while other independent variables that can influence economic growth are capital (CAP) and labor force (L). This study uses data from time series for the period 1993-19. The first step is to test the stationarity of the data with the root test unit and the results are only stationary data with the first difference. In addition, the co-integration test between the variables and the results shows a co-integration relationship between the variables so that the model can be analyzed using the Error Correction Model (ECM) to see the short-term balance. The results of the ECM model analysis show that lending banking does not have an impact on economic growth in the short term, but on economic growth in the long term, while saving affects both short-term and long-term economic growth. Other variables indicate that the capital variable has no effect on economic growth in the short and long term, while the labor variable affects economic growth only in the long term, While the labor variable affects economic growth only in the longer term, it has no effect in the short term.

Keywords: economic growth, banking activity, Error Correction Model

1. Introduction

Economic growth is a prerequisite for developing potential products that reflect output growth, so that one can see whether the economic conditions of a country are improving, in other words, economic growth shows that a country has experienced economic development and achieved a higher level of prosperity than before. Economic growth may also aim to describe the long-term economic challenges facing it.

Indonesia's economic growth followed a downward trend between 2010 and 2019, while Indonesia's economic growth in 2010 was 6.224 per cent, steadily falling to 6.17 per cent in 2011, then to 6.03 per cent in 2012, to 5.55 per cent in 2013, 5 per cent in 2014, again to 4.87 per cent in 2015, but remained stable and rose to 5.17 per cent in 2018, but fell again to 5 per cent in 2014. So, if you look at the trend for that period, the value of Indonesia's economic growth has declined.

Based on economic growth theories, there are several factors that may have an impact on economic growth, including:

First, Savings: according to Harrod-Domar, economic growth occurs if savings can be increased-investment in such a way that the capacity of capital goods in the economy increases and all available capital goods are fully utilized, then aggregate demand (aggregate expenditure) must increase as well as increase the capacity of capital goods. Harrod-Domar also argued that steady growth in the long term requires increased investment by increasing savings. Rostow's theory also states that economic growth is a process of change due, inter alia, to changes in the way of saving or investing from unproductive to more productive. Martin-Feldstein has developed a new concept called Supply-Side economic growth, which means that economic growth must begin from the supply side, that potential output is highly dependent on investment developments, and that investment depends on savings. The results of Edwar Denison's research have been noted; steps that accelerate economic growth in the United States are increasing the national net investment and saving rate.

Second, population or labor development: this is expressed in Adam Smith's traditional theory that output will expand in line with population development; the quantity of product depends only on the quantity of labor. The optimal population theory shows that population growth will increase economic growth so that per capita incomes will be even higher.

Third, capital stock: according to Robert Rostow, economic growth is highly dependent on the available capital stock and the number of employees. It is also stated in the Roy F. Harrod model that it focuses on long-term output growth, where all available capital goods are fully utilized, the aggregate demand will increase as much as the

capacity of capital goods increases. Neo Classical Theory also points out that the growth of national output is determined by the growth of two inputs, namely capital and labor. These two inputs are needed in order to: develop capital intensification, i.e. a process in which the amount of capital per labor increases each time, capital intensification must be followed by an increase in wage levels so that people have high purchasing power, increased consumption, and this will encourage product growth.

The development of capital formation or investment is one of the sources of economic growth aimed at raising living standards for the coming year. Investment activities will continue to increase equity. In addition, an increase in capital stock will increase productivity as well as quality and production capacity, which will in turn stimulate economic growth.

Fourthly, the role of entrepreneurs: as Schumpeter points out, the activities of entrepreneurs to innovate or renew in the production of goods and services will increase investment, which in turn affects output.

The development of national products (in terms of the real sector) that will determine economic growth is inseparable from the existence of the monetary sector, in this case the financial sector, which includes the banking sector, the banking sector is an institution that functions to collect funds from the public in the form of public savings (savings) and to distribute the return to society. It can be said that the largest banking activity is community savings and community loans.

The amount of loans distributed to the public by the banking sector, in particular loans of a productive nature, will affect the amount of investment made by business people in the production of goods and services, will affect the level of output in society and will ultimately increase the country's economic growth. Meanwhile, the amount of credit extended to the public by the banking sector will depend on the amount of savings made by the public to the banking sector and, as a result, public savings will also have a role to play in increasing the resulting output, which in turn affects the country's economic growth.

Credit and savings data, which can be aggregated for Indonesia, are shown to increase the value of savings resulting from gross savings (percent of GDP) from 30.669 per cent in 2014 to 2019 for the period 2014, rising steadily to 31.798 per cent in 2018 and to 31.012 per cent in 2019. Similarly, private sector loans (percent of GDP) increased by 32 per cent in 2014, then increased again to 32.4 per cent in 2017 and 32.7 per cent in 2018 and 32.4 per cent in 2019. This condition suggests that banking activity, based on the percentage of savings and loans, has increased GDP, but not followed by an increase in economic growth, but has decreased the value of economic growth.

Based on the explanation given above, the objective of this study is to determine whether banking activities such as savings and loans have an impact on economic growth in both the long and the short term.

2. Literature Review

Previous studies have shown that banking factors, i.e. savings and loans, have a short-term or long-term relationship to economic growth:

- Hshin-Yu Liang, Alan Reichert (2006), conducted research with the aim of knowing the relationship between economic growth and banking sector development using a granger causality test model and the results stated that there was a relationship between financial sector development and economic growth.
- Hafas Furqani and Ratna Mulany (2009), whose research aims to determine the dynamic interaction between Islamic banks proxied by total Islamic bank financing and economic growth proxied by GDP, as well as other variables, namely fixed investment and trade activities, a case study in Malaysia. by using the Vector Error Correction Model both in the long and short term using times series data and the results show that in the long run there is a two-way relationship between Islamic banks and fixed investment, other results show that Islamic banks affect GDP
- Serhan Ciftcioglu Nermin Begovic (2010), analyzed the relationship between savings and economic growth in Central and Eastern European countries using panel data and the Classical Pooled Regression model, the results show that the domestic saving rate has a statistically significant effect on the GDP growth rate. during the sample period.
- Fabya (2011) analyzes the effect of financial sector development on economic growth, and the results of his research show that private credit does not have a significant relationship with economic growth.
- Piotr Misztall (2011), the aim of his research is to analyze the causes and effects of the relationship between economic growth and saving in developed economies and developing economies, this study uses a cointegration model and a granger causality test, the results show a one-way casual relationship between gross domestic saving and product gross domesticity in the case of developed countries as well as in developing and

transition countries. At the same time, it is revealed that there is no causal relationship between gross domestic product and gross domestic savings in both developed and developing and transition countries.

- Ali Awdeh (2012), examines the causal relationship between banking sector development which is proxied by deposits growth and credit to the local private sector with economic growth in Lebanon from 1992 to 2011, using the Granger Causality test and OLS, the results of the study found that that there is only a one-way relationship between banking sector development and economic growth.
- Muhamad Abduh, Mohd Azmi Omar (2012) whose research aims to examine the short and long term relationship between the development of Islamic banking and economic growth in Indonesia, using quarterly data (2003: 1-2010: with the autoregressive Distributed Lag (ARDL) framework technique. The results show that there is a significant relationship between banking developments and economic growth in the short and long term
- Syahfitri (2013) in his research "Analysis of Banking Credit and Economic Growth in Indonesia" analyzes the relationship between bank credit and economic growth. This study uses the VAR-VECM method. The results of this study indicate a relationship between bank credit and economic growth. The VECM estimation results show that economic growth has a negative effect on bank credit.
- Grietjie Verhoef, Lorraine Greyling and John Mwamba (2014; Bello Steyn, 2019), examined the relationship between saving and economic growth in the Cape Colony Economy, and the results showed that saving had no relationship to economic growth.
- Rafsanjani and Sukmana (2014) analyze the effect of banking and economic growth, this study uses the cointegration method and the Granger causality test. The results show that Islamic and conventional banking have an effect on the economy in Indonesia
- Reza Najarzadeh, Michael Reed & Mona Tasan (2014), examined the effect of saving on economic growth in the case of Iran, also analyzed the causality relationship using the Autoregressive Distributed Lag method, the results showed that saving had a positive effect on growth and had a causal relationship between saving with economic growth.
- Dhanya Jagadeesh (2015) examines the role of savings in economic growth in Botswana. used the Auto Regressive Distributed Lagged (ARDL) model to examine the existence of a long-term relationship between Gross Domestic Product and Gross Domestic Savings in Botswana. The results found that there is a significant relationship between saving and economic growth and the study supports the Harrod Domar Growth Model. Policies are suggested to accelerate economic growth in the country.
- Nouman Badar, Munib Badar (2015), examines the long-term and short-term relationship between the financial sector and economic growth in Pakistan. The financial sector is proxied by money supply, private sector credit growth, and bank's equity using 22 years of data from 1992 to 2013, the model used is a vector error correction model. The results show that both short and long term and there is a long-term relationship between financial sector with economic growth in Pakistan.
- Joseph Chuwudi Odionye, Okwudili Beede Emerole, Ugochukwu Sebastine Ugwuebe (2016), examined the causal relationship between domestic private saving and economic growth in Nigeria for the period 1980 to 2013 using the Granger augmented causality test approach. The results show a strong unidirectional causality of domestic private saving with economic growth in Nigeria. The results of the cointegration show that there is a long-term positive relationship between domestic saving and economic growth.
- Nomyuyo Guma and Limengo Bonga-Bonga (2016) discuss the relationship between savings and economic growth in South Africa, the results state that savings have the largest response to GDP growth.
- Thierry (2016) in his journal Causality Relationship between Bank Credit and Economic Growth Evidence from a Time Series Analysis on a Vector Error Correction Model in Cameroon analyzes the causal relationship between bank credit and economic growth. This study uses the VECM method. The results showed that there was a one-way causal relationship between the bank credit variable and GDP.
- Patrick Imam, Kangni Kpodar (2016), conducted a study to examine the relationship between Islamic banks and economic growth using data from 52 countries from 1990 to 2010, which concluded that Islamic banking has a positive relationship to economic growth.
- Mohammed T Abusharbeh (2017), examines the impact of the banking sector on economic growth in the Palestinian state, the banking sector is represented by credit facilities, deposits, number of bank branches, and interest rates using quarterly data from 2000 to 2015 using the model OLS, with the result that bank credit has a positive effect on economic growth, while time deposits, number of bank branches and interest rates have no effect on economic growth.
- Artur Rijab & Fitim Mexhuani (2021), analyzed the correlation between savings and economic growth with the Kosovo case both from qualitative and quantitative research methodologies. The data used from 2010 to 2017 using the Augmented Dickey-Fuller test, the Johansen cointegration test, and the Ganger causality test, and the regression results show that savings have a positive impact on Kosovo's economic growth, because savings stimulate investment, production, and employment and consequently resulting in greater sustainable economic growth.

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3. Data Analysis Technique

This study uses dependent variable data, i.e. economic growth; whereas independent variables are: banking activity, i.e. bank loans on domestic credit to the private sector and savings on gross savings (percent of GDP), another independent variable that may affect the economic growth included in the model is capital resulting from the formation of gross capital. (Percent of GDP) and labor force use the natural logarithm of labor force.

The model formulated to analyze the impact of banking on economic growth is as follows:

$Gt = \alpha_1 + \alpha_2 CR + \beta_1 CAP + \beta_2 L + \beta_3 S + \mu t$

Gt = pertumbuhan ekonomi

CR = domestic credit to privat sector by bank

CAP = gross capital formation

L = Ln labor force (logaritma natural dari labor force)

S = gross saving

The data used are the annual time series data for the period from 1993 to 2019. Since time series data usually contains many problems, including autocorrelation, where autocorrelation causes the data to be non-stationary, which indicates that the mean and variant values of time series data change systematically over time or that the average value and variance are not constant, this is the case. This will result in the estimation of a less good model, so that the results may be spurious (Gujarati, 2015). Therefore, the characteristics of the data will be tested using the root unit test at the initial stage prior to further analysis.

Unit root test is required to determine whether or not the data is stationary, i.e. the Augmented Dickey Fuller (ADF) test. The results of the root test will indicate that the data is stationary at the level, stationary at the first difference, or stationary at the second difference. If the data is stationary at the level, the model is stationary and can be continued immediately by registering the model using the Ordinary Lowest Square model.

If it is stationary in the first difference or second difference, then it is necessary to check whether the data have a relationship between the variables by performing the co-integration test, the method that can be used to perform the co-integration test is the Johansen test, after obtaining the results of the co-integration test, and if the results show the co-integration of the variables; (Gujarat, 2015)

ECM (Error Correction Model) is a model introduced by Sargan, developed by Hendry and popularized by Engle and Granger. The ECM model is used when the data analyzed are not stationary but are co-integrated, which means that there is a long-term relationship (or balance) between dependent and independent variables. There is, however, a possibility of an imbalance (disequilibrium) in the short term, as this imbalance exists, it is necessary to correct the model with an error correction model (Error Correctin Model, abbreviated as ECM).

The ECM model uses a two-step Engle-Granger model, the ECM model can be written as the following equation:

$\boldsymbol{\Delta}\, Gt_{it} = \alpha_1 + \beta_1 \boldsymbol{\Delta} CR_t + \beta_2 \boldsymbol{\Delta} CAP_t + \beta_3 \boldsymbol{\Delta} L_t + \beta_4 \boldsymbol{\Delta} St + \beta_9 EC_{t-1}$

If Δ is the difference; α_1 is the intecept; β is the slope of the independent variable, EC is the correction of the error. If the ECM imbalance coefficient of error is statistically significant, the ECM specification model used in the study is valid.

Research hypothesis:

1. Savings banking activity affects long-term economic growth in Indonesia.
2. Savings banking has a short-term impact on Indonesia's economic growth.
3. Loan banking is affecting long-term economic growth in Indonesia.
4. Loan banking has a short-term impact on Indonesia's economic growth.

4. Result

The test starts with a stationary data test to see whether or not the data is stationary. The stationarity test used the root test of the unit in the ADF test with the following results

Table 1. Uji ADF

Variable	ADF Probability	
	At Level	First Difference
Gt	0,0617	0,000
CR	0,2382	0,0055

CAP	0,7950	0,0042
L	0,6728	0,0036
S	0,6710	0,0001

Sources : result of data processing

Based on the unit root test with ADF in Table 1, it can be seen that all variables Gt, CR, CAP, L, S are not significant at level, which means that they are not stationary at level but stationary at the first difference with the results showing that the probability value of all variables is less than 5%, which means that all data variables are stationary.

After the stationarity test is performed, a co-integration test is needed to determine whether or not there is a long-term relationship between variables. The results of the co-integration test are as follows:

Table 2. Cointegration test

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.848470	100.8465	69.81889	0.0000
At most 1 *	0.753799	53.67224	47.85613	0.0129
At most 2	0.410437	18.63205	29.79707	0.5196
At most 3	0.181085	5.422704	15.49471	0.7624
At most 4	0.016988	0.428343	3.841466	0.5128

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

Sources : result of data processing

Sources : result of data processing

Based on the results of Table 2, it is shown that there is 2 co-integration between variables at the 95% confidence level, which means that there is no co-integration to reject the null hypothesis. Thus, accepting Ha, which states that there is co-integration between variables, means that there is a long-term balance, but it is suspected that there is a short-term imbalance.

The co-integration that occurs between variables requires an error correction of the model in order to eliminate the imbalances that occur in the short term, the results of the Engle-Granger error correction model (ECM) are as follows:

Table 3. ECM Model

Dependent Variable: D(Gt)
Method: Least Squares
Sample (adjusted): 1994 2019
Included observations: 26 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.290872	1.352935	-0.214993	0.8319
D(CR)	-0.147677	0.157526	-0.937474	0.3597
D(CAP)	0.537283	0.443333	1.211918	0.2397
D(L)	-8.914606	60.70118	-0.146861	0.8847
D(S)	0.576499	0.211162	2.730131	0.0129
EC(-1)	-1.175370	0.342332	-3.433422	0.0026

R-squared	0.577915	Mean dependent var	-0.056654
Adjusted R-squared	0.472394	S.D. dependent var	4.685284
S.E. of regression	3.403227	Akaike info criterion	5.486499
Sum squared resid	231.6390	Schwarz criterion	5.776829
Log likelihood	-65.32449	Hannan-Quinn criter.	5.570104
F-statistic	5.476765	Durbin-Watson stat	1.890319
Prob(F-statistic)	0.002466		

Sources : result of data processing

Based on Table 3. The EC probability (-1) shows that it is less than 5%, which means that the error correction model (ECM) used in this study is valid and can then be analyzed.

The probability value of EC = 0.0026 means that the difference between the actual value of economic growth and its equilibrium value of 0.0026 will be adjusted within one year, so that the following equation can be used:

The equation for short-term economic growth is as follows:

Gt = -0.290872 - 0.147677CR + 0.537283CAP - 8.914606L + 0.576499S

The independent variable, statistically significant for the short-term economic growth variable, is savings (S), while loans (CR), capital (CAP) and labor (L) have no effect.

Long-term economic growth regression equation models that have passed the multi-colline, heteroscedastic, and self-correlation test are as follows:

Table 4. Long Run Gt Model Gt

Dependent Variable: Gt
Method: Least Squares
Sample: 1993 2019
Included observations: 27

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	455.1984	214.4613	2.122520	0.0453
CR	-0.262944	0.114811	-2.290233	0.0320
CAP	0.519990	0.428517	1.213464	0.2378
L	-25.45716	11.92981	-2.133912	0.0442
S	0.491773	0.242493	2.027990	0.0548

R-squared	0.355626	Mean dependent var	4.728037
Adjusted R-squared	0.238467	S.D. dependent var	3.830773
S.E. of regression	3.342956	Akaike info criterion	5.417164
Sum squared resid	245.8578	Schwarz criterion	5.657134
Log likelihood	-68.13171	Hannan-Quinn criter.	5.488520
F-statistic	3.035420	Durbin-Watson stat	1.828273
Prob(F-statistic)	0.039063		

Sources : result of data processing

The equation for long-term economic growth is as follows:

Gt = 455.1984 - 0.262944CR + 0.519990CAP - 25.45716L + 0.491773S

Independent variables with a statistically significant effect (Δ = 5 per cent) on the long-term economic growth variable are loans (CR) and labor (L), while savings (S) and capital (CAP) have no effect on economic growth, but savings at a confidence level of 94% have no effect on economic growth.

5. Discussion

The results of the data analysis show that savings banking activities have an impact on economic growth in the short and long term (Δ = 6%) and are consistent with the results of the research: Serhan Ciftcioglu, man. Nermin Begovic (2010), Protr Misztall (2011), Ali Awdeh (2012), Mohammad Abduh & Mohd Azmi Omar (2012), Reza Najarzadeh & Michael Reed (2014), Dhanya Jagadesh (2016), Nomvuyo (2016), Joseph Chukwudi Odionye, Okwudili Beede Emerole, Ugochukwu Sebastine Ugwuebe (2016), Artur Rajab & Fitim Mex (2021) are not in line with the research of Grietjie Verhoef, Lorraine Greylig and John Mwamba.

Loan activity affects economic growth in the long term and has a negative direction in line with Syahfitri's research (2013), while other researchers say it has a positive direction, namely Hshin-YuLiang, Alan Reichert (2006), Hafas Furgani & Ratna Mulyany (2009). , Ali Adweh (2012), Muhammad Abduh & Mohd Azmi Omar (2012), Rafsanjani & Sukmana (2014), Norman Badar & Munib Badar (2015), Thierry (2016), Patrick Iman & Kargui Kpalar (2016), Mohammed T Abusharbeh (2017). However, this is not consistent with the Fabya (2011) research. In the short term, the results of the research have shown that loans have no effect on economic growth, which is not in line with research by Hafas Furgani & Ratna Mulyany (2009) and Muhammad Abduh & Mohd Azmi Omar (2012), which states that loans have a long-term impact on economic growth.

The loan coefficient in the short-term economic growth model is-0.147677, which means that if loans made by banks increase by 1%, the growth rate will be reduced by 0.1476, whereas in the long term the loan coefficient is-0.262944, which means that if loans made by banks increase by 1%, the growth rate will be reduced by 0.2629.

As a result, both short-term and long-term loans have a negative impact on economic growth as lending increases, economic growth declines, and vice versa, as lending decreases, economic growth increases. This condition arises from the possibility that many of the loans granted to the community will not be used as well as possible by debtors or business partners, so that the business they run does not run as expected and even experiences business setbacks in such a way that the resulting product has decreased. This also means that banks in Indonesia must be careful to channel their loans to the public by choosing trustworthy debtors or business partners who are able to repay loans in accordance with the provisions required by the bank.

The short-term savings coefficient is 0.5764, which means that if savings are increased by 1%, economic growth will increase by 0.5764 per cent, while the long-term savings coefficient is 0.491773, which means that if savings are increased by 1%, economic growth will increase by 0.4917 per cent. So both short-term and long-term savings are moving in a positive direction towards economic growth as savings rise, economic growth rises, and vice versa as savings fall, economic growth declines. This condition is consistent with the theory put forward by Harrod-Domar, Martin-Feldstein, and Edwar Denison, who argued that savings would increase investment, which in turn would increase aggregate demand so as to increase economic growth in the domestic product.

Other variables included in the working model. The results of the data processing show that labor only affects economic growth in the long run with a factor of-8,9146, which shows that, when labor is increased by 1%, economic growth is reduced by 8,9146 per cent, which means that labor growth is not followed by an increase in the productivity of the resulting product, possibly due to weakness or low skills.

The next variable is capital, the results of the data processing show that capital does not have an effect on economic growth in both the short and long term, which suggests that the ups and downs of capital will not affect the ups and downs of economic growth; it is possible that the data used as a proxy for capital do not reflect the total capital produced by the community as a proxy for capital.

6. Conclusion

1. Savings banking affects Indonesia's long-term economic growth.
2. Savings banking has a short-term impact on Indonesia's economic growth.
3. Loan banking is affecting long-term economic growth in Indonesia.
4. Banking activities on loans have no short-term effect on economic growth in Indonesia.

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