

## Analysis of Determinants of Credit by Commercial Banks to Indonesia's Fisheries Sector from the Demand Side



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**ABSTRACT:** The growth of financial institutions such as banks is crucial to a country's economy. Not only as a source of financing, is banking also able to influence the business cycle of the economy as a whole. Moreover, Indonesia is a developing country that requires development in various sectors. Credit is an effective financing solution and is quite reliable in terms of financing. However, as one of the most potential sectors, the fisheries sector is actually one of the ones that has minimal credit allocation. This phenomenon occurs because it is influenced by several factors, including external and internal factors. In line with this, this study wants to see what influences credit disbursement when viewed from the demand side by making GDP, credit interest rates, and inflation variables. The method used is the quantitative method of the ECM (Error Correction Model) model, which is processed using Eviews 12. From this study, it is known that GDP and inflation have a significant positive effect in the long term, and the lending rate has a significant negative effect on lending. In the short term, GDP, lending rates, and inflation simultaneously have no effect on credit.

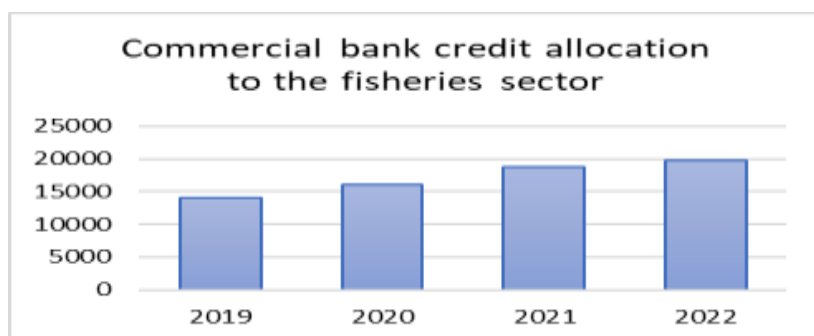
**KEYWORDS:** credit, commercial bank, GDP, lending rate, inflation

### I. INTRODUCTION

Indonesian banking continued to experience rapid development towards the end of the 1980s. As one of the financial industries in Indonesia, banking plays a major role in terms of funding, especially in terms of external funding. This funding by banks continues to drive aggregate economic growth, both in terms of capital strengthening and investment in the country's development. So it is not surprising that banking is a financial institution that is full of government attention and has experienced very rapid development compared to other financial institutions.

Funding by banks, or what is commonly called credit, is the main activity of banks in carrying out their function as intermediary institutions. Thus, in this credit distribution, banks are required to be able to play their role in allocating funds and supervising and ensuring that these funds have been channeled to priority economic activities that provide optimal profits.

In line with the function of credit as an effective financing solution for sector development, the fisheries sector, which has been known to have great potential, is actually one of the sectors that has minimal credit allocation. This is reflected in the following:



I. Commercial bank credit allocation to the fisheries sector in Indonesia 2019 – 2022

Source : OJK 2023 (data processed)

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Reporting from OJK (Otoritas Jasa Keuangan) or the Financial Services Authority, it turns out that credit to the fisheries sector is still relatively minimal compared to the potential of Indonesian fisheries. It can be seen from the distribution of credit provided, which is still 0.24 percent of the total credit provided by commercial banks as of 2019. However, if seen from the data above, in recent years the allocation of commercial bank credit to the fisheries sector has always experienced a positive trend every year due to several influencing factors.

GDP is one of the indicators that reflect people's income. The higher GDP means that people's income is also increasing. The increase in income changes the pattern of public consumption, which is high. Likewise, the demand for credit is equated with the demand for money. The higher public consumption, the higher the need for money. In accordance with the theory of money demand, which says the demand for money for transactions is influenced by the amount of national income, this is something that cannot be denied (Keynes, 1936).

Lending interest rates are basically interest rates used as a reference for banks in determining interest rates for customers (OJK, 2019). In theory, loan interest rates are one of the most important things that people consider when applying for credit. The condition of high loan interest rates makes the competitiveness of Indonesian fisheries low. Because people will prefer to rely on their own capital rather than having to borrow from the bank (Thomas, 2015).

Lastly, inflation is the increase in liquidity in an economy. Inflation is defined as a continuous increase in prices (G.A. Diah Utari, 2015). The higher the inflation, the lower the demand for credit. In this situation, people's purchasing power falls, and the increase in real interest rates due to inflation will make people reluctant to take credit. So, it can be said that inflation has a negative relationship with credit (Rizkina, 2017).

Based on the above background, the problem formulation obtained in this study is whether GDP, Lending Rates and Inflation affect commercial bank credit for the fisheries sector in Indonesia. The purpose of this research is to analyse the effect of GDP, loan interest rates, and inflation on commercial bank credit for the fisheries sector in Indonesia.

## II. LITERATURE REVIEW AND HYPOTESIS

### A. Literature Review

**1} Credit:** The term credit can be interpreted as lending money (or postponing payments). In accordance with Law No. 10 of 1998, Article 1 Paragraph 11 concerning banking laws states that "credit is the provision of money or bills that can be equated with it, based on an agreement or borrowing agreement between a bank and another party that requires the borrower to pay off his debt after a certain period of time with interest. Meanwhile, according to Rollin G. Thomas (1957), in his book entitled *Our Modern Banking and Monetary System* states "Credit is the giving of trust from the bank to the borrower for his ability to return a certain amount of money in accordance with a predetermined time."

**2} GDP:** Gross domestic product (GDP) is the sum of goods and services produced domestically by a country's units of production. Information from GDP data is very important in economics because it provides information on how much economic performance a country shows, which can be used as a comparison. GDP is used as an indicator to determine the economic condition of a country over a certain period of time (Callen, 2020).

**3} Lending Rate:** Lending interest rate is the ratio of interest to the amount of services or funds borrowed. According to Hubberd, the interest rate is the cost that the borrower must pay for the cost of the loan received and the lender's return on his investment (OJK, 2019).

**4} Inflation:** Inflation is defined as an increase in liquidity in an economy. Inflation is the event of a general and continuous increase in material prices caused by the weakening of the value of money over a certain period (Mashudi et al. 2017).

### B. Variable Relationship

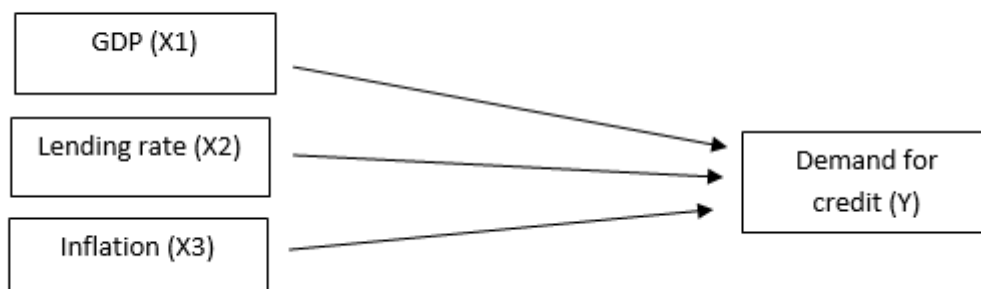
**1} Relationship between GDP and credit demand :** Income has a positive influence on credit demand. The higher a person's income level, the higher the demand for credit, and vice versa. In accordance with Fisher's money demand theory and Keynes' money demand theory, especially for transaction purposes, the demand for money depends on income. The higher the income, the greater the desire for cash.

**2} Relationship between interest rates and demand for credit :** Lending interest rates have a negative relationship with the amount of credit demand. When interest rates rise, it means that the price that people have to pay rises, so in this situation, people's demand for credit falls.

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**} Relationship between Inflation and Demand for Credit :** There is a negative relationship between inflation and credit demand. High and uncontrolled inflation rates can disrupt banks' efforts to mobilize public funds. When inflation is high, it allows real interest rates to fall. In such a situation, it is also possible that people prefer to borrow money rather than save.

### C. Hypothesis



### II. Framework Model

Source : Authors

Based on the theoretical study and framework above, the following hypothesis can be formulated:

H<sub>1</sub>. It is suspected that GDP has a positive effect on demand for commercial bank credit in the fisheries sector.

H<sub>2</sub>. It is suspected that the interest rate has a negative effect on the demand for commercial bank credit in the fisheries sector.

H<sub>3</sub>. It is suspected that inflation has a negative effect on the demand for commercial bank credit in the fisheries sector.

### III. OPERATIONAL DEFINITIONS AND RESEARCH METHODS

#### A. Operational Definitions

**1} Credit Demand:** The dependent variable in this research is the demand for credit in the fisheries sector. A demand for credit in the fisheries sector is a loan request submitted by a customer, either a person or business entity engaged in the fisheries sector, in the form of consumption credit, working capital credit, or investment credit, which must be paid back by the customer in accordance with a previously agreed agreement.

**2} GDP:** The GDP referred to in this study is the GDP of the fisheries sector. The GDP of the fisheries sector can be interpreted as the total value of all goods and services produced by the fisheries sector in a country within a certain period of time, expressed in billions of rupiah.

**3} Lending Interest Rate :** The lending interest rate referred to in this study is the lending interest rate for the fisheries sector, which is the basis for determining the cost or reward charged by banks to customers for capital loans used. The interest rate on this sector of credit is measured in percentage units (%).

**4} Inflation:** Inflation is a general increase in prices over a certain period of time. This inflation rate is measured based on Indonesia's monthly inflation index, expressed in percent.

#### B. Research Methods

This research uses descriptive quantitative analysis methods using secondary data taken through the official website of Bank Indonesia, namely [www.bi.go.id](http://www.bi.go.id); the Central Bureau of Statistics on the website <http://bps.go.id>; and OJK at [www.ojk.go.id](http://www.ojk.go.id). The data is time series data starting from 2012 to 2022, covering the territory of Indonesia.

To find out whether there is a short-term or long-term relationship in the equation, multiple linear regression analysis is used through ECM (Error Correction Model) testing using *eviews 12*. Tests are carried out to see if there is an influence of the independent variables on the dependent variable both in the long and short term, namely the stationarity test using Augmented Dickey Fuller (ADF), estimation of long-term equations, cointegration tests, and estimation of short-term equations, error correction analysis, and classical assumption tests. The regression equation in question is as follows

$$\text{Credit} = \beta_0 + \beta_1 \text{GDP} + \beta_2 \text{LR} + \beta_3 \text{Inf} + e \quad (\text{Source : Authors})$$

Description :

$\beta_0$  = Coefficient

$\beta_1 \beta_2 \beta_3$  = Regression coefficients of GDP, interest rates, and inflation variables

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GDP = Gross Domestic Product  
 LR = Lending Rate  
 Inf = Inflation  
 e = Error

### IV. RESULT

#### A. Classical Assumption

This classic assumption test is used to see how much deviation or error there is in the data, such as whether the data is normally distributed, the relationship between residuals, or the existence of an inequality of variance in the model.

**Table I Classical Assumption Test Results**

No	Classic Assumption	Result	Interpretasi
	normality	jarque-bera 2.910754 p value 0.233312 > 0.05	data is normally distributed
	multicollinearity	VIF all variables < 10	no multicollinearity occurs
	heteroskedacity	prob. chi square 0.1746 > 0.05	no heteroscedacity occurs
	autocorrelation	durbin watson 0.187397	no autocorrelation symptoms

Source: Processed Results Eviews 12 (2023)

According to the table above, it is known that there are no indications of deviations from the classical assumptions in the model. This means that the model has met a number of the basic assumptions required to perform statistical analysis correctly. As a result, the analytical results obtained in the research are reliable, and the interpretation becomes more valid.

#### B. Stationarity Test

Stationary tests are carried out to avoid spurious regression, which results in bad data to estimate. Time series data is said to be stationary if the average and variance are constant.

**Table II. Classical Assumption Test Results**

No.	Variable	Probability Level	Probability 1 <sup>st</sup> Difference
	Credit	0.9994	0.0000
	GDP	0.9384	0.0000
	lending rates	0.8841	0.0000
	Inflation	0.2767	0.0000

Source: Processed Results Eviews 12 (2023)

Based on this table, it is obtained if all variables are known to be stationary at degree one because they have a probability below 0.05, which is 0.0000 on the credit, GDP, lending rates, and inflation variables. This means that all variable data that can be used in forecasting (ARIMA estimation) is degree (level) 1.

#### C. Cointegration Test

In economics, two variables will cointegrate if they have a long-term or equilibrium relationship (Ghozali, 2021). The test can be done through the Engle Granger Test eviews as follows.

**Table III. Unit Root Test Results of Residual data**

No.	Variable	Probability	Interpretation
	ect	0.0000	cointegration is present

Source: Processed Results Eviews 12 (2023)

According to the Engle-Granger cointegration test that has been carried out, a probability value of 0.0000 < 0.05 is obtained on the ECT (Error Correction Term). This means that there is a long-term, or equilibrium, relationship between the independent variable and the dependent variable. So, it can be concluded if the variables have been cointegrated, and testing can be continued on the ECM (Error Correction Model) model equation.

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### D. ECM (Error Correction Model) Estimation

Table IV. ECM Estimation Result

No.	Variable	Coefficient	Probability
	D(GDP)	0.001473	0.9547
II.	D(landing rates)	23.37990	0.9140
III.	D(inflation)	21.69850	0.7212
IV.	ect (-1)	-0.075573	0.0376
	<i>r</i> <sup>2</sup>	0.034629	
	<i>adjusted r</i> <sup>2</sup>	0.003983	
	<i>prob f-statistic</i>	0.345447	

Source: Processed Results Eviews 12 (2023)

According to the output results above, it is known that the probability value of all independent variables is greater than the significance value of 0.05, namely, GDP has a probability of 0.9547, SBDK has a probability of 0.9140, and inflation has a probability of 0.7212. Based on these results, it can be concluded that all independent variables, namely, GDP, lending rate, and inflation in the short term, have no effect on credit. However, the ECT (Error Correction Term) probability value of 0.0376, which means no more than the significance value of 0.05, and the negative coefficient indicate that the ECM (Error Correction Model) model used in the research is valid.

## V. DISCUSSION

### A. Effect of Gross Domestic Income (GDP) on Commercial Bank Loans for the Fisheries Sector in 2012–2022

Gross domestic product (GDP) has a significant effect in the long run on the demand for commercial bank loans for the fisheries sector in 2012–2022. This is stated based on the results of the long-term equation, which show the probability of the GDP variable being 0.000, which is not more than the significance level of 0.05, then the variable can be said to have a positive significant effect. This means that an increase or decrease in GDP affects the quantity of credit. An increase in GDP increases credit, while a decrease in GDP also decreases the quantity of credit. This is also reinforced by the probability and value of the ECT (Error Correction Term), which is known to be significant and valid and also indicates the existence of a long-term relationship between variables. However, in the short-term equation that has been tested through the ECM (Error Correction Model), the GDP variable partially has no effect on credit in the fisheries sector. This is indicated by the probability value of GDP, which is still above the significance value of 0.9547, which means that GDP does not have a significant influence on the credit variable in the short term.

Based on the results that have been obtained, this is in accordance with the hypothesis and theory, which state that GDP has a positive effect on credit growth. In addition, the results of this study also support previous research conducted by Susi Ramelda (2017), Riski Nur Aini, and Faisal Abdullah (2021), which also states that GDP has a significant positive effect on the amount of credit demand.

### B. Effect of Lending Interest Rate on Commercial Bank Credit to the Fisheries Sector in 2012–2022

The lending interest rate has a significant negative influence in the long run on the demand for commercial bank loans for the fisheries sector in 2012–2022. This can be seen from the long equation table above, which shows a probability value of 0.0006 < 0.05 and a negative coefficient value of -717.7270. The probability value that is not greater than the significance value of 0.05 indicates that the variable lending rate has a significant effect in the long term on the credit variable. While the negative coefficient value shows a negative influence of the variable lending rate on commercial bank credit growth in the fisheries sector in 2012–2022, This means that when the lending rates rises, the demand for commercial bank credit in the fisheries sector in 2012–2022 will decrease by 717.7270. Conversely, when the lending rates falls, the demand for commercial bank credit in the fisheries sector in 2012–2022 will increase by 717.7270.

It is different from the short-term effect. It is known from the short-term equation that has been obtained from the ECM (Error Correction Model) test results, showing a probability value of 0.9140 or more than the significance value of 0.05. From these results, it can be concluded that the variable lending rate does not have a significant influence in the short term on the credit variable. This can be seen from the R2 value, which shows 0.034629, meaning that in the short term all independent

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variables, namely, GDP, lending rates, and inflation, only contribute 3.4629 percent, and the remaining 96 percent is explained by variables outside the model.

The research results obtained are in accordance with the theory and research hypothesis, which state that the lending rate has a negative influence on the demand for commercial bank credit for the fisheries sector in 2012–2022. The results of this study are in accordance with previous research, including research by Muzayyinulhaq F (2018), Riski Nur Arianti (2021), Andi Ihza Mayani Noer, Diah Retno Dwi, and Sri Astuti (2022), which also states that there is a negative relationship between interest rates and the amount of credit demand.

### C. *The Effect of Inflation on Commercial Bank Credit in the Fisheries Sector in 2012–2022*

Based on the results of this research, inflation will have a significant positive significant effect on the demand for commercial bank credit in the fisheries sector in 2012–2022. This result is shown from the output of the cointegration test and the long-term equation of the inflation variable for the credit variable. The ECT (Error Correction Term) results that show a probability value of  $0.000 < 0.05$  mean that there is a long-term relationship between the variables. Likewise, the results of the long-term equation explain the significant positive inflation variable on credit. This means that the increase in inflation will make credit increase, and when inflation decreases, credit also decreases. Meanwhile, in the short-term equation, inflation has no significant effect on credit. This is explained by the results of ECM (Error Correction Model) testing, which show a probability value of  $0.7212 > 0.05$ , which means that the inflation variable has no significant effect on the credit variable.

The research results are not in accordance with the research hypothesis that inflation has a negative relationship with the amount of credit demand. This happens because inflation is an economic phenomenon that has a direct impact on people's purchasing power. The continuous increase in the price of goods makes people's purchasing power fall. In this situation, people will need more money to fulfil their needs. One of them is borrowing money from the bank. This is also in accordance with Keynes' theory, which says that inflation occurs because people want to live beyond the limits of their economic capacity, causing their effective demand for goods (aggregate demand) to exceed the amount of goods available (aggregate supply).

The results of this research also support previous research, including Gusnimar & Sentosa's (2019) finding that inflation has a positive and significant effect on the demand for BPD investment credit. When inflation is high, the price of capital goods will be relatively more expensive, so to fulfill them, the company takes credit through banks. Therefore, the demand for investment loans has increased. Furthermore, research by Suarmanayasa (2021) states that CPI has a significant effect on the amount of working capital credit for small businesses in Bali. Inflation reflects an increase in goods, which makes companies or businesses need additional funds to increase production. Thus, the amount of working capital credit requested will increase.

## VI. CONCLUSION AND SUGGESTION

### A. *Conclusion*

This research uses the ECM (Error Correction Model) model estimation, and the ECM (Error Correction Model) results show that the ECT (Error Correction Term) coefficient value has met the criteria. This means that the ECM (Error Correction Model) model in the study is valid and can be used to analyze the effect of GDP, lending rates, and inflation on commercial bank credit in the fisheries sector in 2012–2022.

The results of the short-term analysis show that the variables of GDP, lending interest rates (SBDK), and inflation do not have a significant influence on commercial bank credit in the fisheries sector in 2012–2022. The results of the long-term analysis show a significant positive effect of the GDP and inflation variables on commercial bank credit in the fisheries sector in 2012–2022. Meanwhile, the variable lending rate has a significant negative effect on commercial bank credit in the fisheries sector in 2012–2022.

### B. *Suggestion*

The government must be wise in controlling macroeconomic conditions so that commercial bank credit growth for the fisheries sector remains stable and healthy. Providing clear, consistent, and easier access and regulations for small to medium fishermen will encourage investment in this sector to grow steadily.

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