

Analysis of the Relationship between Inflation, Investment Credit, and Banking Working Capital Credit

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ABSTRACT

As a developed and developing country, Indonesia has an economic life that is highly dependent on the global monetary and economic order. Inflation as a macro indicator used to see the stability of a country's economy can affect banking performance and the quality of credit provided. Inflation caused by price fluctuations, especially in the food sector, is one of the factors that is difficult to control. Banking credit in Indonesia is still the source of capital most needed by companies and MSMEs. In addition, investments made through bank credit have also been found to play an important role in driving economic growth and increasing production. This study aims to analyze and see the causal relationship between inflation, banking investment credit positions, and banking working capital credit. The method used is cumulative descriptive. This study uses secondary data regression analysis method, namely time-series data for the 2019-2023 period. The results of the study indicate that there is a one-way relationship between Inflation and Banking Investment Credit and Banking investment credit has a negative and insignificant effect on Working Capital Credit both long and short term. While in Inflation and Banking Working Capital Credit there is no causal relationship. The results of this study are expected to provide input to the government so that inflation can be controlled with government policies in overcoming problematic credit and encouraging increased investment so as to create economic stability.

Keywords : Inflation, Banking Investment Credit, and Banking Working Capital Credit.

INTRODUCTION

The inflation rate is the most important and most feared macro variable by economic actors, including the government. This can have a negative impact on the structure of production costs and the level of welfare. Inflation in several regions of Indonesia is greatly influenced by the availability of supply, so that areas that do not have food resources are very vulnerable to change (Rahman Farizi et al., 2023) . Inflation can be defined as the tendency for prices to increase in general and continuously. In other words, inflation is a condition in which there is an increase in the price of goods and services in general (VK Putri, 2017) . The inflation rate can be seen from the increase in the price of all goods. Controlling inflation and maintaining economic stability in several regions of Indonesia is still a challenge. Inflation caused by price fluctuations, especially in food products from the agricultural, fisheries, and livestock sectors, is

one of the factors that is difficult to control (Rohimuddin & Panjawa, 2022) . The ongoing inflation in Indonesia remains an unresolved global and local economic challenge. As a result, it affects the availability of investment capital in the banking sector. The increase in inflation is often followed by instability in bank lending, both for investment credit and working capital credit. This phenomenon is interesting to study given the importance of maintaining inflation balance and banking sector contributions in supporting the economy through bank lending.

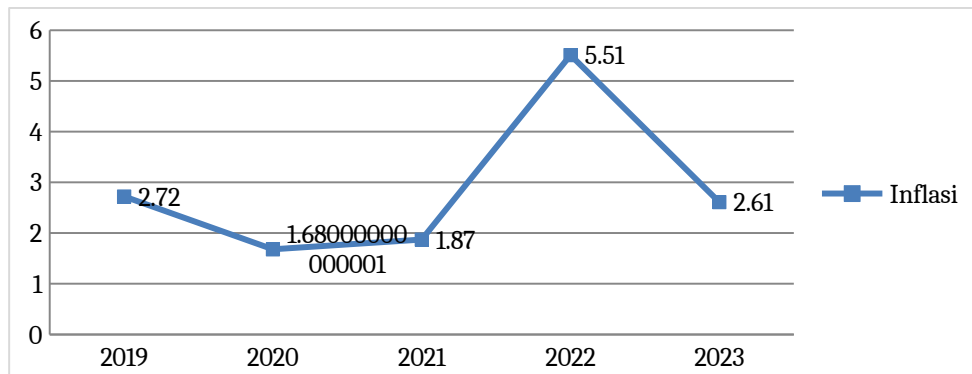


Figure 1 Inflation Rate in Indonesia 2019-2023 (percent).

Source: Indonesia in Figures, BPS, 2024

Figure 1 shows that the inflation rate in Indonesia has fluctuated over the past 5 years. The highest inflation rate occurred in 2022 at 5.51%. Inflation increased due to price increases that occurred in various expenditure groups. Conversely, the lowest inflation rate occurred in 2020 at 1.68%. The decline in inflation was caused by a decrease in people's purchasing power due to the Covid-19 pandemic, which caused people to hold back on spending and demand decreased. The average inflation rate for 5 years was 2.878%. Bank credit provision requires appropriate action to protect credit, especially problematic credit. Problematic credit can affect banking performance and the quality of bank performance. (Tui & Kapriani, 2021) . An increase in unsupervised consumer credit can have a negative impact on the economy and threaten Indonesia's financial stability (Polihu et al., 2023) .

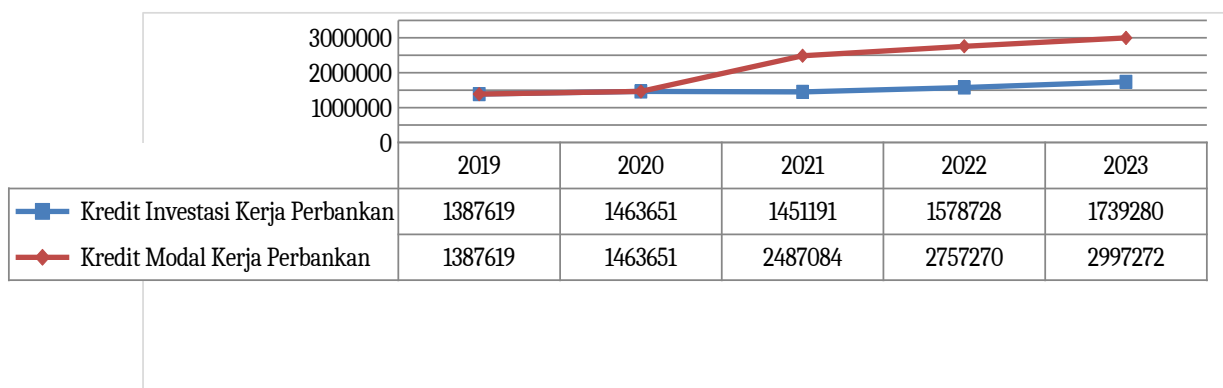


Figure 2 Banking Investment Credit Level and Working Capital Credit Level in Indonesia 2019-2023 (Billion Rupiah).

Source: Indonesia in Figures, BPS, 2024

Figure 2 explains that the level of banking investment credit position in Indonesia has fluctuated over the past 5 (five) years. The highest level of banking investment credit position in 2023 was IDR 1,739,280 (billion rupiah). The increase was caused by several factors, one of which was the manufacturing industry sector, which was the largest recipient of investment credit. Meanwhile, the lowest level of banking investment credit position in 2019 was IDR 1,387,619 (billion rupiah). The average value of the banking investment credit position was IDR 1,524,093 (billion rupiah). While the highest level of banking working capital credit was IDR 2,997,272 (billion rupiah). While the lowest level of banking working capital credit was IDR 1,387,619 banking working capital credit level The average value of the banking working capital credit level was IDR 2,218,579 (billion rupiah).

Bank credit in Indonesia is still the most needed source of capital for companies and MSMEs (Firmansyah, 2022) . In China, banks are considered the main source of funding, with 75% providing business loans (Fungacova et al., 2016) . Investment can drive economic growth and provide benefits for investors and the area where the investment is made (Nurjannah & Nurhayati, 2017) . Working capital credit is a type of credit used to increase production and is intended for customers who lack working capital (Panjaitan, 2021) .

Based on the background that has been explained, the author is motivated to see the causal relationship between Inflation, Banking Investment Credit Position, and Banking Working Capital Credit in the long term in Indonesia . Thus, the title raised by the researcher is **“Analysis of Causality Relationship between Inflation, Banking Investment Credit Position, and Banking Working Capital Credit”**.

LITERATURE REVIEW

Keynesian Theory

According to Keynesian theory, the relationship between the money supply and inflation is not direct. The money supply affects inflation through changes in interest rates. This theory is based on the Keynesian view that money functions as a medium of exchange and as a store of value. With this function, money can be used to gain a "return". In this context, if money becomes scarce, interest rates increase, reducing investment demand and causing inflation.

Conversely, if interest rates are low, investment demand increases, resulting in price increases that impact inflation.

Concept of Inflation

Inflation can be defined as a general and continuous increase in prices over a period of time. Unbalanced price increases that occur at different times cannot be considered inflation (Hasyim, 2016) . Keynes defined inflation as a consistent increase in the average price level over a predetermined period of time. A country's inflation rate can be measured using various metrics, with the Consumer Price Index (CPI) being the most commonly used indicator (Ra. FA Putri et al., 2016) .

Banking Work Investment Credit Concept

Investment credit is a type of productive credit provided by banks to companies to increase productivity. Banks provide medium-term or long-term investment credit to purchase fixed capital goods needed to increase the company's production capacity and productivity (Tenda et al., 2014) . In addition to increasing productivity, investment credit is also used to establish projects and for the development or expansion of existing businesses. The profits obtained from investing do not come from the sale of output, but from the use of the capital goods obtained (Eltania, 2022) .

Banking Working Capital Credit Concept

Working capital credit is intended for small business actors who are experiencing a lack of funds and need funds for productive activities. The request for working capital credit by small business actors is used to increase the ability to produce output (Eltania, 2022) . In addition to the increase in raw material prices and operational costs, the lack of funds for production is also a reason for small business actors to apply for working capital credit. Working capital credit is used to increase production and is intended for customers who lack capital (Panjaitan, 2021) . Working capital credit is a type of credit used to finance current capital needs that are usually used up in one or several production processes or business cycles, such as purchasing raw materials, employee salaries, building rent, purchasing merchandise , and others (Jopie & Jusuf, 2014)

H₁ : Inflation has an effect on banking investment credit

According to Keynesian theory, there is an influence between the money supply and inflation, where changes in interest rates will affect the amount of credit disbursed. With rising

inflation, the cost of capital also increases, which has the potential to reduce investment (Elfani et al., 2021). Based on a study by Boyd, Levine & Smith (2001), inflation has a negative impact on banking activities, including investment credit distribution. This study found that increasing inflation tends to narrow bank credit margins due to higher interest rates, thereby reducing demand for investment credit. Fischer & Modigliani (1978) showed that high inflation can increase economic uncertainty, so that companies are reluctant to make long-term investments. As a result, banks become more careful in providing investment credit. Based on this study, it can be concluded that inflation tends to have a negative effect on banking investment credit distribution, because the inflation rate will affect interest rates and perceptions of credit risk. Thus, this hypothesis is supported by literature showing that banks tighten investment credit requirements during periods of high inflation.

H₂ : Inflation has an effect on Working Capital Credit

According to credit demand theory, the demand for working capital credit depends on inflation conditions, where high inflation increases input costs, which causes entrepreneurs to need more working capital (Putri & Rahma, 2022). Based on research by Nurhaeni (2022), inflation affects Bank Working Capital Credit, where high inflation will affect people's economic activities so that people apply for working capital credit to banks. In research by Munandar et al. (2020), inflation did not significantly affect the distribution of working capital credit for MSMEs in NTB. High inflation usually results in an increase in the price of goods and services. This can have a negative impact on the ability of MSMEs to access working capital credit, because their operating costs increase, while income may not be commensurate with the increase in prices. Thus, high inflation tends to reduce the demand for working capital credit, because companies need additional liquidity to cover increasing operating costs. However, the availability of working capital credit may be limited if banks tighten credit policies during periods of high inflation.

H₃ : Working Investment Credit has an effect on Working Capital Credit

Investment credit aims to increase productivity and expand business operations, which can drive the need for additional working capital as production capacity increases. However, there is also an argument that an increase in investment credit can reduce working capital requirements if the investment successfully improves production efficiency (Firmansyah, 2022). The results of research by Sutardjo Tui and Kapriani (2021) show that investment

credit and working capital credit simultaneously have a positive and significant effect on company profitability. and according to research from Guariglia (2008) found that companies that increase their investment often experience a lack of working capital and need to increase working capital credit to cover their operational needs. This shows a positive correlation between investment credit and working capital credit. Based on previous research, banking investment credit can encourage an increase in working capital credit, because investment projects often require significant operational support. Thus, there is an influence between banking investment credit and working capital credit, this hypothesis is supported by previous research which shows that these two types of credit often go hand in hand in business activities.

RESEARCH METHODOLOGY

The method for data collection is by searching for data from the Central Statistics Agency of Indonesia. The data used in this study is time-series data, namely using monthly data for the period 2019-2023. The data source in this study is secondary data. Data processing methods are used to explain the data, but not to make conclusions that can be generalized. In this study, the Vector Autoregression (VAR) and Vector Error Correction Model (VECM) techniques were used to analyze the causal relationship and direction between inflation, investment credit, and working capital credit. In this study, a saturated sampling technique was used, which means that the entire population will be the sample studied. Thus, the sample in this study is 60 monthly observation data from data sources.

RESULTS AND DISCUSSION

Development of Research Variables

This study uses three endogenous variables, which consist of inflation variables, banking investment credit position levels and banking working capital credit in Indonesia in 2019-2022. The following is the development of each variable in this study.

Inflation Development in Indonesia

The development of inflation in Indonesia can be seen in the following image:

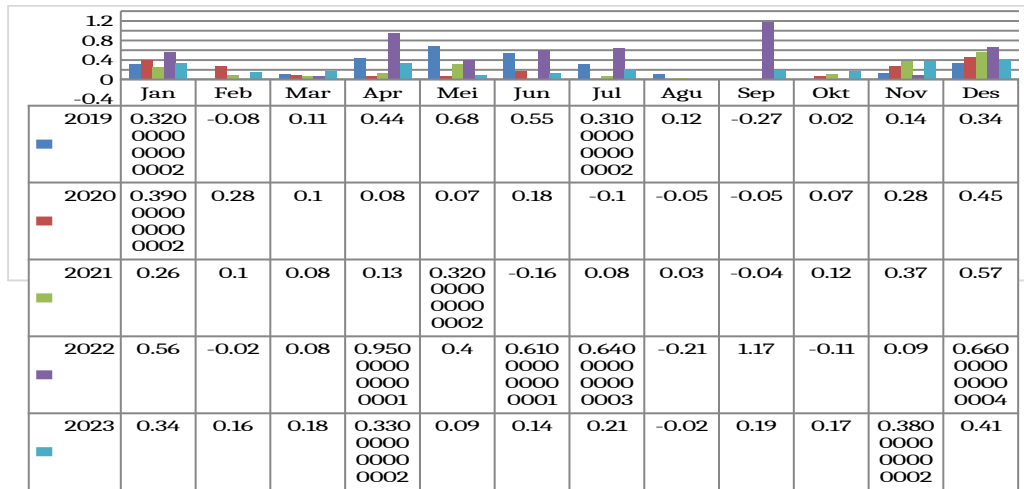


Figure 3 Inflation Rate in Indonesia 2019-2023 (percent).

Source: Indonesia in Figures, BPS, 2024

Figure 3 shows that the inflation rate in Indonesia has fluctuated over the past 5 years. The highest inflation rate occurred in 2022 in September with 1.7%. Inflation increased due to price increases that occurred in various expenditure groups. Conversely, the lowest inflation rate occurred in 2019 with -27%. The decrease in inflation was caused by a decrease in people's purchasing power due to the Covid-19 pandemic, which caused people to hold back on spending and demand decreased.

Development of Banking Investment Credit in Indonesia

The development of banking investment credit in Indonesia can be seen in the following image :

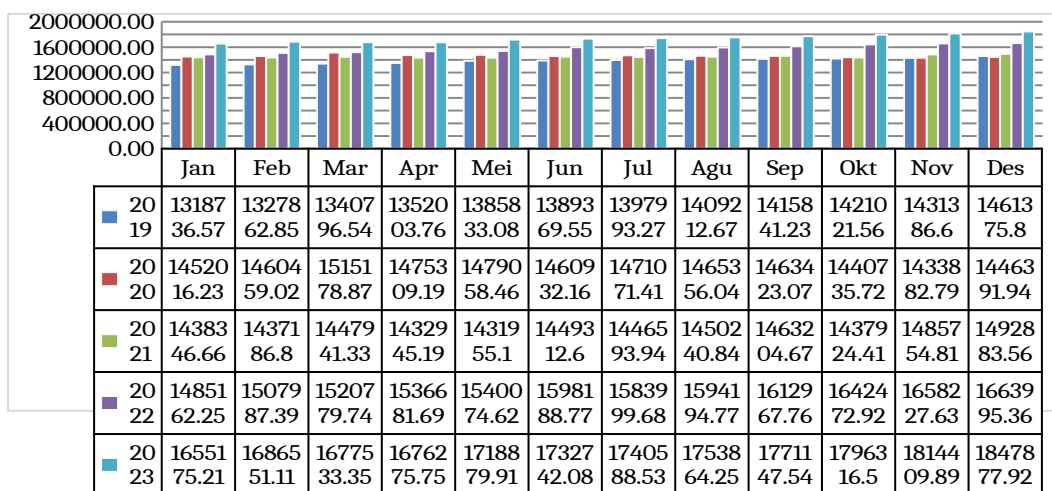


Figure 4 Investment Credit Position Level Banking in Indonesia 2019-2023 (Billion Rupiah).

Source: Indonesia in Figures, BPS, 2024

Figure 4 explains that the level of banking investment credit position in Indonesia has fluctuated over the past 5 (five) years. The highest level of banking investment credit position in December 2023 was IDR 1,847,878 (billion rupiah). The increase was caused by several factors, one of which was the manufacturing industry sector which was the largest recipient of investment credit. Meanwhile, the lowest level of banking investment credit position in January 2019 was IDR 1,318,737 (billion rupiah).

Development of Banking Working Capital Credit in Indonesia

The development of Bank Working Capital Credit in Indonesia can be seen in the following image :

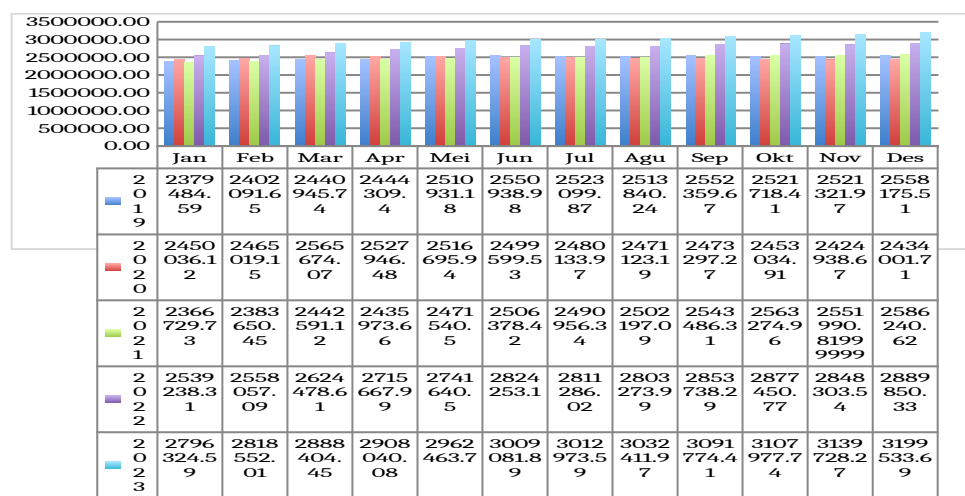


Figure 5 Working Capital Credit Position Levels Banking in Indonesia 2019-2023 (Billion Rupiah).

Source: Indonesia in Figures, BPS, 2024

Figure 5 explains that the level of working capital credit position of banks in Indonesia during the last 5 (five) years has increased from 2019 to 2023. The highest level of working capital credit in banking in 2023 in December was IDR 3,199,534 (billion rupiah). While the lowest level of working capital credit in banking in 2019 in January was IDR 2,379,485 (billion rupiah).

Causal Relationship Between Banking Investment Credit and Inflation in Indonesia

The results of the optimal lag test with various criteria show that the smallest value indicates the optimal lag length is 2. This means that current year inflation will affect banking investment credit in the next two years. And vice versa. Based on the stability test conducted, the model in this study is in a stable condition because the modulus value <1. The results of the granger causality test show that the relationship between Banking Investment Credit and Inflation obtained a probability value of 0.0706. which reveals that banking investment credit d

oes not have a significant effect on inflation. Furthermore, the probability value of the relationship between Inflation and Banking Investment Credit obtained a probability value of 0.0461. So it can be concluded that there is a one-way relationship between the Inflation variable (INF) and Banking Investment Credit (KIP) in Indonesia.

The results of the cointegration test indicate that there is cointegration at the first difference level. This means that there is a long-term equilibrium relationship between banking investment credit and inflation in Indonesia. The estimation results conclude that in the long term, Banking Investment Credit has a negative and insignificant effect on Inflation. While in the short-term relationship, Inflation has a negative and significant effect on Banking Investment Credit at lag 1, but at lag 2 it has a negative and insignificant effect on Banking Investment Credit. While the relationship of Banking Investment Credit in the short term has a negative and insignificant effect on Inflation at lag 1, but at lag 2 it has a negative and insignificant effect on inflation.

the Impulse Response Function (IRF) analysis show that there is a fluctuating response in the long term between Banking Investment Credit and Inflation in Indonesia. The results of the Variance Decomposition (VD) show that Banking Investment Credit contributes to Inflation at the beginning of the period by 0 percent and at the end of the period by 5.87 percent and Inflation affects Banking Investment Credit at the beginning of the period by 1.14 percent and at the end by 17.25 percent. The results of this study are also supported by the Keynesian theory, namely that one of the factors of inflation is investment and interest rates in circulation. When the interest rate on working capital credit increases, Banking investment credit decreases which causes inflation. Conversely, when interest rates are low, Banking investment credit increases because many people make investments but it results in price increases that affect working capital credit.

Causal Relationship Between Inflation and Banking Working Capital Credit in Indonesia

The results of the optimal lag test with various criteria show that the smallest value indicates the optimal lag length is 2. This means that the current year's inflation will affect Banking Working Capital Credit in the next two years. And vice versa. Based on the stability test conducted, the model in this study is in a stable condition because the modulus value <1 . The results of the granger causality test show that the relationship between Banking Working Capital Credit and Inflation obtained a probability value of 0.1484 which reveals that Banking

Working Capital Credit does not have a significant effect on Inflation. Similarly, the relationship between Inflation which does not have a significant effect on Banking Working Capital Credit with a probability value obtained of 0.2844. This shows that the relationship between Banking Working Capital Credit and Inflation does not have a two-way or one-way causal relationship from each variable.

The results of the cointegration test indicate that there is cointegration at the first difference level. This means that there is a long-term equilibrium relationship between Banking Working Capital Credit and Inflation in Indonesia. The estimation results conclude that in the long term Working Capital Credit has a positive and insignificant effect on inflation. In the short-term relationship Banking Working Capital Credit has a positive and insignificant effect on Inflation both in lag 1 and lag 2. While in the short-term relationship Inflation (INF) has a positive and insignificant effect on Banking Working Capital Credit at lag 1, while in lag 2 Inflation has a negative and insignificant effect on Banking Working Capital Credit.

the Impulse Response Function (IRF) analysis show a fluctuating response even though the movement slows down in the long term between Banking Working Capital Credit and Inflation in Indonesia. The results of the Variance Decomposition (VD) show that Banking Working Capital Credit contributes to Inflation at the beginning of the period by 0.00 percent and at the end of the period by 3.89 percent and Inflation affects Banking Working Capital Credit at the beginning of the period by 0.06 percent and at the end by 3.40 percent. The effect of interest rates is also negative and insignificant because growth is still low. The same is true for the research presented by Nurhaeni (2022) where high inflation will affect the economic activities of the Masamba community by applying for working capital credit at banks. The interest rate level affects the demand for working capital credit at PT. Bank Sulselbar Masamba branch.

Causal Relationship between Bank Investment Credit and Bank Working Capital Credit

The results of the optimal lag test with various criteria where the smallest value indicates that the optimal lag length is 2. This means that Banking Investment Credit in the current year will affect Banking Working Capital Credit in the next two years and vice versa. Based on the stability test conducted, the model in this study is in a stable condition because the modulus value < 1 . The results of the granger causality test show that the relationship between Banking Investment Credit and Banking Working Capital Credit obtained a probability value of 0.6182

which reveals that Banking Investment Credit does not have a significant effect on Banking Working Capital Credit. Similarly, the relationship between Banking Working Capital Credit which does not have a significant effect on Banking Investment Credit with a probability value obtained of 0.3309.

This shows that the relationship between Banking Investment Credit and Banking Working Capital Credit does not have a two-way or one-way causal relationship from each variable. The results of the cointegration test indicate cointegration at the first difference level. This means that there is a long-term equilibrium relationship between Banking Investment Credit and Banking Working Capital Credit. In the short-term relationship, Banking Investment Credit has a negative and insignificant effect on Banking Working Capital Credit both in lag 1 and lag 2. While in the short-term relationship, Working Capital Credit has a negative and insignificant effect on Banking Investment Credit at lag 1 and lag 2. The results of the *Impulse Response Function (IRF)* analysis show that there is a fluctuating response in the long term between Banking Investment Credit and Banking Working Capital Credit in Indonesia.

The results of the Variance Decomposition (VD) Analysis show that Banking Investment Credit contributes to Banking Working Capital Credit at the beginning of the period by 35.69 percent and at the end of the period by 33.15 percent and Banking Working Capital Credit affects Banking Investment Credit at the beginning of the period by 0.00 percent and at the end of the period by 1.41 percent. Thus, the H3 hypothesis is rejected and H0 is accepted. The results of this study are in line with the research of Tui and Kapriani (2021) which shows that investment credit and working capital credit simultaneously have a positive and significant effect on probability, meaning that these two variables can increase probability. The results of this study are supported by Keynesian theory, namely that one of the factors of inflation is investment and circulating interest rates. When the interest rate on working capital credit increases, Banking investment credit decreases which causes inflation. Conversely, when interest rates are low, Banking investment credit increases because many people make investments but it results in price increases which affect working capital credit.

CONCLUSION

There is a one-way relationship between Inflation and Banking Investment Credit. In the long term, Banking Investment Credit has a negative and insignificant effect on Inflation. While in the short term, Inflation has a negative and significant effect on Banking Investment Credit at

lag 1, but at lag 2 it has a negative and insignificant effect on Banking Investment Credit. There is a fluctuating response and contribution between Inflation and Banking Investment Credit.

There is no causal relationship between Inflation and Banking Working Capital Credit. In the long term, Working Capital Credit has a positive and insignificant effect on inflation. In the short term, Banking Working Capital Credit has a positive and insignificant effect on Inflation. This shows that working capital credit which is expected to help reduce inflation and improve the economy actually has an impact on causing inflation because the large number of people who get working capital increases the demand for goods which ultimately increases the value of the goods which ultimately causes inflation. Banking investment credit has a negative and insignificant effect on working capital credit in Indonesia, both long-term and short-term in Indonesia. But banking investment credit now has an effect on future working capital credit. And vice versa.

REFERENCES

- Firmansyah, M. (2022). Effectiveness of Monetary Policy Transmission Through Credit Channels Banking and Asset Prices in Achieving Inflation. *At-Tadbir: Scientific Journal Management* , 6 (2), 191. <https://doi.org/10.31602/atd.v6i2.6897>
- Fungacova, Z., Nuutilainen, R., & Weill, L. (2016). Reserve requirements and the bank lending channels in China. *In Journal of Macroeconomics* , 50 .
- Jopie, & Jusuf. (2014). *Credit Analysis for Credit (Account) Officer*. (Second Edition). PT Gramedia Main Library.
- Nurjannah, & Nurhayati. (2017). The Influence of Investment Credit Distribution, Working Capital Credit and Credit. *Journal of Ocean Economics and Business* , 8 (1), 590–601.
- Panjaitan, RSN (2021). *Analysis of Factors Affecting Credit Distribution Banking Working Capital in Central Kalimantan Province* . 7 (1), 13–24.
- Polihu, H.A., Rotinsulu, T.O., & Mandei, D. (2023). Analysis of the Effect of Credit Interest Rates and Inflation Against Demand for Consumer Credit in North Sulawesi in 2012 – 2021. *Scientific Periodical Journal of Efficiency* , 23 (8), 85–96. <https://medium.com/@arifwicaksanaa/pengertian-use-case-a7e576e1b6bf>
- Putri, Ra. FA, Suhadak, & Sulasmiyati, S. (2016). The Influence of Inflation and Exchange Rates on Indonesian Exports of Textile and Electronic Commodities to South Korea (Pre- and Post-ASEAN Korea Free Trade Agreement Study 2011). *Journal of Business*

Administration

35

<http://administrasibisnis.studentjournal.ub.ac.id/index.php/jab/article/view/1352>

Putri, VK (2017). Analysis of the Influence of the Amount of Money in Circulation, Bank Certificate Interest Rates Indonesia and Investment Credit Interest Rates Against Inflation in Indonesia . 4 , 1.

Rahman Farizi, R., Kornitasari, Y., & Komilasari, Y. (2023). Analysis of the Influence of the Number of Rice Supplies and Rice Prices Against Inflation Formation in DKI Province Jakarta. *Journal of Development Economic and Social Studies* , 2 (2), 386–403. <http://dx.doi.org/10.21776/jdess.2023.02.2.14>

Rohimuddin, & Panjawa, JL (2022). the Impact of Food Commodity Prices on Inflation in Bekasi. *Journal of Management, Accounting, General Finance and International Economic Issues* , 2 (1SE-Articles), 193–206. <https://doi.org/10.55047/marginal.v2i1.376>

Tenda, A., Kalangi, J., & Djafar, S. (2014). Factors Affecting Demand Investment Credit at Public Banks in Gorontalo Province. *Journal of Economic Research, Management, Business and Accounting* , 2 (1), 133–141.

Tui, S., & Kapriani. (2021). The Influence of Investment Credit and Working Capital Credit on Company Profitability at PT. Bank Negara Indonesia (Persero) Tbk . 1 (2), 78–87.