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Credit Channel Transmission of Monetary Policy: How to Promote Growth in Indonesia?

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ABSTRACT

Credit plays a significant part in supporting the public economy and as a driver of financial development. Banking facilitates households and companies as deficit spending units to finance their consumption and investment. This encourages the economic growth through increased aggregate demand. This research aims to analyze the transmission of monetary policy in Indonesia through credit channel, how the monetary policy affects economic growth. For monthly data 2017-2022, with the Vector Error Correction Model (VECM) and Vector Auto Regressive (VAR), the research results show that economic growth provides a negative response to consumption shocks on the household liquidity effect credit channel. While through the balance sheet channel, economic growth responds positively to investment shocks. The balance sheet channel is more effective in transmitting monetary policy credit channels targeting economic growth in Indonesia during the research period. Investment as an engine of growth is achieved through optimizing the role of banking intermediation in productive rather than consumer financing because it has a greater multiplier effect on the economy.

Keywords: Balance Sheet Channel, Credit Channel, Economic Growth, Household Liquidity Effect, Monetary Policy

INTRODUCTION

The monetary policy transmission mechanism is a policy used to influence the economy actively (Moreira, Mendonça, & Sachsida, 2021). Bank Indonesia (BI) uses six monetary policy transmission channels, namely price stability, credit interest rates, asset prices, exchange rates, and expectations. Bank Indonesia uses these six channels to achieve the objectives of monetary policy, namely price stability, economic growth, employment opportunities, and balance of payments (Warjiyo, 2017). Deposit rates and bank lending rates will change as the BI rate change. When the economy is experiencing sluggishness, Bank Indonesia will implement expansionary policies though lower interest rates to encourage economic activity. A decrease in interest rates will affect the size of lending rates, which in turn will increase the demand for credit from companies and households. This reduction in lending rates will also reduce the cost of capital for companies to make investments which will further affect consumption and investment activities which will increase and economic activity will be more stretched. If economic activity is considered too fast and inflationary pressures increase, Bank Indonesia will respond by raising interest rates to reduce inflationary pressures (Bank Indonesia, n.d.).

Among the transmission channels of monetary policy is through the credit channel. The credit channel can be through the balance sheet of the company (balance sheet channel) and household liquidity effect. Credit has an important role in financing the national economy and as driving force for economic growth. The existence of credit helps households to consume and helps investment for companies that cannot do so with capital from their own companies (Afdol, Mardiana, & Widayatsar, 2022). As an economy that is relatively dependent on the financial and credit sectors, analyzing the transmission of monetary policy through the credit channel to economic growth in Indonesian is important to understand how monetary policy can affect economic growth in Indonesia through its influence on the credit sector.

Research on credit channel monetary policy transmission is very important to know how monetary policy can affect overall economic growth. Based on the background that has been described, the problem identified in this study is how the transmission of expansionary monetary policy (lowering the benchmark interest rate) increases economic growth in Indonesia in January 2017 - December 2022. Based on the background and problem formulation that has been described, the purpose of this study is to analyze the transmission of expansionary monetary policy (lowering the benchmark interest rate) in increasing economic growth in Indonesia January 2017 - December 2022.

LITERATURE REVIEW

Monetary policy is a policy of the monetary authority or central bank in the form of controlling the amount of monetary to achieve the desired economic development in the form of macro stability reflected through price stability (inflation rate) and an increase in real output (economic growth) (Warjiyo, 2017; Alim, Setiyantono, & Zakiah, 2021). Monetary policy transmission describes how changes made by the Central Bank for its monetary policy settings flow through economic activity and inflation. The purpose of monetary policy is to achieve internal balance which can be seen through high economic growth, price stability, equitable development, and external balance as well as achieving macroeconomic goals, namely maintaining economic stability which can be measured by employment opportunities, price stability, and achieving balance in the international balance of payments (Herlina, 2013).

The complexity of the monetary policy transmission mechanism is related to changes in the role and operation of monetary policy transmission channels in the economy (Warjiyo, 2017). In an open economy, the development of a country's economy will be influenced by the economic and financial development of other countries that occur through changes in exchange rates, export and import volumes, or through the amounts of inflows and outflows of funds from the country concerned. Under these conditions, the role of other channels such as interest rates, credit, exchange rates, and asset prices in the transmission of monetary policy becomes important. The role of other monetary policy transmission channels such as expectations also needs to be considered. In the long run, the objective of monetary policy transmission is to stabilize both currency supply and output without negatively impacting economic growth (Fabris in Ghauri, Hamid, & Zaman, 2022).

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The monetary policy stance is operationally reflected in the setting of policy rates which are expected to affect interest rates in the money market and be transmitted to bank interest rates, asset prices reflected in stock prices, and exchange rates (Aryani, 2023). The effectiveness of monetary policy is measured using two indicators. First, how much speed or time lag is needed to affect the final target. Second, how strong the strength of the variables in each path responds to changes that are shock from monetary policy instruments and other variables to achieve the ultimate goal of monetary policy (Kuncoro, 2012).

Fahriyansah (2018) conducted research with the title "The Effect of Credit on Economic Growth in Indonesia" with a data period of 2010-2016. The independent variables used in this study are credit and control variables consisting of inflation, infrastructure, investment, and labor. The analytical tool used is panel data regression. The results showed that credit growth has a significant effect on economic growth but has a negative relationship. This is due to the imbalance of credit growth with the growth of output that can be generated in the economy so that all credit funds are not fully channeled. Meanwhile, inflation and investment significantly affect economic growth and have a positive relationship.

Marshal (2019) in his research entitled "Monetary Policy Transmission Channels and Economic Growth in Nigeria" using the Vector Auto Regression (VAR) analysis tool concluded that the interest rate channel and credit channel are significant channels for transmitting monetary policy and can encourage economic growth in Nigeria.

Tanjung (2021) conducted a study entitled "Bank Lending Channel of Monetary Policy Transmission: New Evidence from Indonesia". The analytical tool used is the Vector Error Correction Model (VECM) model. The type of data used is secondary data from 2010-2020 in quarterly form. The results showed that the monetary policy transmission mechanism through the bank credit channel had a weak effect on economic growth in Indonesia as evidenced by the response to the monetary policy instrument shock received by each variable was not sustainable. There is a gap in the response of the bank loan variable to the bank deposit shock and the response of the investment shock to the bank loan shock. So, it takes a long time for the expansion of monetary policy instruments on investment that have an impact on output.

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RESEARCH METHOD

This study uses time series data for the period 2017-2022. The data obtained is sourced from the Indonesian Economic and Financial Statistics (SEKI), Yahoo Finance, the Financial Services Authority (OJK), and publications from the Central Statistics Agency (BPS). This study uses analytical tools with the Vector Error Correction Model (VECM) and Vector Auto Regressive (VAR) methods. Vector Error Correction Models (VECM) is an econometric model used to analyze the relationship between variables (Suripto, Novayadi, Sukarniati, & Kurniawan, 2023). Through the Impulse Response Function (IRF), this study wants to know how the response generated by the shock of the benchmark interest rate, the composite stock price index, consumptive credit, productive credit, consumption, and investment to economic growth in Indonesia in 2017-2022.

RESULTS

Data Stationary Test

Based on the Phillip-Perron (PP) test results in table 1, all variables do not pass the level test because the PP t-statistic value is greater than the MacKinnon critical value with a confidence level of 5 percent. This indicates that the data is not yet stationary at the level and should be improved at the first difference level. After going through the stationarity test at the first difference level, all data passes the test because it has a PP t-statistic value that is smaller than the MacKinnon critical value with a confidence level of 5 percent so that it can be continued for further testing.

Table 1. Stationarity Test Results

Variables	Degree of Integration	MacKinnon Critical Value (5%)	Phillip-Perron t-statistic	Probability (p-value)
BI7DRR	Level	-2.902953	-1.374576	0.5900
	First difference	-2.903566	-5.297661	0.0000
Composite Stock Price Index (IHSG)	Level	-2.902953	-1.813422	0.3712
	First difference	-2.903566	-6.873989	0.0000
Consumptive Credit (KREDKONSUM)	Level	-2.902953	-1.518497	0.5186
	First difference	-2.903566	-8.179531	0.0000
Productive Credit (KREDPROD)	Level	-2.902953	-0.770259	0.8211
	First difference	-2.903566	-.10.16161	0.0001
Consumption (KONSUMSI)	Level	-2.902953	-1.837636	0.3597
	First difference	-2.903566	-8.642237	0.0000
Investment (INVEST)	Level	-2.902953	-2.135145	0.2319
	First difference	-2.903566	-8.622816	0.0000
Economic Growth (PE)	Level	-2.902953	-1.834354	0.3612
	First difference	-2.903566	-7.659603	0.0000

Optimum Lag

Household Liquidity Effect

Based on the lag test conducted with the results shown table 2 that at lag 0 there are five criteria that meet both the Likelihood Ratio Test (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC), and Hannan-Quinn (HQ).

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Table 2. Household Liquidity Effect Lag Test

Lag	Logl	LR	FPE	AIC	SC	HQ
0	888.7637	NA*	1.07e-18*	-27.19273*	-27.02547*	-27.12673*
1	906.7548	32.66078	1.33e-18	-26.97707	-25.97351	-26.58110
2	921.0408	23.73672	1.87e-18	-26.64741	-24.80754	-25.92146
3	938.6964	26.61923	2.43e-18	-26.42143	-23.74526	-25.36551
4	946.3079	10.30476	4.44e-18	-25.88640	-22.37392	-24.50050
5	965.7032	23.27432	5.93e-18	-25.71394	-21.36517	-23.99807
6	993.6072	29.19196	6.52e-18	-25.80330	-20.61822	-23.75745

Balance Sheet Channel

The optimum lag test is 0 which meets four criteria, namely Final Prediction Error (FPE), and Akaike Information Criterion (AIC), and Schwarz Information Criterion (SIC), and Hannan-Quinn. Then the optimum lag used is at lag 0 (Table 3).

Table 3. Balance Sheet Channel Lag Test

Lag	Logl	LR	FPE	AIC	SC	HQ
0	828.0078	NA	6.92e-18*	-25.32332*	-25.15606*	-25.25732*
1	846.6441	33.83210	8.43e-18	-25.12751	-24.12395	-24.73154
2	858.4435	19.60502	1.28e-17	-24.72134	-22.88147	-23.99539
3	873.8310	23.19968	1.79e-17	-24.42557	-21.74940	-23.36965
4	892.0595	24.67858	2.36e-17	-24.21722	-20.70474	-22.83132
5	917.0801	30.02474	2.65e-17	-24.21785	-19.86907	-22.50198
6	953.4525	38.05109*	2.24e-17	-24.56777	-19.38269	-22.52192

Cointegration Test

Household Liquidity Effect

Based on the cointegration results in table 4 using Johansen method, it is known that there is one independent linear combination at the H_0 level of the variables contained in the model. This means that the alternative hypothesis stating the existence of a cointegration relationship can be accepted. It can be seen that the trace statistic value > Critical Value with α = 0.0009 (88.05064 > 69.81889). Therefore, through this Johansen test on the monetary policy transmission path of the household liquidity effect using VECM method for further research.

Table 4. Cointegration Test of Household Liquidity Effect

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.502529	88.05064	69.81889	0.0009
At most 1	0.204406	39.17545	47.85613	0.2533
At most 2	0.191532	23.16878	29.79707	0.2379
At most 3	0.070417	8.285789	15.49471	0.4354
At most 4	0.044337	3.174473	3.841466	0.0748

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Balance Sheet Channel

Based on the Johansen test cointegration results in the table 5, it can be seen that the Trace statistic value < Critical value with α = 0.1867 (61.70594 < 69.81889). This indicates that there is no cointegration relationship between variables. Then also in several other values show Trace statistic < Critical Value with $\alpha > 0.05$ so it can be said that the Balance Sheet Channel does not have cointegration between variables. Therefore, through this Johansen test on the transmission of monetary policy, the balance sheet channel uses the VAR method for further research.

Table 5. Cointegration Test of Balance Sheet Channel

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.305494	61.70594	69.81889	0.1867
At most 1	0.239707	36.18715	47.85613	0.3870
At most 2	0.149331	17.00351	29.79707	0.6398
At most 3	0.042295	5.682282	15.49471	0.7327
At most 4	0.037248	2.657183	3.841466	0.1031

Impulse Response Function (IRF)

Household Liquidity Effect

The IRF analysis at table 6 shows that the response of the stock price index (IHSG) variable is insignificantly positive to the benchmark interest rate (BI7DRR). Besides, the response of consumptive credit is significantly positive to the Jakarta Composite Index (IHSG) form the second month to the tenth month (Table 6). This indicates that any increase in consumptive credit.

Table 6. IRF Analysis of Household Liquidity Effect

Shock Variables	Variables that Respond	Response	Start Month
Bi-7 Days Repo Rate	IHSG	Permanent Positive	Start of 2nd month
IHSG	Consumptive Credit	Permanent Positive	Start of 2nd month
Consumptive Credit	Consumption	Permanent Positive	Beginning of the 1st month
Consumption	Economic Growth	Permanent Negative	Start of the 5th month

It can be seen that the response of consumptive credit is permanently positive to Composite Stock Price Index (IHSG) starting at the beginning of the second month. This indicates that any increase in stock prices will be followed by an increase in consumptive credit. When stock prices rise, this can increase consumer confidence and encourage them to take out consumer credit to buy more expensive goods for other purposes. Consumers tend to feel richer and have more money available to spend when stock values rise. In addition, as stock prices rise, the value of consumers collateral will also increase, allowing them to obtain credit more easily and increasing their ability to repay the consumptive credit applied for.

Balance Sheet Channel

In the IRF graph analysis results shown in the table 7, it can be seen that the composite stock price index (IHSG) to the benchmark interest rate has a negative response starting in the second month. The negative decline in the impulse response graph indicates that when the benchmark interest rate rises, stock prices tend to decline. This means that investors tend to divert their funds to other investment instruments that provide higher and safer returns than stocks, thus lowering demand and stock prices.

Table 7. IRF Analysis of Balance Sheet Channel (Consumptive Credit)

Shock Variables	Variables that Respond	Response	Start Month
Bi-7 Days Repo Rate	IHSG	Permanent Negative	Start of 2nd month
IHSG	Productive Credit	Permanent Positive	Start of 3rd month
Productive Credit	Investment	Permanent Positive	Beginning of the 1st month
Investment	Economic Growth	Permanent Positive	Beginning of the 1st month

DISCUSSION

The IRF analysis at table 6 shows that the response of the stock price index (IHSG) variable is insignificantly positive to the benchmark interest rate (BI7DRR). This shows that stocks do not always have a negative response to the benchmark interest rates, but can go hand in hand with benchmark interest rates or have a complementary relationship where an increase in benchmark interest rates can also increase stock prices. An increase in the benchmark interest rate can signal that the economy is experiencing a recovery of reflation. This can increase demand for goods and services and increase the value of shares companies related to these sectors. This result is similar to previous studies that show a positive relationship between benchmark interest rates and stock prices conducted by Subburayan and Srinivasan (2014) in the Indian Stock Market and Mutuku and Ng'eny (2015) in the Kenyan Equity Market.

According to the results in Table 6 that shows the response of consumptive credit is significantly positive to the Jakarta Composite Index (IHSG) form the second month to the tenth month, this can increase consumer confidence and encourage them to take out consumer credit to buy more expensive goods or for other purposes when stock prices rise. Consumers tend to feel richer and have more money available to spend when stock values rise. In addition, as stock prices increase, the value of consumers collateral will also increase, allowing them to obtain credit more easily and increasing their ability to repay the consumptive credit applied for.

The response of consumptive credit is significantly positive to the Jakarta Composite Index (IHSG) form the second month to the tenth month (Table 6). This indicates that any increase in consumptive credit. When stock prices rise, this can increase consumer confidence and encourage them to take out consumer credit to buy more expensive goods or for other purposes. Consumers tend to feel richer and have more money available to spend when stock values rise. In addition, as stock prices increase, the value of consumers collateral will also increase, allowing them to obtain credit more easily and increasing their ability to repay the consumptive credit applied for. From table 6 in research results, the impulse response graph between consumptive credit can show a positive response because consumptive credit can provide access to additional capital needed to fulfil consumption needs. When consumers have access to consumptive

credit, they can use it to purchase goods or services that they may not be able to purchase in cash. As such, consumptive credit can help increase consumption and strengthen demand in the economy. The impulse response graph between consumption and consumptive credit can show a positive response because consumptive credit can provide access to additional capital needed to fulfil consumption needs. When consumers have access to consumptive credit, they can use it to purchase goods or services that they may not be able to purchase in cash. As such, consumptive credit can help increase consumption and strengthen demand in economy.

The economic growth responds negatively from the beginning of the fifth month (Table 6). The impulse response graph between economic growth and consumption can show a negative response due to an effect called the replacement effect the replacement effect occurs when an increase in economic growth leads to an increase in income which in turn can trigger an increase in consumption. However, when consumption increases, some people may be encouraged to save their money for the future or to fulfil other financial needs such as debt repayment, investment, or savings. In this case, the substitution effect may result in consumption, which was initially expected to increase in response to economic growth, reversing and decreasing. Therefore, the impulse response between economic growth and consumption may show a negative response.

From Table 7, the impulse response graph between productive credit and stock price shows how a change in productive credit will affect the stock price which responds positively from the beginning of the third month. When the impulse response graphs show a positive response, it means that changes in productive credit will increase stock prices. This can happen because productive credit can have a positive impact on company performance which in turn can affect stock prices. Productive credit can help companies to increase their production capacity, expand their market reach, or make other investment that can improve their efficiency and productivity.

The impulse response between investment and productive credit looks flat because there are several factors that affect the relationship between the two variables, so the impact of changes in productive credit on investment is not very significant. It can be capacity to meet the demand. However, as the level of investment continues to increase, its positive impact on economic growth will diminish as the market is saturated and increased production no longer yields the same returns as before.

The impulse response between economic growth and investment is permanently positive from the beginning of the first month, although it decreases due to so-called diminishing marginal effect. It can be seen that the impulse response between economic growth and investment decreases due to an effect called the diminishing marginal effect. The diminishing marginal effect occurs when additional investment does not give the same result as the previous investment. In this case, when economic growth increases, investment will initially generate high returns as market demand increases and firms need to increase production capacity to meet the demand. However, as the level investment continues to increase, its positive impact on economic growth will diminish as the market is saturated and increased production no longer yields the same returns as before.

CONCLUSION

Expansionary monetary policy increases economic growth in Indonesia through the balance sheet credit channel. This is indicated by economic growth that responds permanently positively to investment from the beginning of the second month to the end of the tenth month. Economic growth and investment have a close relationship because

investment can be the main driver of economic growth. Investment can increase productivity, create new jobs, and encourage technological innovation, all of which can help increase economic growth. Otherwise, household liquidity effect credit channel indicates that economic growth responds negatively to consumption from the fourth month to the tenth month. The response of economic growth to consumption shocks shows a negative response due to an effect called the replacement effect.

The results of the variance decomposition analysis show that in the balance sheet channel and the household liquidity effect channel, the joint stock prices index contributes the most because increase in stock prices will increase the level of wealth which increases the level of consumption and investment which has an impact on economic growth. The corporate balance sheet credit line is better than the household liquidity effect line because it has lower risk and is more stable in the long run. Companies usually have a more stable and stronger financial condition than households.

Bank Indonesia as the central bank continues to run an expansionary policy to encourage companies to take out loans and expand their businesses, thereby boosting economic growth through the corporate balance sheet credit channel. Bank Indonesia can lower the benchmark interest rate to encourage people to take loans and increase consumption, thereby increasing economic growth through the household liquidity effect credit channel. In addition, Bank Indonesia can improve people's financial literacy through social media campaigns of seminars on the benefits of consumption credit and how to use credit wisely. This can help people understand the benefits of credit and minimize the risk of uncontrolled credit. As such, people will find it easier to gain access to credit and increase their purchasing power, thereby fueling the national economy.

Governments and capital market regulators can help develop adequate capital market infrastructure and reduce transaction costs to ease access to finance for households and companies. After obtaining balance sheet credit channel, the company must use the credit facility wisely and manage its use carefully. Ensure that the funds obtained are used for productive activities and can provide adequate returns.

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DECLARATION OF CONFLICTING INTERESTS
The authors declared no potential conflicts of interest.

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