The Impact of Monetary Policy on Economic Growth in Vietnam

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ARTICLE INFO	ABSTRACT
Published Online: 29 June 2024 **Corresponding Author:** **Dao Van Hung**	This article focuses on investigating the impact of monetary policy on economic growth in Vietnam in both the short and long term using the Vector Error Correction Model (VECM) over the period from 2005 to 2023. The research results indicate that, in the long term, both M2 money supply and exchange rates have a positive impact on economic growth. Among these, the influence of the M2 money supply on growth is greater than that of exchange rates, suggesting that adjustments in the M2 money supply allow for immediate and comprehensive effects on the economy compared to adjustments in exchange rates. Conversely, real interest rates have an inverse effect on GDP in the long term.

1. INTRODUCTION

Economic growth is a crucial macroeconomic indicator and a primary goal for most countries worldwide. It holds significant importance for the development of a nation, serving as the material foundation to address a myriad of socio-economic issues, particularly social problems such as poverty alleviation, improving living standards, and ensuring stable employment for workers. Rapid growth rates can enable a poor country to catch up with and surpass wealthy nations. In the context of globalization, developing countries often prioritize high economic growth as their foremost objective (Twinoburyo & Odhiambo, 2018). To achieve economic growth, many countries must comprehensively, synchronously, and flexibly employ a variety of policies, among which monetary policy stands out as one of the vital national financial policies. This policy is widely studied and analyzed in both theoretical and practical dimensions and is considered in harmony with other socio-economic goals by most countries worldwide.

In Vietnam, monetary policy, akin to the economic transition period, serves as a pivotal tool for implementing macroeconomic policy. Over two decades, Vietnam's monetary policy has undergone significant changes to adapt to global economic developments. However, in practical implementation, money supply decisions during various periods have been assessed as the causes of economic instability in Vietnam, such as the impact on inflation from 2011-2013, the high degree of dollarization, the sensitivity of the Vietnamese dong to global economic fluctuations, and the administratively heavy-handed interest rate management by the State Bank of Vietnam (SBV). Notably, the high time lag of the central bank's monetary decisions. Therefore, researching and evaluating the impact of monetary policy on economic growth is crucial for policy formulation and implementation, especially in providing reliable evidence for administrative operations.

2. DATA AND RESEARCH MODEL

To research the impact of monetary policy on economic growth in Vietnam, this research uses the gross domestic product (GDP) as the dependent variable; the independent variables include exchange rates, M2 money supply, and real interest rates.

*Interest rate*s are a crucial tool for the SBV in conducting monetary policy. Changes in interest rates have broad effects on economic agents such as households, businesses, and financial institutions. For instance, interest rates directly affect the borrowing costs for consumers and businesses. When interest rates decrease, borrowing becomes cheaper, encouraging increased spending and investment, thereby contributing to economic growth. Conversely, higher interest rates can make borrowing costs more expensive, leading to reduced consumer spending and decreased business investment. Additionally, maintaining high interest rates for an extended period makes home purchases more expensive, reducing housing demand. This can lead to decreased construction activity, slowing down related industries such as construction and real estate, thus negatively impacting economic growth (Mishkin, 1988). This research employs real interest rates and expected interest rates, both of

which are hypothesized to have a positive impact on GDP in Vietnam in the long term.

Regarding exchange rates, the relationship between exchange rates and GDP can be influenced by various factors. In terms of export competitiveness, a weaker currency can make a country's exports more competitive in the global market by reducing the costs of goods and services for foreign buyers. Increased exports and reduced imports lead to a trade surplus, thus promoting economic growth. On the other hand, domestic currency depreciation can increase import costs, leading to higher long-term inflation, which can reduce consumer purchasing power and economic stability. In terms of investment and capital flows, exchange rates can affect foreign investment inflows. When the exchange rate increases, meaning the domestic currency depreciates against foreign currencies, the assets and investments of that country become more attractive to foreign investors, resulting in more foreign capital inflow. This inflow funds projects, businesses, and infrastructure, supporting economic growth (Nguyen Van Tien, 2010). However, if a country has significant foreign debt denominated in foreign currencies, currency depreciation can lead to higher debt repayment costs, directly impacting the government budget and reducing GDP growth. This research expects that exchange rates can have either a positive or negative impact on GDP in Vietnam in the long term.

Regarding M2 money supply: A higher money supply can lead to lower interest rates, creating favorable conditions for businesses to borrow capital to expand their investment activities. Additionally, for consumers, an increased money supply means more money available for spending on goods and services. Increased consumer spending can lead to higher demand for products, prompting businesses to produce more to meet this demand, which can result in higher GDP. On the other hand, if the money supply increases significantly without a corresponding increase in the production of goods and services (real output), it leads to a rise in the general price level, causing inflation and negatively impacting the economy (Behrman, 1981). This research expects that the M2 money supply will have a positive impact on GDP in Vietnam in the long term.

Table 1. Variable Descriptions in the Model

Variable Name	Unit	Measurement Method	Data Source	Symbol
Gross Domestic Product (GDP)	VND billion	Natural logarithm of GDP value	General Statistics Office of Vietnam	lgdp
Exchange Rate	VND/USD	Natural logarithm of the exchange rate	State Bank of Vietnam	lex
Real Interest Rate	%		State Bank of Vietnam	ir
M2 Money Supply	VND billion	Natural logarithm of M2 money supply	State Bank of Vietnam	lm2

The research utilizes quarterly time series data from Q1/2005 to Q4/2023, comprising 72 observations. The sources of the data for the variables are described in Table 1, where the data for gross domestic product is taken at constant 2010 prices; the real interest rate is the lending rate adjusted for inflation.

The research model is generally formulated as follows:

$$lgdp = f(lex, lm2, ir)$$

3. RESEARCH RESULTS
3.1. Descriptive Statistics
Table 2. Descriptive Statistics of Variables

Variable	lex	ir	lm2	lgdp
Mean	20.258,45	10,08758	5.588.300	692.260,4
Median	21.036	9,555	4.462.789	643.717,3
Std. Dev.	2.749,581	3,142602	4.224.762	245.751,3
Min	15.808,67	6,953333	590.473	316.635,2
Max	23.629,21	20,1	14.226.792	1.417.248
Observations	72	72	72	72

The descriptive statistics of the variables presented in Table 2 show that the interest rate variable has the lowest average value at 10.09%, while the M2 money supply variable has the highest average value, exceeding VND 5.5 million billion. Meanwhile, the average values of the exchange rate and real GDP are VND 20,258.5/USD and VND 692,260.4 billion, respectively.

3.2. Testing for Stationarity and Cointegration to Determine Model Suitability

* Unit Root Test

To ensure the conditions for using the VECM model to analyze impacts, this research conducts the Augmented Dickey-Fuller (ADF) unit root test to determine the stationarity of the data used in the model. The results of the unit root test are presented in Table 3 below.

Table 3. Augmented Dickey-Fuller Unit Root Test Results

Variable	ADF Test	Critical Value at 5% Significance Level	Critical Value at 1% Significance Level	Conclusion
lgdp	-1,219697	-2,906210	-3,533204	Non-stationary
D(lgdp)	-3,099410**	-2,906210	-3,533204	Stationary
lex	-1,303387	-2,903566	-3,527045	Non-stationary
D(lex)	-5,390430***	-2,903566	-3,527045	Stationary
ir	-2,816221*	-2,902953	-3,525618	Stationary
D(ir)	-6,897533***	-2,905519	-3,531592	Stationary
lm2	-8,255485***	-2,902953	-3,525618	Stationary
D(lm2)	-4,054379***	-2,903566	-3,527045	Stationary

Note: L denotes the logarithm of the data series, and D denotes the first difference. The null hypothesis H_0: The data series has a unit root (i.e., it is non-stationary). The alternative hypothesis H_1: The data series does not have a unit root (i.e., it is stationary). Symbols ***, **, * correspond to significance levels of 1%, 5%, and 10%, respectively.

Source: *Author's calculations using Eviews 10.*

The test results indicate that the variables *ir* and *lm2* are stationary at significance levels of 10% and 1%, respectively. Additionally, the test results show that the variables lgdp and lex have unit roots and their data series are non-stationary. The research employs the Augmented Dickey-Fuller unit root test to examine the stationarity of the first differenced series of the variables. The results of the first differenced unit root test show that the variables D(lm2), D(inf_rate), D(lgdp), and D(lvni) are stationary at a 1% significance level. This means that the variables lm2, inf_rate, lgdp, and lvni are all stationary at their first differences at a 1% significance level.

* Optimal Lag Selection

The optimal lag length is determined based on five criteria: LR, PFE, AIC, SC, and HQ. The lag length chosen is the one identified as optimal by the majority of these criteria. The results indicate that all criteria suggest an optimal lag length of 5. Therefore, this research uses an optimal lag length of 5 to conduct the Johansen cointegration test for the variables.

Table 4. Cointegration Test

* Cointegration Vector Test

Cointegration Relationship	Eigenvalue	Trace Test		
		Trace Statistic	Critical Value at 5%	Probability**
None*	0,53143	92,13172	47,85613	0,0000
At most 1*	0,361356	42,09911	29,79707	0,0012
At most 2*	0,165581	12,5042	15,49471	0,1343
At most 3	0,008403	0,556917	3,841466	0,4555

* *Indicates rejection of the hypothesis H_0 at the 5% significance level.*

** *MacKinnon-Haug-Michelis (1999) p-values.*

Source: *Author's calculations using Eviews 10.*

The hypothesis H_0 posits that there are at most r cointegrating relationships among the data series. The statistical significance level in Johansen's test is set at 5%. To demonstrate the long-term relationship among the variables in the model, the research conducts a cointegration test using the Trace test. The results of the Johansen cointegration test

identify 2 cointegrating relationships at the 5% significance level. This test indicates the existence of a long-term relationship between GDP and the exchange rate, real interest rate, and M2 money supply. This finding implies that the variables in the research model meet the conditions for the VECM model due to their long-term relationship. Therefore, the Vector Error Correction Model (VECM) will be used to estimate GDP.

3.3. Estimation Results
3.3.1. Long-term Estimation Results
After conducting the cointegration test and confirming the existence of long-term relationships among the variables in the model, the research employs the Vector Error Correction Model (VECM) to estimate GDP in the long term.

Table 5. VECM Estimation Results

Dependent Variable: LM2			
Variable	**Coefficient**	**Standard Error**	**T-statistic**
Constant	0,250278		
ir	-0,005058***	0,00166	3,04987
lm2	0,381208***	0,01384	-27,5379
lex	0,899599***	0,10430	-8,62486

*** *indicates statistical significance at the 1% level.*
Source: *Author's calculations using Eviews 10.*

The estimated model for GDP is expressed as:
$$lgdp = 0,2503 - 0,0051\ ir + 0,3812\ lm2 + 0,8996\ lex$$

The VECM estimation results indicate that all coefficients of the independent variables are statistically significant at the 1% level. The variables M2 money supply (lm2) and exchange rate (lex) have a positive impact on GDP, whereas the real interest rate (ir) has a negative impact on GDP.

- *Impact of M2 Money Supply on GDP Growth*: The estimated coefficient of GDP with M2 is 0.38, meaning that a 1% increase in M2 leads to an average GDP increase of 0.38%. In the long term, when money supply is injected into the economy, the liquidity of individuals and businesses increases, which leads to lower interest rates. This stimulates borrowing by individuals and businesses, promotes consumer spending, and allows businesses to increase their capital for expanding operations and investment. The increase in consumer and business spending helps boost aggregate demand, which can lead to increased production growth and, consequently, higher GDP.

- In response to exchange rate fluctuations in October 2022, the SBV increased policy interest rates to stabilize the exchange rate. As exchange rate and inflation pressures were projected to ease, and supply chain disruptions gradually improved, the SBV subsequently lowered interest rates again to support the economy. Additionally, in the context of a favorable foreign currency supply from trade surpluses, remittances, foreign direct investment (FDI), and net foreign borrowing, this provided an opportunity for the SBV to resume USD purchasing operations to increase foreign exchange reserves and support system liquidity. This action would reduce the overall deposit interest rate level, improve money supply growth, and support long-term liquidity for the economy.

- Impact of Exchange Rates on GDP Growth: When the exchange rate increases by 1% (the domestic currency depreciates by 1%), GDP increases on average by 0.8996%. According to the model estimation results above, the exchange rate variable has the most significant impact on GDP. It can be observed that Vietnam has consistently become an attractive destination for foreign direct investors, as establishing or expanding operations in the country becomes cost-effective when exchange rates are favorable. This can lead to increased domestic investment, job creation, and economic growth. Moreover, in terms of the balance of payments, a weaker Vietnamese currency can make imported goods and services more expensive for domestic consumers and businesses, encouraging the substitution of imported products with domestic ones. This can lead to enhanced domestic production and economic activity. Additionally, increased exports and reduced imports will help improve the balance of payments, resulting in a current account surplus, which positively contributes to GDP.

- Impact of Real Interest Rates on GDP Growth: When the real interest rate increases by 1%, GDP decreases by an average of 0.0051%. In practice, higher interest rates make it difficult for businesses to borrow for investment. When borrowing costs are high, businesses may delay or cancel investment plans, leading to reduced investment,

which limits the growth of production capacity in the economy and slows GDP growth. Additionally, the estimated coefficient of real interest rates on GDP shows that, although real interest rates negatively impact GDP, this effect is minimal. This is consistent with the reality in Vietnam, where changes in real interest rates may not significantly affect consumer and business borrowing and spending decisions. This is particularly true when interest rates in Vietnam are still low, making further reductions in real interest rates unlikely. Moreover, consumers and businesses may not react strongly to changes in interest rates, thus limiting the impact on GDP. Another significant reason why real interest rates have a negligible impact on GDP is the low sensitivity of credit in Vietnam to interest rates. This was evident during the Covid-19 pandemic when the SBV lowered interest rates, but the flow of money into the economy was limited because financial institutions exercised stringent risk control and were cautious in lending to consumers and businesses. In such a

scenario, even low real interest rates could not lead to increased borrowing and spending.

3.3.2. Short-term Estimation Results

The estimation results from the VECM model indicate the existence of a short-term relationship, with the coefficient of ECT (-1) being -0.283174 and statistically significant at the 1% level. The negative ECT (-1) coefficient implies convergence towards long-term equilibrium. When GDP deviates from its equilibrium value, the subsequent period's GDP will adjust by approximately 28.31% of the deviation to reach equilibrium.

In the short term, GDP is influenced by the money supply (M2), exchange rates, and real interest rates. Specifically, short-term GDP predominantly has a positive impact on itself; the money supply (M2) positively impacts GDP after three quarters, with an estimated coefficient of 0.77 and statistical significance at the 1% level.

Table 6. Short-term GDP Estimation Results

Variable	Coefficient	Standard Error	p-value	Variable	Coefficient	Standard Error	p-value
ECT(-1)	-0,283174***	0,066735	0,0001	lex_1	-0,619774**	0,258317	0,0207
lgdp_1	1,021787***	0,178654	0,0000	lex_2	-0,337012	0,215037	0,1242
lgdp_2	0,503037***	0,169312	0,0048	lex_3	-0,515705***	0,178939	0,0061
lgdp_3	0,459623***	0,1659	0,0082	lex_4	0,116396	0,163698	0,4808
lgdp_4	-0,477506**	0,179725	0,0109	lex_5	-0,323789**	0,14898	0,0352
lgdp_5	0,334492*	0,16886	0,0539	ir_1	0,003814***	0,000649	0,0000
lm2_1	0,04917	0,091659	0,5944	ir_2	0,002931***	0,000667	0,0001
lm2_2	-0,04564	0,095945	0,6367	ir_3	0,00242***	0,000739	0,0021
lm2_3	0,767876***	0,098389	0,0000	ir_4	0,000718	0,000724	0,3272
lm2_4	-0,311671	0,204842	0,1353	ir_5	0,000896	0,000608	0,1474
lm2_5	0,19465	0,147203	0,1929	**Constant**	-0,034778***	0,008575	0,0002

*Note: *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.*
Source: *Author's calculations using Eviews 10.*

The estimation results indicate that the exchange rate variable has a negative short-term impact on GDP. This can be explained by the fact that most export transactions by businesses in Vietnam are conducted in USD, so fluctuations in the USD/VND exchange rate can result in either losses or gains. In recent years, the global economy has faced a severe recession due to the COVID-19 pandemic, and geopolitical tensions between Russia and Ukraine have increased input material costs, leading to high inflation and disrupted supply chains. Therefore, although exports benefit from the appreciation of the USD, high freight costs directly affect the business activities of export-import companies. Additionally, companies that use foreign loans to finance their operations are most affected by exchange rate risks. In such situations,

reduced business confidence can lead to declines in both investment and consumption, which are key drivers of GDP. Regarding real interest rates, it is evident that over three consecutive quarters, real interest rates have a positive impact on GDP in the short term. This can be attributed to the fact that higher real interest rates can be used as a tool to control inflation. When inflation rises too rapidly, the SBV may increase interest rates to curb consumer and business spending. This can help stabilize prices and prevent runaway inflation, which could be detrimental to economic growth. In this context, higher real interest rates may contribute to macroeconomic stability and a more favorable business environment, potentially supporting GDP growth.

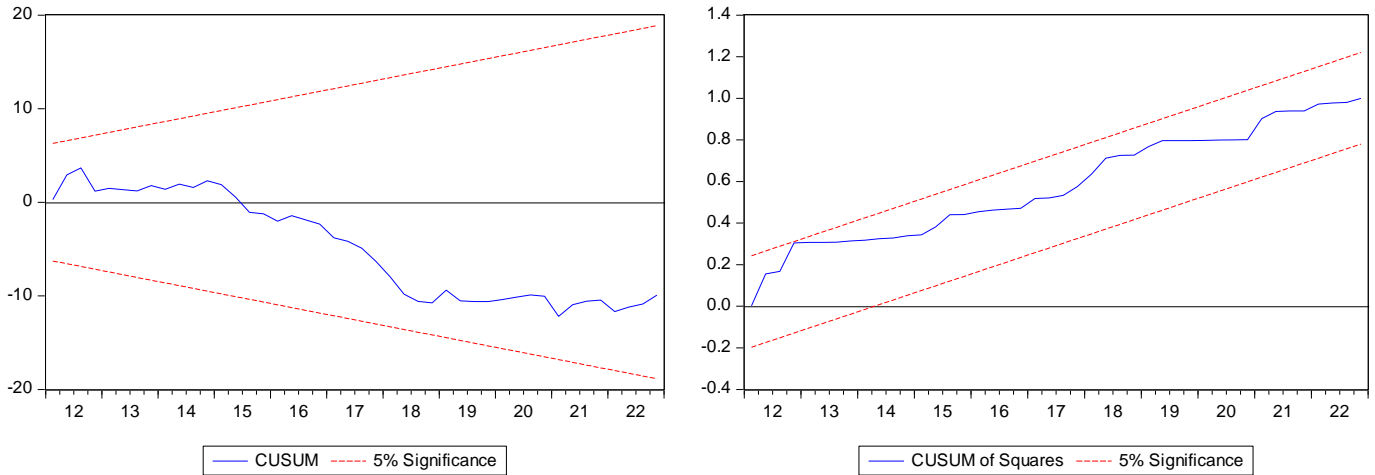*** Testing the Stability of the Economic Growth Function and Short-term Estimated Coefficients**

Figure 1. Stability Test of the Short-term GDP Function
Source: Author's compilation from Eviews 10

The stability of the short-term GDP function is assessed using the CUSUM and CUSUM-squares tests. The test results in the figure indicate that the short-term GDP function for the period 2005–2023 is stable. This confirms the reality in Vietnam that during the research period from 2005 to 2023, changes related to monetary policy were not strong enough to cause significant shocks affecting the nonlinear relationship between variables in the GDP function.
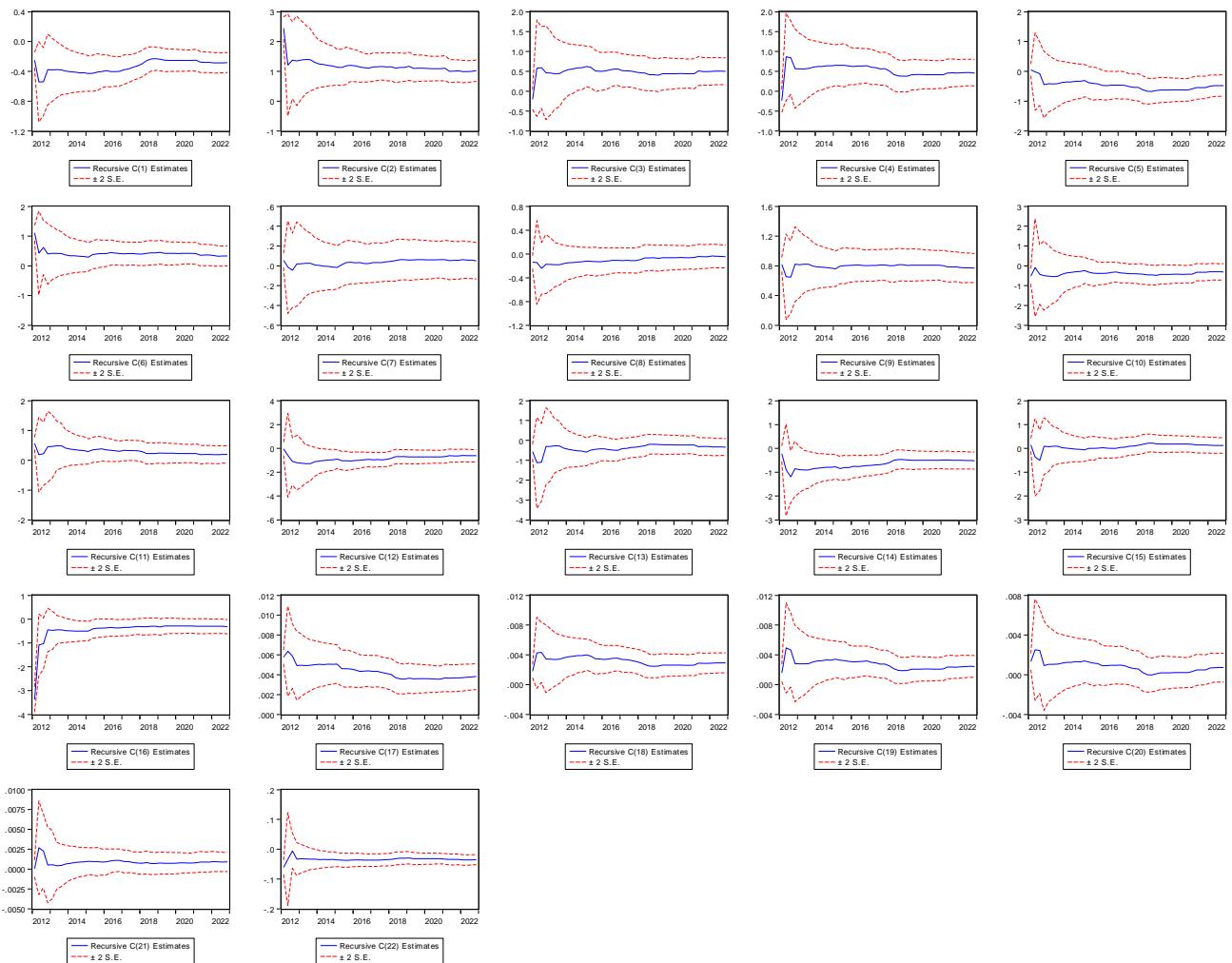

Figure 2. Stability Test Results of the Short-term GDP Function Coefficients
Source: Author's compilation from Eviews 10

4. DISCUSSION AND CONCLUSION

The research has examined the current situation and the impact of monetary policy on gross domestic product (GDP). By analyzing various factors representing monetary policy, such as M2 money supply, real interest rates, and exchange rates in both the short and long term, it is evident that monetary policy has a clear impact, significantly contributing to economic growth. The estimated results of the GDP growth model align with the expected signs and the realities of the Vietnamese economy. Moreover, the expected signs of the variables in the model are consistent with theoretical foundations and both domestic and international research, specifically:

(1) In the long-term GDP Growth Function, M2 money supply and exchange rates both have a positive impact on economic growth, with the effect of M2 money supply on growth being greater than that of exchange rates. This is because changes in the money supply are primarily under the control of the SBV through monetary policy. The SBV can directly influence the money supply by adjusting interest rates, open market operations, and reserve requirements. In contrast, exchange rates primarily affect trade and may not directly impact domestic investment and total consumption. Furthermore, changes in exchange rates typically take time to influence the economy. Therefore, direct control of the M2 money supply allows for immediate and comprehensive effects on the economy, more so than adjustments to exchange rates.

In contrast to the positive drivers of economic growth like M2 money supply and exchange rates, real interest rates have an inverse relationship with GDP. Although the expected sign of the real interest rate variable aligns with theoretical foundations and the author's expectations, its estimated coefficient is very small, indicating a negligible negative impact on GDP. In the long run, when nominal lending rates are adjusted for inflation, they tend to return to an equilibrium level consistent with the economy's stable inflation rate and natural unemployment rate. Additionally, if real interest rates increase, borrowing and investment may be curtailed in the short term. However, over time, households and businesses can adjust their saving and investment decisions in response to changes in interest rates. This means that while interest rates can influence the timing of economic decisions, they may not significantly impact the overall level of economic activity in the long term.

The adjustment speed to the long-term equilibrium of the money supply is 28.31%. This implies that a decline in GDP in the previous period will increase GDP in the current period. In summary, economic growth will self-adjust to reach equilibrium over time.

(2) In the short-term GDP Growth Function, based on the estimated results, GDP is influenced by the M2 money supply, exchange rates, and real interest rates. Specifically, in the short term, GDP generally has a positive

impact on itself after three consecutive quarters; the M2 money supply only positively impacts GDP after three quarters. Unlike the long term, exchange rates in the short term have a negative impact on GDP, while real interest rates have a positive impact on GDP after three consecutive quarters. This can be explained by the fact that an increase in real interest rates can attract foreign capital seeking higher investment returns. This can lead to an appreciation of the domestic currency, making imports cheaper and potentially boosting consumption and production of domestically produced goods.

The research results also indicate that there is always a time lag in policy implementation. Therefore, the timing and extent of the actions taken in issuing and implementing policies are crucial factors determining the SBV's effective response to economic fluctuations. Furthermore, the SBV can harmoniously combine fiscal and monetary policies to enhance policy effectiveness and steer the economy toward growth. While increasing the money supply can contribute to GDP growth, excessive and uncontrolled increases in the money supply can lead to inflation and other economic imbalances. On the other hand, if the financial channels for the economy are unblocked, especially with boosted public investment, it can improve investor and business confidence, leading to a faster money turnover and an increased money supply. Therefore, the SBV should aim to manage money supply growth in a way that promotes sustainable economic growth while controlling inflation. Additionally, the impact of external factors on the effectiveness of monetary policy on GDP should not be underestimated. Vietnam is highly integrated into the global economy, with a network of 17 free trade agreements (FTAs) and economic and trade cooperation frameworks with major economic centers. Implementing policies by enhancing fiscal discipline will help boost investor confidence, attract foreign capital, and stabilize the domestic exchange rate. Ultimately, price stability plays an indispensable role in fostering a favorable economic environment and supporting sustainable growth.

Thus, although monetary policy remains an effective tool for central banks in managing growth and economic stability, its effectiveness depends on the ability to tailor policies appropriately to different economies. As Vietnam continues its journey toward sustainable development and enhanced prosperity, the findings of this research can guide policymakers, economists, and stakeholders in adjusting monetary strategies to foster robust and comprehensive economic growth. The author's future research could expand by applying various exchange rate types, such as the nominal effective exchange rate (NEER) and the real effective exchange rate (REER), along with inflation and foreign exchange reserves, to explore the interrelationships in greater depth and with higher applicability. Furthermore, the research could also be extended by considering the unique characteristics of the Vietnamese economy, such as its

dependence on trade, susceptibility to global financial fluctuations, and the impact of technological advancements.

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