Original article

Impact of Monetary Policy on Economic Growth: Empirical Evidence in Vietnam

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Abstract

Through the secondary data collected from 2009 to 2018, the research used Var method to test the impact of monetary policy on economic growth in Vietnam. The results show that there is a relationship between the variables of monetary policy and economic growth, in which the money supply has a positive impact at a high significant level, interest rates have a negative impact on Vietnam economic growth. From the results obtained, the research proposed solutions for operating monetary policy.

Keywords: ***monetary policy, economic growth, interest rate, money supply, VAR***

1. Introduction

Monetary policy is one of important factor in macroeconomic management of open economies. Therefore, the relationship between monetary policy, economic growth and inflation has always been the focus by many studies related to monetary policy. By affecting the macroeconomic variables, monetary policy helps maintain stability and stimulate economic growth. Many studies have confirmed that the monetary policy of the central bank has a direct impact on variables in developed countries such as unemployment rate, prices, economic growth rate, and balance of payment (Anowor et al, 2016; Precious, 2014). The role of monetary policy for economic growth depends on the formulation and administration of monetary policy instruments of the central bank (Alavinasab, 2016). In the context of international integration, monetary policy plays an even more important role because it has a direct impact on capital flows of countries, thereby having a certain impact on economic growth. Therefore, capturing the impact of monetary policy on economic growth is an important key to achieve efficiency in economic activities.

2. Literature review

Monetary policy is a part and an instrument of macroeconomic policies. The basic objectives of monetary policy include high employment, economic growth, price stability, interest rate stability, financial market stability and exchange market stability (Mishkin, 2004). To operate the monetary policy, the central bank can use many different instruments such as compulsory reserve ratio, open market operations and discount lending. Through transmission channels, these tools will have a certain impact on interest rates, investment and real GDP (Roger, 2006). Theoretically, the impact of monetary policy on economic growth depends on many factors such as interest elasticity of the demand for money, if money demand is inelastic to interest rate, the money supply volume has a strong impact on market interest rates. In addition, interest elasticity of desired investment spending is also effective, if desired investment spending are inelastic with interest rates, the change of market interest rates has a strong impact on economic growth. Marginal propensity to consume is also likely to have an impact, if the marginal propensity to consume is large, the effect of investment on real economic growth will be large (Roger, 2006).

From the theoretical basis, many studies have been done to test and evaluate the impact of monetary policy on economic growth. The empirical evidences have shown many different results. Research results of Sean, M. (2019) show that variables representing monetary policy including money supply, inflation and exchange rates are positively correlated with economic growth in Cambodia. For interest rate variables, the test results show a negative correlation with economic growth. Another study was also conducted to test the impact of monetary policy on economic growth in Nigeria by Sulaiman (2014), in which the author has discovered a clear relationship between interest rates and exchange rates and economic growth, while the ratio of cash reserve and money supply has negligible impact and this relationship is only one way, there is no opposite effect of GDP on monetary policy variables.

With the same research object as Nigeria, Nwoko (2016) performed the test to evaluate the effectiveness of using monetary policy of Nigeria to stimulate economic growth from 1990 to 2011. The author used multiple regression models and OLS method to analyze the impact of money supply, average prices, interest rates and labor force on GDP. The result show that monetary policy is effective in adjusting unemployment rate, price, output and growth rate. Specifically, the average price and labor force have a strong impact on GDP and money supply has no impact on GDP, interest rates have a negative but significant impact on GDP. In the case of Kenya, Kamaan (2014) used VAR method to analyze the data and find that the monetary policy shocks have a negative and significant impact on output in two months and have a positive effect in the next 4 months. However, the impact of interbank interest rates on inflation is positive and significant in the first two and a half months, the impact was still positive but not significant

in the next 6 months. This suggests that policy decisions inevitably have an impact on economic growth. In the case of Laos, money supply has negative effect on economic growth in the long run while interest rates and exchange rates have a positive effect (Srithilat, 2017). Research by Twinoburyo (2018) has a completely different result, monetary policy has no impact on economic growth in the long term but in the short term, it has an impact through interest rate transmission channel. Beside interest rate, exchange rate, money supply, inflation, Shobande (2019) add two additional variables including domestic trade and trade balance to assess the impact of monetary policy on economic growth of Nigeria. The results show that interest rates, domestic credit and trade balance have a positive effect on long-term economic growth while money supply, inflation and exchange rates have negative effect. In addition, through time series analysis, a new finding of the study shows that past economic growth has an impact on current economic growth in the short term with latency of 1 term (for 1 year). From empirical evidences, there are many different results on the relationship between monetary policy and economic growth as well as the trend of the impact of each variable.

3. Research objectives

The overall objective of this research is to evaluate the impact of monetary policy on economic growth. The specific objectives are to test the relationship between monetary policy and economic growth, assess the impact of monetary policy on economic growth and from the results, the studies propose suitable solutions.

4. Data and Methodology

4.1 Research data and estimation methodology

The research uses a time series data of 90 observations collected from the Worldbank from 2009 to 2018, in which some data collected from the Vietnam central bank's website. Because the research uses time series data, the model estimation method chosen is VAR method.

4.2 Model and hypotheses:

The selection of basic variables and making research hypotheses are mainly based on the empirical evidences, mainly from the research of Srithilat (2017), the model is written in the following form:

$$GDP = f(M_2, EXR, INTS, INF)$$

The model is written in regression form as follow:

$$GDP = \beta_0 + \beta_1 M_2 + \beta_2 EXR + \beta_3 INT + \beta_4 INF + \varepsilon$$

In which, GDP is the gross national product, representing the economic growth. M2 is money supply, EXR is USD/VND exchange rate, INF is inflation rate, INT is market interest rate, ε is the statistical error, β0 is intercept, β1, β2, β3, β4 are the coefficient of independent variables.

Based on previous studies, the interest rate variable chosen to test is the market interest rate in the short- and long-term (Shobande (2019); Twinoburyo (2018); Srithilat (2017)), therefore, the intererest rate variable in this model used for testing will include both in short-term (INTS) and long-term (INTL).

From the research objectives, research hypothesis as follow:

1. Ho: There is no relationship between monetary policy and economic growth
   H1: There is a relationship between monetary policy and economic growth
2. Ho: Monetary policy has no significant impact on economic growth
   H1: Monetary policy has a significant impact on economic growth.

5. Empirical analysis

The result of descriptive statistics presented in table 1, the maximum value of economic growth, short-term interest rates, long-term interest rates, inflation, money supply and the exchange rate are relatively high under the impact of using indirect monetary policy instruments. Meanwhile, the minimum value is relatively low. Short-term interest rates fluctuate greatly, especially in the period from 2009 to 2013, interest rates were quite high due to the economy was experiencing financial crisis. From 2014 to 2018, long-term interest rates was about 11% per year. The money supply increased rapidly indicated the effect of interest rate instrument using.

Table 1: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Gdp	10	1.74	4.57	1.06	2.45
Ints	10	10.122	3.413141	6.96	16.95
Intl	10	13.6	3.596294	11	20
Inf	10	6.475	5.108175	.63	18.67
m2	10	4.89	2.34	1.91	8.76
Exr	10	20770.19	1724.155	17065.08	22602.05

Source: calculating from Stata

Unit root tests results in table 2 show the data of the exchange rate was stationary at the original data series. The remaining data series including economic growth, short-term interest rates, long-term interest rates, inflation, and money supply were non-stationary at the original data series, but they were stationary at the first difference of intercept with the 1% significance level.

Table 2: The result of Unit root test

Variables	Original data	The first difference
Gdp	0.3142	0.0000
Ints	0.8610	0.0000
Intl	0.7398	0.0000

Inf	0.5431	0.0000
m2	0.1893	0.0000
Exr	0.0000	0.0000

Source: calculating from Stata

Using VAR method to determine the optimal lag for the model variables, the optimal lag result for the selected model variables is 1.

Table 3: The result of optimal lag for the model variables

Selection-order criteria

Sample: 2014 - 2018 **Number of obs = 5**

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	28.289				7.2 *	-9.71558	-10.5542	-10.028
1	701.834	1347.1	16	0.000	.	-272.734	-276.927	-274.296
2	749.356	95.043*	16	0.000	.	-291.742*	-295.935*	-293.305*
3	728.032	-42.647	16	.	.	-283.213	-287.406	-284.775
4	740.139	24.214	16	0.085	.	-288.056	-292.249	-289.618

Source: calculating from Stata

The results of VAR model with one lag show dgdp and dm2 variables have a positive impact on dgdp with a 5% significance level, the dints, dintl and dinf variables have a negative impact on dgdp with 1% significance level.

Table 4. Results of VAR model analysis

Sample: 2011 - 2018 **No. of obs = 8**

Log likelihood	= 495.1218	AIC	= -116.2805
FPE	= 2.02	HQIC	= -118.2897
Det(Sigma_ml)	= 1.20	SBIC	= -115.9826

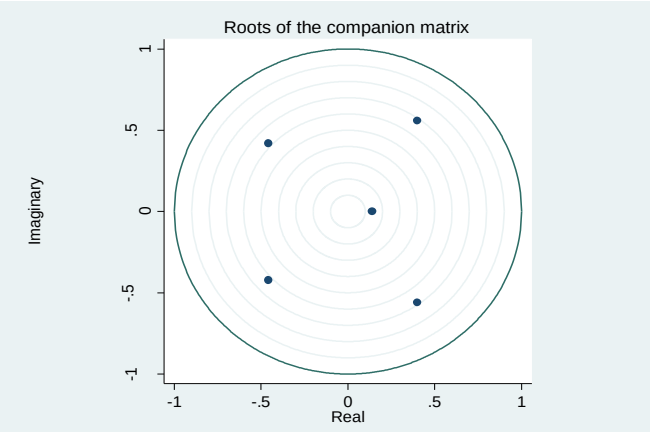
Equation	Parms	RMSE	R-sq	chi2	P>chi2
dgdp	6	.029029	0.8392	41.74576	0.0000
dints	6	.10283	0.9032	74.6654	0.0000
dintl	6	.066351	0.9299	106.2001	0.0000
dinf	6	1.14864	0.6173	12.90257	0.0243
dm2	6	.037472	0.7219	20.76811	0.0009

Regression model results:

	dgdp		dints		dintl		dinf		dm2	
variables	Coef	P >|z|	Coef	P >|z|	Coef	P >|z|	Coef	P >|z|	Coef	P >|z|
Constant	.0370641	0.132	.0595281	0.494	.2103016	0.000	1.327896	0.172	.1320087	0.000
dgdp	.3141436	0.110	-3.235978	0.000	-3.552462	0.000	-5.478156	0.481	.7905862	0.002
dints	.1077021	0.330	.4015455	0.305	1.029489	0.000	-5.156414	0.239	-.0472096	0.741
dintl	.0317571	0.730	.2036874	0.533	-.470672	0.025	6.799695	0.062	.0041384	0.972
dinf	.0001411	0.988	.0107381	0.744	-.0365355	0.085	.0699109	0.849	-.0102546	0.391
dm2	.1837024	0.229	1.093031	0.043	.5548753	0.112	-6.180965	0.307	-.2900388	0.141

Source: calculating from Stata

The stability test results of the regression model according to Figure 1 shows that the variables are in the roots of the companion matrix so the VAR model with one lag is stable and suitable.



Source: calculating from Stata

Picture 1: Testing for Stability in Regression Models results

From the regression estimation results, the hypothesis H1 on the relationship between monetary policy and economic growth is accepted. Regarding the impact of monetary policy instruments on economic growth, the hypothesis H1 is also accepted, so the monetary policy instruments including interest rates and money supply have a very strong impact on economic growth at 1% significance level, inflation also works but with a lower significance level. Short- and long-term interest rates have negative effect on economic growth, which means that when these interest rates increase, economic growth decreases. The result of money supply variable show that, when the money supply rise, economic growth also increases. Rising in inflation reduces economic growth due to the impact on real interest rates of investors. All of these results are consistent with the mentioned theory and are similar to the experimental e results of Sean M. (2019), Nwoko (2016) and Kamaan (2014). However, these studies have clarified the relationship with short- or long-term lending rates or policy rates. This paper has shown the relationship of lending rates including short- and long- term.

6. Conclusion and policy implications

6.1 Conclusion

Through time series data collected from 2009 to 2018 and using the VAR method to test the impact of monetary policy instruments on economic growth, the variables in the model initially included lending rates, inflation, money supply and exchange rates, the results show a relationship between monetary policy and economic growth in Vietnam. The exchange rate has no impact on economic growth, lending rates have a negative effect and money supply has a positive effect and a strong impact on economic growth.

6.2 Policy implications

From the results obtained, the study proposes implications for operating monetary policy to achieve economic growth target in Vietnam as follows:

Monetary policy is managed in the direction of creating a favorable environment to attract domestic and foreign investment through the maintenance of appropriate interest rates and exchange rates.

Using technical measures to gain the support of commercial banks so that the central bank can achieve the goal of reducing interest rates, helping stimulate economic growth without the use of quantitative easing packages. In addition, with the tendency not apply tight monetary policy like previous periods of the Central Banks all over the world, the adjustment of reducing interest rates will help commercial banks easily access to Vietnam central bank' capital with lower costs, help reduce capital costs for the economy in general and corporations in particular. However, due to the impact of interest rates on economic growth has a certain lag, the action should also pay attention to this issue in order to receive positive results.

Data Availability

All data generated and analyzed are available in this paper

Conflicts of Interest

The author(s) declare(s) that there is no conflict of interest regarding the publication of this paper.

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