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The Money Supply and Economic Activities in Malaysia

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Abstract

This study examined how economic activities affect the direction of money supply in Malaysia. The overnight policy rate is the interest rate set by Bank Negara Malaysia (BNM) as its monetary policy tool. Based on the Keynesian Economic Theory, the autoregressive distributed lag (ARDL) model was applied to analyse how the industrial production index, interest rate and consumer price index influenced money supply. The findings of this study supported the notion that economic growth significantly affected the money supply in the short run. There was no evidence of such a relationship in the long run. Maintaining a stable money supply is vital to limit adverse variations in economic activity. A stable money supply allows Malaysia to respond effectively during difficult times, especially the current covid19 pandemic.

Keywords: Money supply, Economic activities, Autoregressive Distributed Lag.

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1. Background of Study

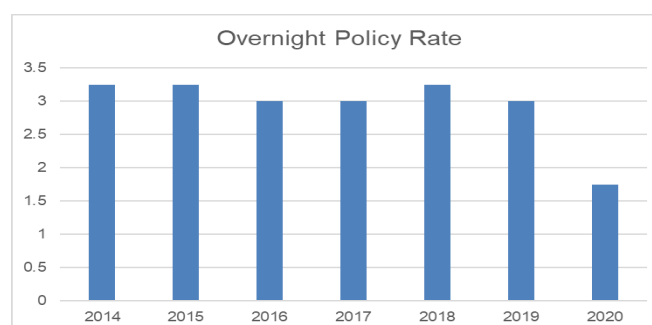
The money supply in a particular economy was determined by the monetary policy direction to influence economic activities. Money supply influenced interest rates through sales and the purchase of bonds to manage inflation. There are two types of monetary policy, contractionary and expansionary. The central bank would buy debt securities and

bonds during the expansionary monetary policy to increase money supply and decrease the market interest rates. The expansionary policy was essential to cushion economic downturns like the current covid-19 pandemic and reduce the financial burden of borrowers.

In contrast, contractionary monetary policy reduced money supply, resulting in higher interest rates, reduced aggregate demand and curb rising prices. Either expansionary or contractionary were subjected to economic conditions. In the case of inflation, the policy that can be implemented is contractionary monetary policy and the supply of money would be reduced. In the economic downturn or recession, unemployment was high and expansionary policy would most likely be implemented. An increase in the supply of money encourages consumption and reduces unemployment.

The focus of this study is Malaysia, located in Southeast Asia, with a population of 32.37 million people (DOSM, 2020). Its Gross Domestic Product (GDP) growth plunged in the first quarter of 2020 by 0.7%, with an unemployment rate of 5% in April 2020. Due to travel ban, movement control order and social distancing, the airline industry, hospitality industry and travel industry were adversely affected. Since 7 July 2020, the overnight policy rate (OPR) was maintained at 1.75% to boost private consumption and stimulate economic growth. A lower OPR would reduce interest payments of existing borrowings. The rate cut will lower the cost of borrowing. See Figure 1 for details of the OPR.

Figure 1: Overnight Policy Rate, 2014 - 2020

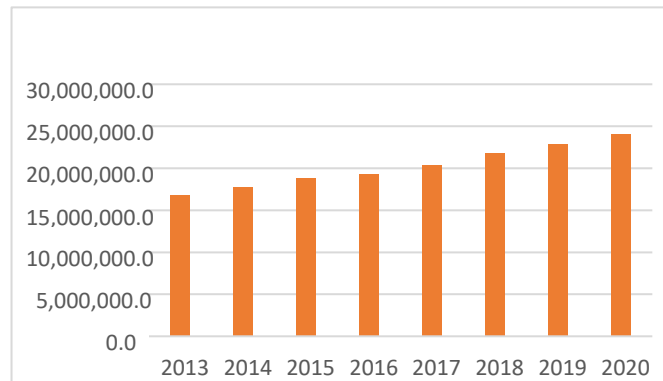


Sources from Bank Negara Malaysia

A reduction in OPR can be achieved through an expansionary policy of increasing the money supply. In this study, the monetary aggregate M2 was used as the proxy for the money supply. M2 in Malaysia consists of cash and demand deposits (M1), savings,

fixed deposits, the negotiable instrument of deposits, repurchase agreements, foreign currency deposits and other deposits. See Figure 2 for the details of M2 in Malaysia.

Figure 2: Monetary Aggregate (M2), 2013 - 2020



Sources from Bank Negara Malaysia

The impact of the monetary policy varies based on the economic situation and the feedback effect of households, private firms and the public sector. This study addressed the challenges of macroeconomic issues affecting the money supply. Since the impact of money supply on the economy in the short or long run is uncertain, this study examines the short-run and long-run causal effects of macroeconomic factors on the money supply. In the next section of this study, the literature review research methodology and findings were presented. The paper ended with some concluding remarks.

2. Keynes's Theory of Money Demand

Keynes' liquidity preference theory postulated that real money demand was the function of interest rate and aggregate output. According to Keynes, when holding money and the interest rate should be considered since it is the opportunity cost of holding money. In such a situation where the interest rate is high, the opportunity cost to hold money is high. Keynes also considered that transactions and precautionary demand for money would increase proportionately with aggregate income.

When the economy is in equilibrium, money demand equals money supply. Therefore, it can be deduced that the money supply would be affected by interest rate and aggregate output.

3. Monetary Policy, Economic Activities, Inflation and Interest Rate

Based on the existing study by Akalpler & Duhok (2018), they studied the significance of monetary policy and economic growth in Malaysia. They examined interest rate, inflation, money supply and growth in GDP by using the OLS and ADF unit root tests. They discovered that there was a positive significance between economic growth and the monetary instruments. In Vietnam, the money supply was closely regulated to avoid negative economic impacts (Doan Van, 2020). Balancing GDP growth and velocity of money were vital to minimize pressure on money supply and prices of goods and services.

The money supply was found to positively affect economic growth (Uduakobong, 2014; Chude, Nkiru Patricia Chude; 2017). A study discovered short-term and long-term relationships between M3 and GDP (Dingela, Siyasanga and Khobai, 2019). Based on Keynes' liquidity preference theory, Twinoburyo & Odhiambo (2018) discovered that money's supply would adjust quickly to changes in the price level.

Money supply, interest rate, and inflation were found to significantly affect the GDP (Ayub & Shah, 2015; Kaplan & Gungor, 2017). The monetary policy supported the objectives of price stability and economic growth of Pakistan (Ayub & Shah, 2015). An increase in money supply will increase prices and boost economic activities in Turkey (Kaplan & Gungor, 2017). Most studies agreed on the causal relay between nominal monetary aggregates to nominal income but, the variation of how nominal income manifested between real output and prices remains unsolved. The policymakers need to implement a policy that could promote economic activities.

4. Estimation Model

The interactions between overnight policy rate, consumer price index, industrial production index and money supply (M2) were examined using the Autoregressive Distributed Lag (ARDL) model. The ARDL model was suited for mixed stationery of the time series of the estimation model. Based on Keynes Liquidity Preference Theory, the estimation model is stated as follows:-

$$M2=f(INT, Y, CPI) \quad (1)$$

where M2 represents money supply, the overnight policy rate (INT) is the proxy of interest rates, industrial production index (Y) is the proxy of economic output and consumer price index (CPI) is the proxy for the general price level.

The monthly data series were employed to investigate the relationship between the variables. Data on CPI were collected from the International Monetary Fund's International Financial Statistics, Y was obtained from the World Bank database and opr were obtained from the Bank Negara Malaysia monthly statistics. The ARDL-Unrestricted VECM model was estimated as Equation (2).

$$\Delta LM2_t = \alpha_0 + \alpha_1 LY_{t-i} + \alpha_2 LINT_{t-i} + \alpha_3 LCPI_{t-i} + \sum_{i=1}^{\rho} \alpha_{4i} \Delta LY_{t-i} + \sum_{i=1}^q \alpha_{5i} \Delta LINT_{1t-i} + \sum_{i=1}^r \alpha_{6i} \Delta LCPI_{t-i} + \varepsilon_t \quad (2)$$

All variables were transformed to logarithm form and Δ is the first difference, and ε is the error term. Next, the ARDL reduced form of Equation (3) was estimated based on the retain error term of Equation (2) as follows:

$$\Delta LM2_t = C_0 + \sum_{i=1}^{\rho} \alpha_{4i} \Delta LY_{t-i} + \sum_{i=1}^q \alpha_{5i} \Delta LINT_{1t-i} + \sum_{i=1}^r \alpha_{6i} \Delta LCPI_{t-i} + \partial \mu_{t-1} + \varepsilon \quad (3)$$

The ADF test was used for the unit root test. The ARDL bounds testing was applied to check for the long-run relationship between variables. Diagnostic tests for heteroscedasticity, multi-collinearity, normality and stability were also examined.

5. Results

The ADF results showed that the null hypothesis of non-stationary I(0) could not be rejected at levels. Therefore, the test further proceeded at first difference. At the 1% and 5% significance level, the ADF tests revealed that data series for LM2, LINT and LCPI were stationary, respectively, at constant and with the trend. At the 1% significance level, the ADF tests revealed that LY was stationary at constant and with trend. Based on the

results obtained, there was a mixture of stationarity at levels and first difference. Therefore, this study will employ the ARDL-bounds test to check for cointegration.

Table 1: ADF Unit Root

Variables	At Levels		First Difference	
	Constant	Trend	Constant	Trend
LM2	0.6593	-2.2341	-7.9742***	-8.0387***
LY	-4.4464***	-5.3308***	-11.1979***	-11.1193***
LINT	-0.4875	-1.0251	-3.1280**	-3.4774***
LCPI	-2.3765	-2.3615	-6.3604***	-6.7176***

Notes: *** and ** stand for rejecting the null hypothesis at the 1% and 5% levels.

The lag selection was based on the AIC criterion of lag 1. The F-statistics of the ARDL bounds test were applied based on the Pesaran et al. (2001) estimation technique. Based on the results from the F-statistics, there was long-run cointegration running from independent variables to LM2 at 1% significance level.

Table 2: ARDL Bounds Test

Model	F-statistic	
LM2	8.3543***	
Significance Level	Lower Bound I(0)	Upper Bound I(1)
10%	2.37	3.2
5%	2.79	3.67
2.5%	3.15	4.08
1%	3.65	4.66

Notes: *** stands for the rejection of the null hypothesis at the 1% level.

The short-run findings are illustrated in Table 2. The results obtained that economic growth has a positive and significant impact on the money supply. The results further suggested that interest rates and prices also positively and significantly impact money supply in the short run. There was a long-term relationship among the variables selected.

The observation implies that the departure from the long-term growth path due to a particular shock is adjusted by 6% yearly.

Table 4: The Short-run and Long-run Coefficients Estimates for LM2

<i>Short-run</i>			
Variable	Coefficient	Std. Error	t-statistic
D(LY)	3.12E-13	9.95E-14	3.1374***
D(LINT)	4.69E-13	5.97E-14	7.8501***
D(LCPI)	-5.33E-12	8.72E-13	-6.1121***
ECT	-0.06323	0.011887	-5.3196***
<i>Long-run</i>			
Variable	Coefficient	Std. Error	t-Statistic
LY	101.3482	4216.565	0.024036
LINT	2.018988	93.38938	0.021619
LCPI	-233.727	9813.555	-0.02382
C	644.3249	26627.05	0.024198

Notes: *** stands for the rejection of the null hypothesis at the 1% level.

6. Discussions

The short-run results illustrated a positive and significant impact of economic activities represented by the industrial production index on the money supply. The short-run effect that ran from LY to LM2 at 1% level supported He's (2017) findings. He (2017) found a significant positive relationship in China's real GDP resulted from the increase in its money supply. As the business grew and spending increased, the demand for money also increased, resulting in more money supply in the market as a medium of transaction. When the money supply increases over time, it will cause more funds available for investment and consumption. Therefore, the increase in firms' ability and willingness to invest would improve the future of economic output (He, 2017).

When prices are high, it will cause the implementation of a contractionary monetary tool of decreasing the money supply. Hence the inverse relationship between money supply and inflation or consumer price index (Ahiabor, 2013). In Vietnam, reducing money growth was an effective policy tool to curb inflation (Khieu, 2021). The continuous increase in the money supply would cause inflation in the long run (Doan Van, 2020).

There was a positive relationship between the overnight policy rate and the money supply. The crowding-out effect of the demand for money would eventually affect the quantity of money supplied. When OPR falls, the demand for money will increase due to the lower opportunity cost to hold money. As a result, the quantity of money supply in the money market will be relatively lower due to the rise in demand for money.

7. Conclusion

Using the monthly data from 2015 to 2020, the ARDL model has been approached to estimate the short and long-run relationship of the selected macroeconomic factors (industrial production index, overnight policy rate and consumer price index) and Monetary policy (money supply). It could be concluded that the attempt to boost Malaysia's economy by increasing the money supply may cause the economy to overheat, leading to inflation and unstable prices. The direction of monetary policy has to be monitored closely to mitigate any adverse effect on the economy.

This study examined the relationship between macroeconomic factors and monetary policy. Over circulated money in the market might cause the economy to overheat, push prices to a varying level, and crowd out effect.

Maintaining a stable money supply is vital to limit adverse variations in economic activity. A stable business policy would avoid random disruptions in an economic activity where the money supply is stable. A stable money supply allows countries to respond during difficult times, especially the current covid19 pandemic.

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