ISSN 2710-4761 (Print)
ISSN 2073-0969 (Online)
http://doi.org/10.52587/JEMS020102
Journal of Economics and Management Sciences
Spring 2021, Volume 2, No.1, pp 15-26

THE IMPACT OF MONEY SUPPLY ON INFLATION IN PAKISTAN

Rakia Nasir[1], Rozina Waheed[2] & Wajiha Nasir[3]

ABSTRACT

This study examines the relationship between inflation, Money supply, interest rate and unemployment in Pakistan using annual time series data from 1987 to 2019. Inflation is used as the dependent variable and money supply (M2), unemployment and interest rate as the independent variable. Discount rate is used as the proxy of the interest rate. The results of ADF unit root test shows that variables have different order of integration. The study used ARDL cointegration approach to test the long run and short run for the existence among the variables. The results found that there is long run as well as short run relationship among the variables.

Key Words: *Unemployment, Inflation, Money Supply, Interest rate*

[1] PhD Scholar, Department of Economics, UMT Lahore, Pakistan. Email: rakiawarraich075@gmail.com
[2] MPhil Scholar, Department of Economics, UMT Lahore, Pakistan.
[3] Lecturer, Department of Statistics, GC Women University Sialkot, Pakistan.

BACKGROUND OF THE STUDY

From the past few decades, the problem of inflation has become the part of headlines of the newspapers and capital talk shows. The policy makers are burning their energies to find the way in order to control the inflation. Inflation has been considered the most alarming problem for sustained economic development not even for developing countries but also for developed countries. Inflation disturbs the whole economy especially target the growth and unemployment. It also generates the uncertainty among the individuals (Cecchetti, 2000). To enhance the cash supply is one of the boosting factors of prices. Central bank of every country is responsible for printing new money and to organize the cash supply through the tools of economic procedures (Blejer et al., 2000; Goodfriend, 2000).

Controlling the price level is the indirect responsibility of central bank also through the control of money supply. Monetarist's argument shows that the financial procedure has direct role towards the increase in prices for long run. Several studies show that monetary policies plays central role in the dynamics of inflation (Bilqees, 1988; Khan and Qasim, 1996; Hussain, 2006). According to the QTM there is a noteworthy proportional association among cash supply and price increase i.e. any change occurred in one of them in any direction, and then there will be change in other variable in the same direction. So, to control inflation, there is a need to monitor money supply growth (Aksoy and Piskorski, 2006).

Pakistan is facing an alarming situation of inflation since last few decades. The inflation has been the core agenda of policy debates in Pakistan since its inception. Government adopted several policies in order to control inflation. During 2013, because of policies of newly elected government inflation rate has decreased from 11.01% to 7.36%. Due to decrease of oil prices in overall world in 2015, it has also a positive effect on inflation rate which is 4.53%. Then in 2016, it is 2.86. But in 2017, due to unstable conditions of political situation it has increased to 4.15%. Currently Pakistan has managed to control double digit inflation. Several studies explore the causes and impacts of inflation on other macroeconomic variable in case of Pakistan. Those are Khan and Gill (2007) who studied the problems that a country is facing due to inflation. Shams (2012) found the association between money supply and prices trend. Hassan et al. (1995) focused to check the factors that are the cause of the increase in prices during the last few years in Pakistan.

The goal of this research is to investigate the effect of cash supply and on inflation in Pakistan. Besides, the purposes are to discover the long and short run elements between cash supply and expansion.

Rest of the examination is leveled as; second part address the review of literature while third part is about data and approach and section four clarifies the aftereffect of the

investigation, and last part gives strategy alternatives to solve the issue of inflation in Pakistan.

REVIEW OF LITERATURE

This section reviews the studies related to inflation and its causes and impacts on the overall economy. Bakare (2011) has been explored the basis of cash supply and the imputation on price increase. This study uses the Quasi-experimental approach for the data estimation. Time series data has been utilized from 1981 to 2006. This study uses MS, inflation and economic growth as variables to estimate the results. Data sources are central Bank of Nigeria and (NBS). This study shows the positive the correlation among the cash supply and inflation. This research explains that if money supply is raised there is more than one percent increase in inflation rate. This research finds that the higher the cash supply there will be higher the inflation. Akinbobola (2012) explored the association among cash supply (M2), inflation (CPI) and exchange rate (ER). Secondary data has been utilized that were attained by investment finance statistics. This research has been used quarterly statistics from the time frame of 1986 to 2008. Vector error correlation and unit root test has been used. This study explains that cash supply and exchange rate have an insignificant consequence on the inflation dynamics while the exchange rate has direct impact on the inflation rate. The main findings of this study explain that their wills also increase in inflation but in short term but that insignificant impact on the long run. Shams (2012) examine the relationship between income prices and money. This study explains the connection between money and prices and money and income. The study used the data from the period of 1973-2010. The study uses the co-integration survey to determine the correlation among the factors in long run. This study focused on the Error Correlation Model (ECM) and bidirectional causality. This study examines that there is the important relationship between the variable prices income and money and that are very important between different economist Keynesian and monetarist. Firstly, monetarist explains that money supply is directly affecting the adjustments in prices and income; on the other side Keynesian explain that income change directly changing the money stock along money demand. The study used the Gross domestic product that is used for the income and consumer price index has been used to represent the prices. Ganger causality is used for the estimation. There is also use of bi-variate and tri-variate test. The study explains that the raise in cash supply cause of the income increase which is main reason of the higher money demand. Simwaka.et.al (2012) calculated about the correlation among cash supply and inflation for Malawi. This study examined the relationship between different customary financial factors; exchange rates and supply side variables. Monthly data from January 1995 to March 2011 has been utilized for this study. The study utilized co integration analysis to inspect the association among variables and it showed that monetary and supply side variables both are the reason behind price increase in Malawi. Ahiabor

(2013) examine the factors of financial policies on price rises. Data has been used from 1985 to 2009. Exchange rate and interest rate are the proxy that is used for price rise and Money supply. this study explain that there is long term absolute relationship between inflation and MS, contradictory association between the inflation and interest rate and perfect association between inflation and exchange rate, this study conclude that monetary policies itself are not enough to control the inflation there are also fiscal and contractionary policies to check the inflation rate. Ullah et al. (2013) has been clearing up the impact of inflation in the underdeveloped countries. This study makes clear that the dynamics in money supply than the inflation will adversely affect the poverty and business activity in the market. The main spotlight of this research is to explain the monetary policies that are affecting the money supply we use M2 to examine the cash supply. Yearly time series statistics has been used from 1950 to 2010 simple statistical methods are used to measure the monetary variability that has been directly influence the inflation. This study finds out to manage the economic inconsistency with supply of cash to control inflation. Ayubu (2013) has been exploring the importance of monetary policies in inflation movements. Monetarist site an active substance on the cash supply in analyzing the change in price rose. The main reason of this research is to inspect that from which scale price increase is changing due to the monetary policies in Tanzania. This study uses the exchange rate (ER) as the elements of inflation, real GDP and Money supply. Structural Vector auto regression and vector error correlation is used to measure the results the results by taking the data from 1993-2014. This study found that all the variables plays important role in sustain inflation that means that cash supply is not the only variable of inflation dynamics but GSDP is more effective on the inflation both in Long and short term analysis. Azam and Rashid (2014) has been explored the consequence of the Monetarist overview of inflation change in Pakistan. Data has been utilized from 1972-2011. This research explore the long debate on the concept of cash supply and inflation monetarists claims that higher money supply increase inflation while on the other hand strucralists belief is that the in inflation has its start in supply and there is increase in the prices . This research explains that there is association between money supply and rate of inflation should be constant in the long run. This study uses the unit root test and least square result to estimate the results. The conclusion of this study is explaining as there is continuous increase in inflation in money supply dynamize. Chai (2014) aimed to explore the impact of MS on price in china. In this context the study has been used time series data. The series started in 1999 and ended in 2012. The study has been used Fisher test to investigate the impact of MS on price contigration methodology has also been applied to check the impact of MS on price. MS has been used as independent variable price has been used as the substitute of inflation and treated as dependent factor. The study concluded that all-time series of logarithms of M0, M1 and M2 are static with systematic breakpoints being found at 1%, 5% and 10% negative levels. The study also found that price trends after systematic changes can be

found accurately by the features of these derived breaks .These findings provides a base for the effect estimation for Monetary policy. Bozkurt (2014) explain the association among cash extension and inflation in Turkey. The research makes apparent that the increase in inflation directly affects the effect of money and growth in the financial system also appears that the inflation and growth relation has not been cleared. M2 and GDP deflator are used as the proxy of the variables of cash supply and inflation. Time series data has been used from1999 to 2012. Data source of this study is (Turkish statistical institute) and (Central Bank of republic of Turkey). This study has been used the co integration methods and unit root test. This paper found that cash supply is the major indicator of the changes of inflation that if there is decrease in money it directly reduces the prices. The study also discovers that if there is increase in MS there is also increase in inflation in Long term. Cao (2015) studied about the relationship among inflation and cash supply. There is optimistic association among cash supply and inflation after the 1990 many developed countries examined that higher money supply determine the lower inflation. This theory is not significant with respect to past studies. Data has been used from 1960 to 2012 the data is taken from the members of ASEAN. The main findings of this study there is positive association between the two variables M2 and CPI is used as the proxy of the variables. Obi et al (2015) aimed to look at the active effect of cash supply on inflation on ECOWAS state's members. In this perspective the study has been used Kwiatkowski, Philips, Schmidt and shin (KPSS) and (ADF) test. The study also used unit root test. MS has been used as an independent variable and inflation are static at individual countries. The study also found that impact of MS on inflation in perceptual. Ngerebo-A (2016) studied about the capability of monetary policies in regulating inflation. Monetary policies are basically the economic planning by the policy makers to make the economy stable. This study uses the secondary data 1985 to 2012 and the data sources of this study are central bank of Nigeria, statistical Bulletins to analysis the result. Inflation rate has been used as the dependent variable and MS as independent variable, Broad Money, Narrow Money and credit used as proxy of the variables. Autocorrelation test has been used to estimate the results. there are some variables in this study that are used to control the inflationary pressure in Nigeria maximum lending rate, treasury bill rate, Prime lending rate and Net domestic rate are insignificant while the other variables are indicative to explore the changes in inflation. Therefore, this study finds that the contractionary policies are useful for the balance inflation in the economy Jiranyakul (2016) has been exploring the effect on shock of monetary policies on output and price dynamics in Thailand. Quarterly data has been utilized from 2005 to 2016. The data is collected for this study from bank of Thailand and GDP data is obtained from ministry of finance and CPI data is obtained from ministry of commerce. This study uses the auto regression model to explore the result of economic strategies; dynamics on cost and yield. The main finding of this study is to examine structural dynamics of co-integration variables. Structural variables

are used for the variables for the short and long run open economy. Koti and Bixho (2016) have studied different theories linked with cash and inflation. There are many studies that explain the relation of cash supply and inflation. This paper has established theoretical relationship of cash supply with being without a job, trade and exchange rate, toll and wage for Albania, that the change in money supply directly affecting the different macroeconomics indicators. They used time series data from 1994-2015.Theories of money has been studied by regression analysis. This study suggests that there is positive connection among economic growth, interest rate and inflation but there is negative association with cash supply. The relationship with money supply is specific for Albania because private sector and individuals controlled the money supply without affecting inflation level. Denbel et al. (2016) in this study described about the linkage between the three variables that is inflation, GDP and Money supply in Ethiopia and in this paper the Ganger causality with VECM techniques was used and secondary data has been used in this paper during the period from 1971 to 2011 and data has been accumulated from the many sources such as NBI and CPI etc. The inflation increase due to the extension of the cash supply rapid increase the cash supply than the prices of the money good has been increase. So the money follow extremely little good that evolve the inflation when economic growth increases than decreases the inflation because when in the economy the additional goods was produced so the price of the goods has been declined the connection occurred between the volume of the production and so the findings has been occurred in this paper that the inflation has been negatively and its happened by the economic growth because inflation decrease when the economic growth increase in this study many test has been used to check the causality between the inflation and cash supply and economic growth. Ashraf et al. (2017) studied the corresponding among financial strategy and inflation. The economy of Pakistan has been explored by different variables such as Gross domestic product (GDP), interest rate, export, Money supply (M2), foreign direct investment (FDI) and inflation. This study has been carried out by multiple regression ordinary least square. Time series data for these variables has been utilized from 1995-2014. Foreign Direct investment has positive effect and remaining variables has negative but significant effect on inflation. Ditimiet al. (2017) has been studied about the outcome of the money supply and inflation. Time series data has been utilized from 1970 to 2016. This study used the co-integration and autoregressive Dynamic Error correction model (ADLECM) techniques was not the effect the inflation neither in the long run and short run time period due to the country unbalanced situation. This study used the Granger causality test that there is no direct relationship between Money supply and the inflation. This study concluded that Money supply did not affect the inflation; there are some other issues by which inflation is affected. Van (2019) looks at one of the serious issues looked by the ranchers which is impact of money supply and inflation on economic growth. Time series data has been utilized from 2012 to 2016. This study found that an increase in the

money supply effect the inflation in the long time period, but money supply is not affecting the inflation in short time period. Author found that the money supply and inflation are positively related to each other and this will directly affect the economic growth therefore government should make some economic policies for the growth of the economy.

DATA AND METHODOLOGY

The study used time series data from 1987 to 2019 for Pakistan. The data has been taken from statistical appendix of economic survey of Pakistan, world development indicator (WDI) and State bank of Pakistan. In this study inflation has been used as dependent variable and independent variables are money supply (M2), unemployment rate, and interest rate. M2 has been used as a proxy of money supply and consumer price index has been used as a proxy of inflation.

$$INF_t = \beta_1 + \beta_2(M2) + \beta_3(disc) + \beta_5(Un) + U_t$$

Where

M2= money supply

INF= inflation rate

Disc= proxy of interest rate

Un = unemployment rate

U_t = Error term

FINDINGS OF THE STUDY

Unit Root Results

The study used ADF test to verify the stationary of the data. After checking the trend of the data, I have used trend and intercept model in the unit root analysis. Four variables have been used in the study, inflation rate, unemployment rate, money supply, and interest rate. The results of ADF show that inflation and unemployment are stationary at first difference while money supply and interest rate are stationary at level. Hence, two variables are stationary at I (0) while rest two are stationary at I (I).

Table 1: ADF Unit Root Results

Variables	Level	1st difference
Inflation	-2.609472	-6.454642*
Unemployment	-2.829004	-7.000188*
Money supply	10.57081*	
Interest rate	-6.215510*	
* 1% significance		
** 5% significance		
*** 10% significance		

Results of ARDL Cointegration Technique

The results of ADF show that we have different order of integration hence, in order to check the long run and short run I have used ARDL cointegration approach. The cointegration has been comprised on two parts, long run and short run. The Schwarz Bayesian Criterion has been utilized for model selection for long run detection of ARDL. The value of F-statistics is greater than lower bond which shows that there is long run relation among variables.

Table 2: Long run results of ARDL cointegration approach

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
INF(-1)	.48274	.14854	3.2499[.004]
UNEMP	-.38882	.40416	-.96206[.346]
M2	-.3588E-7	.1359E-6	-.26406[.794]
DISC	1.0175	.24269	4.1924[.000]
DISC(-1)	-.97994	.23347	-4.1973[.000]
INPT	6.4648	3.3899	1.9070[.069]

F-statistic	95% Lower Bound	95% Upper Bound	90% Lower Bound	90% Upper Bound
7.0019	3.8127	4.0212	2.4196	4.0303

W-statistic	95% Lower Bound	95% Upper Bound	90% Lower Bound	90% Upper Bound
0.87012	9.4418	9.8049	10.8525	13.2023

After checking the long run results, the next step is to check the model for short run. The short run results can be detected through Error Correction Term (ECM). There are two major assumptions ECM should follow, negative in sign, and value lies between 0-1. The results of ECM term show that there is short run relation among variables because it fulfills

both assumptions. The value of ECM is 0.51 which shows the strong convergence of equilibrium in case of any disturbance due to the independent variables. The variable of unemployment is negatively related with inflation. The money supply has positive relation with inflation while rate of interest has positive relation with inflation.

Table 3: ECM results of ARDL cointegration approach

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
dUNEMP	-.38882	.0416	-9.346[0.000]
dM2	.35889	.11590	-.3.0965[.000]
dDISC	1.0175	.24269	4.1924[.000]
dINPT	6.4648	3.3899	1.9070[.069]
ECM	-.51726	.14854	-3.4823[.002]

R-Squared	.63402	R-Bar-Squared	.55446
S.E. of Regression	2.3494	F-stat. F(4, 24)	9.9612[.000]
Mean of Dependent Variable	-.032069	S.D. of Dependent Variable	3.5198
Residual Sum of Squares	126.9554	Equation Log-likelihood	-62.5590
Akaike Info. Criterion	-68.5590	Schwarz Bayesian Criterion	-72.6609
DW-statistic	2.3654		

CONCLUSION AND POLICY OPTIONS

The study aims to explore the relationship between money supply and inflation in case of Pakistan by using the annual data from 1987-2019. Consumer price index has been used as a proxy of inflation while M2 is the proxy of money supply. Unemployment rate and rate of interest have been included in the model as control variables. The results of ADF unit root test shows that inflation and unemployment are stationary at (I) while rate of interest and money supply are at (0). Due to different order of integration the study used ARDL cointegration technique to detect the long run and short run relationship among variables. The study found long run relationship among variables as well as short run relationship. The results show that unemployment is negatively related with inflation, however it is insignificant. The money supply has positive relation with inflation and same relation has been found in case of rate of interest with inflation. Based on the results, the study recommends that the state bank should adopt the strategy of holding reserves while

printing new currency. In line with other policies, government should control the prices through market and price control committees.

References

Ahiabor, G. (2013).The Effects of Monetary Policy on Inflation in Ghana. Vol 3(12)

Akinbobola, T. (2012).The dynamics of money supply, exchange rate and inflation in Nigeria. *Journal of Applied Finance & Banking*, Vol 2(4) pp. 117-141

Babatunde, M. and Shuaibu, M. (2011). Money Supply, Inflation and Economic Growth in Nigeria. *Asian-African Journal of Economics and Econometrics*. Vol 11(1) pp. 147-163

Bakare, A. (2011). An Empirical Study of the Determinants of Money Supply Growth and its effects on Inflation Rate in Nigeria. *Journal of Research in InternationalBusiness and Management* .Vol 1(5) pp.124-129.

Baze, O. (2014). The Determinants of Inflation in Egypt: An Empirical Study (1991-2012*). The Egyptian Center for Economic Studies.*

Bilquees, F. (1988). Inflation in Pakistan Empirical Evidence on the Monetarist and Structuralist Hypotheses. *The Pakistan Development Review* Vol 27(2) pp. 109–130.

Bozkurt, C. (2014). Money, Inflation and Growth Relationship: The Turkish Case. *International Journal of Economics and Financial* Vol 4(2) pp. 309-322.

Chaudhary, M. Ahmed, N. (1995). Money supply, deficit and inflation in Pakistan. *The Pakistan Development Review*, Vol 34(4) pp. 945-956.

Chaudhry, I. Ismail, R. Farooq, F. and Murtaza, G. (2015). Monetary Policy and its inflationary Pressure in Pakistan. *Pakistan Economic and Social Review* Vol 53(2). Pp 251-268

Chi, Q. (2014). The Impact of Money Supply on the Price: Evidence from China. *Research in World Economy* Vol 5(1)

Denbel, F. Ayen, Y.and Resgasa, T. (2016). The Relationship between Inflation, Money Supply and Economic Growth in Ethiopia: Co integration and Causality Analysis. *International Journal of Scientific and Research Publications*, Vol 6(1) ISSN 2250-3153

Ditimi, A. Sunday, keji. And Onyedikachi. E.The Upshot of Money Supply and Inflation in Nigeria. Valahian Journal of Economic Studies. Vol 8 (22)

Doan Van, D. (2019). Money supply and inflation impact on economic growth. *Journal of Financial Economic Policy*, Vol 4 pp. 121-136.

Elsheikh, A. Zakaria, S. (2011). The Long–Run Relationship Between Money Supply, Real GDP, and Price Level: Empirical Evidence from Sudan. *Journal of Business Studies* Vol 2(2) pp. 68-79

Gul, S. Iqbal, H. (2011). The Impact of money supply on Inflation in Pakistan. *Interdisciplinary Journal Of Contemporary Research In Business,*Vol 2(8)

Hanif, M. Batool, I. (2006). *Openness and Inflation: A Case Study of Pakistan. Pakistan Business Review* Vol 7(4)

Hasan, M. Khan, A. Pasha, H. and Rasheed, M. (1995). What Explains the Current High Rate of Inflation in Pakistan? *The Pakistan Daevelopment Review* Vol 34(4) pp. 927–94

Hossain, A. (2014). Monetary policy, inflation, and inflation volatility in Australia. *Journal of Post Keynesian Economics,* Vol 36(4) pp.745-780

Hossain, M. (1986). Monetary Disequilibrium and inflation: A Monetary Model if Inflation in Pakistan, 1963-82 *The Pakistan Development Review Vol 25(2)*

Hussain, F. Abbas, K. (2000). Money, Income, Prices, and Causality in Pakistan: A Trivariate Analysis. *The Pakistan Development Review*178.

Islam, R. Ghani, A. Mahyudin, E. and Manickam, N. (2017). Determinants of Factors that Affecting Inflation in Malaysia. *International Journal of Economics and Financial* Issues Vol 7(2) pp. 355-364.

Jiranyakul, K. (2016). Identifying the Effects of Monetary Policy Shock on Output and Prices in Thailand. *National Institute of Development Administration*

Kaplan, F. Gungor, S. *(2017)*. The Relationship Between Money Supply, Interest Rate and Inflation Rate: an Endogeneity-Exogeneity. *European Scientific Journal* Vol.13 (1) pp. 1857– 7881

Karpetis, C. (2008). Money, Income and Inflation in Equilibrium – The Case of Greece. *IntAdvEcon Res* Vol 14 pp. 205–214

Kemal, M. (2006). Is Inflation in Pakistan is a Monetary Phenomenon. *The Pakistan Development Review,* Vol45(2) pp.213-220.

Kiganda, E. (2014). Relationship between Inflation and Money Supply in Kenya. *Journal of Social Economics* Vol 2(2) pp. 63-83

Koti, C. (2016) Theories of Money Supply: The Relationship of Money Supply in a Period of Time T-1 and Inflation in Period T- Empirical Evidence from Albania*. European Journal of Multidisciplinary Studies Vol 1(1)*

Mbongo, J. Mutasa, F. and Msigwa, R. (2014). The Effects of Money Supply on Inflation in Tanzania *Science Publishing Group* Vol 3(2) pp.19-26

Mohamed, A. (2016). The Impacts of Monetary Policies on Inflation Rates in Sudan (1970–2014) I*nternational Journal of Advance Research in Management, Engineering and Technology* Vol 1(1)

Ngerebo-A, T. (2016). Monetary Policy and Inflation in Nigeria. *International Journal of Finance and Accounting* Vol 5(2) pp. 67-76

Obi, k. (2015). Dynamic Impact of Money Supply on Inflation: Evidence from ECOWAS Member States. IOSR Journal of Economics and Finance Vol 6(3) pp. 10-17

Odusanya, I. Atanda, A. (2010). Analysis of inflation and its determinants in Nigeria. *Pakistan Journal of Social Sciences*, Vol 7(2) pp. 97-100

Oluseyi, A. Olasehinde, T. and Eweke, G. (2017).The Impact of Money Supply on Nigeria Economy: A Comparison of Mixed Data Sampling (MIDAS) and ARDL Approach Vol 2(36)

Qayyum, A. (2006). Money, Inflation, and Growth in Pakistan. *The Pakistan Development Review Vol*45(2) pp. 203–212.

Rao, N. Reddy, P. Basha, A. Srinivasulu, P. and Pranav, S. (2013). A Study on Inflation in India. *International Research Journal of SocialSciences* Vol 2(12) pp. 51-55

Shabade, S. (2013). Is money supply the cause of inflation in India? An alternative postulate to understand inflation. *Social and Behavioral Sciences* Vol 133 pp. 379 – 382

Simwaka, K. Ligoya, P. Kabango, G. and Chikonda, M. (2012). Money supply and inflation in Malawi: An econometric investigation. *The international journal of applied economics and fianace*Vol 6(3) pp. 74-88

Sola, O. Peter, A. (2012). Money Supply and Inflation in Nigeria: Implications for National Development *Modern Economy* Vol 4 pp. 161-170

Tiwari, A. (2010). Impact of supply of money on food prices in India: A causality analysis. *American Eurasian Journal of Agricultural & Environmental Sciences*

Wulan, E. Nurfaiza, S. (2015). Analysis of Factors Affecting Inflation in Indonesia: an Islamic Perspective. *International Journal of Nusantara Islam* Vol 2(2) pp. 67 – 8 0

Wuyah, Y. Amwe, A. (2016). The Implications of Money Supply on Interest Rate in Nigeria. *American Journal of Business and Society* Vol 1(4) pp. 189-194

Zafar, T. Hussain, M. (2017). The Interrelationship between Money Supply, Inflation, Public Expenditure and Economic Growth. *European Online Journal of Natural and Social Sciences.* Vol 7(1) pp. 1-24