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IMPACT OF MONETARY POLICY ON ECONOMIC GROWTH IN PAKISTAN ECONOMY

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ABSTRACT

Monetary policy aims to contribute to economic growth and stability in the economy. This policy also makes a balanced demand and supply by maintaining the domestic prices and exchange rate to decrease inflation, shapes the pattern of investment and production, and increases the financial institutions to manage the debt services very efficiently. The study analyzes how monetary policy affects inflation in a country. The Data sources are WDI and the State Bank of Pakistan from 1981 to 2014. The current study used Inflation rate as a dependent variable while independent variables of liquidity ratio, broad money supply and reserve ratio were used as independent variables. The study used ADF test to check the stationarity of the variables used in the model. Data analysis was done by using the ARDL model. The findings highlight that monetary policy indicated by money supply shows a positive effect on the rate of inflation. Result also shows that the reserve ratio increases inflation in the economy. The study results suggest that monetary policy must provide a favorable atmosphere for investment by providing reasonable interest rates and liquidity management mechanisms.

Keywords: Monetary policy; Reserve ratio; Inflation; Pakistan; Time series data.

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INTRODUCTION

A lot of diverse transmission channels may help monetary policy to have an effect on activities done economically and these networks have been mostly studied by schools of thought (Keynesian and monetarists). The monetarist hypothesizes that changing the money supply directly changes the real magnitude of money. Friedman and Schwartz (1963) explain that an extensive open market operation increased money stock, which also increase the commercial bank reserves and loan facility and therefore lead to an increase money supply by the multiplier effect. To decrease the money supply, organizations buy securities with features of the type sold by the Central Bank, in this way motivating activities in the real sector. Tobin (1958) also supports this view and examines the transmission effect regarding assets portfolio choice in that monetary policy activates asset transferring or exchanging between equity, bonds, and commercial paper and bank deposits. Conversely, the Keynesians viewpoint is that change in money stock affects macro-economic variables due to financial market activities.

As a macroeconomic policy by a country's central bank, it controls the money supply and interest rate through its tools. More objectives of a monetary policy are frequently to have a share of economic growth and stability, lower unemployment, and maintain expectable exchange rates with other currencies. Fed uses tools to get monetary policy goals. These tools or objectives affect bank funds. The monetary policy makes a balance demand and supply of economy, maintenance of domestic prices and exchange rate to lower the inflationary pressure, shape the pattern of investment and production, expands the financial institutions, maintain the interest rate lower to offer an incentive for investment, manage the debt

effectively and efficiently. Monetary policy has some tools like open market operations, reserve requirements, reserve requirement ratio, and discount lending. Open market operations are the purchasing and selling government bonds and securities on behalf of the government in an open market through a bidding system. To control the inflationary situation, the government and monetary authority buy the bonds to increase liquidity in the market. On the other hand, to manage a deflationary condition, the monetary authority sells bonds to decrease liquidity in the market. Open market operation is an easy process to control the economic situation as it does not involve administrative delays. The central bank also acts as the lender of last resort that offers loans to banks or other institutions that are facing financial difficulty or are on the verge to collapse. Discount policy is used as a tool to have its influence on money supply and interest rate. Reserve requirement is a particular amount ordered by the central bank to be kept with the commercial bank as compared to lending out.

Developing countries require a monetary policy for external and internal economic balance. For economic growth, a country requires proper financial planning to support monetary management and credit planning. Underdeveloped countries face a serious problem of inflation due to increased effective demand resulting from government expenditures. However, a stable domestic price level and a fixed, realistic exchange rate are important for sustained economic growth. This requires an equilibrium of savings and investment. For a growing economy, it is a very imperative and problematic task. To enhance the pace of economic development, there is a need to improve technology. The growth rate of capital formation must be enhanced. As acceleration in capital formation leads to improvement in technology. Capital formation is also important in the process of economic development. So, an easy monetary policy is to be adopted, whereas, with the issue of inflation, the State Bank of Pakistan has implied a tight monetary policy. However, the economy could not effectively control inflation because of high commodity prices and later increasing domestic food prices.

Monetary policy is a key driver to promote economic growth. Economic growth is indispensable for the economy because it reduces poverty and improves livelihoods. Most governments realized the effective role of such a policy on growth. Monetary policy and its formulation process have experienced changes with the growing economic changing aspects within the country and the improved consideration of the monetary policy across the world. In the Pakistan economy, the key imperative and critical intermediate target variable of monetary policy is the money supply. The SBP has been using this variable for policy purposes by assuming that the demand for M2 function is stable in Pakistan. The target growth rate of M2 is set on the basis of the estimated money demand function (Qayyum, 2002). Monetary policy has promoted economic growth and price stability for some years in Pakistan by aiming for monetary aggregates coherent real GDP growth and inflation targets.

Monetary policy has nominal along with real effects on the economic growth of a country. Monetary policy has a direct relation to economic growth. Since the foundation of SBP in 1945, it has made efforts to stabilize economic growth through monetary policy. SBP Act 1956 has given the target to monetary policy for low inflation and high growth assigned the dual objectives of stabilizing inflation at a low level and sustaining high economic growth in Pakistan. SBP emphasizes on attaining monetary stability by curbing it near to its annual and medium-term targets established by the government. Pakistan has made noteworthy progress in implementing economic and institutional reforms since 2000. Broad Money (M2) has also seen expansion to Rs.781.8 billion during July-06th May, FY 2016. During the year, the economy has witnessed an increase in government sector borrowing. The growth rate was observed up to 4.71 percent in the economy during the year 2016. This growth is the maximum growth attained since 2008-09. Unluckily, the economy could not attain the targeted growth rate of 5.5 percent because of poorer agriculture sector growth. However, the growth of the industrial sector was observed to be 6.80 percent. The present government also concentrated on making reductions in inflation and succeeded in comprising inflation at 8.62 percent during 2014 and further to 4.53 percent in the year 2015. Inflation has been more observed at 2.79 percent, which is the lowermost in 13 years during the fiscal year (GOP, 2016).

In the economy, the overall external account balance is estimated up to US\$ 0.9 billion during the fiscal year 2016. The current account balance decreased by 17.7 percent during the fiscal year. The trade deficit increased by 2.1 percent during the fiscal year, mainly indicating a reduction in exports. The economy has obtained inflows amounting to US\$ 937 million. The economy has also observed increased remittances during the same period (GOP, 2016). The study aims to analyze the impact of money supply, reserve ratio, and liquidity ratio on inflation in the Pakistan economy. Chaudhary et al. (1995) examine the supply budget deficit on inflation by using secondary data in Pakistan. The study results show a positive relationship of domestic financing of budget, money supply, and inflation in Pakistan's economy. However, Kandil (2004) investigates how exchange rate fluctuations affect growth and inflation in underdeveloped economies. The result shows that exchange rate depreciation (both) leads to a decrease the real output growth and increased price inflation. The major conclusion is that currency depreciation negatively affects economic performance.

Folawewo and Osinubi (2006) work on the monetary policy's influence on the inflation rate and involvement to finance the effect of the fiscal deficits on the changeability of inflation and real exchange rate. In this study, rational expectation agenda is used to incorporate the fiscal role of the exchange rate. Balogun (2007) examines the monetary and macroeconomic stability perspective to enter into monetary union. The results show that domestic monetary policy hurt the real domestic output of these countries. It is suggested that these countries preferably surrender their independence over these policy tools to the planned regional body under appropriate monetary union arrangements.

The monetary policy shocks also affect the output. Considering this, Rafiq and Mallick (2008) show how monetary policy shock influences output in Germany, France, and Italy. The Major conclusion is that monetary policy innovation mostly contributes to generating fluctuations in output for these countries. Therefore, it is less imperative whether these effects are homogenous. Otherwise, Gupta (2004) works on the existence and importance of bank loaning networks of monetary policy transmission. The result indicates that variations in monetary policy mechanisms have an effect on the credit variable, which resultantly communicates the tremors to the real side of the economy. Again, Chukuigwe and Abili (2008) analyzed that interest rate and exchange rate have a negative effect on non-oil exports. Budget deficits-proxy for fiscal policy also negatively affects non-oil exports. The suggestion is that there is a need to set a new policy to report the recognized challenges. Aliyu (2009) conducted a study to check the impact of real exchange volatility and oil prices stock on economic growth of Nigeria. According to the results there was a positive impact of both variables on real economic growth. Another way, Chingarande (2012) investigates how monetary and fiscal policies affect the economic activity in Zimbabwe by using a modified St Louis type reduced form equation and data from 1981:4 to 1998:3. The author has used the engle-granger test for co-integration. The results conclude that the monetary policy variable is strongly significant. Celina (2014) examines the empirical relationship between monetary policy and economic growth from 1981 to 2012. The author applies the Johansen test for co-integration. The VECM shows that only a broad money supply positively affects the GDP. However, the result is statistically insignificant.

METHODOLOGY

This study critically evaluates the monetary policy in Pakistan taking into consideration the macroeconomic enactment of the country. The ADF test was used to check the stationarity while ARDL model was used to analyze the data. The sources of the data were WDI and the State Bank of Pakistan. Time series data from 1981 to 2014 was used in the study. The liquidity ratio, money supply, and reserve ratio are taken as independent variables in the model; however, the inflation rate is considered dependent variables in the models.

Model Specification

The analysis of data was done by using the following model as shown in equation 1.

$$CPI = \beta_0 + \beta_1 LQR + \beta_2 M_2 + \beta_3 RER + \mu_i \quad (1)$$

Where, CPI is Consumer Price Index (Inflation rate), LQR is Liquidity Ratio, M2 is Broad Money Supply, and RER is Reserve Ratio while $\beta_0, \beta_1, \beta_2$ and β_3 are parameters and μ_i is the Error term.

RESULTS AND DISCUSSION

The study analyzes how monetary policy affects inflation in a country. The current study used the inflation rate as a dependent variable while independent variables of liquidity ratio, broad money supply and reserve ratio were used as independent variables. The study used the ADF test to check the variables' stationarity in the model. Data analysis was done by using the ARDL model. This study shows the relationship between these variables in a mathematical form. Available data on liquidity ratio (LQR), reserve ratio (RER), money supply (M2) and inflation rate (CPI) is gathered and used for this analysis. Here, the effects of monetary policy tools on inflation are found.

Table 1. ADF test.

Variables	ADF T Statistics	Critical Value at			Order
		1%	5%	10%	
CPI	-7.0105	-3.6463	-2.9540	-2.6158	1(1)
LQR	-6.7537	-3.6463	-2.9540	-2.6158	1(1)
RER	-6.1309	-3.6463	-2.9540	-2.6158	1(1)
M2	-4.7887	-3.6394	-2.9511	-2.6143	1(0)

Table 1 highlights the results of the ADF test. The money supply is stationary at a level. However, the inflation rate, liquidity ratio, and reserve ratio were not stationary at the level. After taking first order the variables become stationary.

Table 2. VAR lag order selection criteria.

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-182.0735	NA	0.9284	11.2772	11.4586	11.3382
1	-124.1081	98.3656	0.0737	8.7338	9.6408*	9.0390
2	-103.2828	30.2913*	0.0576*	8.4414*	10.0739	8.9907*

The lag order selection criteria are shown in Table 2. All criteria allow optimal lag length 2 except the Schwarz information criterion. As a result, lag length 2 criteria is used.

Table 3. ARDL test estimates.

Variables	Coefficients	T. Statistics
CPI(-1)	0.4863	3.7209
M2	-0.0063	-0.0995
M2(-1)	0.0224	0.3688
M2(-2)	0.2274	3.6559
RER	5.2970	1.7915
LQR	-6.1165	-1.8137
C	0.9498	0.4837
R2	0.64	
DWT	1.81	
F-Statistics	7.8049	
Probability	0.0000	

The results given in Table 3 indicates that increase in one index unit in inflation rate lagged for one year decreases the inflation rate by 0.49 units. As shown in the results one unit increase in money supply lagged for two years makes a decrease in inflation rate by 0.22 units. Moreover, one unit increase in reserve ratio causes an increase the inflation by 5.29 units. Finally, a one percent increase in liquidity ratio will make a

reduction in the inflation rate by 6.12 units. The value of R-square is good. And the value of DWTS is 1.81, which shows no autocorrelation among the variables.

Estimated ARDL Bound Testing Approach

As shown in Table 4 bound test was used to estimate the cointegration among inflation rate, money supply, reserve ratio, and liquidity ratio. The results are revealed in Table 5.

Table 4. ARDL Bound Testing Approach

C. V	F-Stat 4.1408	
	Lower Bound	Upper Bound
90%	2.72	3.77
95%	3.23	4.35

According to the results given in Table 5, long-run relationship exist among the variables. For this purpose cointegration in the long-run form was applied.

Table 5. ARDL Long-run estimates for the variable used in the model.

Variable	Coef	T. Stat
M2	0.4741**	2.2775
RER	10.3123*	1.9392
LER	-11.9078*	-1.7832
C	1.8491	0.5025

Table 5 shows the long-run association of variables. All the variables have a positive relationship and are statistically significant. However, the result shows that commercial banks' liquidity ratio and inflation are positively associated. So, inflation and liquidity ratios are negatively related in the long run.

Table 6. ARDL cointegration estimates: Short-run form.

Variables	Coefficients	T. Statistics
D(M2)	0.0063	-0.0995
D(M2 (-1))	-0.2274**	-3.6559
D(RER)	5.2970*	1.7915
D(LQR)	-6.1165*	-1.8134
ConitEq(-1)	-0.5136	-3.9299

Table 6 shows that one unit increase in money supply lagged for one year will cause a reduction in 0.22 units in inflation. The study result also shows a positive relationship between the reserve ratio and the inflation rate in the short run. The liquidity ratio and inflation rate are negatively associated. The value of ECM is negative and insignificant. It implies a long-run association of variables.

In this model, we have shown the effect of monetary policy tools on the inflation rate in the economy. The result of F-statistics indicates that the monetary policy effectually can control inflation in Pakistan to some extent. The result shows that inflation has a relationship with monetary policy, thus imitating a priori expectations. This concludes that monetary policy dampens inflation.

Table 7. Diagnostic tests.

Breusch-Godfrey Serial Correlation LM Test	F-Statistic	Prob.F (2,24)
	0.0434	0.9576
Heteroskedasticity Test: Breusch-Pagan-Godfrey	F-Statistic	Prob. F(6,26)
	1.1491	0.3629

As shown in Table 7, the results show that no residual serial correlation exists among the used variables in the study. The result also shows no heteroscedasticity problem.

Stability Tests

The results shown in the Figure 1 and 2 about Cumulative Sum and the Cumulative Sum of Squares test shows that both lie between the critical lines. These results reveals the stability of the model.

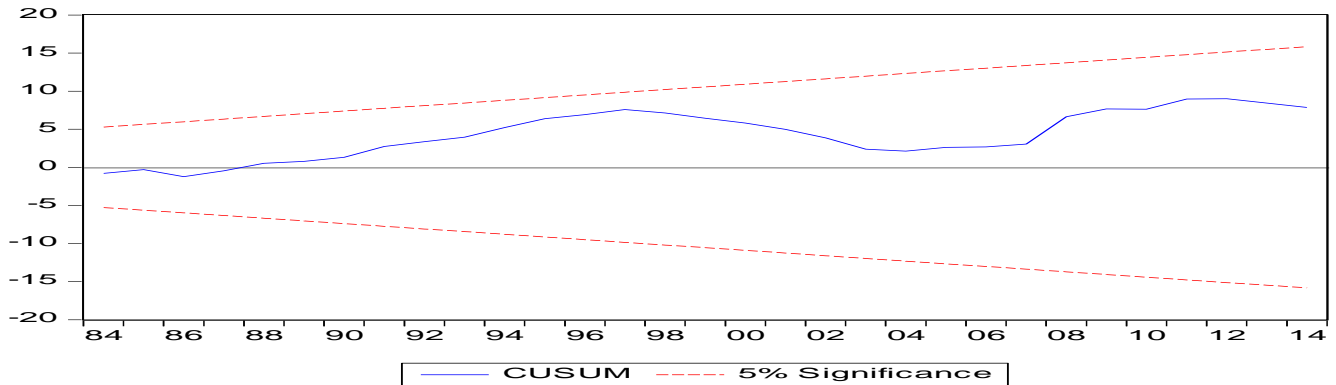


Figure 1. CUSUM test.

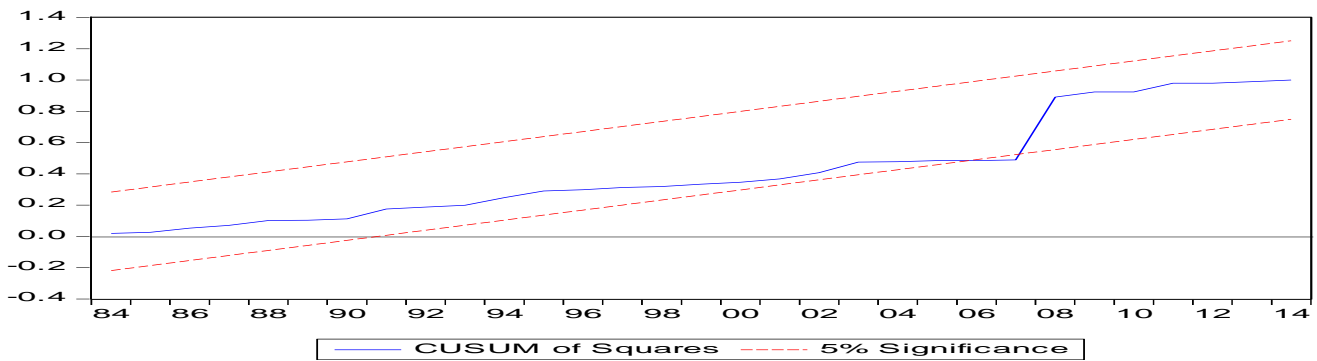


Figure 2. CUSUM square test.

CONCLUSIONS AND RECOMMENDATIONS

The role of monetary policy tools on inflation is analyzed in this research. This study applies the ARDL approach to see the monetary policy's influence on the inflation rate in Pakistan's economy from 1980 to 2014. The result reveals a positive link between the money supply and reserve ratio and the inflation rate in Pakistan. It can be concluded that both variables can play a significant role in controlling inflation in the economy. However, the liquidity ratio tends to decrease the inflation rate in the long run. Overall, the role of generally CBP's monetary policy significantly affecting the inflation rate and tools of monetary policy can be used very effectively to stable Pakistan's economy. The study results suggest that the central bank must play a role in decreasing inflation by making more money accessible by the expansionary monetary policy. Based on these findings, it is unblemished that the development of Pakistan's economy depends on a suitable atmosphere for investment, which will enhance economic growth and development. To make the economy financially strong, the central bank must introduce flexible financial techniques to come across the risk preferences. This will lead to the smooth execution of the central bank's monetary policies. The financial institutions' law could be less strict and more favorable for the operators to have the possibility or occasion to work spontaneously. Moreover, the central bank must reduce the deficit financing and improve the informal sector and SMEs funding. There is a severe need to make corrections in the tax structure of the economy.

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