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Impact Of Narrow Money, Monetary Assets And Broad Money On Economic Growth Of Pakistan: A Time Series Study

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Abstract
This research study aimed at investigating the impact of Narrow Money ($M1_t$), Monetary Assets ($M2_t$) and Broad Money ($M3_t$) of Monetary Policy Dynamics on Economic Growth of Pakistan for the sample period 1991-92 to 2021-22. Augmented Dickey Fuller (ADF) Test validated integration sequence of stationary at I(0) level in case of GDP_t, $M1_t$ and $M3_t$ and integration order of stationary at I(1) level in case of $M2_t$. Results of Ordinary Least Square (OLS) Regression followed by Autoregressive Distributed Lags Model (ARDL), Bound Test, Error Correction Mechanism (ECM), Variance Inflation Factor (VIF), Heteroscedasticity Test, Lagrange Multiplier (LM) Test, Normality Test, Granger Causality Test, Impulse Response Function and Wald Test found significant influence of tested variables on economic growth in short run and long run. The study concludes the implications in terms of various forms of money supply, where $M1_t$ influenced significantly negative impact on economic growth, while $M2_t$ influenced significantly positive impact on economic growth, while $M3_t$ influenced insignificantly negative impact on economic growth. It may be recommended to the government to utilize money supply forms of monetary policy as effective instruments for economic stability of Pakistan's economy in short run and long run. The findings underscored the relevance of monetary policy in shaping macroeconomic performance, financial market development and interest rate liberalization for enhanced effectiveness.

Keywords: GDP, OLS, ECM, causality, money, monetary, economic growth & Pakistan.

INTRODUCTION

Monetary policy dynamics is basically concerned with measures, which aimed at regulating money supply and credit with a aim to achieve higher economic growth and price stability with a view to prevent excessive inflation. The previous study recommended maintaining an adequate money supply, promoting an export-led policy, and stabilizing short-term prices for economic growth and development in SAARC Nations (Gajurel, 2023). The past study introduced novel insights into credit financing, particularly the link between the number of firms using banks for investment financing and the role of broad money volume in determining private sector credit (Mehar, 2023). The previous findings of paper suggested policy implications for community residing in Chinese cities, emphasizing up-gradation of industrial set up, structural monetary policy and market-based financial sector reforms (Tang et al., 2023).

The previous research study was aimed at addressing and reducing the risk of uncertainties in economic policies, emphasizing efficient financial management, especially in monetary policy decisions concerning liquidity rates (Zahid et al., 2023). Addressing the financial markets, investors, and socio-economic factors, the analysis concluded by stressing the importance of continuous monitoring and adaptation for fostering stable and balanced money supply growth (Zaerpour, 2023). The research emphasized the need for cautious management of monetary policy cessation in the short term and warns about potential long-term inflationary issues from continuous

Money Supply expansion (Amaral et al., 2022). The findings suggested that Broad Money, exchange rate, and tax revenue had significant and positive influence on Pakistan's GDP, serving as indicators for measuring the country's economic condition (Harit, 2022). The findings suggested that in the short run, the money supply, inflation rate and total capital formation impacted economic growth positively, but none of these variables influence long-term economic growth in Palestine (Razia & Omarya, 2022). Results revealed that Pakistan economy was positively impacted by monetary policy as well as fiscal policy but monetary policy was identified as more powerful in promotion of sustainable economic growth. It was suggested that sustainable monetary policy in banking sector provide secure atmosphere for investment through control on inflation (Soharwardia, 2022).
The study arrived at suggestion that there is dire need to introduce stable and consistent Fiscal and Monetary policy with a view to enhance economic development of country (Chaudhry et al., 2021). The study recommends a monetary policy that

fosters investment through reasonable interest rates and effective liquidity management (Gillani & Abdin, 2021). It was evident from the results that in the long run money supply positively impacted growth for both advanced and under developed countries. It was also found that high interest rate damaged economic growth for whole economies (Islam et al., 2021). The study revealed that employment opportunities and money supply had positive significant influence on economic growth in short and long run.

They recommended that government may use monetary policy as an effective instrument for economic stability in short run and long run as well (Nosheen et al., 2021). Analyzing the impacts of monetary policy, GDP, FDI, and exchange rates, the research utilized data from 1972 to 2018, employing the ARDL and ECM approach, the findings indicated significant association in short and long run, emphasizing the importance of these factors in shaping green investment in the Pakistan (Ali et al., 2021). The findings underscored the relevance of monetary policy in shaping macroeconomic performance, suggesting interventions in fiscal policies, financial market development, and interest rate liberalization for enhanced effectiveness (Mbilla, 2021). The study emphasizes the role of monetary authorities in fostering an environment conducive to growth, recommending optimal lending rate determination based on internal rates of return in productive sectors and autonomy for the Central Bank of CEMAC (Njimanted et al., 2016).

RESEARCH METHODOLOGY

Method, Structure of data, Range of data and Sources of data:

In this study, time series data-set ranges from 1991-92 to 2021-22 was utilized from authenticated sources i.e various issues of Pakistan Economic Surveys and Federal Bureau of Statistics. Augmented Dickey-Fuller Test found has been utilized to test the stationarity status of time series tested variables (Dickey and Fuller, 1981; Perron, 1990). Moreover, to estimate the long and short run relationships between variables, Ordinary Least Square (OLS) Regression for estimating coefficients of linear regression equations, followed by Auto-Regressive Distributed Lag (ARDL) Model for examining co-integrating relationships, Bounds Test for testing the presence of long run relationships, Error Correction Mechanism for conversion of short run dynamics toward long run equilibrium, Variance Inflation Factor for checking the presence of multicollinearity, Heteroscedasticity Test for checking the presence of heteroscedasticity, Lagrange Multiplier Test for checking the presence of serial correlation, Normality Test for stability, Granger causality Test for verifying the usefulness of one variable to forecast another, Impulse Response Function for checking the presence of uni-directional, bi-directional or no causality, Impulse Response Function for indicating direction and magnitude of casual relationships among tested variables and The Wald Test for confirming whether a set of independent variables individually or collectively 'significant' for a model or not (Pesaram & Shin, 1998; Amaral et al., 2022). EViews, being relevant statistical package was used for time series econometric analysis throughout research study.

Econometric Model

Model of Ahad (2017) has been adopted to assess the impact of monetary policy dynamics on economic growth of Pakistan economy. The econometric equation to assess the impact of Narrow Money ($M1_t$), Monetary Assets ($M2_t$) and Broad Money ($M3_t$) of Monetary Policy Dynamics on Economic Growth of Pakistan is symbolically presented as follows;

$$GDP_t = \alpha_0 + \alpha_1 M1_t + \alpha_2 M2_t + \alpha_3 M3_t + e_t \text{ ----------i}$$

Where,
GDP_t = GDP Growth Rate of Pakistan in year t.
a_0 = Constant Coefficient.
$a_1, a_2, and\ a_3$ = Slopes Coefficient
$M1_t$ = Narrow Money (% of GDP) in year t.
$M2_t$= Monetary Assets (% of GDP) in year t.
$M3_t$= Broad Money (% of GDP) in year t.
e_t = Stochastic term in year t.

Taking logarithm on both sides of equation i, hence log-linear form of model specified becomes;

$$LogGDP_t = \alpha_0 + \alpha_1 LogM1_t + \alpha_2 LogM2_t + \alpha_3 LogM3_t + e_t \text{ ----------ii}$$

Unit Root Tests for Tested Variables: Augmented Dickey-Fuller (ADF) Test has been employed for assessing Unit Roots of tested variables (GDP_t, $M1_t$, $M2_t$, $M3_t$) have confirmed the integration order of stationary at I(0) level in case of variable (GDP_t, $M1_t$,, $M3_t$) and at I(1) level in respect of variable ($M2_t$) as presented in Table-1. The current study is in line with past studies conducted by Njimanted et al. (2016); Ali et al. (2021); Chaudry et al. (2021) & Gajurel et al. (2023).

Table-1. Unit Root Test for Tested Variables (GDP_t, $M1_t$, $M2_t$, $M3_t$)

Variables	ADF (Levels)		ADF in 1st Differences		Integration order through differencing approach I( )
	Intercept	Intercept & Trend	Intercept	Intercept & Trend	
GDP_t	-4.07	-3.95	-6.56	-6.42	I(0)
$M1_t$	-4.66	-4.55	-7.92	-5.33	I(0)
$M2_t$	-3.02	-3.02	-5.14	-5.05	I(1)
$M3_t$	-4.17	-4.44	-6.61	-6.45	I(0)

Note: All parameters estimated in logarithms;
Critical values at 95 percent = -2.96 (without constant and without trend); and
Critical values at 95 percent = -3.57 (with constant and trend)

Table-2. Ordinary Least Square (OLS) for variables (*GDP$_t$, M1$_t$, M2$_t$, M3$_t$*)

Response Variable: GDP				
Method: Least Squares				
Sample: 1991-92 to 2021-22				
Counted observations after adjustment: 31				
Variable(s)	**Co-efficient**	**Standard Error**	**t-Statistics**	**Probability**
Narrow Money (M1)	0.048282	0.050261	0.960620	0.3453
Monetary Assets (M2)	0.022079	0.127145	0.173651	0.8634
Broad Boney (M3)	0.094042	0.065843	1.428268	0.1647
Constant (C)	1.944044	1.494113	1.301136	0.2042
R^2	0.168687			
Adjusted R^2	0.076318			
F-statistics	1.826241			
Prob (F-statistics)	0.166191	Durbin-Watson Stat.		1.525433

The estimated econometric equation to assess the impact of Narrow Money, Monetary Assets and Broad Money on GDP Growth Rate of Pakistan is presented as follows;

$$LGDP_t = \alpha_0 + 0.048282 * LM1_t + 0.022079 * LM2_t + 0.094042 * LM3_t + e_t \text{ ----------iii}$$

Table-2 indicated insignificant impact of impact of Narrow Money, Monetary Assets and Broad Money on GDP Growth Rate of Pakistan on GDP Growth Rate of Pakistan over a period of time 1991-92 to 2021-22. The perusal of Table-2 provides that R^2 value is 0.17 (17%) and which indicated that independents variable such as *M1$_t$, M2$_t$, M3$_t$* are predicting 17% variation in Dependent Variable as *GDP$_t$*. F value is worked out as 1.83 (P>0.05) revealing overall combined effects and overall unfitness of the Model. The government intervention in banking to enhance the consistent flow of money supply during the recession has not been found effective, besides limited role of domestic financial sectors in providing funds for infrastructure development. Monetary policy of Central Bank must regulate money supply consistently in both ways as in depression or recession. The results linked with previous studies conducted by Nosheen et al. (2021) & Mehar (2023).

Table-3. Autoregressive Distributed Lags Model for Tested Variables (*GDP$_t$, M1$_t$, M2$_t$, M3$_t$*)

Response Variable: GDP				
Method: ARDL (1, 1, 1, 1)				
Sample: 1991-92 to 2021-22				
Counted observations after adjustments: 30				
Fixed regressors: C				
Models evaluated: 8				
Variable(s)	**Co-efficient**	**Standard Error**	**t-Stat.**	**Probability**
GDP(-1)	0.117405	0.161486	0.727029	0.4749
M1	0.036891	0.046084	0.800519	0.4320
M1(-1)	-0.133625	0.037311	-3.581413	0.0017***
M2	-0.070564	0.098333	-0.717606	0.4806
M2(-1)	0.455028	0.112623	4.040273	0.0005***
M3	0.061151	0.048931	1.249720	0.2245
M3(-1)	-0.073033	0.050817	-1.437182	0.1647
C	-0.175953	1.449044	-0.121427	0.9045
R^2	0.635552			
Adjusted R^2	0.519591			
F-statistics	5.480749			
Prob (F-stat)	0.000952	Durbin-Watson Stat.		2.153674

***Significant at 1

Perusal of Table-3 findings of ARDL approach, reveled that ARDL values of Narrow Money (P<0.01) impacted significant negative influence, whereas Monetary Assets (P<0.01) impacted positive and significant influence on GDP Growth Rate of Pakistan, while Broad Money (P>0.05) impacted insignificant negative influence on GDP Growth Rate of Pakistan. Hence, ARDL examined co-integrating relationships between tested variables *(i.e M1$_t$, M2$_t$)* in the model. The perusal of Table-3 provides that R^2 value is 0.63 (63%) which indicated that independents variable such as *M1$_t$, M2$_t$, M3$_t$* are predicting 63% variation in Dependent Variable as *GDP$_t$*. F value is worked out as 5.48 (P<0.01) revealing overall combined effects and overall fitness of the Model.

Monetary uncertainty in terms of money supply negatively affects the Pakistan's economy. It may be suggested to Government to enhance the efficacy of monetary policy by making intervention to develop financial markets on sound footings, liberalize controlled interest rates and consistent growth of money supply so necessary for sustainable economic growth.

The current study is associated with past research conducted by Ali et al. (2021); Chaudry et al. (2021); Islam et al. (2021); Mbilla et al. (2021); Nosheen et al. (2021); Harit (2022); Sharwardi et al. (2022); Gajurel et al. (2023) & Tang et al. (2023) & Zahid et al. (2023).

Table-4. Bound Test for estimating long run relationships among Variables (*GDP_t, $M1_t$, $M2_t$, $M3_t$*)

ARDL Bounds Test		
Sample: 1991-92 to 2021-22		
Counted observations after adjustments: 30		
Test Statistics	**Value(s)**	**k**
F-statistics	13.81358	3
Critical Bounds Value		
Significance level	I0 Bound	I1 Bound
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89
1%	4.29	5.61

Perusal of Table-4 provided probability value of F statistics as 13.81, which is greater than upper bound critical value, hence the Model revealed long run relationships among tested variables.

Bounds Test findings suggest that monetary policy has a long-run relationship with economic growth of Pakistan. The current study is on the analogy of previous studies conducted by Ali et al. (2021); Chaudry et al. (2021); Islam et al. (2021); Mbilla et al. (2021); Nosheen et al. (2021) & Gillani & Abdin (2021).

Table-5. Error Correction Mechanism for estimating short run relationships and long run adjustment among tested variables (*GDP_t, $M1_t$, $M2_t$, $M3_t$*)

Response Variable: D(GDP)				
Method: Least Squares				
Sample: 1991-92 to 2021-22				
Counted observations after adjustments: 30				
Variable(s)	**Co-efficient**	**Standard Error**	**t-Statistics**	**Probability**
C	-0.160985	0.318117	-0.506054	0.6173
D(M1)	0.073832	0.033250	2.220545	0.0357**
D(M2)	-0.200541	0.097247	-2.062183	0.0497**
D(M3)	0.063339	0.042249	1.499168	0.1464
ECT(-1)	-0.976538	0.180379	-5.413815	0.0000***
R^2	0.601871			
Adjusted R^2	0.538170			
F-statistics	9.448423			
Prob (F-statistics)	0.000085	Durbin-Watson Stat.		1.714062

***Significant at 1%

**Significant at 5%

The estimated econometric equation for short run to assess the impact of Narrow Money, Monetary Assets and Broad Money on GDP Growth Rate of Pakistan is presented as follows;

$$LGDP_t = \alpha_0 + 0.073832 * LM1t - 0.200541 * LM2_t + 0.063339 * LM3_t - 0.976538 * ECT(-1) \text{-----iv}$$

Part-B: Long and Short Run adjustments

Variable	**Model**			
	Long run	**p-value**	**Short run**	**p-value**
$M1_t$	0.048282	0.3453	0.073832	0.0357**
$M2_t$	0.022079	0.8634	-0.200541	0.0497**
$M3_t$	0.094042	0.1647	0.063339	0.1464
ECT(-1)	n/a	n/a	-0.976538	0.0000***

***Significant at 1%

**Significant at 5%

Since all tested variables are stationary at I(1) and error term at I(0), it means cointgration and long run relationship exists. Perusal of Table-5(A) indicated the short run significant relationships between tested variable (*i.e M1t, M2t*) and the value of Co-integrating equation is negative (-0.976538) and significant (P<0.01) provides speed of adjustment as 97.65% per unit time indicating that there is convergence from short run dynamics towards long run equilibrium. Since the error correction term is -0.97, this means that the 97 percent of the error will be corrected in the next period in converging to the long run relationship. Perusal of Table-5(B) provides long run and short run adjustments towards long run equilibrium. The present study is related with previous studies conducted by Ali et al. (2021); Mbilla et al. (2021): Islam et al. (2021) & Razia & Omarya. (2022).

Table-6. Variance Inflation Factors for checking the presence of Multicollinearity for variables (*GDPt, M1t, M2t, M3t*)

Variance Inflation Factors			
Sample: 1991-92 to 2021-22			
Counted observations after adjustments: 31			
Variable(s)	**Co-efficient Variance**	**Uncentered VIF**	**Centered VIF**
M1	0.002526	4.571941	1.060162
M2	0.016166	25.32565	1.579229
M3	0.004335	9.615735	1.562504
C	2.232375	17.01165	NA

Perusal of Table-6 indicated that Centered VIF values of tested variables (i.e *M1t, M2t, M3t)* are less than 10 revealing non-existence of severe Multicollinearity in the Model. The present study is in line with previous research conducted by Ali et al. (2021) & Nosheen et al. (2021).

Table-7. Heteroskedasticity Test for tested variables (*GDPt, M1t, M2t, M3t*)

Heteroskedasticity Test:

F-statistics	0.606761	Probability. F(3,27)	0.6164
Obs*R^2	1.957953	Prob. Chi-Square(3)	0.5812
Scaled explained SS	1.488511	Prob. Chi-Square(3)	0.6849

Ho: No Heteroskedasticity
HI: Heteroskedacticity

Perusal of Table-7 indicated that probability value of F-Statistics and Chi-square are greater than 5% level of significance, hence Null Hypothesis is accepted revealing presence of homoskedasticity (no heteroskedasticity) in the model. The present study is related with previous research findings worked out by Ali et al. (2021); Nosheen et al. (2021) & Gillani & Abdin (2021).

Table-8: Lagrange Multiplier (LM) Test for checking Serial Correlation/ Autocorrelation among variables (*GDPt, M1t, M2t, M3t*)

Part-ASerial Correlation LM Test:

F-statistics	5.302692	Probability. F(2,25)	0.0120
Obs*R^2	9.233629	Prob. Chi-Square(2)	0.0099

HO: No serial correlation exist between variables
H1: Serial correlation exist between variables

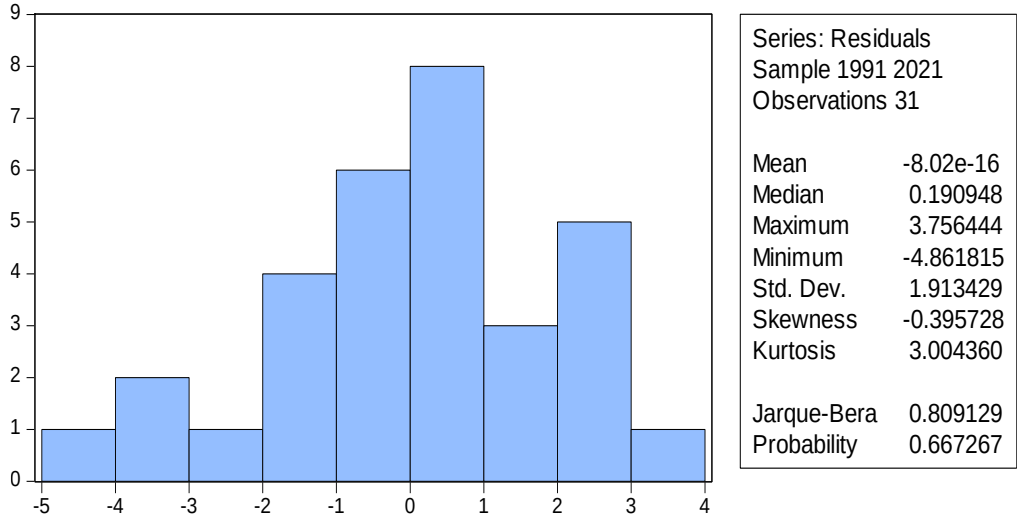
Since the probability values of all tested variables (i.e *M1t, M2t, M3t*) in Table-8 (A) are lower than 5% significance level (P<0.05) as shown in Table-8, hence HO is rejected, which revealed that model is packed with serial correlation/ autocorrelation and need to be treated by taking lags values of *M1t, M2t, M3t*.

Part-B Serial Correlation LM Test (After taking lags of *M1t, M2t, M3t*)

F-statistic	0.779878	Prob. F(2,21)	0.4713
Obs*R-squared	2.074165	Prob. Chi-Square(2)	0.3545

Table-8 (B) contained the probability values of all tested variables (i.e *M1t, M2t, M3t*) as greater than 5% significance level (P>0.05), hence HO is accepted, which revealed that model is free from serial correlation/ autocorrelation and don't need to be treated further. The present study is associated with past studies conducted by Ali et al. (2021) & Gillani & Abdin (2021).

Figure-1. Normality Test for tested variables (*GDP, M1, M2, M3*)



HO: Sample data drawn from normally distributed
HI: No sample data drawn from normally distributed

Since the probability value of Normality Test (0.67) is greater than 5% level of significance (P>0.05) depicted in Figure-1, hence null hypothesis is accepted, confirming that sample data has been drawn from normal distributed population. Hence relationships among tested variables are normal in the model. The present study is related with precious research conducted by Nosheen et al. (2021).

Table-9: Granger Causality Test for tested variables (*GDP, M1, M2, M3*)

Pairwise Granger Causality Tests
Sample: 1991-92 to 2021-22
Lags: 2

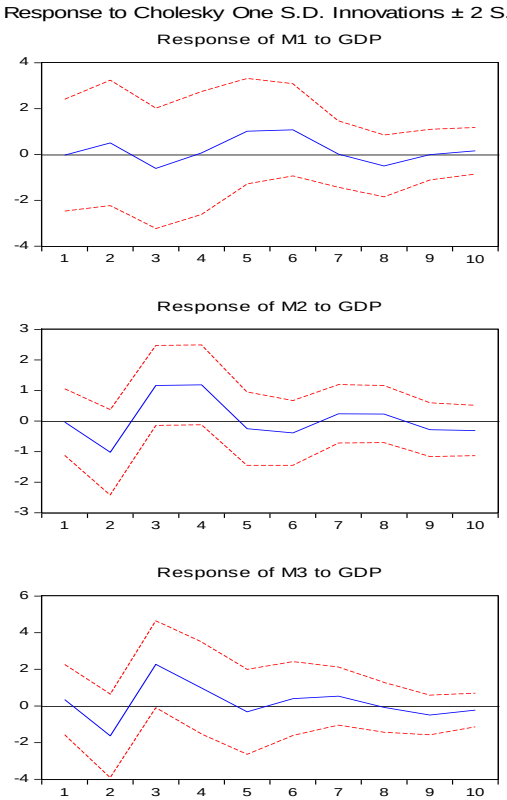
HO:	Obs	F-Statistics	Probability
M1 not Granger Causing GDP	29	2.04585	0.1512
GDP not Granger Causing M1		2.63095	0.0927*
M2 not Granger Causing GDP	29	6.02389	0.0076***
GDP not Granger Causing M2		4.49912	0.0219**
M3 not Granger Causing GDP	29	0.46183	0.6356
GDP not Granger Causing M3		4.93793	0.0160**
M2 not Granger Causing M1	29	3.86083	0.0352**
M1 not Granger Causing M2		0.13667	0.8729
M3 not Granger Causing M1	29	2.71975	0.0862*
M1 not Granger Causing M3		0.27756	0.7600
M3 not Granger Causing M2	29	0.26592	0.7687
M2 not Granger Causing M3		2.25877	0.1262

***Significant at 1%
**Significant at 5%
*Significant at 10%

Perusal of Table -9 revealed bi-directional causal significant relationship between GDP and M2; uni-directional causal significant relationship between GDP and M1 (P<0.10), between GDP and M3 (P<0.05), between M2 and M1 (P<0.10) and between M3 and M1 (P<0.10) indicating long-term relationship in the cointegration test, whereas no causality exists among rest of other combinations in the model.

The findings revealed that monetary policy is causally linked and successful in the long run to accelerate economic growth. The current study is in line with past research studies conducted by Ali et al. (2021) & Gajurel et al. (2023).

Figure-2. Impulse Response Analysis for tested variables (*GDP, M1, M2, M3*)



Perusal of Figure-2 depicted red lines and blue line in all three responses of Total Revenue, Tax Revenue and Non-Tax Revenue to GDP. Red lines referred to 95% confidence interval and blue line referred to Impulse Response Function.

In case of Response of Narrow Money (M1) revealed that one standard deviation shock or impulse or innovation given to GDP resulted in sharp increases of Narrow Money (M1) from 1st to 2nd period becomes positive, then sharp declines from 2nd to 3rd period becomes negative, then sharp increases from 3rd to 5th period becomes positive, then remained stable from 5th to 6th period, then sharp declines from 6th to 7th period, then gradual declines from 7th to 8th period becomes negative, then sharp increases from 8th to 9th period and thereafter gradual increases from 9th to 10th period becomes negative.

In case of Response of Monetary Assets (M2) to GDP revealed that one standard deviation shock or impulse or innovation given to GDP resulted in sharp declines of Monetary Assets (M2) from 1st to 2nd period becomes negative, then sharp increases from 2nd to 3rd period becomes positive, then stable from 3rd to 4th period, then sharp declines from 4th to 5th period becomes negative, then gradual declines from 5th to 6th period, then gradual increases from 6th to 7th period, then remained stable from 7th to 8th period, then sharp declines from 8th to 9th period becomes negative.

In case of Response of Broad Money (M3) to GDP revealed that one standard deviation shock or impulse or innovation given to GDP resulted in sharp declines of Broad Money (M3) from 1st to 2nd period becomes negative, then sharp increases from 2nd to 3rd period becomes positive, then sharp declines from 3rd to 5th period becomes negative, then sharp increases from 5th to 6th period becomes positive, then remained stable from 6th to 7th period, gradual declines from 7th to 9th period and thereafter gradual increase from 9th to 10th period. Since Impulse Response Function indicated direction and magnitude of casual relationships among tested variables, hence in all three responses, negative as well as positive responses existed, so shock to GDP noticed symmetric impact of Narrow Money (M1), Monetary Assets (M2) and Broad Money (M3) in Pakistan's economy in short as well as in long run.

Table-10. Wald Test for tested variables (*GDP, M1, M2, M3*)

Part-A Narrow Money (M1) C(3)

Wald Test: ARDL 4 Lag			
Dependent Variable and 4 Lag			
Independent Variable			
Test Statistics	**Value(s)**	**df**	**Prob.**
t-statistic	1.783575	16	0.0935*
F-statistic	3.181141	(1, 16)	0.0935*
Chi-square	3.181141	1	0.0745*
HO: C(3)=0			
HO Summary:			
Normalized Restriction (= 0)		Value(s)	Standard Error
C(3)		0.107008	0.059996

Part-B Monetary Assets (M2) C(9)

Wald Test: ARDL 4 Lag			
Dependent Variable and 4 Lag			
Independent Variable			
Test Statistics	**Value(s)**	**df**	**Prob.**
t-statistics	1.973074	16	0.0660*
F-statistics	3.893020	(1, 16)	0.0660*
Chi-square	3.893020	1	0.0485*
HO: C(9)=0			
HO Summary:			
Normalized Restriction (= 0)		Value(s)	Standard Error
C(9)		0.234811	0.119008

Restrictions are termed as linear in coefficients.
*Significant at 10%

HO: The value of independent variable is zero (0)
H1= The value of independent variable is not equal to zero (0)

Since the results of Wald Test in Table-10 indicated the probability values at t-test, F-test and Chi-Square values in case of independent variables (i.e $M1_t$, $M2_t$) are less than 10% level of significance (P<0.10) in Part-A and Part-B respectively, it means Null Hypothesis of assuming the values of independent variables (i.e $M1_t$, $M2_t$) is zero (0) is rejected, confirming independent variables are significant for a model. The study arrived at conclusion by emphasizing the importance of continuous monitoring to promote balanced and stable growth of money supply. The current study is related with previous study conducted by Zaerpour. (2023).

CONCLUSION AND RECOMMENDATIONS

The study arrived at logical conclusion that narrow money witnessed significant negative influence; monetary assets indicated significant positive impact and broad money revealed insignificant negative effect on economic growth of Pakistan over a period of time 1991-92 to 2021-22. This study was unique in sense which covered almost prominent dynamics of monetary policy towards economic growth of Pakistan. Though each and every tested indicator ($M1_t$, $M2_t$, $M3_t$) validated long lasting contribution in the economic growth, but empirical evidences provide basis to examine and address socio-economic variables such as poverty, unemployment, hunger, illiteracy and poor investment so as to observe and assess the influence of money supply forms of monetary policy dynamics on economic growth of Pakistan's Economy. It is recommended that government may focus upon various money forms of monetary policy as effective instruments for macroeconomic stability in short run and long run. It is indeed need of day to reduce uncertainties in macroeconomic monetary policy, emphasizing transparency and effective financial management, especially in monetary policy decisions concerning money supply, interest rate, inflation rate, exchange rate and related liquidity matters in Pakistan.

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