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The Impact of Gross Domestic Producton Macroeconomic Factors Evidence from Pakistan

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Abstract

The key objective of this study is to examine the association amongst the GDP and with macro factors such as BM (Broad money) and inflation. Used time series annually data set from 1977 to 2019 respectively. Multiple regression method is utilized to investigate the significance of the variables with GDP. Heteroskedasity and serial correlation valuation are utilized investigate the residuals normality as well as correctness of the data series variables. This analysis observes that BM and inflation both are significant positively at 1% of level. That's shows positive significant causality with GDP. This study encourages the public, stock exchanges and investors.

Keywords: *Correlation, GDP, Inflation and BM*

I. Introduction

For both of the developing and developed countries, one of the basic objectives of macroeconomic policies isstability of economy. In Pakistan, fiscal and monetary policies are intended at filling highly growth rate in term of GDP along with minimum inflation by the way of price constancy. Pakistan has been target single one digit normal rate of inflation according to Mohsin *et al.,* (2019). The policy of monetary committee the bank of Pakistan in June 2020 decreases the policy rate and maintain at too from 13% to 9%and as the way of better result. (Aggerwal and Shrim, 1998) explained that is expected are initiate interest rate reductions of the commercials banks benefit to subsequently make the cost and cheaper borrowing. Naseem *et al.,*(2020, 2019) examined seventh years average data on credit of bank extension to other sectors, the bank volume and stock market containing of the all ratios of GDP. That shows that high rate of inflation that beyond always hurt of GDP, the variables such as GDP and Inflation, broad money has been recognized by research considerable of the great considerations of GDP in the developed economy. Govt of Pakistan has originated several types of fiscal and money policy that's too good. According to naiwen *etal.,* (2019) the impact of these variables on the developing economy that has not much well originated much literature is sparsely accessible and scattered. Therefore, we are not sure about the correct correlations amongst some of the variables conditionally GDP, inflation and Money supply. The study of Rafiq *et al.,* (2019) To extent what that should Government follow of

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objective the single entry digit of inflationary, the inflation and money supply policy are determining factor of GDP in stock market. According to (Chappel and King 1997) there are many macro problems that should be responded in Pakistan. The common objective of this study is to investigate the changes effect in the policy of inflation and money supply accordingly to the GDP of Pakistan for the period. Salamat *et al.,* (2019) establish the positive association between GDP and inflation growth in Pakistan in the short term. Cook*et al.,* (1997) pointed that implies, as GDP and money supply must increases in the short-term. Elsewhere, when the inflation decreases, and the GDP must be decrease in the short-term as well as the supply of money. (Mukherjee and Naka, 1995)investigate that Inflation rate happens either when the prices increase or when it takes much money to purchase a similar item. Naseem *et al.*,(2018) Define that in the statement of the liquidity prefers hypothesis, as an increases, the supply of money is expectable to lesser of the interest rate; hence the stock will be rising. In addition, the causality of stock return and inflation has been a difficulty of substantial interest laterNaseem *et al.*,(2020, 2019) recommended that common stock is measured a decent hedgerow beside inflations; meanwhile, they represented as a statement on the actual asset which worth is presumed the rate of inflation to be independent. Suggest that variable and high inflations create ambiguity and hence lower the share value. Exactly, which generates demand for risk premium through depositors for allotment of equities; therefore, the stock price will decrease Mohsin *et al.,* (2019). Additional research provisions the hypothesis that stock return is negatively interrelated to the inflation rate expected or unexpected. Muhammad *et al.,* (2019)are investigate the negative connections between inflation and real stock propose that round about 30% observation of negative relation is attributing to monetary inventions. According to Hashim *et al.,* (2020), there is a significant connection between two variables. The inflation and stock price association is not clear. The researcher needs to clear out the performance of the variablesthis research study based on realistic on secondary data. On this topic, the previous research of Zhang *et al.,* (2006) supports that macro variables and stock market have the association with each other, after the studying and consulting as well as the reviewing of Pakistan economy, it is measure that five macro variables are significant to check the association with stock market prices. The annual time series data is utilized from 1977 to 2019 (43) years. In this research study, Up-to-date data is collect from the KSE-100 (Pakistan). The Key sources from which the macro variables data is collected are Investing.com, yahoo finance, stock exchange official site World development indicator, Business recorder, state bank of Pakistan and Index Mundi. The following table shows the description of the variables

Variables Description		
Variables	Description	Unit
GDP	Karachi stock exchange	Independent
M2	Broad money supply	Rupees
Inflation	Consumer price index	%of GDP

HYPOTHESIS

H1: there is connection between GDP and macro variables

H2: there is no connection between GDP and macro variables

II. ECONOMETRICK MODEL

The empirical analysis of that accompanied through the statistically methods for the hypothesis testing. We used the multiple regression, Pearson's correlation movements coefficient model to the determined the study objectives same model also used by Mohsin *et al.,* (2019)

$$GDP = a + \beta 1INFt + \beta 2M2 + \varepsilon \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

$$Et = a + \ln\beta 1\Delta INFt + \ln\beta 2\Delta M2 + \varepsilon \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

GDP is depended variables; inflation and money supply are in-depended variables and the GDP intercept variables is "a" of $\beta 1$, $\beta 2$ shows the coefficient and "ε" is the "error" standard

Descriptive Statistics			
	GDP	BM	INFLATION
Mean	0.833639	46.79075	8.989835
Med	0.612998	45.65696	8.37361
Max	3.668323	58.86769	38.51199
Min	0.062428	38.5947	0.400236
Std. Dev.	0.794336	6.327614	6.159832
Skew	1.220011	0.450746	1.768745
Kur	2.715883	1.996346	3.031911
Jarque-Bera	75.16642	3.260851	57.73933
Prob	0	0.195846	0
Sum Sq. Dev.	26.50074	1681.625	1593.628

Obs	43	43	43

The above result shows the value of the all variables GDP (0.833639), inflation (46.79075) and M2 (8.989835) with positive standard deviations. But the skewnes of all variables are positive. The kurtosis value is also amongst with 0-3 of all of the variables, which shows the normal behaviours distribution. This similarity also found with Alam *et al.,* (2020). The standard distribution of the jar-b confirm significant statistically.

Regression correlation			
	GDP	BM	INFLATION
GDP	1		
BM	0.54692287	1	
INFLATION	0.274067209	-0.238865098	1

The outcomes show correlation between the variables. The GDP relations are positively with other independent variables. BM also shows positive co-relation. Inflation goes positives with GDP and negative with BM. This relation indicate negative and positive correlation this result comes similarity with fuzzy firm linear.

Multiple Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
BM	0.081528*	0.014841	5.493333	0
INFLATIONT	0.055347*	0.015245	3.630372	0.0008
C	-3.478662	0.744721	-4.671095	0
R-sq	0.472824		Mean depvar	0.833639
Ad R-sq	0.446465		S.D. depvar	0.794336
S.E. of regression	0.590986		Akaike info criterion	1.853164
Sum squared resid	13.97056		Schwarz criterion	1.976038
Log likelihood	-36.84302		F-stat	7.937298

Durbin-Watson stat	1.704988		Prob(F-statistic)	0.000003

Annotation: dependent variable is KSE (least squares estimation) *** significant 10% ** significance 5% * significance 1%

The multiple regression tables show all of the variables are significant statistically with BM and inflation. The BM and inflation both are significant with 1% at level and rejected H0 in the line with Majeed *et al.,(*2020). And accept the H1. The R^2 coefficient determine is 0.472824which is become 41.7% the variation of GDP causes by BM and inflation F-statistics is 7.937298 that is also significant at level 1%. That show the model is fit good.

Breusch-Godfrey Correlation LM Test			
F-statistic	17.38589	Prob. F(2,38)	0
Obs*R-squared	20.54624	Prob. Chi-Square(2)	0

The LM test shows that P-value 0 which is less than 5% it's indicate that to accept H1 and reject the H0 there is correlation.

H0 = correlations is not present

H1 = correlations is present.

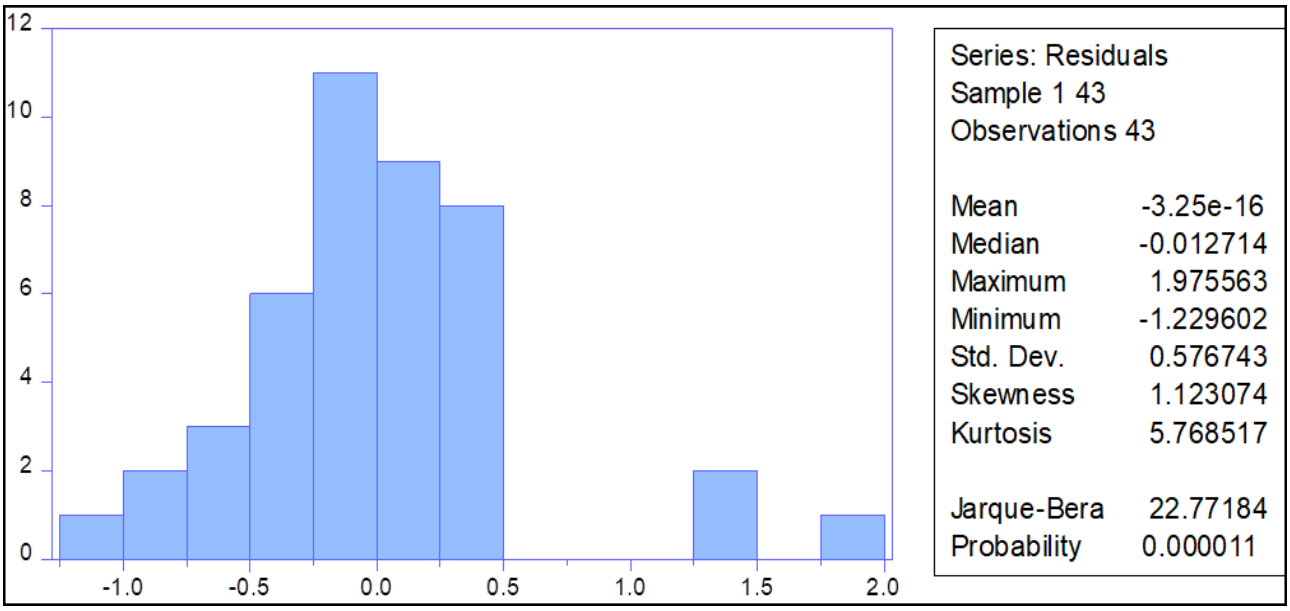
Heteroskedasticity Test: ARCH			
F-statistic	18.14823	Prob. F(1,40)	0.0001
Obs*R-squared	13.10832	Prob. Chi-Square(1)	0.0003

H1= there is heteroskedasticity

H0= there is no heteroskedasticity

The result specify that Heteroskedasticity ARCH piercing the F-statistic value is18.14823with 0% of likelihood which is obviously allusions that heteroskedasticity is present and reject the H0.

Residuals Normality Test



The Graph indicates the Residual Normality test. The Jar-B with the value of 22.77184 of 0 %,

This is less than 5% level of significant. And the normally distribution of H0 is to be included the declaration

Of the Azam *et al.*,(2020) the distribution is not normally distributed all over same result also found with Alam *et al.*, (2020)

III. Conclusion

The study analysis the important of the macro factors influence on the Gross domestic product. The main purpose of this research study is to examine the causality amongst the variables. Used time series annually data set from 1977 to 2019. With the designated factors of the stock return variables such as GDP, inflation, and broad money. Correlation, heteroskdasity and with normality residuals technique are used. The BM and inflation are significant both with 1% at levels. All of the relations are positive moved.

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