

IMPACT OF MONETARY POLICY ON STOCK PRICES

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Abstract

The objective of this research paper is to analyze the impact of monetary policy on stock prices in Pakistan. For this purpose, time series data of 37 years from 1980 to 2019 was taken from the website of Pakistan Stock Exchange. The dependent variable was stock market capitalization while independent variables were: Money supply, GDP, Inflation and interest rate. The authors applied different econometric techniques to determine nature of relationship between independent and dependent variables. The findings of the study reveal that money supply; GDP have positive while CPI has negative relationship with stock prices. It was noted that unpredictable decisions of monetary authorities make the behavior of market participants irrational in Pakistan because they take decisions in haphazardly and suffer losses. It is suggested that Monetary authorities should take decision in credible way to avoid confusion.

Key words: Money supply; stock prices; Interest rate; GDP; CPI.

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1.Introduction

1.1 Overview of study

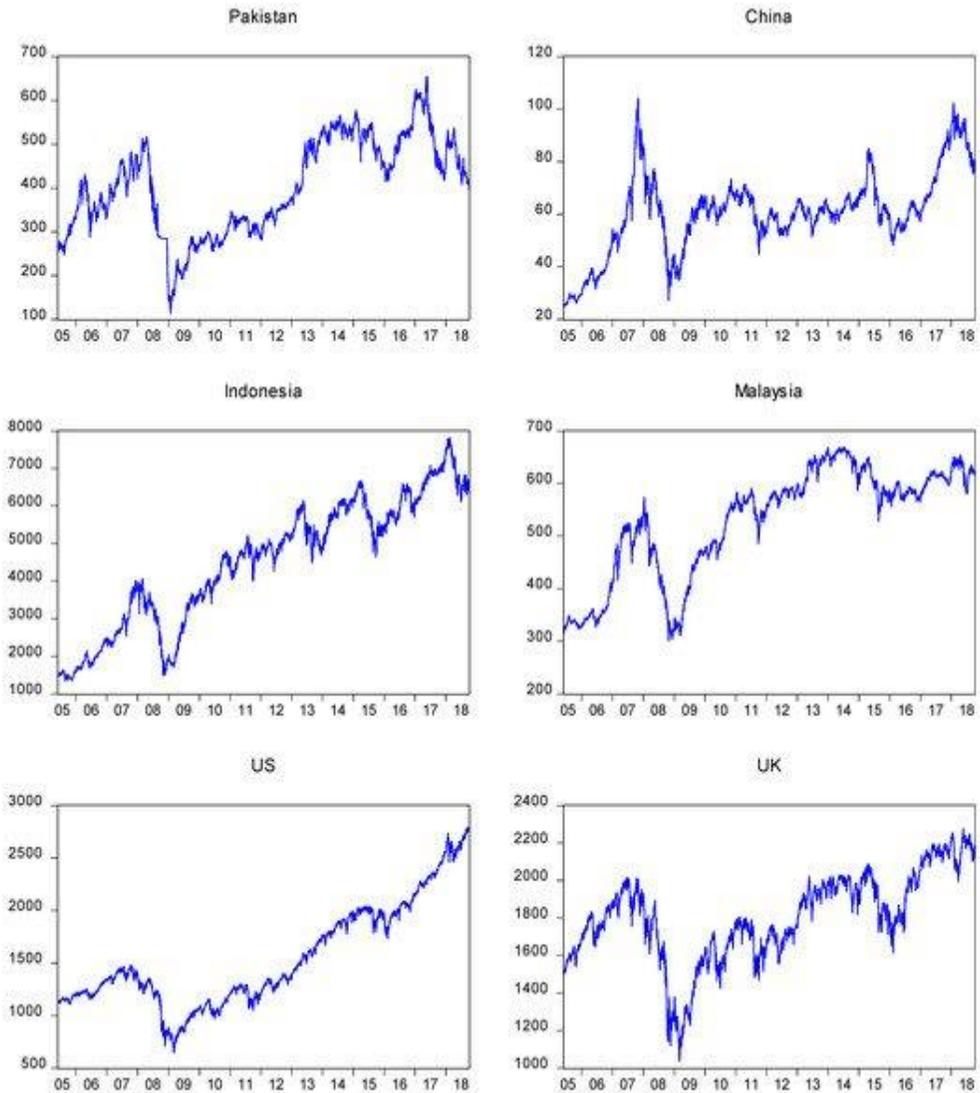
The aim of monetary policy is to achieve macroeconomic stability by controlling core variables like real output, interest rate, inflation and unemployment. Monetary policy directly hits the cash flow of a business firm that causes its the stock prices to fluctuate. Past researches reveal how money can be useful to forecast about the future stock return. So the stability of interest rate and inflation are necessary to create stability in the stock market. It has also been noted that in the previous research that equity is good hedge against inflation in the short and long run. Traditionally, the function of monetary policy was to stabilize output and price level and central banks use interest rate and quantity of money as policy instruments to achieve these goals (Gidlow, (1998) But late the scope of functions of monetary policy were expanded keeping in view the expansion of capital market. The study of monetary policy transmission mechanism show that policy has substantial effect on assets prices. Tobin's investment theory and Modigliani's model reveal that expansionary monetary policy tends to higher stock prices while contractionary monetary policy tends to decrease stock prices. It means that monetary policy is an effective tool to control fluctuations in the stock prices. The efficient market hypotheses states that investors' reactions are divergent when they expect divergent trends in the stock market. This theory also states that a single investor cannot manipulate the market in the long run because efficient market generates healthy competition and provides level playing field for all investors. The random walk theory states that fluctuations in the equity prices has no relation with available information and market runs on its

fundamentals. If the stock market follows the EMH, then it became difficult for a portfolio manager to help an investor to earn an abnormal profit (Mishkin, (1981). In Pakistan the objectives of monetary policy as laid down in the State Bank of Pakistan Act 1956 is to achieve annual target of inflation and economic growth. But later full employment, price stability and financial system were also included into the objectives. To achieve these goals, the State Bank of Pakistan use different monetary instruments like policy rate, nominal interest rate, open market operation, money supply, reserve requirements for commercial banks, etc. But there are no hard and fast rules for execution of monetary policy and creating coordination with fiscal policy (Rehman and Mohsin, (2011). Now the State Bank of Pakistan has been made an independent body under law and now Federal Government could not intervene into its affairs. But even then the central bank has so far failed to stabilize exchange rate and price level, which has destabilized Pakistan Stock Market.

As political and economic situation as well as interest rate have significant effect on stock prices the investors are very much keen to explore relationship between these variables. Interest rate has significant effect on stock prices in the short run while this effect is absorbed in the long run. Joyo, and Lin (2019) conducted a comparative study on the correlation and portfolio management in Pakistan and its major trading partners like the United States, China, United Kingdom, Malaysia and Indonesia. During 2005-2018. They investigated how the stock markets of Pakistan and its trading partners moved during 2008 financial crisis, whether this movement was linear or divergent. They concluded that similar trends was found in the stock market of Pakistan and its trading partners during this period. But this trend was deviated after 2008 financial crisis. Although financial crisis was started in the developed

countries in 2008 yet Pakistan stock market reacted very sharp and recorded steep fall in the equity prices as compared to the United States, UK, Malaysia and China as is shown in the [Figure 1](#).

Fig 1: Trends of equity markets of Pakistan and its trading partners



Source Joyo, Ahmad Shafique, Lefen, Lin (2019) Integration of Pakistan Stock Market with its trading partners, *Sustainability*, 11(2).

The trend in the above figure show that the stock prices in Malaysia were relatively stable while in the United States it rose rapidly after dip between 2008 and 2009. However, they were

more volatile in the United Kingdom and Pakistan. It means that UK and Pakistan equity markets are more sensitive to external shocks. Whenever International Monetary Fund asked Pakistan to rationalize the value of its currency it exerts pressure on Pak Rupee and stock prices. So the volatility in the stock prices and exchange rate are not endogenous issue but it mostly originates from exogenous channels.

1.2: Problem statement

The main research problem of this study is to analyze “the impact of monetary policy on Pakistan stock exchange” because theoretically all monetary tools like money supply, discount rate and reserve ratio of banks, general interest rates exchange rates have close link with stock prices. The authors have intended to explore the link between various tools of monetary policy and stock prices as well as level of volatility in the stock prices in case of change in any monetary variable. In the advanced countries monetary policy has immediate and significant impact on stock prices because of these markets are efficient and are very sensitive to any change in the monetary policy. However, Pakistan is a developing country and its market is not as efficient as is in the developed countries. The underlying motive of this study is to assess whether the monetary policy is as effective in Pakistan as it is in advanced countries because some researchers believe that monetary tools are not effective to bring change in the equity market and the economy in underdeveloped monopolized market.

1.3: Objectives of study

The objectives of this research papers are given below: -

- ▶ To study the impact of interest rate, GDP, M2 and inflation rate on Pakistan stock exchange.
- ▶ To analyze the role of the monetary policy in controlling fluctuations in the stock prices.
- ▶ To determine nature of association between stock prices, money supply, GDP, inflation rate and interest rate in Pakistan.
- ▶ To study how money supply, interest rate, GDP growth and inflation rate affect stock prices in the short run and long run in Pakistan.

1.4: Scope of study

The scope of this study is very large because monetary policy does not only affect equity prices but also the whole economy of the country. The monetary policy is not specific to any country and its tools are applied almost to all countries with slight difference of local economic conditions. The results of this research work will be useful not only for policy makers of Pakistan but also for all countries which have been facing instable exchange rate, high inflation, volatility in the stock market and high interest rate and unemployment scenario. The results of this study will also be beneficial for new researchers to get insight from it and expand their research by adding new data, new variables and new techniques.

2. Literature Review

Lucas and Prescott (1971) have contended that most of the people are rational and form positive expectation about future macroeconomic policies or unanticipated changes. They further stated that people adjust their decision

according to expected changes in inflation and money supply which mostly affects output and employment. They argued that policy announcement has effect on prices and inflation rates not on the expectations of the people who have already incorporated these expected changes into their future decision-making regarding consumption and investment. They maintained that market investors are unable to anticipate when monetary policy makers can make unannounced, unpredictable or truly surprising decisions. In short, Lucas suggested that policy makers should not act against the expectation of market participants by taking unpredictable decisions. Ioannidis & Kontonikas (2006) assessed that when monetary policy shifts it will affect the stock returns. The stock market is very sensitive to interest rate. They suggested that stock prices can be stabilized by controlling interest rate. Berument & Kutan (2007) examined the effect of monetary policy on Turkish economy and found that monetary policy is an important predictor of stock returns in all sectors of the economy and concluded that monetary policy is neutral and resources shocks had short term effect. Yun li & Iscan & Xut (2009) contended that to understand the monetary policy shocks it is necessary to recognize open market operation. They argued that monetary policy shocks mostly affect small and weak economies through different channels. However, they viewed that domestic monetary shocks had no significant effect on stock prices. Against external financial shocks which had significant effect on equity prices than local shocks. In other words, they pleaded that external financial shocks had more effect on stock prices than local shocks. Alam & Uddin (2009) analyzed relationship between monetary policy and stock market performance and concluded that money supply and inflation has negative effect on the stock performance whereas reserve ratio and repo rate had positive impact on it.

Omella Ricci (2013) argued that when banks were operating under high risk and weaker balance sheet they are more sensitive to monetary shocks and step of central banks to suck liquidity create serious operational problem for them. In such a situation, they could not manage their liquidity management issues. Muktadir & Mukit (2013) analyzed the effect of monetary policy on Bangladesh stock market. They found that repo rate had negative effect while money supply, treasury bill auction and inflation rates have positive effect on stock market performance. Dilmahghani & Tehranchian (2015) investigated the importance of exchange rate and its impact on the economies of developing countries. They stated that it is a significant variable and it has remarkable effect on their competitiveness in international market. The instability in the exchange rate brings instability in the imports and exports as well as current account and balance of payment. They pleaded that monetary policy had close association with exchange rate. The overvaluation of exchange rate had made the exports in competitive while undervaluation of the exchange rate made the exports attractive for foreign buyers. Isolo & Olukayode (2015) assessed the monetary policy and stock exchange dynamics. They used different statistical techniques to explore nature of association between different monetary policy tools and the stock market behavior in Nigeria during 1985-2013 period. They argued that the managers of monetary policy had substantial impact on the whole economy including equity market through monetary tools. They cited different studies like Bernanke and Gertler (1999), Cecchetti (2008) and Chortareas and Noikokyris (2014) to prove their views. Their results showed that there was a significant association between share index and selected monetary tools used by monetary authorities in Nigeria. Bissoon, et al (2016) also examined the impact of

monetary policy on stock prices and took a sample of five countries: United Kingdom, Japan, Australia, Mauritius, and Thailand over the period of 2004-2014. They used multiple regression and vector error correction models to analyze the association among selected variables. The findings of this study showed that Stock return and interest rate had negative and direct link and money supply had significant effect on stock return. Hajilee and Omar (2017) analyzed the link between interest rate and stock return in the context of interest rate uncertainty on stock market development in 12 emerging economies during 1980-2011. They found that there is a significant short-run effect of interest rate uncertainty on stock market development in all 12 sampling economies. They also found significant impact of interest rate uncertainty on stock market in 9 out of 12 countries in the long run. They suggested that emerging economies need sound monetary policy to create safe investment environment and stock market development.

3. Research Methodology

The secondary data was used in this study and it was spread over 37 years. It was collected from Pakistan Stock Exchange, State Bank of Pakistan and Pakistan Economic Survey.

3.1 Sample of Study

The sample of study was market capitalization of Pakistan Stock Exchange. To measure the impact of monetary policy the authors used longitudinal data for the period from 1980 to 2019.

3.2 Selected Variables

The market capitalization of Pakistan Stock exchange was dependent variable, while independent variable includes: money supply, interest rate,

GDP and inflation rate (CPI).

3.3 Definition of variables

3.3.1 Market capitalization

Market capitalization is chosen as a proxy variable of stock market. Market capitalization refers to market value of total number of business firms listed at stock exchange. In other words, market capitalization is the market price the outstanding shares of all listed firms.

3.3.2 Interest Rate

Interest rate is the amount charged by banks and other financial institutions from their clients on borrowed money. It is excess to the loan amount.

3.3.3 Consumer Price Index

It is an average increase in the price level of consumer goods and services in a month in any country.

3.3.4 Money Supply

Money supply is the sum of demand deposit, banks outside currency and time deposit. In other words, it is the quantity of money to be circulated in an economy for exchange of goods and services.

3.3.5 Gross Domestic Product

It is the total quantity of goods and services produced in a country in one-year period. These goods and services are valued through market prices in order to determine their total prices.

3.4 Econometric model

The econometric model of the study is engraved as under: -

$$SE = \beta_0 + \beta_1 M2 + \beta_2 CPI + \beta_3 IR + \beta_4 GDP + \varepsilon$$

Where

SE= Stock Exchange

CPI= Consumer price index

GDP= Gross Domestic Product

M2= Broad money.

IR= Interest Rate

β_1 β_2 . are parameters

3.5 Analytical techniques

The authors used the following statistical techniques to analyze the data.

- Descriptive statistics
- ADF Test
- Correlation Analysis
- ARDL Model
- Bound Test
- Stability Test
- Granger Causality Test

4. Empirical Analysis

4.1 Descriptive statistics

The calculated results of descriptive statistics are shown in [Table 1](#).

Table 1: Results of Descriptive Statistics

	SE	M2	GDP	CPI	IR
Mean	20.02949	24.26503	4.967013	8.021795	12.12420
Median	18.40000	24.09195	4.959769	7.800000	12.68528
Maximum	45.70000	36.56232	10.21570	20.20000	15.42000
Minimum	6.100000	14.21059	1.014396	2.500000	6.990000
Std. Dev.	10.05215	6.253703	2.092879	3.821952	2.054224
Skewness	0.555142	0.168591	0.115534	0.741287	-0.782472
Kurtosis	2.925108	1.977619	2.640997	3.759775	3.137408
Jarque- Bera	2.012302	1.883300	0.296197	4.509833	4.010392
Probability	0.365624	0.389984	0.862346	0.104882	0.134634
Sum	781.1500	946.3361	193.7135	312.8500	472.8438
Sum Sq. Dev.	3839.740	1486.134	166.4454	555.0780	160.3537

Table 1 shows descriptive analysis of all the variables in the model. Stock exchange is dependent variable while M2, GDP, CPI, IR are independent variables. Dependent variable stock exchange has 20.02 mean value, 45.70 maximum value, 6.10 minimum value, its standard deviation is 10.05 and has

a positive skewness 0.55. Probability value of stock exchange is 0.3 which is more than 0.09 and it is insignificant. Next variable is M2 which has 24.26 mean value, 36.56 maximum value, 14.21 minimum value, its standard deviation is 6.25 and has positive skewness 0.16. Probability value of M2 is 0.38. Other variable is GDP which has 4.96 mean value, 10.21 median value, 1.01 minimum value and its standard deviation is 2.09, which has positive skewness 0.11 and probability value is 0.8 that is insignificant. Next variable is CPI which has 8.02 mean value, 20.20 maximum value, 2.50 minimum value its standard deviation is 3.8 and has a positive skewness 0.74. Probability value of CPI is 0.1 which is insignificant. Next variable is IR which has 12.12 mean value, 15.4 maximum value, 6.99 minimum value its standard deviation is 2.05 and has negative skewness -0.78. Probability value of IR is 0.1 more than 0.09 which is insignificant.

4.2 Correlation Analysis

The calculated results of correlation analysis are highlighted in [Table 2](#).

Table:2: Results of Correlation Analysis

	SE	M2	GDP	CPI	IR
SE	1				
M2	0.06	1			
GDP	-0.08	-0.17	1		
CPI	-0.14	0.11	-0.20	1	
IR	-0.26	0.073	-0.36	0.58	1

Table 2 shows the correlation between dependent variable, SE, and the independent variables, M2, GDP, CPI and IR. The 1st variable which is stock exchange (SE) shows the positive correlation with money supply as its value of correlation is 0.06 and this value is greater than the zero which shows the positive correlation. Stock exchange shows the inverse correlation with GDP and the value of correlation -0.08. It means when GDP increases stock market capitalization will be decreased. The Correlation between the SE and CPI shows the negative association and the value of correlation is -0.14. SE and IR shows the negative correlation between the variable and the value of correlation is -0.26. Money supply shows the correlation with the GDP and the negative correlation value of correlation is -0.17 that indicate that the value is less than the zero so the correlation between these two variable is negative. However, the correlation between the M2 and the CPI is positive as the correlation coefficient value is 0.07 GDP reveals the negative correlation between CPI and its value -0.20 which is less than zero. CPI and IR shows the positive correlation and the value of correlation is 0.58 which shows positive correlation between variables. Thus, the results of correlation are mixed.

4.3 ADF Test

The results of ADF test are shown in [Table 3](#).

Table 3: Results of ADF Test

Variable	Level			1st difference			Conclusion
	Intercept	T&I	None	Intercept	T&I	None	
M2	-	-	-	-6.15608 P(0.0000)	-6.14889 P(0.0001)	-6.2400* P(00000)	L(1)
SE	-	-	-	- 7.940 (000000)	- 8.0497 P(00000)	- 8.0575* P(00000)	L(1)
IR	-	-	-	4.37936 P(0.001)	-4.3270 P(0.007)	4.43337* P(0.000)	L(1)
GDP	-3.0182* P(0.04)	- 3.01045 P(0.014)	- 1.83384 P(0.06)	-	-	-	L(0)
CPI	-	-	-	-6.9680 P(00000)	-6.9084 P(0.0000)	-7.0667* P(0.0000)	L(1)

Table 3 shows the result of ADF test. In this test all variable shows the stationary point on level or on 1st difference. ADF test shows that variable can be stationary either be at level, or at 1st difference or at 2nd difference. We check the stationary through the value of T-statistics and the value of probability. If the value of probability is less than the 0.09 than the variable is stationary at this point and stationarity is proved. GDP is stationer at level

while LL other variable are stationers at 1st difference. When the variables are stationer at different levels the ARDL model can be used for analysis.

4.4 ARDL Model

The calculated results of ARDL model are highlighted in [Table 4](#).

Table 4 Results of ARDL Model
Co-integration Form

Variable	Co-efficient	Std. Error	t-Statistic	Prob.
D(SE(-1))	0.664383	0.220794	3.009057	0.0298
D(SE(-2))	0.878835	0.210175	4.181441	0.0086
D(SE(-3))	0.664260	0.255275	2.602135	0.0481
D(M2)	0.567978	0.479993	1.183305	0.2899
D(M2(-1))	-0.638192	0.494637	-1.290223	0.2534
D(M2(-2))	-1.218145	0.554887	-2.195302	0.0796
D(M2(-3))	1.106601	0.616569	1.794772	0.1326
D(M2(-4))	-0.415251	0.411371	-1.009431	0.3591
D(GDP)	-0.401737	1.147064	-0.350230	0.7404
D(GDP(-1))	-0.950593	1.509235	-0.629851	0.5564
D(GDP(-2))	0.311320	1.352934	0.230108	0.8271
D(GDP(-3))	0.302262	1.099207	0.274981	0.7943
D(GDP(-4))	-1.236029	0.958047	-1.290156	0.2534
D(IR)	5.792456	1.347760	4.297839	0.0077
D(IR(-1))	-0.618027	1.637192	-0.377492	0.7213
D(IR(-2))	-4.076766	2.505799	-1.626933	0.1647

D(IR(-3))	4.523357	2.294158	1.971685	0.1057
D(IR(-4))	-3.229238	1.821061	-1.773273	0.1364
D(CPI)	0.087105	0.696984	0.124973	0.9054
D(CPI(-1))	2.354930	0.644813	3.652114	0.0147
D(CPI(-2))	-0.148902	0.452399	-0.329140	0.7554
D(CPI(-3))	1.409116	0.433464	3.250823	0.0227
D(CPI(-4))	0.252567	0.411254	0.614139	0.5660
CointEq(-1)	-0.304436	0.287398	-3.842883	0.0121
Cointeq = SE - (1.5357*M2 + 0.7327*GDP + 5.7527*IR -3.5138*CPI				
-60.9538)				

Long Run ARDL Model Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
M2	1.535681	0.333165	4.609378	0.0058
GDP	0.732702	3.155962	0.232164	0.8256
IR	5.752737	2.080051	2.765671	0.0396
CPI	-3.513793	1.544126	-2.275587	0.0719
C	-60.953767	40.879607	-1.491056	0.1961

Table 4 shows significant relationship between Stock Exchange (SE) and M2 because the t-statistics is greater than two and probability value is less than the 0.09 and shows the positive relation between them. If one unit is increased in M₂ the market capitalization of stock exchange (SE) will also

increase by 15.35 percent in the long run. These results are consistent with the result of [Akbar, Ali, Khan \(2011\)](#) who stated that M_2 and stock exchange have positive relationship in the long run. The GDP also has strong positive relationship with market capitalization of stock market. It means if one-unit increases in GDP growth the market capitalization will likely to be increased by 73.47 percent in the long run. This relationship is insignificant because the t-statistics value is less than two and the probability value is greater than the 0.09 and showing the positive relationship with the stock exchange (SE). These findings of this study support the results of [Sanguine park \(2009\)](#) who concluded that GDP has positive effect on stock returns. When GDP grows the stock return will also grow in the long run. Similarly, the interest rate also has positive relationship with market capitalization, indicating if one unit increases in the interest rate the market capitalization will likely to be increased by 57.52 percent in the long run. However, inflation and stock market has negative relationship in the long run. If inflation rate is increased by one unit, the market capitalization will likely to be decreased by 35.13 percent in the long run. These findings also support to the results of [Sohail & Hussain \(2009\)](#), [Rahman, et al \(2009\)](#) and [Mukit & Muktedir \(2012\)](#) who found negative association between inflation rate and market capitalization. In short, the relationship between all independent variables except inflation rate (CPI) have positive association with stock market capitalization in the long run. However, when we glanced upper portion of Table 4 we found that inflation rate also has positive association with stock exchange in the short run. The value of coefficient of stock exchange is -0.30 which lies between the 0 and -1 and it shows that the variation in SE towards the equilibrium level in the current period adjusted by the 30% in the next year.

4.5 Bound Test

The calculated Bound test results are shown in [Table 5](#).

Table 5 Results of Bound Test

+++				
F-statistic	3.200564	4		
Critical Value Bounds				
Significance	LCB	UCB		
10%	2.45	3.52		
5%	2.86	4.01		
2.5%	3.25	4.49		
1%	3.74	5.06		

Table 5 reflects the results of Bond Test that shows long run relationship between variables. Thus, null hypothesis is rejected because it states that there is no association between independent and dependent variables in the long run. Alternate hypothesis, which states that there is significant association between variables in the long run. The value of F-statistics is 3.200564 which is greater than the value of LCB and lower than the value of the UCB as is shown in [table 5](#).

5. Findings of study

We discuss the finding and results which is in numerically forms and also shows the significant of variables. Here the stock exchange is the dependent variable and the money supply, GDP, CPI and IR are the independent variables. In descriptive test we find out the mean, median, mode, skewness, JB, maximum value and also minimum value of variables. Here the dependent variable SE has mean value is 20.02, maximum value 45.70, minimum value is 6.10, it's standard deviation is 10.05 and has positive skew-ness which is 0.5. Now the next 1st independent variables M2 mean values is 24.26, maximum value is 36.56, minimum value is 14.21, standard deviation value is 6.25 has the positive skewness at 0.16. Probability value of SE is 0.39. In correlation analysis we found that Stock Exchange had positive correlation with money supply while money supply had negative correlation with GDP and positive correlation with CPI and IR. In ADF test we found that GDP is stationer at level, while M2, SE, CPI and IR are stationary at 1st difference. The results of ARDL model show that all independent variables like money supply, (M2), interest rate and GDP have positive association with dependent variable, stock exchange. The increases in money supply (M2) also increases asset prices in the long run.

The finding of this study support the result of Akbar, Ali, Khan (2011) who stated that M2 and stock exchange have positive association in the long run. The interest rate has positive association with stock market in the long run and negative association in the short run. The results of this study is mixed about the effect interest rate on stock market. If monetary authorities are intended to keep interest rate low the investors form positive expectation

because they are rational and want to invest in the market to earn profit. In contrast, if monetary authorities take unpredictable decision and abruptly raise interest against the expectation of market participant they will react in irrational manner resulting unanticipated negative behavior of the market as stated by Lucas and Prescott (1971) in their “Theory of Rational Expectation”. These findings are also support the results of Hajilee and Omar (2017). Similarly, if GDP growth rate is increased in the long run it will have positive impact on stock market and return on assets. Consequently, the value of assets will increase and the wealth of investors will maximize. These results also strengthen the findings of Sanguine park (2009) who concluded that GDP growth has positive impact on stock returns in the long run. Similarly, the increase in interest rate will also rise the prices of equities in the long run because equities are assumed to be a hedge against interest rate. However, inflation (CPI) has negative link with stock exchange in the long run. It means if inflation rate is increased in the long run it will decrease stock return and real value of market capitalization and consequently the value of assets will decrease and the investors will suffer due to low return as well as depreciation of the value of their assets. The results of this study are consistent with the studies of Sohail & Hussain (2009) and Rahman, et al (2009) and Mukit & Muktedir (2012). In the upper portion of table 4 short run results have been shown. According to short run results, GDP and inflation rate have positive association with stock market while money supply and interest rate have negative association with stock prices in the short run. Inflation means increase in price level and when price level is increased it will also have positive impact on asset prices in the short run. The same is the effect of GDP. The value of coefficient is 0.30, which lies between the 0 and -1 and it shows

the speed of adjustment of SE towards the equilibrium level from the current year to the next year. It means that the speed of adjustment from current year to next year will be 39%.

6. Conclusions and policy implications

From the above findings the following conclusions can be drawn: -

There are mixed result of this study in the short run and long run. In the long run the effect of money supply, interest rate, and GDP is positive while the effect of inflation rate is negative on stock exchange. The stock exchange is used as a proxy variable of stock return and market capitalization. As stock return or market capitalization are increased it means the increase asset price and maximization of the wealth of investors. Prices of stocks will high with the increase in money supply because the availability of liquidity in the market provides an opportunity to investors to invest more in the stocks. It also makes the bond less attractive due to low return. It is generally observed that liquidity crunch mostly affects stock market negatively, so the expansionary monetary policy is beneficial for the stock market. The increase in GDP growth over the years also positively affect the stock prices because it rises per capita income of the people and they are inclined to invest in stock market to clinch quick gain. As GDP growth rate also affects corporate earnings positively so it also enhances stock return and increase in the wealth of investors. If the interest rate is low, it will also have positive effect on stock market because in low interest rate scenario the investors can borrow money and invest in the stock market. However, the high interest rate is harmful for stock market because it creates liquidity crunch and forces the investors to withdraw their investment form the stock exchange to repay their borrowed funds. Inflation is the only variable which has negative effect in the short run

and long run because it does not only weaken purchasing power of consumers but also reduce their capability of saving and investment. The people having surplus income can only invest in the stock market and in case of deficit money they are constrained to invest in stock market as well as in the bond market in the short run and long run. The policy implications of this study are briefly stated in the followings: -

The instability in the stock market is a crucial issue for monetary authorities whose main function is to stabilize prices of goods and services in the goods market and prices of assets in the Stock market. The central banks should take corrective steps to prevent unhealthy speculation and closely monitor the functioning of stock exchange through its monetary instruments. The monetary authorities must follow proactive policies to neutralize the effects of external shocks. The other policy implication of this study is instable exchange rate in Pakistan which is negatively affect asset prices and balance sheets of those business firms which are engaged in exports and imports of goods. The depreciation of currency enhances the liabilities of importing firms as Oil and Gas companies, Refineries in Pakistan and all those companies which have borrowed money from international market have suffered huge financial loss in the form of capital loss. The firms which are involved in exports activities gain benefit from currency depreciation as is of Textile industry in Pakistan. This situation has created a serious challenge for monetary authorities to keep balance between the interest of exporting and importing firms as well as the stability of capital market. The uncertainty and unhealthy fluctuations in the stock prices prevents local and foreign investors to invest in the stock market because they are not sure about future direction of the market and behaviors of monetary policy. As the stock market moves

upward when the investors are confident about the positive expectation relating to the decisions of monetary authorities. Thus, the policy makers should keep the interest of investors in mind while taking policy decisions.

7. Contribution of this study

This study contributes in the existing body of literature in many ways and highlights the fact that the monetary policy has substantial effects on the stock market and monetary authorities can set the direction of market through interest rate and money supply. If they keep interest rate low and increases money supply it will have healthy effect on assets' price in the stock market. In contrast, creating liquidity crunch through high interest rate and contracting money supply it will negatively affect assets' prices. The other fact highlights this study is that stock market is a cheap source of resources generation and entrepreneurs can only raise money through capital market when it is stable and functioning smoothly. The depressed market does not give return to investors nor motivate entrepreneurs to raise funds or get enlisted their newly formed entity. In such a condition small savings cannot be tapped by offering equity to small investors. Thus, this study emphasized that monetary authorities should not take unpredictable decisions to make the behavior of investors in the Stock Market irrational and puzzling. Moreover, this results are restricted to Pakistan Stock Exchange but they may be generalized to other developing countries because monetary policy has the same effect on the behavior of Stock market and its investors.

8. Limitations and future direction of research

This study has measured the impact of monetary policy on the stock market. The other researchers can measure the impact of monetary policy on

goods and money market and can also compare them to make their results more effective and interesting. This study used time series data of the period from 1980 to 2019 but other researchers can expand this period to 50 years in order to understand the impact of monetary policy in the long run. This research study included money supply, interest rate, inflation and GDP as independent variables more variables like income inequality, population growth and per capita income can be added into future studies in order to broaden results. This research study has measured the impact of money market on stock exchange keeping in view Pakistan stock market. The future studies can be conducted on cross sectional data of different developing countries and compare how stock markets react on unpredictable decisions of monetary authorities. This analysis will provide an interesting insight whether the investors in different countries behave rationally or irrationally over the decisions of monetary authorities or the monetary policy affect different stock markets in the same way of differently.

Data statement

The data used in the findings of this study will be available on request by corresponding author.

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Note on contribution of Authors

Both authors jointly carried out this research study and collaborated each other. The author 1 collected data, conducted its statistical analysis. He e prepared initial draft of manuscript. The Author 2 helped Author 1 in selected of title of research, guided in statistical analysis and formatted final draft of manuscript. Both authors carefully read final draft of manuscript and find it fit for publishing. Both authors fully followed ethical values during the course of this research work.

References

Adekunle, Elekeokwuri, Onayemi (2020) Stability in market price and monetary policy in Nigeria: What does the Empirics Say? *Ovidius University Annals, Economic Science*, XX, (1) [\(Google Scholar\)](#)

Alam, M., & Uddin, G.S. (2009). Relationship between Interest and Stock Prices: Empirical Evidence from Developed and Developing Countries. *International Journal of Business and Management*, 4(3), 43-51. [\(Google Scholar\)](#)

Ali, Sibgha,. Awan, Abdul Ghafoor (2021). The impact of Monetary expansion on economic growth in Pakistan, *Global Journal of Management, Social Sciences and Humanities*, 6 (4): 757-784 [\(Google Scholar\)](#)

Awan, Anwar, Awan, Abdul Ghafoor (2015). Analysis of Pakistan and Indian Stock Markets: A comparative study. *Science International Lahore* 27 (6). [\(Google Scholar\)](#)

Ashraf, Muhammad, Awan, Abdul Ghafoor (2022). The impact of currency devaluation on oil sector performance in Pakistan. *Global Journal of Management, Social Sciences and Humanities*, 8 (3): 426-455 [\(Google Scholar\)](#)

Aslam, Mehvish, Awan, Abdul Ghafoor (2018). Impact of monetary policy on economic growth: Evidence from Pakistan. *Global journal of*

management, social sciences and humanities, 4 (1): 89-109

[\(Google Scholar\)](#)

Awan, Abdul Ghafoor, Ali, Mubashir (2021) Monetary policy and employment generation in Pakistan, *Global Journal of Management, Social Sciences and Humanities*, 7 (2): 450-474.

[\(Google Scholar\)](#)

Awan, Abdul Ghafoor, Yaqoob, Irum (2021) Open Market Operation by State Bank of Pakistan and its impact on Economic stability, *Global Journal of Management, Social Sciences and Humanities*, 7 (2).

[\(Google Scholar\)](#)

Awan, Abdul Ghafoor (2012). Diverging Trends of Human Capital in BRIC countries, *International Journal of Asian Social Science*, 2 (12): 2195-2219.

[\(Google Scholar\)](#)

Awan, Abdul Ghafoor (2012) Human Capital: Driving Force of Economic Growth in Selected Emerging Economies, *Global Disclosure of Economic and Business*, 1 (1): 09-30

[\(Google Scholar\)](#)

Awan, Abdul Ghafoor (2016). Wave of Anti-Globalization and capitalism and its impact on world Economy, *Global Journal of Management and Social Sciences*, 2 (4): 1-21.

[\(Google Scholar\)](#)

Awan, Abdul Ghafoor (2015). Analysis of the impact of 2008 financial crisis on economic, political and health systems and societies of Advanced countries, *Global Journal of Management and Social Sciences* 1 (1): 1-16. [\(Google Scholar\)](#)

Awan, Abdul Ghafoor (2015). State Versus Free Market Capitalism: A comparative Analysis. *Journal of Economics and Sustainable Development*, 6 (1): 166-176 [\(Google Scholar\)](#)

Awan, Abdul Ghafoor, Mukhtar, Sheeza Sadia (2019). Causes of trade deficit and its impact on Pakistan's Economic growth. *Global Journal of Management, Social Sciences and Humanities*, 5 (3): 480-498 [\(Google Scholar\)](#)

Awan, Abdul Ghafoor (2014). Shifting Global Economic Paradigm, *Asian Business Review*, 4 (3): 113-118 [\(Google Scholar\)](#)

Awan, Abdul Ghafoor (2011) Changing World Economic and Financial Scenario, *Asian Accounting and Auditing Advancement*, 1 (1): 146-175 [\(Google Scholar\)](#)

Awan, Abdul Ghafoor, Nadeem, Nasir., Malghani, Falak Sher (2015) Causes of loan defaults in Pakistani Banks: A case study of District D.G. Khan, *Science International*, Lahore 27 (3): 2593-2597 [\(Google Scholar\)](#)

Awan, Abdul Ghafoor, Ramla Hussain (2021) Role of IMF Program in stabilization of Pakistan's economy, *Global Journal of Management, Social Sciences and Humanities* 7 (2) [\(Google Scholar\)](#)

Bernank, B and Gertler M, (1999). Monetary policy and Asset Price Volatility. *Economic Review*, Federal Reserves of Kansas City, Fourth Quarter, 17-15. [\(Google Scholar\)](#)

Castelnuovo, E, & Nistico, S. (2010) Stock market conditions and monetary policy in DGSN model for the US. *Journal of dynamics and control*, 34, 1700-1731. [\(Google Scholar\)](#)

Ehrmann, M. and Fratzscher, M. (2004) Monetary Policy transmission to equity market, *Journal of Money, Credit and Banking* 36, 719-737. [\(Google Scholar\)](#)

Gali, Gambetti (2014) *The impact of monetary policy on stock market bubbles: some evidence* National Bureau of Economic Research 1050 Massachusetts Avenue Cambridge, Ma 02138 March [\(Google Scholar\)](#)

Hajilee, Masoumeh and Al Nasser, Omar M (2017) The impact of interest rate volatility on Stock Market Development, *The Journal of Developing Areas* 51 (2) 301-313 (13 <https://www.jstor.org/stable/26415740>)

(Google Scholar)

Iftikhar, Usman, Awan, Abdul Ghafoor (2015). How does stock market development influence the Economic Growth? *International Journal of Economics, Commerce and Management*, United Kingdom, 3 (1): 1-19

(Google Scholar)

Joyo, Ahmad Shafique,, Lefen, Lin (2019) Stock Market Integration of Pakistan with Its Trading Partners: A Multivariate DCC-GARCH Model Approach *Sustainability* , 11(2), 303; <https://doi.org/10.3390/su11020303>

(Google Scholar)

Kuttner, K. N. (2001) Monetary policy Surprises and Interest Rates: Evidence from the Fed Funds Future Market, *Journal of monetary Economic*, 47(3): 523-44.

(Google Scholar)

Leon, A., and Pynnonen, S. (2010), New measures of monetary policy surprise and jumps in interest rates, *journal of Banking and Finance* 36, 2323-2343.

(Google Scholar)

Louis, R. J., & Eldomiaty, T. (2010). How do stock prices respond to fundamental shocks in the case of United States? Evidence from NASDAQ

and DJIA. *The quarterly Review of Economics & Finance*, 50 (3), 310-322. [\(Google Scholar\)](#)

Lucas, Robert E, Prescott, Edward C (1971) Investment Under Uncertainty, *Econometrica* 39 (5): 659-681. <https://doi.org/10.2307/1909571>

Mahmood, Rashid, Mahmood (2019) Impact of monetary policy on stock exchange in Pakistan: Maturity wise data analysis, *Pakistan Social Sciences Review*, December issue. [\(Google Scholar\)](#)

Mishkin, F. S (2001) The Transmission mechanism and the role of asset price in monetary policy". National Bureau of Economic Research, Working Paper 8617. [\(Google Scholar\)](#)

Mukhtar, Kanwal, Awan, Abdul Ghafoor (2022). Impact of currency devaluation on Pakistan Economy. *Global Journal of Management, Social Sciences and Humanities*, 8 (2): 246-279 [\(Google Scholar\)](#)

Niazi, A.K (2007). Monetary policy in Historical perspective (Pakistan experience ,1970-1978) *Pakistan Business Review*, 8(4),3-40 [\(Google Scholar\)](#)

Onakoya, A. B (2013). Stock market volatility and economic growth in Nigeria (1980-2010). *International Review of management and Business Research*, 2(1), 201-210. [\(Google Scholar\)](#)

-
- Patelis, A., (1997). Stock Return Predictability and the Role of Monetary Policy. *Journal of Finance*, 52,1951-1972. ([Google Scholar](#))
-
- Rahman, M. I., & Uddin, J. (2009). Dynamic Relationship between Stock Prices and Exchange Rate: Evidence from Three South Asian Countries. *International Business Research*, 2(2), 167-174. ([Google Scholar](#))
-
- Saleem, Ramsha, Saleem, Rashida, Awan, Abdul Ghafoor (2022). A Nexus between devaluation and inflation in Pakistan. *Pakistan Business Review*, 23 (4):417-434 ([Google Scholar](#))
-
- Stulz, R.M., (1986) Interest Rate and Monetary Policy Uncertainty, *Journal of Monetary Economics* 17: 331-347. ([Google Scholar](#))
-
- Tsoukalas, Dimitrios (2003) Macroeconomic Factors and Stock Prices in the Emerging Cypriot Equity Market, *Managerial Finance* 29(4), pp. 87-92. ([Google Scholar](#))
-
- Zhao, Xing-Qiu (1999). Stock prices, inflation and output: Evidence from China, *Applied Economics Letters*, 6 (8), 509-511 <http://www.nber.org/papers/w19981> ([Google Scholar](#))
-