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*The Impact of Macroeconomic Variables on Stock Prices in Pakistan*

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**Highlights**

- The stock prices function is investigated in Pakistan.
  - Granger causality approach is applied.
  - The neutral relationship is found between the variables.
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**Abstract**

**Purpose:** The macroeconomic variables are crucial for any change in economy for a country. Any abrupt change among these variables has impact on the economy in various ways. In case of any change the regulatory authority take steps and make amendment in their policies that would put the economy on development track. The aim of the study is to determine the impact of interest rate, exchange rate, and GDP and inflation rate on stock prices in Pakistan. The monthly data of eleven years ranges from 1st January, 2001 to December 31st 2011 was used for this research study. **Methodology:** Granger causality and cointegration tests are applied on the data to estimate the possible impact of macroeconomic variables on stock prices. **Findings:** The findings of the study revealed that there is no relationship between dependent variable and explanatory variables in short run. On the other hand results show that there is strong relationship in long run. **Recommendations:** It is concluded that in long run there is significant relationship between macroeconomic variables on stock prices.

**Keywords:** Interest rate, Exchange rate, Inflation rate, GDP, Stock prices

**JEL Classification:** H54

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### **I. Introduction**

Macroeconomic variables affect the performance of the stock market. Investors consider macroeconomic variables when they value stocks. Interest rates, exchange rate, inflation, GDP are very important among these macroeconomic variables which affect the performance of the stock market. A number of studies have been conducted to determine the relationship between the macroeconomic variable and stock prices in the past. The findings of these studies show that there is a strong relationship between macroeconomic variable and stock prices. Some studies showed no relationship between the economies and the financial markets of less developed countries, like Asian markets, Fung and Lie (1990) explained this by saying that “macroeconomic factors can’t be reliable indicators for stock market price movements in the Asian markets because of the inability of stock markets to fully capture information about the change in macroeconomic fundamentals.” A number of known researchers originated an association in countries like Pilinkus (2009), between macroeconomic indicators and the financial market. The findings of a number of studies showed that with slight degree of variation there exist association between basic macroeconomic variables and stock market process. However, according to Hoguet (2008), there exists a negative association among inflation and stock prices. When during study variation in results appeared among exchange rate and stock prices. A positive association was established by the Smith (1992a, 1992b) between exchange rates and stock prices, whereas some studies in the same field depicted a negative relationship (Soenen and Hennigar, 1998). There is inverse relation among interest rate, stock prices as well as exchange rate. Interest rate is the cost of borrowing and used as a discount rate to discount future cash flows of the financial assets. Increase in interest rate causes decrease in stock prices because required rate of return on stocks rises which causes decrease in stock prices. Actions of monetary authorities have an important impact on stock prices and fluctuation of interest rates signals good or bad information to investors (Lobo, 2000). Exchange rate and stock market also has a relationship. Foreign investors convert their returns on stocks in to their own currency. Foreign investors get affected when local currency gets stronger and converted into weaker currency. Exchange rate has negative relationship with stock prices. Stock prices decreases when exchange rate increases and decrease in exchange rate has positive impact on stock market. A rapid increase in inflation also affects negatively the performance of the stock market. Growing inflation considered as a bad news by the investors because it depicts bad economic conditions in the country and investors feel insecure about their investment in the stock market. They expect tight monetary policy in future by the Fed to control inflation which in turn control money supply and firms suffer to get finance from banks due to higher cost of borrowing with tight credit terms. In case of decreasing inflation rate, it depicts good economic conditions and attracts investors to invest in the stock market.

There are three ways to estimate Gross Domestic Product (GDP) and all these three methods should yield similar results the first technique is disbursement basis, this tells us that what amount of money is used up. The second is amount-produced basis; how goods and services were put up for sale and third is revenue basis how much revenue (profit) is earned. All these three estimates, are quarterly published, and are remain in constant revision to reach at possible accuracy. The data that remains under strict consideration is the change from one period to next period in output and consumption in real (inflation adjusted) terms. In order to reach on GDP at factor cost or national dividend we may deduct indirect taxes from market prices and may add subsidies in it. Whereas to reach on net domestic product, we have to exclude the depreciation from the national capital stock from the GDP. If the remittances received from overseas Pakistani is added, in this way we will get gross national product (GNP). The economists are of the view that GDP is a realistic guide to a nation's well-being but possesses’ shortcoming such as. It is distant with random assemble and spending, and it also consist as a positive factor the damage caused by pollution in its calculation, whereas, and it has not considered the value of depleted natural resources and unpaid costs of environmental harm. Well-established stock market activates the investment projects and persuades the people for savings and this process will generate the economic activities in a country. The most imposing role of stock market is to work as a relationship between savers and borrowers. This helpful for the generation of saving form the huge group of small savers and these saving can be investment in profitable means. The investor and creditor liking together with stock market operation. The stock market engaged the reallocation of money from the different firm of the economy. . The negative growth ranging from 50.7 percent (Pakistan) to 2.9 percent (China) observed in leading stock markets of the world during the fiscal year 2008-09 (Economic Survey of Pakistan, 2008-09). The remittances received from overseas Pakistani value as considered spot since March, 2011 ranges from about \$1 billion a month for Pakistan The remittances received from overseas Pakistani value as considered spot since March, 2011 ranges from about \$1 billion a month for Pakistan. Remittances showed a small surplus in fiscal year 2011

## *The Impact of Macroeconomic Variables on Stock Prices in Pakistan*

(July 2010-June 2011), but unfortunately Pakistan's current account twisted to be deficit in fiscal year 2012, a huge amount to be paid for imported oil and unlike the price of cotton exported is very low. Pakistan has very low average GDP growth rate 3% per annum from 2008 to 2012. The barometers of any economy are stock exchanges, the KSE-100 Index closed at 11,967 on 16th May, 2011. Total market capitalization of the KSE reached Rs 2.95 trillion (US\$ 35 billion approximately) on 30th July 30, 2011. As on May 28, 2013, total market capitalization reached Rs. 5.22 trillion (US\$ 53.3 billion approximately). At present there are three main stock exchanges functioning in Pakistan i.e. (Karachi Stock Exchange, Lahore Stock Exchange, and Islamabad Stock Exchange). The Islamabad stock exchange or ISE is the youngest between the three stock exchanges of Pakistan. It is located in Islamabad. Islamabad stock exchange (ISE) came into being on 25th October 1989 as a guarantee limited company located in federal capital territory of Islamabad. The aim behind the establishment of ISE was to compete with the best in the world. Stock exchange taken their license at 7th January 1992 and start their functioning in July 1992. The Lahore stock exchange (Guarantee) limited was established in October 1970 following the ordinance of the securities and exchange of 1969. At start, they had 83 members, building of their office was rented, and LSE was located in the crowded bank square area of Lahore. From start and now there are 519 registered companies. With 57 sector of economy there, total capital Rs. 555.67 billion has market capitalization of around Rs. 2.51 trillion. There branches has located in Faisalabad and Sialkot for trading. The branch of Sialkot is referred to as the "Sialkot Trading Floor".

The Karachi stock exchange (KSE) was formed 1947 it is declared as the biggest and most money exchange in Pakistan. Because of its performance, it was in the year 2002, acknowledged as the best functioning stock market of the world. Due to its best performance KSE attracted 654 companies on December 8th, 2009, with a heavy amount of market capitalization of Rs. 8.561 trillion (US \$ 120.5 billion) along with listed capital of Rs. 2805.873 billion (US\$ 40.615 billion). On May 16th 2011 the KSE- 100 index closed at 11,967. On July 30th 2011 the total market Capitalization of KSE reached to Rs. 2.95 trillion (US\$ 35 billion approx.). The business started in KSE with 50 indexes. With the passage of time and taken into consideration of the market development a representative index was needed. The KSE-100 was initiated on 1st Nov, 1991, and till to date it is accepted as most popular Exchange. KSE-100 is used as a standard to estimate prices overtime for the companies selected and incorporated in it to ensure full market representation, with highest market capitalization. At present Karachi Stock Exchange are the major and the biggest stock exchange in Pakistan. This stock exchange is considered the second oldest stock exchange in South Asia. Considering its performance the business week and USE today acknowledged the KSE as the best functioning Stock Market of the World. Its performance can be gauged by this fact that on 27th May, 2013 584 companies were listed in KSE and the market capitalization was estimated Rs. 4836.362 billion. The listing was done keeping in view the rules and regulation chalks out by Securities Exchange Commission of Pakistan (SECP) and KSE. The listed companies were put into different categories in various business sectors. The sectors listed in Karachi Stock Exchange were 36 in total. Out of these 36 sectors of the economy, 32 sectors fully contributed to the market capitalization and the listed companies (future contract are deducted) are categorized among these sectors.

### ***II. Literature Review***

Several studies have been undertaken to examine the collision of macroeconomic variables on stock prices of urbanized and developing countries. In the past decades, many researchers, financial analysts, and practitioners have attempted to predict the association between stock markets and macroeconomic parameters such as inflation etc. They have conducted studies to establish the outcome of macroeconomic variables on stock prices or vice-versa and the results of all those studies are in different direction. Aggarwal (1981) conducted a study and examined the association between variations in the dollar exchange rate in response to variation stock prices. For this purpose he undertook data of monthly U.S stock prices and exchange rate ranges from period 1974-1978. By applying the simple regression technique, he determined a positive outcome between stock prices and exchange rates this association was more robust in short than in long run. Solnik (1987) established the effect of a number of variables (interest rate, inflation, exchange rate) on stock prices. To reach on a valid decision he utilized the monthly data of nine most developed nations (U.S, Japan, Germany, U.K, France, Canada, Netherlands, Switzerland, and Belgium). He further established that there is positive impact on depreciation but its findings are statistically insignificant on US stock market compared with changes in expected inflation and interest rates. Soenen and Hanniger (1988) in order to study the relationship between stock prices and exchange rate they used monthly data for the period of 1980-1986. The finding revealed a strong negative association between stock prices and exchange rate. In addition to it when they tried to establish the above association for different periods, they established a negative relationship of revaluation on stock prices. Ake and Ognaligui (2010) tried to find the relation between Doula Stock exchange's

Market Capitalization and Cameroonian economic growth by GDP evaluation with utilization of quarterly time series data from 2006 to 2010. The study applied Granger's causality test to find out the link between variable Market Capitalization and GDP. The test applied variance decomposition by Cholesky; the study revealed that there was evidence that the market capitalization has positive impact on the GDP. The analysis provided an opportunity for the Cameroonian Government to find financial policies, to give such policies through which government can encourage growth of companies and develop financial stock market culture. Kumar (2010) examined the nature of relationship between macroeconomic indicators and growth through capital accumulation in India. The study also attempted to investigate the pattern of market capitalization, GDP growth, and domestic saving to understand the future direction of the stock market. The study employed mathematical growth function namely Gompertz model to analyze estimation of financial variables and to establish link between these variables, assuming that financial variables were inter-related, Pearson correlation method was used. The results predicted a positive growth of market capitalization for another five year period and positive association between macro indicators. Nishat and Mustafa (2007) tried to produce empirical evidence between stock market and real economy of Pakistan through a research study. The model used for this study was based on the variables such as GDP, production growth to represents the liquidity of stock market, real economy, and the size of the stock market represent the stock prices. Two test error correction model and co-integration was applied to examine the relationship, between the stock prices and GDP the data used from time period 1980-2004. The findings revealed that in short run the stock market movement explain the GDP and output growth in Pakistan. The economic variables in Pakistan both in short run as well as in long run explain that the growth of stock market variables depends on the overall growth of the economy. The empirical evidence emerged from their study revealed that there is need to develop stock market in Pakistan further to play its vital role in the economy parallel to other financial institutions. Gemmill (1996) a Keynesian view of the relationship between stock prices and interest rate in his view he speculated that an increase in the supply of money will encourage the people to transfer the surplus money into the stock market and savings accounts, than increase in the prices of stocks effect reduce the interest rate. Thus, the relationship between the stock prices and interest rate are negatively related an increase in the stock prices decrease in the interest rate. According to lifecycle hypotheses view point regarding the relationship between interest rate and stock prices which suggest that the consumer consumption spending which the consumer spend during his lifetime not only depend on consumer disposable income but also depends on assets such as stocks. By using this, the authors found that there is an inverse relationship between the savings rate and stock prices. Moreover, by using this savings rate itself an inverse relationship with interest rate. By using this frame work and decrease in stock prices will increase in savings rate and ultimately the interest rate decreases. According to these lifecycle hypothesis there is a parallel movement between interest rate and stock prices. Sprinkle (1971) a monetarist view of relationship between stock prices and interest rate. The study primarily dealt with stock prices and money supply. According to his study a decrease in money supply increase interest rate and increase in the supply of money falls down the interest rate. His study that was counted in USA in 1918 to 1968, 9 out of 12 substantial market falls down during the period of monetary contraction, by changes in the money supply will decline the stock prices and ultimately the interest rate. Lobo (2000) studied the effect of interest rate changes on stock prices. He examined the behavior of stock after federal fund rate announcements and he found that before announcements of increase in federal fund rate the asymmetry in price adjustment gets narrow. He also found that stock market response quicker to the news of over pricing then news of underpricing. He finally concluded that target rate announcement has significant impact on stock prices and convey new information to stock market.

### ***Empirical Hypothesis***

- H 1:** There is a significant relation between inflation and stock prices
- H 2:** There is a significant relation between interest rate and stock prices
- H 3:** There is a significant relation between GDP and stock prices
- H 4:** There is a significant relation between exchange rate and stock prices

### ***III. Model Construction and Estimation Approach***

The data on interest rate, exchange rate, inflation rate, GDP, and stock prices was taken from 1st January, 2001 to December 31th 2011. Stock prices were taken KSE 100 index points. GDP data was collected from the state bank of Pakistan. Inflation rate was taken from Pakistan Bureau of Statistic and exchange rate is taken form [www.oanda.com](http://www.oanda.com). Interest rate data was taken from IFS. The study also attempts to analyze the impact of

## *The Impact of Macroeconomic Variables on Stock Prices in Pakistan*

macroeconomic variables on stock prices. The empirical model is given as following:

$$Sp_t = \beta_0 + \beta_1 INF_t + \beta_2 E.RATE_t + \beta_3 GDP_t + \beta_4 INT.RATE_t + ut \quad (1)$$

Where,  $Sp_t$  = stock prices at time t,  $INF_t$  = inflation at time t,  $E.RATE_t$  = exchange rate,  $GDP_t$  = gross domestic product,  $INT.RATE_t$  = interest rate and  $ut$  = error term. We have applied unit root test, cointegration and causality approach for empirical analysis.

### **IV. Results and Discussion**

To support our study a lot of literature review has been undertaken on this topic. We have made our serious efforts to present our finding clearly and concisely with the help of tables. It has been endeavored to presents our results in detail and discussed in length. Proper care have been undertaken not to deviate from our research topic. The objectives of the study were given top attention while interpreting our results. The most suitable tests have been applies to analyze the data. The results of the variables used were checked for their agreeableness and significance. The relationship of used variables are analyzed by using Co-integration and Granger causality tests, however the help of descriptive statistics is also taken. The summary of results is given below:-

**Table-1: Descriptive Statistics**

Variables	INDEX	GDP	E_RATE	INF_RATE	T_BILL
Mean	7703.583	8998671.	63.78770	0.792424	8.672879
Median	8485.735	7623205.	59.81290	0.655000	8.900000
Maximum	15125.89	18062901	85.20460	3.340000	14.01000
Minimum	1133.440	4162654.	51.86880	-0.880000	1.210000
Std. Dev.	4098.204	4339007.	10.18685	0.841860	3.876742
Skewness	-0.168605	0.784792	1.138111	0.488966	-0.527122
Kurtosis	1.795949	2.416003	2.760138	3.293144	2.139403
Jarque-Bera	8.598968	15.42555	28.81295	5.732569	10.18632
Probability	0.013576	0.000447	0.000001	0.056910	0.006139
Sum	1016873.	1.190009	8419.977	104.6000	1144.820
Observations	132	132	132	132	132

Results of descriptive statistics test are presented in Table-1. Mean is 7703.583 and median is 8485.735 of dependent variable that is index prices which show where center of data is located. The largest value of data is 15125.89 and the smallest value is 1133.440, this largest and smallest data show the range of the data. Skewness of this data is -0.168605 which is > than 0 so its distribution of right, having extreme values at right side, and mean is having concentration of most values at the left side. Value of kurtosis is 1.795949 which are less than 3 that it don't have leptokurtic distribution because here is mean is less than median and it is platykurtic distribution. The value of Jarque-Bera is not more and probability is 0.013576 which show data is not normally distributed. Mean is 8998671 and median is 7623205 of independent variable that is GDP which show where center of data is located. The largest value of data is 18062901 and the smallest value is 4162654, this largest and smallest data show the range of the data. Skewness of this data is -0.784792 which is > than 0 so its distribution of right, having extreme values at right side, and mean is having concentration of most values at the left side. Value of kurtosis is 2.416003 which are less than 3 that it don't have leptokurtic distribution because here is mean is less than median and it is platykurtic distribution. The value of Jarque-Bera is not more and probability is 0.000447 which show data is not normally distributed. Mean is 63.78770 and median is 59.81290 of independent variable that is exchange rate which show where center of data is located. The largest value of data is 85.20460 and the smallest value is 51.86880, this largest and smallest data show the range of the data. Skewness of this data is -1.138111 which is > than 0 so its distribution of right, having extreme values at right side, and mean is having concentration of most values at the left side. Value of kurtosis is 2.760138 which are less than 3 that it don't have leptokurtic distribution because here is mean is less than median and it is platykurtic distribution. The value of Jarque-Bera is not more and probability is 0.000001 which show data is not normally distributed. Mean is 0.792424 and median is 0.655000 of independent variable that is inflation rate which show where centre of data is located. The largest value of data is 3.340000 and the smallest value is -0.880000, this largest and smallest data show the range of the data. Skewness of

this data is - 0.488966 which is > than 0 so its distribution of right, having extreme values at right side, and mean is having concentration of most values at the left side. Value of kurtosis is 3.293144 which are greater than 3 that it have leptokurtic distribution. The value of Jarque-Bera is not more and probability is 0.056910 which show data is normally distributed. Mean is 8.672879 and median is 8.900000 of independent variable that is interest rate which show where center of data is located.

**Table-2: ADF Unit Root Test Analysis**

Variables	ADF at 1 <sup>st</sup> Difference	Critical Value at 1%	Critical Value at 5%
GDP	-26.72357	-3.486064	-2.885863
Exchange rate	-11.76611	-3.482035	-2.884109
Inflation rate	-9.622409	-3.483751	-2.884856
Interest rate	-11.50699	-3.482453	-2.884291
stock prices	-10.21766	-3.482879	-2.884477

The largest value of data is 14.01000 and the smallest value is 1.210000, this largest and smallest data show the range of the data. Skewness of this data is -0.527122 which is > than 0 so its distribution of right, having extreme values at right side, and mean is having concentration of most values at the left side. Value of kurtosis is 2.139403 which are less than 3 that it doesn't have leptokurtic distribution because here is mean is less than median and it is platy kurtic distribution. The value of Jarque-Bera is not more and probability is 0.006139 which show data is not normally distributed. ADF test has applied to check the stationarity of the data. All the variables are stationary at 1<sup>st</sup> difference.

**Table-3: Granger Causality Analysis**

Null Hypothesis	Obs	F-Statistic	Prob.
GDP does not Granger Cause stock prices	130	0.17081	0.8432
E_RATE does not Granger Cause stock prices	130	0.42973	0.6516
INF_RATE does not Granger Cause stock prices	130	2.30481	0.1040
T_BILL does not Granger Cause stock prices	130	2.12443	0.1238

Table-3 shows the Granger Causality test results. These are the null hypotheses of the observations. If the probability is less than 5% i.e.  $P < 5\%$  then we reject the null hypothesis. Each hypothesis has 130 observations and the table also show F- statistic. We find that GDP does not Granger Cause stock prices because F-statistic value is 0.17081. The P-value of the null hypothesis is 0.8432. The P-value of null hypothesis is greater than 5 % ( $P < 5\%$ ) so the null hypothesis will be accepted and alternative hypothesis is rejected. So its means GDP have in-significant effect on stock prices. The relationship depicts that with the decrease in GDP i.e. decrease in overall performance of an economy- stock prices has decreased in Pakistan. Therefore, the alternative hypothesis 1 is rejected which is "There is a significant relation between GDP and stock prices". ER does not Granger Cause stock prices because F-statistic value is 0.42973. The P-value of the null hypothesis is 0.6516 so the null hypothesis will be accepted and rejected the alternative hypothesis. It represents insignificant relationship between ER and stock prices. So its means ER have insignificant effect on stock prices. Therefore, the alternative hypothesis 2 is rejected. INF does not Granger Cause stock prices because F-statistic value is 2.30481. The P-value of the null hypothesis is 0.1040 so the null hypothesis will be rejected and accept the alternative hypothesis. It represents insignificant relationship between INF and stock prices. Therefore, the alternative hypothesis 3 is rejected. IR does not Granger Cause stock prices because F-statistic value is 2.12443. The P-value of the null hypothesis is 0.1238 so the null hypothesis will be accept and rejected the alternative hypothesis. This results illustrate that increasing Interest rate in the country would lead to increasing cost of capital for the foreign investors, thus becoming an inhibiting factor for the foreign investors. There is no significant relationship between IR and stock prices. Therefore, the alternative hypothesis 4 is rejected.

## *The Impact of Macroeconomic Variables on Stock Prices in Pakistan*

**Table-4: Cointegration Analysis**

Hypothesized	Trace	0.05	
No. of CE(s)	Statistic	Critical Value	Prob.**
None *	86.06816	69.81889	0.0015
At most 1 *	48.36180	47.85613	0.0448
At most 2	17.81863	29.79707	0.5795
At most 3	6.303991	15.49471	0.6596
At most 4	0.774626	3.841466	0.3788

Note: Trace test indicates 2 cointegrating vectors at 5% level

Co integration shows the long term relationship between the variables (Table-4). In our case, the dependent variable is index price and independent variables are GDP, inflation rate, interest rate, and exchange rate. After testing at 5% confidence interval, we found that there is long term relationship between the variables because the p- value is less than 0.05 so it denotes the rejection of Null hypothesis. The foremost aim of this study is to determine the short and long run impact of macroeconomic variables on stock prices. The key findings of the study are as: from the ADF analysis, it is revealed that the p-values are less than 0.05 which the data is stationary at 1<sup>st</sup> difference. Then co-integration test is applied to find the long run relationship between the macro-economic variables on stock prices in Pakistan. By applying the Granger Causality test it has been proved that the p-value is greater than 0.05 for the interest rate, exchange rate, inflation rate and GDP, this shows that there is no relationship in short run between interest rate, exchange rate, inflation rate and GDP on stock prices. Lastly, cointegration test is applied for checking the long run relationship between the macro economic variables on stock prices. Our p-value in this case is less than 0.05 this shows that there is existence of long run relationship between macro-economic variable on stock prices. Several studies have been conducted to establish the impact of macroeconomic variables on stock prices. The selected macroeconomic variables are GDP, inflation rate, exchange rate, interest rate and our variable of interest is stock prices. In past many researchers have found mixed relationship between the macro-economic variables on stock prices. Some are Aggarwal (1981), Solnik (1987), Soenen and Hanniger (1988), Amare and Mohsin (2000), have expressed that there is significant relationship between exchange rate and stock prices in short run where as in long run there is lack of relationship between exchange rate and stock prices. However, our finding shows that there is no short run significant relationship between exchange rate and stock prices. However, in long run there is positive relationship between macro-economic variables and stock prices and these results are in line with the studies like Boubakari and Ognaligui (2010), Kumar (2010), Nishat and Mustafa (2007), Tripathi and Ramanathan (2005) and Fama (1981) established the relationship between the GDP and stock prices their findings are mostly on Indian and U.K they have found the strong positive relationship between the GDP and stock prices in short and long run. In case Pakistani stock market our findings revealed that there is no significant relationship between the GDP and stock prices in short run but in long run there is strong significant relationship. Cohn and Lessard (1981), Al-Rjoub (2005), Geske and Roll (1983), Fama (1981), and Feldstien (1980) have established the relationship between the inflation rate and stock prices they suggest a strong insignificant relationship between the inflation rate and stock prices in short and long run. In the context of Pakistan we found that there is insignificant relationship between the inflation rate and stock prices in short run and their exist a long run relationship. Fisher (1930), Mukherjee and Naka (1995), Abugri (2008) and Lobo (2000) have established that there is relationship between interest rate on stock price in different countries. Moreover, some of them further found a strong negative relationship between interest rate and stock prices. A few of them are of the view that their positive relationship between interest rate and stock. However, in the context of Pakistan we have found that in short run there is negative relationship where as in long run there is significant positive relationship between interest rate and stock prices.

#### ***IV. Conclusion and Recommendations***

Through in this study we tried to perform necessary analyses to answer the research question of whether some of the identified macroeconomic variables can influence stock prices or not. The macroeconomic variables undertaken in our study are exchange rate, GDP, inflation rate, interest rate and variable of interest stock prices. Monthly data for a time span of 11 years (from January 2001 – December 2011) was used. We applied Granger causality, cointegration tests to examine this relationship in short and long term. The results revealed are useful in understanding the pricing mechanism of stock exchange in Pakistan. On the basis of overall analysis it can be concluded that all of four variables are relatively more insignificant and likely to influence in short run only on stock prices. These variables are exchange rate, GDP, inflation rate and interest rate. There is a negative short term relationship between exchange

rate, GDP, inflation rate and interest rate on stock prices. The results have been established on the basis of Granger causality test. By finding the long run relationship the cointegration test has been applied and the findings of our test show that the long term positive relationship exist between macroeconomic variables on stock prices.

Exchange rate is negatively related to stock of KSE 100 index. Increase in exchange rate causes decrease in stock prices of KSE 100. The decrease in the stocks prices occur when foreign investors invest their money in the stocks and their income decreases with an increase in the exchange rate. They will get less amount of money in their own currency because of increase in the exchange rates. This is absolutely, not in favor of the foreign investors. On the other hand, the interest rate have also influence on stock price. When the foreign investors want to invest more money in stock they take loan from financial institutions the rate of interest is charged high as a result of high interest rate the investor are reluctant for investing to this stock exchange. The government and policy makers should give importance of the GDP bi-directional causal relationship while framing policies. It is accepted fact that the inflation is always harmful for development of any economy. It is also true for the economy of Pakistan as well. The results revealed from the analysis of our study indicate that persistent increase in the level of cost of living will be harmful for the GDP growth. The existing inflation rate in Pakistan is 7 percent. According to some Economists the Inflation below this level can brings positive influence on economic growth. But above this level it can seriously hurts the growth of economy of Pakistan. Results of co integration have shown a strong long run significant relationship between inflation rate, GDP, exchange rate and interest rate on stock price on KSE 100.

Suggestion for the investors is that they must closely analyze the macroeconomic variables patterns and forecast the future exchange rates before investing in KSE and based on those forecasted exchange rates they can maximize their profits. Keeping in view the recommendations made by some economists there is need to keep an eye on inflation to keep it down below to the level of 7 percent. Therefore, the policy makers and State Bank of Pakistan should concentrate on those options which keep the inflation rate stable and below the level of 7 % which has been recommended helpful for the achievement of consistent economic growth. Some economists are of the view that a modest and stable inflation can be helpful for controlling the fluctuations and uncertainties in the financial sector of economy. This trend is conducive for, boosting the capital formation activities in the country, so it may apply its positive effects on economy. The maintaining price stability will ultimately be the best policy recommendation for stable and continued economic growth of any economy. The government and policy makers should give importance of GDP bi-directional causal relationship while framing policies. The recommendations for the further research are that more variables can be taken in other researches in order to find out the impact of other variables on stock prices. There are some limitations that need to be acknowledged and addressed regarding present study, and these limitations are as follows:

This study is based on the analysis of the secondary data that has been collected. Secondary data is the data that is already available & has been used for analysis & thus might not be reliable. The result & conclusion of this study might not be accurate due to reliability of the secondary data & limitation on the variables selected & the time span considered. A time span of only 7 years has been considered for examining the relation between macroeconomic variables and Indian stock market. This study mainly focuses on selected seven independent variables which may not completely represent the macroeconomic variables.

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## ***The Impact of Macroeconomic Variables on Stock Prices in Pakistan***

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