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Impact of Market Forces on Stock Market in Pakistan: A Time Series Analysis

ABSTRACT

The key objective of the study is to investigate the impact of macroeconomic variables on the stock market in Pakistan. A stock market is a place or organization where securities instruments are traded among investors. Every type of risk earning assets such as bonds, equity, shares, securities that are traded is included in the financial market. The selected variables in this study were the Gross Domestic Product (GDP), Inflation, Interest Rate, Exchange rate, Cost of Capital, Investment, Money Supply, and Consumer Price Index. The GDP is taken as dependent variables and the impact of all remaining independent variables on GDP. The study used the time series data that covered the period from 1975-2016. This study implies the Augmented Dickey-Fuller (ADF) test to check the stationary of data, and the Auto Regressive Distributive Lag Model for the Specification of data. To analyze the long run and short-run association among variables the coefficients of the variables are measured. This study concluded that inflation, interest rate, investment, money supply harm the gross domestic product. The impact of the Exchange rate, Cost of capital, and the Consumer Price Index is positive. The cost of capital is the amount of money that is paid by using loans, funds, and instruments.

Keywords

The stock market, Exchange rate, Money Supply, Gross Domestic Product

JEL Classification

G12, D51, E5, E20

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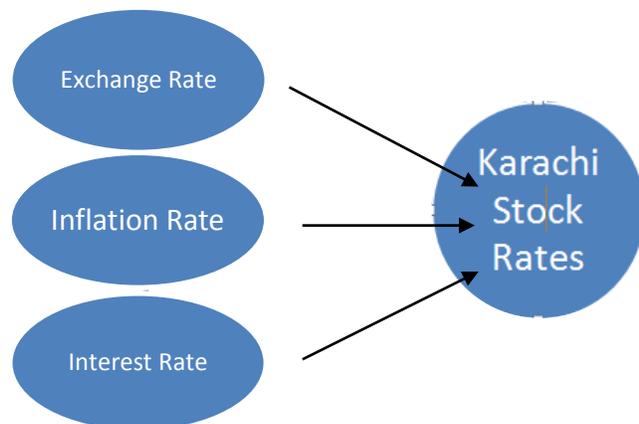
Authors' Note:

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1. INTRODUCTION

The increasing consequence of stock markets approximately the world has recently opened a new occasion of study into the involvement concerning stock market development and economic growth. Stock market plays very important role in economic growth. The stock market refers to the collection of market and exchange rate where the issuing and trading of bonds and securities and other sorts take place. A stock market is a place and organization where individuals and companies trade stocks it is known as the aggregation of buyers and sellers of stock at fixed prices. Stock market also known as the Equity Market and Share Market. In stock exchange the securities are traded into lists. Many large companies perform in the stock market they list their securities there to earn money. These companies listed highly liquid securities to attract more investors. Some large companies perform in more than one market their purpose is to earn money so they perform in international market to attract the foreign investors. Trade in stock market to transfer money into bonds and securities. Investors interested in interest rate. There are number of agents in the stock market that participate in the buy and sell of securities. Investors take risk when they invest their money in market.

Macroeconomic variables also affect the performance of stock market such as interest rate has negative impact on stock market. Interest rate is known as the “cost of borrowing” the cost of capital that investors pay for the use of money. An increase in interest rate is bad sign for stock market investors do not invest in stock market. On the other hand, Rise in interest rate also increases the cost of capital of the business sectors because when interest rate increases the investors may acts in two way, Firstly they do not invest their money in market, Secondly they convert their investment from Money Market(short run market) to Capital Market(long run market). Inflation is also taken as a determinant factor of stock market Due to raises of prices it is very dangerous condition for economic growth because investors does not invest their money in this critical condition and this condition resulted to reduce the volume of investment. When investors perform in stock market they also take Risk because any fluxions in the economy reduce their profit level. Investors must move from money market to capital market when market conditions are not suitable. When inflation rate rises then investors must have fear of monetary policy. Investment plays key role for the development of stock market when people rises investment level then it is beneficial for the stock market and reduction in volume of investment reduces the efficiency of stock market so according to this study and through empirical results it is concluded that investment have significant impact on the stock market. Monetary Policy takes place when inflation rate rises more than the expected inflation target and this condition is really harmful for economic growth. It is recommended that if all economic factors work efficiently and remains under control than the stock market will prove best beneficial for economic growth.



The following figure shows the Karachi Stock Exchange of Pakistan. According to the above plotted figure the Interest rate, Exchange Rate and Inflation Rate are the most important economic factors of the stock market because when investors participate in stock market they are interested to check these factors and their impacts on market. If all these forces remain in under control than more investors participate in market. The objective of the study is to investigate the impact of macroeconomic variables on stock market are (i) to see the factors to control inflation including interest rate and exchange rate, (ii) to observe what measures are required to enhance the effectiveness of stock market? (iii) to describe how stock market proves beneficial for Pakistan economy.

2. LITERATURE REVIEW

2.1. Studies Based on Developing Countries

Abdalla and Murinde (1997) examined the causal relationship between Exchange Rate and Stock Prices and their interaction in Financial Market. The study conducted from India, Pakistan, Korea and the Philippines. The study implies Autoregressive Model from the period of 1985-1994. The study founded the unidirectional causal effect of exchange rate on stock prices in all the sampled countries except Philippines. The study concluded that in case of Philippines it was realized that stock pieces become causal factor that affects the exchange rate.

Naeem and Rasheed (2000) studied empirically from South Asian countries. The selected countries in this study were Pakistan, India, Bangladesh, and Sri-Lanka. This study implies Vector Error Correction Modeling. This study recommends that there exist no short run significant relationship between stock price and exchange rate.

Ali, S.S (2005) explores the product of Islamic Capital Market Development and challenges. The Islamic capital market is based on the interest free instruments because Islam probated to use the interest earning assets it is considered Haram in Islamic terms. While this Capital market considered an efficient sector for the economic development and Islam focuses on the trade of instruments while to earn profit in form of interest. Ozbay(2009) studied the relationship between stock return and macroeconomic factors. This study empirically conducted from Turkey. Selected macroeconomic variables .These variables used as the determinant of stock prices such as interest rate are the negative determinant of stock prices and foreign transaction are the positive determinant of stock prices in Turkey. This study concluded that interest rate and inflation have directly affected on stock returns and other factors such as exchange rate and industrial product are not directly influences the stock returns.

Md Alamet al. (2009) examined the relationship between interest rate and stock prices. This study was empirically conducted from Developed and Developing countries. The selected developed countries in this study were Australia, Canada, Germany, Italy, Japan, South Africa, Spain and developing countries were Bangladesh, Colombia, Jamaica, Mexican and Philippine. This study resulted that in case of Malaysia it was seems that there was no relationship occur between interest rate and share prices, in other four countries like Bangladesh, Colombia, Italy and South Africa there seem negative relationship between interest rate and share prices and their changes. but in case of other remaining countries there exist negative relation between interest rate and share prices and no relationship with their changes as share prices change due to other economic factors. Ali, and Bashir, (2009) discussed the impact of interest rate, Money supply on exchange rate. To find short and long run relationship among these variables Johansen Co-integration Test was applied and it was resulted that there exist long run and short run relationship among inflation and exchange rate. Ali et al. (2010) analyzed the impact of various macroeconomic factors on stock prices in Pakistan during the period of 1990-2008. To analyzed the relationship between the variables and to show their impact on stock market this study used Granger Causality Test and Johansson Co-integration was applied and it was resulted that Industrial Production

Index and Inflation have positive impact on stock prices while the remaining variables such as Exchange rate and money supply have no significant impact on the stock prices.

Krwish et al. (2010) examined the relationship of interest rate and stock market capitalization. And their results show that there is positive association between the interest rate and the stock market capitalization. This study also implies the regression model to investigate the long run and short run association among the variables and it was concluded that the interest rate have a negative impact on the stock market as a raise in the interest rate lower the efficiency of stock market.

Khan et al. (2012) covers the impact of interest rate, inflation and exchange rate on stock prices in Pakistan. Jawaid and Haq(2012) examined the effect of interest rate and exchange rate on stock prices. He discussed that there exist positive long run and short run relationship among these variables and their influences on stock prices but these variables are influences some other factors of the economy like that interest rate effected the investment and any change in the exchange rate effected the import and export of the economy.

Muktadir-Al-Mukit (2012) investigates the impact of interest rate and exchange rate on stock prices for the economy of Bangladesh. There performance was analyzed by using time series data that covered the period from 1997-2010. This study implies Johansen and Co integration test to verified relationship among these variables. This paper concluded that there exists long run positive relationship between exchange rate and stock prices because it motivates foreign investors to invest in stock market and no short run effect was overcome. This paper also concluded that interest rate has negative impact on stock market because an increase in interest rate discourages investors to invest in stock market so it was really harmful for the economy.

Mgammal (2012) analyzed the impact of Macroeconomic Variables on Stock Prices among Kingdom Saudi Arabia (KSA) and United Arab Emirate (UAE). This study that there are a lot of macroeconomic variables that impact on stock prices in any economy such as Enterprise Performance, Dividends, Gross Domestic Product, Exchange Rate, Interest Rate, Current Account, Money Supply and Employment.

2.2. Studies based on inflation, Exchange Rate and Interest Rate

Nishat and Shaheen (2013) analyzed the effect of macroeconomic variables on stock prices in Pakistan. The selected variables are Industrial Production Index, Consumer Price Index, Investment, Money Market and Inflation. The error correction model is implies to explain such relationship. This study concluded that some macroeconomics variables are positively while some variables are negatively affected the stock prices such as industrial production index is positive determinant or stock price whereas inflation is negative determinant of stock prices.

Suliman et al. (2013) analyzed the impact of interest rate on real investment. This study took the time series data that covered the period from 1964-2012. Selected variables in this study were real interest rate, investment, Cost of capital and income. This study concluded that interest rate negatively affect the investment. Investment has negative relationship with interest rate and positive relationship with income. Hussain et al. (2014) carried out study on relationship of stock market to interest rate. He took the time series data which covered the period from 1994-2014. He used ADL method in this study. He concludes that there was short and long run relationship between the interest rate and the prices of stock. But he failed to find the causal relationship between interest rate and stock prices with respect to the existing market situation of Pakistan due to different factors such as Money Supply, Security Prices and Cost of capital all these factors influence the stock prices. Money supply has negative effect on interest rate and any change in the interest rate will bring change in the cost of capital of the firm.

Ali (2014) discussed the inverse relationship between interest rate and stock market. As interest rate increased stock prices reduced and vice versa. Interest rate means the amount charged by the lender to the

borrower to use the money and assets. If interest rate increased it reduced the amount of money in circulation that raises the prices and make difficult for borrowing money and reduced the volume of investment in stock market. It was concluded that there is negative relationship between interest rate prices higher the interest rate lower the efficiency of stock market and vice versa.

Akpan and Chukwudum, (2014) studied the impact of interest rate on stock prices. This study was conducted empirically from African country. The selected country in this study was Nigerian. Selected variables in this study were inflation, unemployment rate, GDP, interest rate, all share indexes. This study concluded that there was insignificant impact of interest rate on stock prices while other macroeconomic variables such as inflation, unemployment and GDP are in control. An increase in interest rate was not beneficial for the economy in which stock market exist therefore it was concluded that interest rate was not important determinant of stock prices in the economy of Nigerian.

Zaighum (2014) analyzed the Impact of Macroeconomic factors on non-financial firms, stock returns listed in Karachi Stock Exchange. The selected macroeconomic factors that used as variables in this study were Inflation (Consumer Price Index), Production Price Index (IPI), Market Return and Money Supply. This study concluded that these described macroeconomic factors are positively and negatively related with stock market; such as Stock Market negatively associated with Consumer Price Index, Money Supply and Risk Free Rate while positive association occur with Industrial Production Index and Market Return.

Muthukumaran and Somasundarn, (2014) studied the relationship between interest rate and stock return in India. This paper based on the India's economy. To prove such relation between these variables Granger Causality Technique and ADL was applied. This study concluded that there was no short run causality between interest rate and stock prices because an increase in interest rate causes the motivation of investors to move from stock market to capital market therefore when interest rate increased the gain of capital market rises and any reduction in interest rate causes the gain of stock market to increased. Oumer and Muriu (2014) studied the effect of Macroeconomic variables on Stock Return. This study conducted from Kenya and accomplished that interest rate was considered not important factors that affect the stock returns because there exist a lot of other economic factors which concern the stock return such as Money Supply and inflation were considered most important determinants for stock returns and Exchange rate have negative association with stock market.

Husain et al. (2015) explore the relationship between stock market volatility and macroeconomic variables in Pakistan. It was analyzed that Inflation and Exchange rate are two most important economic factors in Pakistan because investors must seems these two factors when they invest in stock market thus it was conclude that to control the volatilities in stock market it was essential to control inflation rate and exchange rate in Pakistan.

Hussain et al. (2015) explore the relationship between Stock Market Volatility and Macroeconomic variables in Pakistan. This study used time series data that covered the period from 2001-2011. This study works on Macroeconomic variables Stock Market Volatility, inflation, Real Exchange Rate and applied ARDL approach to describe relation between these variables and stock market. It was concluded that investors must seems inflation and exchange rate when they invest in stock market so it was analyzed that inflation and exchange rate are two most important economic factors and an increase in inflation rate and exchange rate was harmful for stock market and economic growth. This study suggested that if inflation controls it will reduce the volatilities in stock market.

Amarasinghe (2015) analyzed the causal relationship between interest rate and stock prices. To define such relation this study implies Augmented Dickey Fuller and it was concluded that there was negative relationship between interest rate and stock prices because of decline in interest rate proves harmful for investors and beneficial for firms. Upadhyay (2016) described the relationship between interest rate and stock prices in India. This paper covers the period from January 2015 to December 2015 to check whether

stock price and interest rate are related to each other or not. In this study it was observed that interest rate was not considered an important economic factor that influences the stock prices. The interest rate and stock prices are not correlated with each other. Any change in interest rate was due to other economic factors such as Political short term gain, Defer Consumption, Inflationary Expectation, Alternative Investments, Risk of Investment, Liquidity Preferences, Bonds etc. same as it is stock prices changed due to other economic factors but not due to interest rate.

3. MODEL SPECIFICATION, DATA AND METHODOLOGY

Stock market is one of the most important economic sector for stabilizing the economy and improvement of the financial sector. This study works on time series data from 1975-2016. Data collected from World Development Indicator (WDI). This chapter contains on various sections to define description of variable, Augmented Dickey Fuller (ADF) results and applies Bound Test as well as Short run and Long run test to define the coefficient. Stability of the data is defined through Cusum test.

3.1. Model Specification

In this section the Auto Regressive Distributed Lag Model (ARDL) is used to examined the long run and short run association among variables.

The general equation is.

$$\Delta GDP = \alpha_0 + \sum_{i=1}^{k_1} a_1 i \Delta(INF)_{t-1} + \sum_{i=1}^{k_2} a_2 i \Delta(IR)_{t-1} + \sum_{i=1}^{k_3} a_3 i \Delta(ER)_{t-1} + \sum_{i=1}^{k_4} a_4 i \Delta(MS)_{t-1} + \sum_{i=1}^{k_5} a_5 i \Delta(CP)_{t-1} + \sum_{i=1}^{k_6} a_6 i \Delta(INV)_{t-1} + \sum_{i=1}^{k_7} a_7 i \Delta(CPI)_{t-1}$$

In this equation:

Δ = First Difference

GDP = Gross Domestic Product

INF = Inflation

IR = Interest rate

ER = Exchange Rate

MS = Money Supply

CP = Cost of Capital

INV = Investment

CPI = Consumer Price Index

This equation shows that there exist long run and short run association among variables because it is implemented on the both type of data means at first level and first difference and sample size of data is small according to the requirement of equation so it gives accurate results. According to this equation any change in the independent variable will changes the dependent variable. In this model the GDP is a dependent variable and Inflation, Interest rate, Money Supply, Exchange Rate, Cost of Capital, Consumer Price Index and investment is taken as independent variable and any change in the independent variable changes the gross domestic product.

3.2. Sources of Data

Accurate data is required for the reliable results. In this study annual data has been taken from World Development Indicator (WDI). Economic analysis contains the data from 1975-2016. To examine the

association among variables various test are applied. The main purpose of the applied test is to check the stability and efficiency of collected data.

Process of Estimation: The process of estimation consists of various steps. The estimation is done by using Computer E-Views it has been used to check the stationary of data. Bound test is used to check the long run and short run association among variables. The coefficient of both long run and short run estimation is also calculated.

Stationary of Data: Unit root test has been applied to examine the stationary of variables. The stationary of data must be checked at first level and first difference and if required results are not found than the variables must be measured on second differences. The main purpose of the stationary is to check the variation in data through statically measures.

Augmented Dickey Fuller Test for Unit Root: To check the stationary of data the ADF test must be used. This test is developed by two economists Dickey and Fuller in 1979. The data must be measured at first difference, at first level and second difference.

Augmented Dickey Fuller Test contains on three type of regressions.

- There is an intercept and no trend
- There is an intercept and trend
- There is no intercept and no trend

The calculated may be at any level that are defined. However the results may be calculated as:

Hypothesis

H₀: data is nonstationary and unit root is present

H₁: data is stationary and unit root is not present

The result of the hypothesis is based on the F-Statistics values.

If $F(\text{calculated Value}) > F(\text{Critical Value})$ then we reject the null hypothesis and accept alternative hypothesis.

The decision to apply test is based on the result of stationary level.

- If all variables are stationary at first difference then Ordinary Least Square is applied on data.
- If the variables are stationary at first difference then Johnson Co integration test is applied for test.
- If the variables are stationary at first level and first difference the Auto Regressive Distributive Lag is applied on data.

So the decision of result is based on the stationary level of data.

Co integration Analysis: Co-integration Analysis means to analyze the long run association between the variables that are not stationary at first level. For this purpose various test are applied on data. The most popular applied test is Johansson Co-Integration and Auto Regressive Distributive Lag model.

Auto Regressive Distributive Lag Approach: To analyze the long run and short run relationship between the variables the auto regressive distributive lag model is applied. This method is helpful for small sample size of data. The implementation of ARDL approach has following characteristics.

- ARDL approach involves both type of variables that are stationary at first level and first difference.
- This approach gives reliable results if data have small sample size.

- ARDL approach does not give accurate results if variables are stationary at second difference.

The implication of ARDL approach work under such circumstances. Their results based on.

- Firstly, the F-Statistics (Bound Test) is used to examine the long run and short run association among variable.
- Secondly, the coefficient of both long run short run relations is measured and after that the ARDL is concluded.

Bound Test (F-Statistics): After generating the ARDL equation the next step is to express the relationship between variables by applying bound test. To attain the results the comparison must be made between computed and critical values.

The merits of bound test are as follows.

- All the variables are assumed to be endogenous.
- This test is applicable whether the variables are stationary at first level and first difference.

The results of the stationary are based on this:

- If F-statistics value $>$ upper value then long run relationship exist between variables.
- If F-statistics $<$ upper limit then no relationship exist between the variables.

The results of the test is based on the data, the accurate data is required for reliable and stable results.

Short Run and Long Run Co-efficient of model: When the stationary of data is calculated and coefficients are measured than the next step is to analyze the impact of exogenous variables on endogenous variables by using short run and long run coefficient method. Their results show that whether the variables are positively or negatively associated.

Stability Test: To calculate the results most accurately the stability of the model should be checked. This model applied Cumulative Sum of Recursive Residuals (CUSM) as well as Sum of Recursive Residual of Square (CUSUMS). The stability of results checked if the plotted line lies between the critical lines. If the model provide such results than it is considered reliable.

4. ECONOMETRIC ANALYSIS

Empirical Analysis is helpful to estimate the association among dependent and independent variables. This chapter inquires the impact of market forces on stock market in Pakistan whether they affect positively or negatively. The main purpose of stock market is to attain economic stability by controlling inflation and reducing rapidly increasing interest rate. in this chapter we will implies ADF test to check the stationary of data and brief discussion about the variables and the results of tests is described in this chapter.

Data Analysis

Data analysis has much importance for the accurate and reliable results. The required data must be taken from World Development Indicator and it contains time series data from 1975-2016.

Descriptive Analysis: Descriptive Analysis is helpful to see the past tendency and predict future value of the variables. This section contains the statistics descriptive to define the data in numerical forms that is helpful to define their tendency.

Table no. 2 Descriptive Statistics

	GDP	INF	IR	ER	MS	CP	INV	CPI
Mean	8.568218	4.031725	-2.834799	136.3633	16.29963	17.66479	0.019053	45.86257
Median	7.882675	4.301150	-3.312053	114.5423	16.46711	15.02313	0.012795	31.90620
Maximum	20.90451	7.545800	5.330064	228.9828	45.53201	46.90000	0.107249	145.3009
Minimum	2.539516	1.062800	-9.204316	93.71685	4.314225	9.500000	-0.038945	6.003422
Std.Dev	4.125265	1.575699	2.770671	46.04478	7.343630	8.697759	0.034675	42.69759
Skewnwss	1.006655	0.052477	0.778884	0.883100	1.555409	2.393060	0.631218	1.176427
Kurbsis	4.354170	2.310970	4.439730	2.067040	7.678243	7.964534	2.706334	3.166696
Jarque-Bera	10.21829	0.850110	7.874061	6.982280	55.23550	83.21871	2.939977	9.736493
Probability	0.006041	0.653734	0.019506	0.030466	0.000000	0.000000	0.229928	0.007687
Sum	359.8652	169.3325	-119.0616	5727.257	684.5844	741.9213	0.800239	1926.228
Sum Seq Dev	697.304	101.7959	314.7413	86921.98	2211.085	3121.692	0.049298	74746.45

In the above table some statistics tools are applied to check the stability of data. Mean is the most widely used statistics method it is used in the table. Standard deviation is used to check the fluctuation of the data. Maximum is the above described value and minimum is the lowest described value of the observation.

Time Series Analysis

In this section to check and prove the prediction of the variables the stationary level of the data is calculated. The Augmented Dickey Fuller (ADF) test is applied to check the stationarity of data.

Augmented Dickey Fuller Test: In this study the data must be taken time series from 1975-2016 through World Development Indicator (WDI). It is necessary for applying the co integration test to check the integration of the data by applying the Augmented Dickey Fuller test.

Table no. 3 Augmented Dickey Fuller Test Result

Variable	AT LEVEL		AT 1 ST DIFFERENCE		
	Intercept	Intercept and Trend	Intercept	Intercept and Trend	Result
GDP	-2.778934	-2.837946	-6.356539*	-6.265372*	I (1)
INF	-4.350494*	-4.324704*	-9.121141*	-8.899384*	I (0)
IR	-2.539999	-3.512318	-6.543603*	-6.468477*	I (1)
ER	-2.080839	-0.442422	-5.368408*	-7.687418*	I (1)
MS	-5.023220*	-5.008407*	-7.370468*	-7.263013*	I (0)
CP	-6.014725*	-5.973494*	-12.28517*	-12.14096*	I (0)
INV	-4.179793*	-4.478744*	-4.798821*	-4.745543*	I (0)
CPI	4.887258	3.698049	-1.640102*	-4.902806*	I (1)

Source: Calculation, The (*) shows the level of significance at 1 %

This table shows the stationary level of all variables. Inflation is at the stationary level. Interest rate, Gross domestic product and Exchange rate are stationary at 1st difference and their ADF value is -6.543603, -6.356539 and -5.368404 respectively. This table shows that the variables are at the stationary of both integrals such as at first level and first difference. So for the further analysis this chapter implies the autoregressive distributive lag model because in this approach both type of variables that are stationary at first

level and first difference are involved. In this table the 1 % stationary level shows that there is no auto-correlation among the variables.

Bound Test for Long Run Estimation

Bound test is applied for the long run association among the variables. This test is calculated by using the computer software E-Views 9.5. in this table the F-Statistics value would be measured and their results must be checked as.

- If F-Statistics value is greater than Upper bound at least 90% to 95% then the results show that there is cointegration among the variables.
- If the F-Statistics value is lower than the upper bound but higher than the lower bound then the results show that there is no co-integration among the stationary variables.

Table 4: Result of Bound Test for Co-integration

Equation	F-Statistic	Upper Bound	Result
GDP, INF, IR, ER, MS, CP, INV, CPI	5.401384	2.17	Co-integration subsists

Source: Author's calculations

This table shows that Bound Test is applied to test the co-integration between the variables. It is resulted that F-statistic value is 5.401384 that is greater than the upper bound value that is 2.17. This table concluded that there exist long co-integration in this model.

Short Run Estimates of the Coefficient

To estimate the coefficient of short run estimation the r-squared and Durbin Watson test is applied and their values show the coefficient.

Table 5: Short Run Estimates of Model

Variable	Coefficient	Standard Error	T-Statistic	Probability
D (GDP (-1))	0.084676	0.146375	0.578490	0.5686
(INF)	-0.045000	0.074960	-0.600316	0.5542
D (IR)	-0.356455	0.259843	-1.371810	0.1834
D(ER)	0.073759	0.033517	2.200654	0.0381
D (MS (-1))	0.118760	0.041439	2.865890	0.0087
D (CP)	0.005979	0.027137	0.220341	0.8275
D (INV)	9.783903	7.768197	1.259482	0.2205
D (CPI (-1))	-0.456462	0.177456	-2.572255	0.0170
CointEQ (-1)	-0.587855	0.110810	-5.305045	0.0000
Cointeq (-1)	=GDP-0.2540*MS+8.4020)	(0.0088*CP+0.0389*CPI+0.0008*ER-0.5677*INF-16.7113*INV-0.6245*IR-		
R-Squared	0.808827		Akaike Info Criterion	4.053839
Adjusted R2	0.675838		Schwarz Criterion	4.771613
F-Statistics	6.081877		Hannan Quinn Criterion	4.313364
Prob (F-Statistics)	0.000057		Durbin Watson Stat	2.223569

The above table shows the short run coefficient estimates of Gross Domestic Product (GDP) function with its structural variables such as Inflation, Exchange Rate, Money Supply, Interest rate, Cost of capital and Consumer Price Index. The R-Squared value of this model is 0.808827 which is near to 1 and Durbin Watson value is 2.223569 shows that there is no autocorrelation among the variable. The value of R-Squared is always between 0-1 and shows the stability of data and their negative values shows their level of significance and the reliability of the results.

Long Run Estimation of the Coefficient

Long run estimation is used to check the impact of independent variables on the dependent variables. This model shows how market forces influences the stock market and also show their relation. To estimate such relationships among the variables the co-integration test is implied. And their results shows the positive or negative impact of market forces on the stock market.

Table 6: Long Run Estimation of the modal

Variable	Coefficient	Standard Error	T-Stat	Probability
INF	-0.568	0.193	-2.944	0.007
IR	-0.624	0.365	-1.710	0.101
ER	0.001	0.013	0.059	0.954
MS	-0.254	0.128	-1.977	0.060
CP	0.009	0.049	0.182	0.857
INV	-16.711	20.774	-0.804	0.429
CPI	0.039	0.021	1.873	0.074

This table shows that the coefficient of Inflation is negative and its value is -0.567722. It is statistically significant as shown its probability. An increase in inflation reduces the level of investment because people do not invest their money in such situation. The coefficient of interest rate, Money supply and Investment is also negative it is shown by their value that's -0.624488,-0.253991 and -16.711300 respectively. All these economics factors correlated with each other. The coefficient of Exchange rate, Cost of Capital and Consumer price index is positive they have positive impact on stock market.

Diagnostic Test for Model

This model work under two tests such as Breusch Godfrey Test and Heteroskedasticity test. Their results shown in this table.

Table 7: Diagnostic Test for Model

Name of Test	F-Statistics	Probability
Breusch-Godfrey Serial LM Test	0.488662	0.6203
Heteroskedasticity Test	0.633539	0.8248

In this table Diagnostics Test is applied under two parts that's Breusch-Godfrey Serial LM test and Heteroskedasticity Test. The F-Statistics value of Breusch-Godfrey Serial LM Test is 0.488662 and its probability is 0.6203. By applying Heteroskedasticity test the F-Statistic value is 0.633539 and its probability is 0.8248.

Tests for Stability

Stability of the model is very important as it provides help for the policy makers. There are upper and lower critical boundaries in the model and if the plotted value lies between them than it shows the stability of results. For this purpose the Cusom and Cusom square test is applied that shown in figure

Fig 1 is plotted to check the result and this shows that the estimates of the model is stable. The blue line between the red lines shows the level of significance at 5%. And sows that the data that is used in this study is accurate and reliable.

Figure 1: Plot of Cumulative Sum of Recursive Residuals

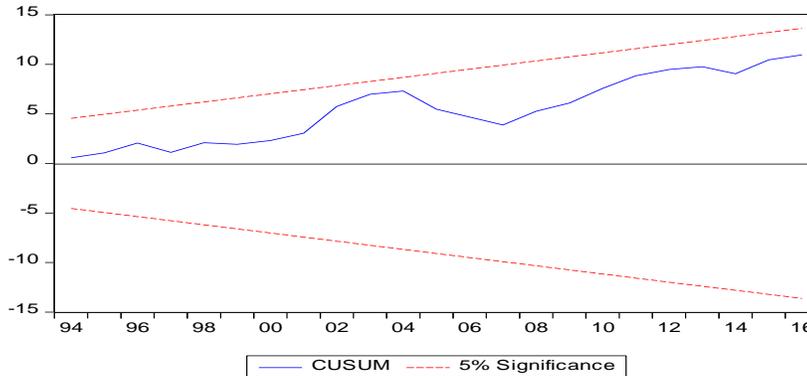
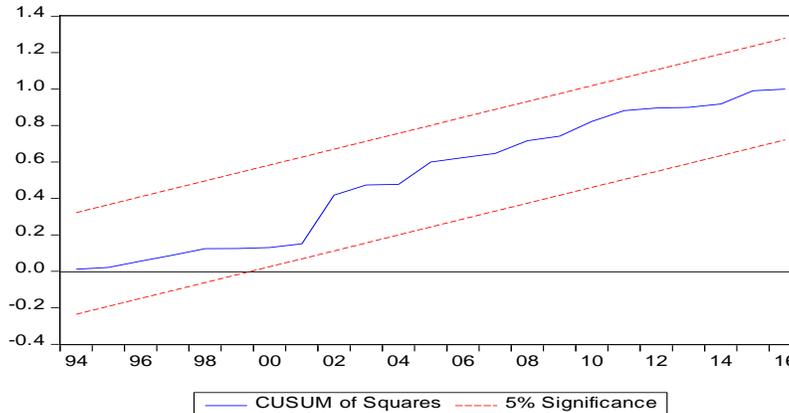


Figure 2: Plot of Cumulative Sum of Square Recursive Residuals



The plotted and

above showed figure to show the reliability significance of results by taking the square. This figure shows that the blue line that shows the significant is between the red lines and shows the level of significance at 5%. The residual sum of square is investigated to compare the results of Auto Regressive Distributive Lag with other model of the Auto Regressive Distributive Lag and measure the stability of the results.

5. CONCLUSION AND POLICY IMPLICATION

5.1. Conclusion

Intensive amount of research has been done on the relationship of the stock market to the economic factors. This relationship is also much important in the monetary policy implication and the risk arrangement practices. This study is all about testing the existence of the short run and long run relationship between the stock market and economic factors.

Stock market is the most important financial sector for economic growth. The present study clarifies a lot of work about this sector. The main purpose of this study is to highlight the importance of this sector. This study work on time series data that covered the period from 1975-2016. The Gross Domestic Product (GDP) is taken as dependent variable and Inflation, Interest Rate, Exchange Rate, Investment, Cost of Capital, Money Supply; Consumer Price Index is taken as independent variable.

The impact of all these macroeconomic factors is shown on Gross Domestic product. The result of the overall study show that the Inflation, Interest rate, Money Supply and Investment have negative impact on Gross Domestic Product, whereas the positive and significant impact have shown on GDP through the Exchange rate, Cost of Capital and Consumer Price Index.

5.2. Policy Implication

The result of the study is helpful for policy implication to improve the effectiveness of the stock market. There exist a lot of market forces in the economy that influences the performance of the market so this section recommended some policies that proved beneficial for this sector.

In this regard following policies are suggested.

- Stock Market works as an independent sector. However it follows the rules and regulations of the Securities Exchange Commission of Pakistan. There is no government intervention in this sector but indirectly they play their role.
- It is recommended that Securities Exchange Commission should make suitable policies for the benefit of financial sector.
- Government of Pakistan should manage the exchange rate so that the foreign investors participate in market.
- The rate of inflation should be overcome so that the stable economic growth should be achieved.
- It is recommended that the state bank of Pakistan should play an influential role by controlling the interest rate.
- The government of Pakistan should enhance the stock market performance by controlling the inflation rate because rapidly rises inflation rate reduces the level of investment.
- It is recommended that the state bank control money supply to enhance the performance of stock market.

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