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An Empirical Analysis of Relationship between Stock Market Development and Economic Growth: The Indian Context

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ABSTRACT

The debate on the relationship between stock market development and economic growth has always been a centre of attention in numerous empirical studies in both developed and developing countries. Stock market has been emerged as a virtual market for raising the funds by the corporate houses for future investments. An active stock market indicates frequent trading of large volume of stocks and positive sentiments of investors towards the future scope of reaping high rate of return as well as economic growth. The main objective of the present study is to find out the relationship between stock market development and economic growth in India during 2004-2014. Many previous studies use market capitalisation as indicator of stock market development but rise in volatility in financial market has raised the eyebrows of many financial analysts and mark the consistency of this variable under question. The present study use the average closing price of BSE as an indicator of stock market development. The Vector Error Correction Model and Granger Causality test are devised in E - Views and the findings indicate a unidirectional causality run from economic indicators to stock market and supports the fact that majority of economic growth variables are indicators of stock market development but stock market development does not cause economic growth in the country.

JEL Classification: E47, O22, O43, C32.

Keywords: Stock Market Development, Economic Growth, Granger Causality, Vector Error Correction Model.

1. INTRODUCTION

Traditionally, the economists placed more importance on financial development for the economic growth of countries. Seetanah (2008), Abu-Bader and Abu-Karen (2008) and others formed strong evidence about

significant role of financial intermediaries in economic development. With change in economic scenario and globalization of financial markets, the focus has been shifted to analyze the role of stock markets in economic growth of countries. Stock market plays a significant role in determining the health of an economy in the current volatile market scenario. It has been emerged as a virtual market for raising the funds by the corporate houses for future investments. It also acts as mirror for the investors' expectations towards the company. Positive sentiments of investors towards company's performance lead to increase in stock price and vice versa. When investors invest more, the economy expands and when investors withdraw their money from market, the economic growth shrinks. The degree of liquidity of stock market also enhances the cost of equity capital for a corporate. An active stock market indicates frequent trading of large volume of stocks and positive sentiments of investors towards the future scope of reaping high rate of return as well as economic growth. Naseer (2015) explored a bi - directional causality between stock market development and economic indicator. Besci and Wang (1997) suggest in their research that positive performance of domestic financial sectors lead to better economic growth.

In 2008, the stock market witnessed short period of decline caused by macroeconomic slowdown. Indian economy went off on an unpleasant tangent. It was adversely hit by a series of economic blows. The poor performance of stock market and negative macro economic factors tried to test the mettle of investors. The ripple effect of poor performance of stock market was visible on the economy of developing and developed countries. It had thrown the cold water on the expansion plans of developing economies. In the post Lehman world, the downbeat and anxious mood of investors has been gradually transformed by the slew of economic recoveries. Nasir et. al., (2014) observe the dependency of economic growth over financial depth and lending rate in the country. The FY 2014 -15 has witnessed a quantum leap in stock market performance. Sensex has already surpassed the level of 28,000. India is at the cusp of the major transition phase of an economic growth. An acute issue of testing the effect of performance of stock market on the economic development of country has raised the eyebrows of many financial market analysts. It is the area where yawning gap exists at preserved.

The current research paper consists of six sections, the first section being an introduction. The second section builds a theoretical framework on the basis of the review of existing literature based on the link between stock market development and economic growth. The third section outlines the research methodology, description and sources of research data applied in the present research. The fourth section deals with empirical analysis of data and section fifth discuss about findings of the current paper and compare them with findings of previous studies. Section six consists of conclusion, implications and possible future research directions.

2. REVIEW OF LITERATURE

Nyasha and Odhiambo (2015) investigate the causal relationship between stock market development and economic growth in Kenya between the time period from 1980-2012. The study empirically formulate a multivariate Granger Causality model. The findings shows that there exists no causal relationship between stock market based development and economic growth. Anigbogu and Nduka (2014) examine the long run causal relationship between stock market performance and economic growth in Nigeria for a period from 1987 to 2012. The results confirm the existence of long-run relationship between stock market performance and economic growth. Owusu and Odhiambo (2014) examine the relationship between stock

market development and sustainable economic growth in Ghana. The findings of study affirm evidence of no positive effects of stock market development on economic growth. Palamalai and Prakasam (2014) empirically confirm a bidirectional causality between market capitalisation and economic growth and unidirectional causality from turnover ratio to economic growth in the long-run and short-run. The study investigates the relationship between the time period of 1991 to 2013 by applying Co-integration and causality test. Ikikii and Nzomoi (2013) prove empirically that stock market development (measured by trade volume or capitalization) impacts positively on the economic growth in Kenya. The results reveal a strong positive correlation between stock market development and economic growth from quarterly time series data between time periods of 2000 to 2011. Osamwonyi and Kasimu (2013) empirically find that there is no causal relationship between stock market development and economic growth in Ghana and Nigeria. The results support the existence of bidirectional causal relationship between stock market development and economic growth in Kenya

Achugbu and Alajekwu (2012) support the notion that a positive correlation exist between stock turnover ratio and market capitalization. Craigwell et. al., (2012) test causal relationship between stock market and economic growth in Barbados by using Vector Error Correction Model (VECM) and Granger Causality Test on time series data from a time span of 1946 to 2011. The results suggest the existence of unidirectional causal relationship between economic growth and stock market development. Boubakari (2010) suggests a strong relationship between economic growth of country and its stock market development. The findings indicate significant influence of stock markets on economic growth. Kithinji and Ngugi (2010) observe that stock market acts as an avenue for raising funds for corporate and hence play a vital role as emerging measure for economic growth. Salisu and Ajide (2010) find a causal relationship between stock market development and economic growth in their research based upon time span of 1970 and 2004 in Nigeria. Vazakidis and Adamopoulos (2009) empirically examine the nexus between economic growth and stock market in France and support the fact of existence of positive association between the nexus and negative association between interest rate and stock market development. Acharya et. al., (2009) empirically find the existence of long run relationship between development of Indian states and financial development.

Odhiambo (2008) devise Auto Regressive Distributed Lag (ARDL) to determine the long run causal relationship between stock market development and economic growth. He used GDP per capita as proxy for economic growth and stock market capitalization, stock market traded value and stock market turnover as proxy for stock market development. Shahbaz et. al., (2008) explore a bi-directional causal relationship exists between stock market development and economic growth in long run in Pakistan. Gamolya (2006) empirically examines a long run causal relationship between stock market and economic growth in Ukraine. The results indicate a hint that the future economic growth rate can be forecasted by stock market performance but stock market performance is necessarily not responsible for economic growth. Thomas and Watson (2006) examine the short term and long term causal relationship between stock market development and economic growth in Jamaica, Barbados and Trinidad and Tobago. The results indicate that stock market development has aided the economic growth in these countries. Caporale, et. al., (2004) examine the relationship between stock market – bank development and economic growth by devising VAR model. The results indicates that in long run, a developed stock market propel economic growth of the country. Choong et. al., (2003) devise auto regressive distributed lag (ADRL) bounds test and find that stock market development has positive impact upon the economic growth. The findings also conclude

that stock market development Granger Cause economic Growth.

Filer, et. al., (1999) analyze that an equity market acts as catalyst for the economic growth of developing countries. They studied equity markets and economic growth of 64 countries and observed a positive causal relationship between stock market development and economic growth. Dailami and Aktin (1990) observe that stock market stimulates economic development through investors as well as corporate. Investments in stock market not only strengthen the intensity of savings among investors but also provide investment capital to the corporate at lower cost through various investment instruments.

Despite so many research attempts the charm in finding the age old relationship between stock markets and economy has not faded away. Thus, the current research study once again makes an attempt to paint a broad portrait of causal relationship between stock market performance and economic growth by using quarterly data in context of India. The study also aims to find out whether there is any long term relationship between Indian stock market development and economic growth and further examine the direction of relationship between these two.

3. METHODOLOGY AND DATASET OF THE STUDY

The present study employed secondary data obtained from Bombay Stock Exchange and from the official website of Reserve Bank of India from a time span ranging from first quarter of 2004 to the fourth quarter of 2014. Quarterly time series data for Stock market performance and Economic growth has been used for the analysis purpose. Statistical Software E-Views has been used to analyze the relationship among the study variables.

3.1. Hypothesis

Two main hypotheses have been formulated for the purpose:

H_{01}: There is a statistically long term relationship between stock market development and economic growth in India.

H_{02}: Stock Market Development granger cause economic growth in India.

3.2. Proxies for Stock Market Development and Economic Growth

The relationship between stock market development and economic growth has been studied by considering their relevant proxies. The previous research attempts made use of many proxies but with change in economic scenario, the significant of proxy may change.

3.2.1. Stock Market Development

Odhiambo (2006) and Boubakari (2010) chose Market capitalization and Stock market value traded as proxy for stock market development. But with increase in volatility in globalized economy, the market capitalization and value traded may not predict the stock market growth as desired. To make our study more relevant to current economic scenario, Daily closing prices at Bombay Stock Exchange have been used as the proxy for 'Stock Market Development' which has also been earlier made use of by Paramati and Gupta (2011). Thus, quarterly average closing price has been considered as a proxy for Stock Market

Development.

3.2.2. Economic Growth

In the present research, economic growth of India has been explained through relevant proxies of the current economic environment. The following proxies have been considered as the proxies for Economic growth:

(a) **Lending Rate:** Lending rate is the rate that usually meets the short and medium-term financing needs of the private sector from banks. Lower lending rates, boosts the economic growth as it increase the debt capacity of corporate and individuals. Udoka and Roland (2012) empirically examined a direct relationship between lending rate and economic growth. Nasir et. al., (2014) support the long term relationship and existence of Co-integration between lending rate and economic growth.

(b) **Foreign Exchange Rate:** Foreign Exchange Rate refers to the exchange rate determined by national authorities or to the rate determined in the legally sanctioned exchange markets. Rodrik (2008) analyze and find a positive relationship between Exchange rate and Economic growth in developing countries.

(c) **Gross Domestic Product:** GDP is one of the most important measure of economic growth for any country. Quarterly Gross Domestic Product Index (GDPI) Percentage Change has been taken as a proxy for economic. It indicates the percentage change between the national output in current quarter and corresponding quarter of the previous year.

$$\text{Quarterly GDPI Percentage Change} = \frac{\text{Current QGDPI - Previous Year's QGDPI}}{\text{Previous Year's GDPI}}$$

(d) **Repo Rate:** Repo rate is the rate at which the central bank of a country (RBI in case of India) lends money to commercial banks in the event of any shortfall of funds. Repo rate cut refuels the demand scenario and attract more investment which further leads to the boosts in economic growth. In the present research quarterly data of repo rate has been extracted from RBI official website.

(e) **Wholesale Price Index (WPI):** It is the price of a representative basket of wholesale goods. Some countries (like Philippines) use WPI changes as a central measure of inflation. Ahmed (2008) and Dasgupta (2012) indicate and used WPI as a significant proxy for economic growth.

For empirical estimations the logarithm of all these variables were used as the log series were found to be normal in case of most of the variables.

3.3. Data Analysis Tools

The Long term relationship among stock market performance indicators and variables of economic growth has been examined by applying following statistical tests:

3.3.1. Unit Root Test (Augmented Dickey-Fuller Test)

Unit root test is devised to check whether the series is stationary or non stationary. The results based on a stationary set of date series can be generalised outside the time frame of the study. The data were checked for stationarity by applying Augmented Dickey-Fuller (ADF) test as both co-integration and Causality techniques require all data sets to be normalized.

The ADF test follows the estimation of the following equation 1:

$$\Delta Y_t = B_1 + ZY_{t-1} + \alpha_i + \Sigma_t \quad (1)$$

where, B_1 refers to the intercept

3.3.2. *Johansen Test for Co-integration*

Johansen Juselius Co-integration test is performed to examine the number of independent linear combinations between dependent and independent variables. Maximum Eigenvalue and trace test values were made use of for analysis purpose. For the long run relationship test, Johnson-Juselius (JJ) test is commonly used, which follows the following equation 2:

$$\Delta X_t = \Sigma \Gamma_i \Delta X_{t-1} + ZX_{t-1} + \Sigma_t \quad (2)$$

where, Γ_i and Z are estimated parameters; ZX_{t-1} is the Error correction term; Σ_t is the Vector of the residual.

3.3.3. *Vector Error Correction Model (VECM)*

Vector Error Correction Model was used to analyse short run dynamics of long run relationships

3.3.4. *Testing for Lead – Lag Relationship*

The lead lag relationships between the variables have been examined using the following two tests:

3.3.4.1. *Granger Causality Test*

This test is used to determine the direction of the causation. The logic behind this test is that future cannot cause the past but the past can cause the future. If past value of time series X significantly contribute to forecasting Y then X is said to be the Granger cause of Y. For the Causality relationship test, we apply Granger Causality test, which follow the following equation 3:

$$SMP_t = C_1{}^*LER_{t-i} + C_2{}^*LFER_{t-i} + C_3{}^*LGDP_{t-i} + C_4{}^*LRR_{t-i} + C_5{}^*LWPI_{t-i} + U1_t \quad (3)$$

where,

SMP is the Stock Market Performance at Period *t*

LER is the Lending Rate

LFER is the Foreign Exchange Rate

GDP is the Gross Domestic Product

RR is the Repo Rate

WPI is the Wholesale Price Index

C_1, C_2, C_3, C_4, C_5 and C_6 are the respective Coefficient

$t-i$ and $t-j$ are the lag period and $U1_t$ is the residuals of the model.

3.3.4.2. Impulse Response Test

This test is used to assess the impact of shocks in the independent variables onto the dependent variable. This test represents

(a) Whether the effect is positive or negative

(b) Length of the effect

(c) Whether it begins immediately or with a lag

4. ANALYSIS AND RESULTS

This section deals with empirical analysis of the research data:

Auto Correlation Analysis among Residuals: The auto correlation test has been conducted to examine the existence of autocorrelation among the residuals. As the *p* values of all the residuals are higher than 0.05 (significance level), as indicated in **Table 1,** the null hypothesis has been rejected and confirms the non existence of auto correlation among residuals. Thus, it can be concluded that all the residuals are independent from each other and will generate fair and reliable results.

Table 1
Auto Correlation among Residuals of Variables

S.No.	*Residual 1 P values*	*Residual 2 P values*	*Residual 3 P values*	*Residual 4 P values*	*Residual 5 P values*	*Residual 6 P values*
1	0.653	0.836	0.883	0.421	0.974	0.882
2	0.876	0.543	0.972	0.447	0.690	0.850
3	0.469	0.681	0.996	0.491	0.589	0.946
4	0.543	0.142	0.984	0.194	0.707	0.976
5	0.443	0.218	0.806	0.282	0.822	0.453
96	0.435	0.166	0.880	0.278	0.750	0.467
7	0.450	0.226	0.873	0.308	0.823	0.538
8	0.098	0.089	0.923	0.379	0.831	0.645
9	0.140	0.122	0.957	0.405	0.787	0.586
10	0.189	0.150	0.967	0.451	0.812	0.655
11	0.159	0.151	0.982	0.464	0.849	0.724
12	0.207	0.090	0.982	0.418	0.852	0.782
13	0.243	0.122	0.990	0.477	0.789	0.837
14	0.296	0.065	0.993	0.553	0.843	0.146
15	0.338	0.076	0.991	0.610	0.887	0.175
16	0.399	0.099	0.987	0.567	0.826	0.222

Unit Root Test at Levels (Augmented Dickey - Fuller Test): To check the stationarity of the data Augmented Dickey-Fuller Test was used and the results are presented in **Table 2.**

Table 2
Unit Root Test of Variables

Variables	*Level*									
	No Trend					*With Trend*				
	t-statistics	*Critical Values*			*p-value*	*t-statistics*	*Critical Values*			*p-value*
		1%	*5%*	*10%*			*1%*	*5%*	*10%*	
LSMP	–2.09	–3.62	–2.94	–2.61	0.249	–2.61	–4.22	–3.53	–3.20	0.42
LER	–0.26	–3.62	–2.94	–2.61	0.92	–1.72	–4.22	–3.53	–3.20	0.72
LFER	–1.78	–3.62	–2.94	–2.61	0.38	–1.92	–4.22	–3.53	–3.20	0.62
LGDP	–2.11	–3.62	–2.94	–2.61	0.24	–0.99	–4.26	–3.55	–3.20	0.93
LRR	–2.58	–3.62	–2.94	–2.61	0.105	–2.64	–4.22	–3.53	–3.20	0.265
LWPI	–4.87	–3.62	–2.94	–2.61	0.0003	–4.85	–4.22	–3.53	–3.20	0.002

Following Null Hypothesis were formulated for this purpose:

H_{01} = LSMP has unit root (LSMP is non – stationary series)

H_{02} = LER has unit root (LER is non – stationary series)

H_{03} = LFER has unit root (LFER is non – stationary series)

H_{04} = LGDP has unit root (LGDP is non – stationary series)

H_{05} = LRR has unit root (LRR is non – stationary series)

H_{06} = LWPI has unit root (LWPI is non – stationary series)

The *t* – statistics for all the predictors except LWPI are higher than critical values at 1%, 5% and 10% significance level and thus it fails to reject the null hypothesis of unit root and it can be concluded that the series are non stationary at level one. The result has also been supported by the *p*-values as the *p*-values are higher than 1%, 5% and 10%. In case of LWPI, the *t*-statistics are lower than critical values (–4.87 < –3.62, –4.87 < –2.94, –4.87 < –2.61) and *p* value is also lower than significant levels (0.0003 < 0.05). It leads to acceptance of null hypothesis. Therefore, the series is stationary only for LWPI.

Unit Root Test at First Difference: As the series were found to be non-stationary, the first differences were calculated. It was checked if the first differenced series is stationary or not and the results for the same are presented in **Table 3.**

Following Null Hypothesis were formulated for this purpose:

H_{01} = D(LSMP) has unit root. (D(LSMP) is non stationary series.)

H_{02} = D(LER) has unit root. (D(LER) is non stationary series.)

H_{03} = D(LFER) has unit root. (D(LFER) is non stationary series.)

H_{04} = D(LGDP) has unit root. (D(LGDP) is non stationary series.)

H_{05} = D(LRR) has unit root. (D(LRR) is non stationary series.)

H_{06} = D(LWPI) has unit root. (D(LWPI) is non stationary series.)

At first difference, all the predictors have *t*-statistics lower than critical values at all significant levels of 1%, 5% and 10%. It leads to rejection of null hypothesis and support the fact that series is stationary.

Table 3
Unit Root Test at First Difference

Variables	*First Difference*									
	No Trend					*With Trend*				
	t-statistics	*Critical Values*			*p value*	*t-statistics*	*Critical Values*			*p-value*
		1%	*5%*	*10%*			*1%*	*5%*	*10%*	
LSMP	–4.01	–3.62	–2.94	–2.61	0.0036	–4.71	–4.23	–3.54	–3.20	0.0359
LER	–4.77	–3.62	–2.94	–2.61	0.0005	–4.79	–4.23	–3.54	–3.20	0.0024
LFER	–5.09	–3.62	–2.94	–2.61	0.0002	–5.32	–4.23	–3.54	–3.20	0.0006
LGDP	–4.78	–3.62	–2.94	–2.61	0.00379	–4.72	–4.23	–3.54	–3.20	0.0233
LRR	–3.81	–3.62	–2.94	–2.61	0.00276	–4.62	–4.23	–3.54	–3.20	0.043
LWPI	–5.61	–3.62	–2.94	–2.61	0.000	–5.55	–4.23	–3.54	–3.20	–0.0003

The result is further supported by the *p*-values which are lower than the all the significant levels at first difference. The statistic results depicts that LSMP, LER, LFER, LGDP, LRR and LWPI become stationary at all levels of significance when first differenced series is used. Now the predictors are integrated of same order and satisfy the requirement of application of Johansen- Juselius (J-J) Co-integration test also.

Johansen Juselius (J-J) Co-integration Test: Johansen and Juselius Co-integration test (1990) has been conducted to examine the long run relationship between stock market development and its predictors and the results are recorded in **Table 4.**

Table 4
J - J Test Statistics

Hypothesized no of CEs	*Trace*	*Max-Eigen*	*Critical Values (5%)*	
	Statistics	*Statistics*	*Trace*	*Max-Eigen*
$r = 0$	156.1620*	60.55789*	95.75366	40.07757
$r \leq 1$	95.60406*	41.93798*	69.81889	33.87687
$r \leq 2$	53.66609	24.84606	57.85613	27.58434
$r \leq 3$	28.82002	15.78577	29.79707	21.13162
$r \leq 4$	13.03426	12.05976	15.49471	14.26460
$r \leq 5$	0.974495	0.974495	3.841466	3.841466

*denotes significance at 5% significance level.

The trace test and Max Eigen test statistics show that critical values are lower than Trace test statistics (95.754 < 156.16), (69.818 < 95.604) and Max Eigen test statistics (40.0775 < 60.557), (33.876 < 41.937) at $r = 0$ and at $r < 1$ respectively. It leads to rejection of null hypothesis at $r = 0$ and $r < 1$ at 5% significance level. In other cases, null hypothesis has been accepted as critical values for Trace test and Max Eigen values are higher than test values at 5% significance level. The rejection of null hypothesis only at two levels $r = 0$ and $r < 1$ shows that there exist two long run Co-integration relationships between Stock market performance and determinants of economic developments.

Vector Error Correction Estimates: To study the short term dynamics of long term relationships, Vector Error Correction Estimates were calculated and recorded in **Table 5.**

Table 5
VECM Statistics

Error Correction:	*D(LSMP)*	*D(LER)*	*D(LFER)*	*D(LGDP)*	*D(LRR)*	*D(LWPI)*
R-squared	0.592110	0.382252	0.580930	0.886674	0.676112	0.854404
Adj. R-squared	0.339606	–0.000164	0.321505	0.816520	0.475610	0.764273
Sum sq. resids	0.194171	0.036401	0.031856	0.013306	0.071041	1.420969
S.E. equation	0.096157	0.041634	0.038948	0.025172	0.058163	0.260125
F–statistic	2.344958	0.999572	2.239303	12.63893	3.372099	9.479581
Log likelihood	41.23848	70.53624	72.86988	88.14743	58.83450	6.407304
Akaike AIC	–1.556485	–3.230642	–3.363993	–4.236996	–2.561972	0.433868
Schwarz SC	–0.934345	–2.608503	–2.741854	–3.614857	–1.939832	1.056008
Mean dependent	0.031667	0.008240	0.031199	0.014841	0.007053	–0.003135
S.D. dependent	0.118326	0.041630	0.047284	0.058766	0.080319	0.535769

VECM results give long-run structural relations between Stock Market performance and Economic growth and information on adjustment, which provides better insight in economic processes. From the VECM model we are able to estimate the cointegrating vectors. We find that the cointegrating vectors (both lead and lag) explain the logarithmic returns nearly completely and thus propose a VECM-lead model.

Pair-wise Granger Causality Test: The Granger Causality test empirically indicates a causality run from economic growth variables to stock market development and support the fact that economic growth indicators positively influence the stock market development (**Table 6**). The significant association between variables has been depicted by the above statistical results as the *p*-value is lesser than significant value in all the predictors except LWPI.

Table 6
Granger Causality Statistics

S. No.	*Null Hypothesis*	*F-statistics*	*P-value*	*P value & Significant level*	*Decision*
1	LSMP does not Granger Cause LER	1.19494	0.3163	0.31 > 0.05	Accept Null Hypothesis. It means LSMP does not cause LER
	LER does not Granger Cause LSMP	4.36982	0.0213	0.02 < 0.05	Reject Null Hypothesis. It means LER Granger cause LSMP.
2	LSMP does not Granger Cause LFER	1.57270	0.2236	0.22 > 0.05	Accept Null Hypothesis. It means LSMP does not cause LFER
	LFER does not Granger Cause LSMP	4.09123	0.0265	0.02 < 0.05	Reject Null Hypothesis. It means LFER granger cause LSMP.
3	LSMP does not Granger Cause LGDP	0.48347	0.6212	0.62 > 0.05	Accept Null Hypothesis. It means LSMP does not cause LGDP
	LGDP does not Granger Cause LSMP	3.79598	0.0335	0.03 < 0.05	Reject Null Hypothesis. It means LGDP granger cause LSMP.
4	LSMP does not Granger Cause LRR	2.64309	0.0871	0.08 > 0.05	Accept Null Hypothesis. It means LSMP does not cause LRR
	LRR does not Granger Cause LSMP	4.42507	0.0204	0.02 < 0.05	Reject Null Hypothesis. It means LRR granger cause LSMP.

(*Contd...*)

S. No.	*Null Hypothesis*	*F-statistics*	*P-value*	*P value & Significant level*	*Decision*
5	LSMP does not Granger Cause LWPI	1.53390	0.2316	0.23 > 0.05	Accept Null Hypothesis. It means LSMP does not cause LER
	LWPI does not Granger Cause LSMP	2.61899	0.0889	0.09 > 0.05	Accept Null Hypothesis. It means LWPI does not granger cause LSMP.

A reverse trend has been posted between LSMP and LWPI where the *p*-value is higher than significant value (0.23 > 0.05, 0.09 > 0.05). It shows no relationship between LWPI and LSMP. The statistic shows that predictors LER, LFER, LGDP and LRR cause stock market development and LWPI does not cause into development of stock market development.

Impulse Response Function: From the graphs (1-6), it is clear that stock market performance has a mix result of both positive and negative influences with all the indicators of economic growth. Further it shows that how a shock to stock market performance affects all other variables of economic growth and how long the effect lasts in short run.

5. CONCLUSION, IMPLICATIONS AND FUTURE DIRECTIONS

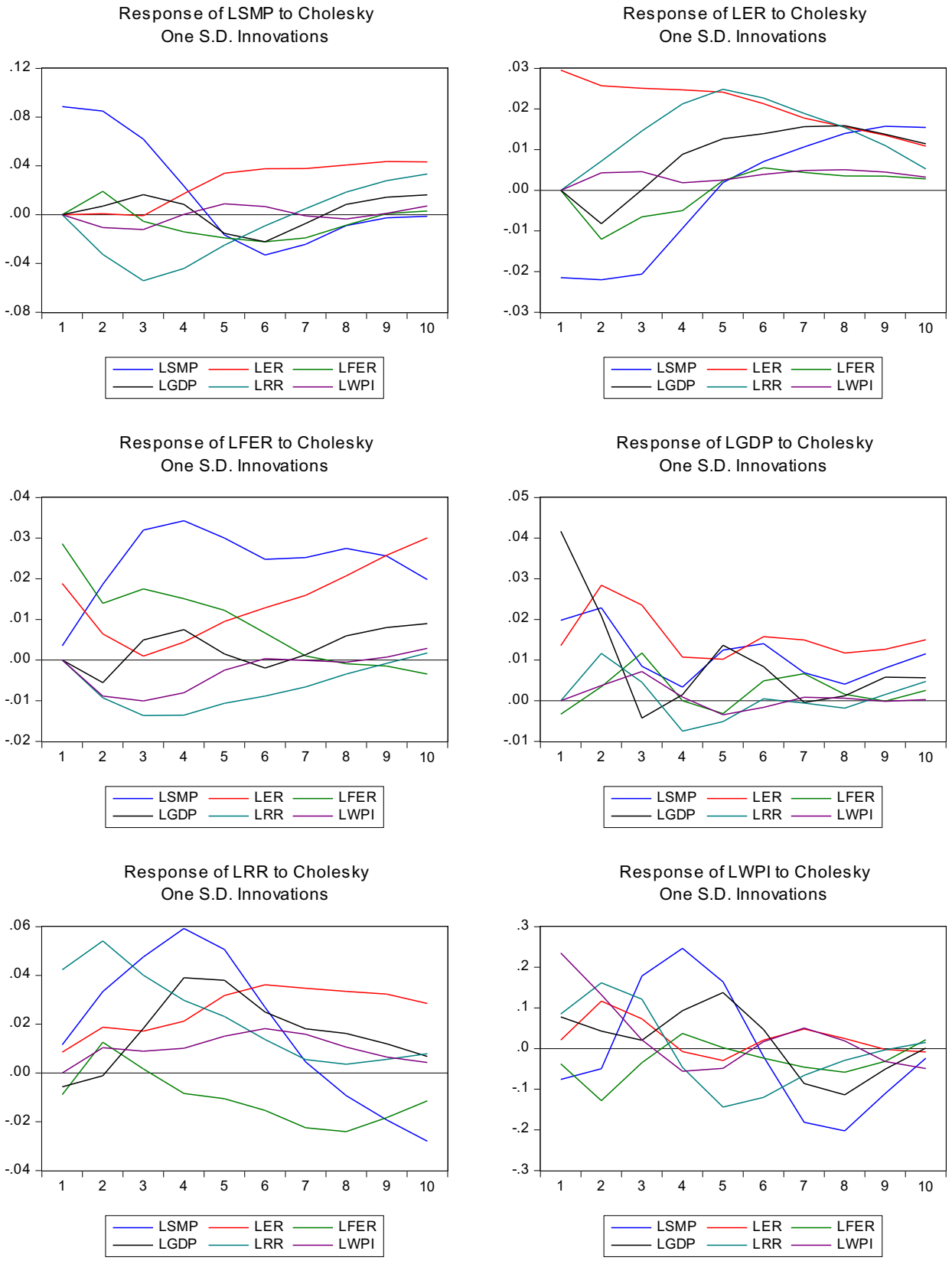
5.1. Conclusion

It has been observed from the empirical results of present study that economic growth positively influences the stock market development. The results advocate the unidirectional causal relationship between stock market development and economic growth. Majority of the economic growth variables cause stock market development. Thus, higher the economic growth, higher is the disposable income and more people invest in stock market for better return. The growth in stock market ensures efficient delivery of financial support to the corporate and individual.

The results of the present study are consistent with the results of Nyasha and Odhiambo (2015) and Owusu and Odhiambo (2014) but are inconsistent with findings of Palamalai and Prakasham (2014), Ikikii and Nzomoi (2013) and Achugbu and Alajekwu (2012).

5.2. Implications

The present study has implications for government policy makers. The vital role of government policies in stock market development can't be ruled out. Government must make an attempt in developing stock market by implementing the crystal clear policies to attract more foreign as well as domestic investors towards investment in stock market. The entry of large number of foreign and domestic investors may lead to introduction of innovative financial instruments and more regulated trading system. Government should also ensure high liquidity in the stock market. Highly liquid stock market boosts long term investments, optimizes allocation of resources and enhances growth prospects of firms. Short term volatility in stock market can be tolerated for establishing long term economic growth. The regulators must consider the latest challenges to stock market development like high frequency of trading and formulate policies to neutralize the effect of such challenges. Policymakers must formulate and implement the policies to promote the money and capital markets and remove the obstacles that impede their growth. They must encourage the smaller companies to raise funds through stock market that helps in expanding the economy and will strengthen the health and competitiveness of the economic system.



Graphs (1-6): Impulse Response Function Graphs

5.3. Directions for Future Research

The present research can be further extended to analyze the different critical time period of stock market development that possibly influence the economic growth of a country. The comparison of bearish and bullish stock market trend in the context of economic growth can provide interesting insights. The in-depth research on role of stock market intermediaries in stock market development and economic growth can be carried out in future attempts.

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