

# A Co-Integration Analysis of Effect of Foreign Direct Investment on Indian Capital Market Growth



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## Abstract

The effect of FDI in the growth process has been an important factor in several countries including India. This paper is an attempt to analyze the causal relationship between Foreign Direct Investment (FDI) and growth of Indian Capital Market, using the co-integration approach for the period, 1996-97 to 2015-16. The empirical analysis on basis of Ordinary Least Square Method suggests that there is positive relationship between FDI and growth of Capital Market and vice versa. The unit root test clarified that both growth of capital market and FDI were found to be integrated of order one using the Augmented-Dickey Fuller test for unit root only. The co-integration test confirmed an existence of long run equilibrium relationship between the two as confirmed by the Johansen co-integration test results. The Wald Causality test finally confirmed the absence of causality which doesn't runs from capital market growth to foreign direct investment. The error correction estimates gave evidence that the Error-Correction Term is statistically significant which confirms that there isn't any problem in the long-run equilibrium relation between the independent and dependent variables. For FDI to be a notable provider to capital market growth, India would do better by focusing on improving policy and infrastructure, creating a stable capital market framework and conditions favorable for productive investments to improve the process of development.

**Keywords:** Foreign Direct Investment; Capital Market Growth; Secondary Data; Co-Integration.

## JEL Classification

F14, E44, C82, C87.

## Introduction

Efficient capital markets are essential for economic growth and prosperity. An integral part of capital market is the stock market, the development of which is linked with the country's level of savings, investment and the rate of economic growth. India's stock market has been classified as one of the fastest growing markets. Bombay Stock Exchange (BSE) and National Stock Exchange (NSE) are the largest and most liquid exchanges in India and they are the major sources of capital formation in India. Local and foreign investor's confidence in the investment environment of India has boosted the stock market index in recent years. The developing countries are witnessing changes in the composition of capital flows in their economies because of the expansion and integration of the world equity market. The stock markets are also experiencing this change. It is generally recognized that a strong financial system guarantees the economic growth and stability. Stock market is an integral part of the financial system of the economy. It is a source of financing a new venture based on its expected profitability. The stock market is replica of the economic strength of any country. To boost investment, savings and economic growth, the development of stock market is imperative and cannot be ignored in any economy. Foreign direct investments (FDIs) are becoming important source of finance in developing countries including India. Foreign Direct Investment (FDI) in developing economies has grown rapidly following financial and political transformations. To increase their share of FDI flows, most of the countries ease restrictions on foreign direct investment, strengthened macro stability, privatization of state-owned enterprises, domestic financial reforms, capital account liberalization, tax incentives and subsidies have been instituted. In addition, stock markets have been established to intermediary funds towards investment projects. The positive reaction of these structural changes in inviting FDI and its

significance on their financial markets especially stock market is obvious. With the beginning of information technology, especially the internet-based applications in the capital markets at the global level, information describing the macro and microenvironment of economies is readily reachable. This flow of information has perhaps, made the capital markets relatively more efficient as the stakeholders are better placed to access and act in accordance with the changing aspects of environment. In today's globally integrated world, information access is easy and universal. Apart from being a critical driver of economic growth, foreign direct investment (FDI) is a major source of non-debt financial resource for the economic development of India. Foreign companies invest in India to take advantage of relatively lower wages, special investment privileges such as tax exemptions, etc. For a country where foreign investments are being made, it also means achieving technical know-how and generating employment. The Indian government's favorable policy regime and robust business environment have ensured that foreign capital keeps flowing into the country. The government has taken many initiatives in recent years such as relaxing FDI norms across sectors such as defense, PSU oil refineries, telecom, power exchanges, and stock exchanges, among others.

Many companies like Samsung, Hyundai, Oppo Mobiles India, Louis Vuitton Malletier, Chumbak Design, Daniel Wellington AB and Actoserra Active Wholesale Pvt. Ltd, Amazon, Moresco, Toyoda Gosei, Topre and Murakami Temasek, etc. are investing in Indian market and hence increasing the employment rate as well as helping the domestic company to increase their supply. Sterlite Power, Reliance Industries Ltd., Adani Enterprises Ltd., Intas Pharma, Everstone Group, Wipro, Adani Enterprises, Sun Pharmaceutical Industries Ltd., WNS Global Services, Aurobindo Pharma, Motherson Sumi Systems Ltd., etc. are the part of the Indian capital market and as these companies are getting scope for FDI, the profile of the companies as well as the stock market is also meeting positive growth. So, it is quite obvious FDI is immensely effecting the capital market growth.

Foreign direct investment (FDI) is an investment made by a company or individual in one country in business interests in another country, in the form of either establishing business operations or

acquiring business assets in the other country, such as ownership or controlling interest in a foreign company. Foreign direct investments are distinguished from portfolio investments in which an investor merely purchases equities of foreign-based companies. The key feature of foreign direct investment is that it is an investment made that establishes either effective control of, or at least substantial influence over, the decision making of a foreign business.

Capital market is a market where buyers and sellers engage in trade of financial securities like bonds, stocks, etc. The buying/selling is undertaken by participants such as individuals and institutions. Capital markets help channelize surplus funds from savers to institutions which then invest them into productive use. Generally, this market trades mostly in long-term securities. Capital market consists of primary markets and secondary markets. Primary markets deal with trade of new issues of stocks and other securities, whereas secondary market deals with the exchange of existing or previously-issued securities. Another important division in the capital market is made on the basis of the nature of security traded, i.e. stock market and bond market.

The S&P BSE Sensex (S&P Bombay Stock Exchange Sensitive Index), also called the BSE 30 or simply the Sensex, is a free-float market-weighted stock market index of 30 well-established and financially sound companies listed on Bombay Stock Exchange. The 30 component companies which are some of the largest and most actively traded stocks are representative of various industrial sectors of the Indian economy. Published since 1<sup>st</sup> January 1986, the S&P BSE Sensex is regarded as the pulse of the domestic stock markets in India. The base value of the S&P BSE Sensex is taken as 100 on 1<sup>st</sup> April 1979.

There is a unique case where a regression of a nonstationary series on another nonstationary series does not result in spurious regression. This is the situation of co-integration. If two time series have stochastic trends (i.e. they are nonstationary), a regression of one on the other may cancel out the stochastic trends, which may suggest that there is a long-run, or equilibrium, relationship between them even though individually the two series are nonstationary.<sup>10</sup>

**Table 1: Profile of Bombay Stock Exchange**

Historical Data of BSE Sensex				
Particulars	31/3/2001	31/3/2006	31/3/2011	31/3/2016
No. of Companies Listed	5962	4821	5133	5985
Turnover (Rs. Cr.)	307297.77	956189.11	667497.58	998260.58
Market Capital (Rs. Cr.)	6,12,224.14	35,45,041.00	62,14,911.83	1,21,54,525.46

Source: <http://www.bseindia.com>

The above table represents the growth of BSE Sensex from 31/3/2001 to 31/3/2016 which is quiet impressive in terms of its market capital.

**Table 2: Net Inflow of Foreign Direct Investment (Sector-Wise)**

Ranks	Sector	US\$ in million				
		2013-14	2014-15	2015-16	2000-16	%age to total inflows
1	Services Sector	2,225	4,443	6,889	50,792	18
2	Construction Development: Townships, Housing, Built-Up Infrastructure	1,226	769	113	24,188	8
3	Computer Software & Hardware	1,126	2,296	5,904	21,018	7
4	Telecommunications (Radio Paging, Cellular Mobile, Basic Telephone Services)	1,307	2,895	1,324	18,382	6
5	Automobile Industry	1,517	2,726	2,527	15,065	5
6	Drugs & Pharmaceuticals	1,279	1,498	754	13,849	5
7	Chemicals (Other Than Fertilizers)	878	763	1,470	11,900	4
8	Trading	1,343	2,728	3,845	11,872	4
9	Power	1,066	707	869	10,476	4
10	Hotel & Tourism	486	777	1,333	9,227	3

Source: RBI's Bulletin May, 2016

The Table 2: represents the top ten sectors where service sector is getting the maximum inflow of which receive Foreign Direct Investment (FDI) in India FDI i.e. 18% till 2015-2016 followed by other sectors.

**Table 3: Share of Top 10 Investing Countries In India**

Ranks	Country	US\$ in million				
		2013-2014	2014-2015	2015-2016	2000-2016	%age to total inflows
1	Mauritius	4,859	9,030	8,355	95,910	33
2	Singapore	5,985	6,742	13,692	45,880	16
3	U.K.	3,215	1,447	898	23,108	8
4	Japan	1,718	2,084	2,614	20,966	7
5	U.S.A.	806	1,824	4,192	17,943	6
6	Netherlands	2,270	3,436	2,643	17,314	6
7	Germany	1,038	1,125	986	8,629	3
8	Cyprus	557	598	508	8,552	3
9	France	305	635	598	5,111	2
10	UAE	255	367	985	4,030	1

Source: RBI's Bulletin May, 2016

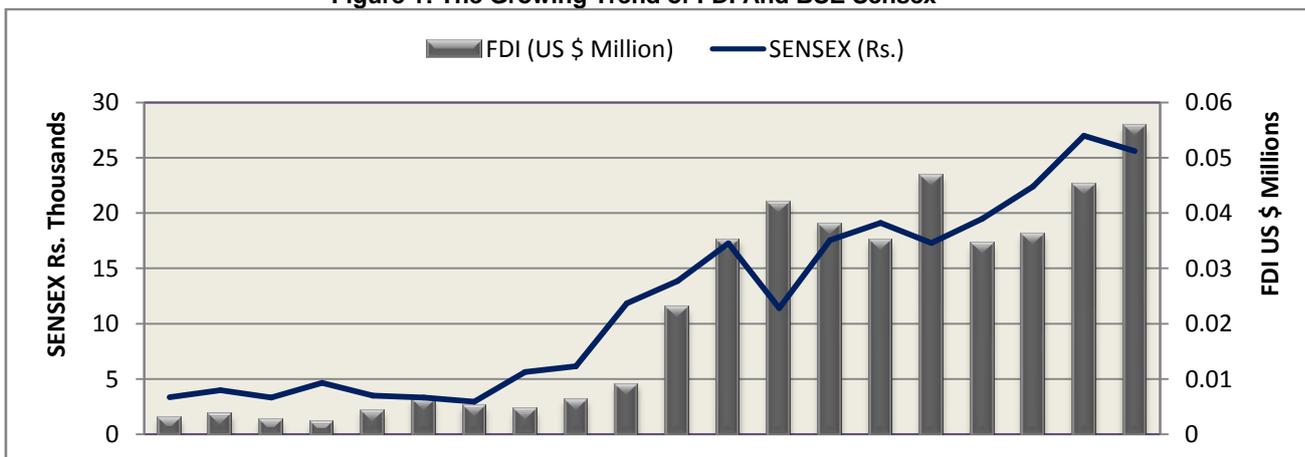
The above table showcases the top ten percentage of inflows from 2013-14 to 2015-16. Mauritius is leading the table.

**Table 4: Statement Showing Fdi Inflows, Value of Sensex, Log Value and Growth over The Years In India**

Date	SENSEX (Rs.)	Growth (%)	LSNX	FDI (US \$ Million)	Growth (%)	LFDI
1996-97	3360.89	-0.18147	3.526454	2821	31.57649	3.450403
1997-98	4006.81	19.21872	3.602799	3557	26.09004	3.551084
1998-99	3325.69	-16.9991	3.521882	2462	-30.7844	3.391288
1999-00	4657.55	40.04763	3.668158	2155	-12.4695	3.333447
2000-01	3519.16	-24.4418	3.546439	4029	86.96056	3.605197
2001-02	3338.16	-5.14327	3.523507	6130	52.14693	3.78746
2002-03	2959.79	-11.3347	3.471261	5035	-17.863	3.701999
2003-04	5655.09	91.06389	3.75244	4322	-14.1609	3.635685
2004-05	6154.44	8.830098	3.789189	6051	40.00463	3.781827
2005-06	11851.93	92.57528	4.073789	8961	48.09122	3.952356
2006-07	13872.37	17.04735	4.142151	22826	154.726	4.35843
2007-08	17287.31	24.61685	4.237727	34843	52.64611	4.542116
2008-09	11403.25	-34.0369	4.057029	41873	20.17622	4.621934
2009-10	17558.71	53.97987	4.244493	37745	-9.85838	4.576859
2010-11	19135.96	8.982721	4.28185	34847	-7.67784	4.542165
2011-12	17318.81	-9.496	4.238518	46556	33.60117	4.667976
2012-13	19504.18	12.61848	4.290128	34298	-26.3296	4.535269
2013-14	22417.8	14.93844	4.350593	36046	5.096507	4.556857
2014-15	27011.31	20.49046	4.431546	45148	25.25107	4.654639
2015-16	25606.62	-5.20038	4.408352	55559	23.05971	4.744754

Note: LSNX- Log value of BSE Sensex and LFDI represents Log value of FDI.

Figure 1: The Growing Trend of FDI And BSE Sensex



Source: Author's Compilation from Collected Data

The bar graph above shows the trend in FDI flows over a period ranging from 1996-97 to 2015-16. It shows the FDI flow had more or less an increasing trend. The line chart above shows an increasing trend of S&P BSE Sensex over the period from 1996-97 to 2015-16. In 1996-97 the index value was 3360.89 and in 2015-16 its 25606.62, that is around 661.9 % increase over the 20 years study period.

**Review of Literature**

On the basis of the effectiveness of FDIs on the capital market growth in India, the researcher has gone through so many literatures at international and national. After a minute screening of all available literatures, the researcher has mentioned some pertinent and relevant literatures below.

Adam, Anokye and Tweneboah (2008), in their study they have used multivariate co-integration and error correction model to examines the impact of Foreign Direct Investment (FDI) on the stock market development in Ghana. Their results of the study indicate that there exists a long run relationship between FDI, nominal exchange rate and stock market development in Ghana. The study found that a shock to FDI significantly influence the development of stock market in Ghana.

Chousa, Chaitany and Tamazian (2008) tried to assess whether stock markets are simply known to be mother of all speculative businesses, or whether they are importantly linked to attract firm level FDI in the form of cross-border Mergers & Acquisitions activities. They applied pooled regression technique by covering nine leading emerging economies for the period of 1987-2006. They found a strong positive impact of stock markets on cross border mergers & acquisitions deals and values.

Kalim and Shahbaz (2009) tried to investigate the impact of FDI on the stock market development of Pakistan. The key interest revolves around the complementary or substituting role of FDI in the stock market development of Pakistan. Their study also examines the other major contributing factors towards the development of stock market. An ARDL bound testing approach was used for long-run relationship among variables and the error correction model has been used for short run dynamics. They have concluded that efficient capital markets are

essential for economic growth and prosperity and FDIs are becoming important source of finance in developing countries like Pakistan.

Omodero, Onyinyechi and Ekwe1 (2017), they tried to examined the impact of Foreign Direct Investment (FDI) on the stock market performances in Nigeria, from1985 to 2014. They have used secondary data, statistical tools like multiple regression of least square estimation was used to analyze the data. The study revealed that FDI has an insignificant and negative impact on the economy and the macroeconomic variables which determine the performances of the Nigerian stock market. Their study recommends policies that would boost foreign firms effective in the oil and gas as well as the telecommunication and agricultural sectors to be listed since it would go a long way in inviting more FDI, which will leads to development in the performances of stock market.

Devajit, (2012), the study tries to find out how FDI seen as an important economic catalyst of Indian economic growth by stimulating domestic investment, increasing human capital formation and by facilitating the technology transfers and the main purpose of the study was to investigate the impact of FDI on economic growth in India. The study concludes that paces of FDI inflows in India initially were low due to regulatory policy framework but there was a sharp rise in investment flows from 2005 towards because of the new policy implemented by the government.

Dhiman and Sharma (2013), in their paper they attempted to study the impact of foreign direct investment on the Indian stock market. Statistical tools like coefficient of correlation, regression analysis have been used in order to study the impact; Sensex and Nifty are used as they are representing the Indian stock market and data of 12 years, from 2001 to 2012 suggests that amount of FDI has a direct impact on both Sensex and Nifty. Their study concludes that flow of FDI in India determines the trend of Indian Stock Market.

Jayachandran and Sielan (2010), find out the relationship between Trade, FDI and Economic Growth of India over the period 1970 to 2007. In their study the statistical tests showed that there was a

causal relationship between the examined variables and the direction of casual relationship was from FDI to Growth rate and there was no causality relationship from Growth rate to FDI.

Ray (2012), tried to found out the impact of FDI on the economic growth of India by taking GDP as a proxy for economic growth. He used co-integration analysis to check the long run relationship among the two variables for the period 1990-91 to 2010-11 and also attempted to analyze the causal relationship between Foreign Direct Investment (FDI) and economic growth. He concluded that FDI to be a noteworthy provider to economic growth but India would do better by focusing on improving infrastructure, human resources, developing local entrepreneurship, creating a stable macroeconomic framework and conditions favorable for productive investments to supplement the process of development.

Sarkar (2018) tried to see the cause and effect relationship between FII & Indian Stock Market by using data for the variables, FII and BSE Sensex (Sensex have been used as a proxy for Indian Stock Market) for the period from 2000 to 2016 by using Jarque-Bera test for Normality, Augmented Dickey-Fuller test for Unit Root and then Granger Causality test have been performed between the two variables to know which one causes the other one. His study concludes that stock exchange strengthening will attract more FII and as a consequence Indian economy will further move towards a developed economy.

**Research Gap**

After studying the existing literatures the author found that there is no such study on long run relationship among the FDI and growth of Indian capital market. Hence the author tried to find out a relationship among the FDI and capital market growth.

**Research Objectives**

The objective of this paper is to explore the long run relationship between FDI (Foreign Direct Investment) capital market growths in India and also the study aims to examine causal dynamic relationships between the level of FDI flowing into India and capital market growth.

**Hypothesis**

The paper is based on the following hypotheses for testing the co-integration and causality between BSE Sensex and FDI in India

1. There is no long run relationship between BSE Sensex and FDI in India,
2. There is no causality between BSE Sensex and FDI in India.

**Methodology**

**Variables**

Annual value of BSE Sensex has been taken as proxy to represent the capital market growth in India and yearly inflow of Foreign Direct Investment (FDI) are being taken as variables for the study to analyze the long run relationship among the above two variables where FDI is independent variable and BSE Sensex is the dependent variable.

**Sample Period**

The study has been done by using the annual value of variables for the period from 1996-97 to 2015-16 which includes the 20 annual observations.

**Data Source**

The present section deals with the sources of secondary data as the study totally based on secondary data. The secondary data were collected from different research article, magazines, reports, books and websites.

**Methods Used**

The section deals with the methodological tools used for analyzing the secondary data. In the present study the data are being analyzed by using statistical package, E-Views 7. Both simple and advanced statistical tools have been used. All the variables are taken in their natural log values to reduce the problems of heteroscedasticity to maximum possible extent. The estimation methodology employed in this study is the co-integration and error correction modeling technique. The entire estimation procedure consists of three steps: first, unit root test; second, co-integration test; third, the error correction model estimation.

**Model Specification**

The choice of the existing model is based on the fact that it allows for generation and estimation of all the parameters without resulting into unnecessary data mining. The link between Capital Market growth (measured in terms of BSE Sensex) and foreign direct investment in India can be described using the following model in linear form:

$$LSNX_t = \alpha + \beta L FDI_t + \epsilon_t$$

$$\alpha \text{ and } \beta > 0$$

The variables remain as previously defined with the exception of being in their natural log form.  $\epsilon_t$  is the error term assumed to be normally, identically and independently distributed. Here,  $SNX_t$  and  $FDI_t$  show the BSE Sensex annual value and foreign direct investment value at a particular time respectively while  $\epsilon_t$  represents the "noise" or error term;  $\alpha$  and  $\beta$  represent the slope and coefficient of regression. The coefficient of regression,  $\beta$  indicates how a unit change in the independent variable (foreign direct investment) affects the dependent variable (BSE Sensex). The error,  $\epsilon_t$ , is incorporated in the equation to cater for other factors that may influence BSE Sensex.

**Analysis and Interpretation**

**Table 5: Normal Distribution**

	FDI	BSE Sensex
<b>Jarque-Bera Stat</b>	2.438556	2.283733
<b>Probability</b>	0.295443	0.319233

Source: Author's compilation from collected data

The result of JB test in E-Views 7 is presented in Table (5) above. The result shows for both the variables namely FDI and BSE Sensex, the P-Values are more than 5% (here, 29.54% for FDI and 31.92% for BSE Sensex), so we accept null hypothesis, that the data come from a normal distribution, for both the variables.

**Table 6: Descriptive Statistics**

	<b>BSE Sensex (Rs.)</b>	<b>FDI (US\$ in million)</b>
Mean	11997.2915	21763.2
Median	11627.59	15893.5
Standard Deviation	8233.626628	18735.01222
Range	24051.52	53404
Minimum	2959.79	2155
Maximum	27011.31	55559
<b>Count</b>	20	20

Source: Author's compilation from collected data

The above table gives brief description of the variables BSE Sensex and FDI chosen for analysis. The mean of BSE Sensex over the study period 1996-97 to 2015-16 i.e. over 20 years was around 11997.2915, minimum of which was 2959.79 and reached a highest value of 27011.31. Over the study period of 20 years FDI moved between highest value

55559 and lowest value of 2155 which implies an insertion of FDI by Foreign Companies. The average value of FDI over the period was 21763.2 which are very much satisfactory.

**Table 7: Ordinary Least Squares (OLS)**

Variable	Dependent Variable is LSNX			
	Coefficient	Std. Error	t-Statistic	R-squared
<b>LFDI</b>	1.353634	0.239254	5.657727	0.869815

Source: Author's compilation from collected data

The above regression table has a high R-square portraying a strong prediction power of the model. But we acknowledge the fact that since a time series data is of non-stationary nature at level, the OLS will display a spurious regression result. So we move into checking the presence of unit root or not in the model.

**Table 8: Unit Root Test**

Variables	At Level (Intercept only)		Variables	At First Difference (Intercept only)	
	t-statistics	P-Values		t-statistics	P-Values
LFDI	-0.606362	0.8472	D(LFDI)	-3.09191	0.0454
LSNX	-0.696478	0.8247	D(LSNX)	-5.459738	0.0004

Source: Author's compilation from collected data

Both the variables in the model are of non-stationary in nature at level and stationary at 1<sup>st</sup> difference. So we reject null hypothesis and accept alternate hypothesis at 1<sup>st</sup> difference which proves the hypothesis that there is no unit root at 5 percent level of significance.

The implementation of unit root test might still be necessary to ensure that none of the variable is integrated at order 2 i.e. I (2) or beyond. For this purpose, Augmented Dickey Fuller (ADF) unit-root test has been employed to find out order of integration of concerned actors in the study. The results in the above Table shows that LFDI and LSNX are non-stationary at **Level** while they are integrated of order 1.i.e. I (1). This similarity in the order of integration of the variables lends to support for the implementation of Johansen Test of Co-integration to check whether both the variables are having any long run relationship among them in future.

**Table 9: Selection of LAG**

Order of lags	AIC: Akaike Information Criteria	HQ: Hannan-Quinn information criterion
0	0.033725	0.038671
1	-3.130839	-3.116003
2	-3.208549	-3.183822
3	-3.462154*	-3.427536*

Source: Author's compilation from collected data

**Table 10: Co-Integration Table**

LSNX= f (LFDI)							
No. of Co-integration Equations	Eigenvalue	Trace Statistics	0.05 Critical Value	p-Value	Max-Eigen Value	0.05 Critical Value	p-Value
None *	0.750588	25.70182	15.49471	0.001	22.21841	14.2646	0.0023
At most 1	0.195644	3.483407	3.841466	0.062	3.483407	3.841466	0.062

Source: Author's compilation from collected data

Trace Statistics test and Max-Eigenvalue test indicates 1 co-integrating equation(s) at the 0.05 level of significance, \* denotes rejection of the null hypothesis at the 0.05 level. Both the Trace Statistics and Max-Eigen statistics rejected the null hypothesis of non-existence of co-integration at the 0.05 level (25.70182 > 15.49471 and 22.21841 > 14.2646). But the null hypothesis of one co-integration among the

variables is not rejected at the 0.05 level (3.483407 < 3.841466 and 3.483407 < 3.841466) by both the trace statistics and Max-Eigen statistics respectively. Hence, the Johansen methodology concludes that there exist one co-integrating relationship among LSNX and LFDI. So, estimation of VECM model is required in this context.

**Table 11: Long Run Causality Test.**

Dependent Variable: D(SENSEX)	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.503902	0.572934	-0.879510	0.4048

Source: Author's compilation from collected data

**Table 12: Wald Test (Short Run Causality Test).**

Test Statistic	Value	Probability
F-statistic	0.213689	0.8842
Chi-square	0.641066	0.8870

Source: Author's compilation from collected data

As we conclude that there is long run movement among the variables, we perform Vector Error Correction Model. Here, we find that there is no long run or short run causality among the variables from the results. Hence we conclude that there is co-integration among the variables but neither variable causes each other. The reason might be that BSE Sensex is an indicator followed across the globe. So, it can cause Indian capital market growth up to certain level.

**Table 13: Breusch-Godfrey Serial Correlation LM Test**

F-statistic	0.7147	Prob. F(3, 5)	0.5841
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Obs*R-Squared	4.8019	Prob. Chi-Square(3)	0.1869
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Source: Author's compilation from collected data

For further confirmation of the assumption of no autocorrelation in the residuals (also called serial Correlation), specific test for this have been performed. The result of Breusch-Godfrey Test for Serial Correlation LM test, which is used to test the null hypothesis that there is no auto-correlation, is presented in table above. As the Probability of observed Chi-Square is 0.1869 in the above table, which is much more than 0.05. Hence the result leads to accept the null hypothesis which is no auto-correlation among the residuals.

**Table 14: Heteroskedasticity Test: Breusch-Pagan-Godfrey**

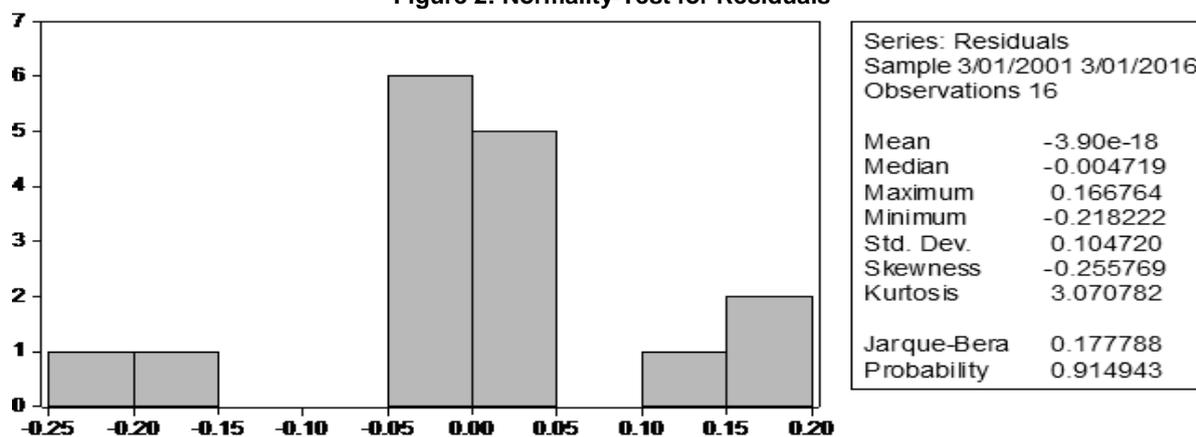
F-statistic	1.37998	Prob. F(8, 7)	0.3421
Obs*R-Squared	9.79151	Prob. Chi-Square(8)	0.28
Scaled Explained SS	2.53451	Prob. Chi-Square(8)	0.9601

Source: Author's compilation from collected data

Another main assumption of Classical Linear Regression Model (CLRM) is that the error term is homoscedastic (i.e. same variance). So if there is "non-constant" error term, the problem that arises is

termed as Heteroscedasticity. So a test of Heteroscedasticity is done using Breusch-Pagan-Godfrey Test and the result is given in Table in below:

**Figure 2: Normality-Test for Residuals**



Source: Author's compilation from collected data

To check this Residual Normality Test using Jarque-Bera test is done and the result is presented in above figure. It shows the P-value for Jarque-Bera statistic is 0.914943 i.e. 91.4943% which is more than 5% level of significance; hence the null hypothesis is accepted and concludes that the residuals are normally distributed.

**Conclusion**

The paper tries to assess empirically, the relationship between foreign direct investment (FDI) and capital market growth in India using annual data

over the period 1996-97 to 2015-16. The unit root properties of the data were examined using the Augmented Dickey Fuller (ADF) test after which the co-integration and causality tests were conducted. The error correction models were also estimated in order to examine the short-run dynamics. The result shows that as FDI increasing capital market growth in India for the time period 1996-97 to 2015-16 is also very impressive, therefore it is vital for the government of India to make a policy for attracting more FDI in such a way that it should be more growth

enhancing than growth hindering since FDI and BSE Sensex has a long run relationship. Moreover, despite the tremendous potential of FDI in capital market, it does not provide answers to all developmental problems. A liberal and competitive investment climate creates the basis for FDI to enter and raise the potential for productivity growth in the host economy, but improvements will only occur if the domestic actors are capable of responding to the new incentives. The key policy measures are thus to improve the flow of more FDI. For FDI to be a noteworthy provider to capital market growth, India would do better by focusing on improving infrastructure, creating a stable macroeconomic framework and conditions favorable for productive investments to boost the process of development.

#### References

1. Adam, Anokye M. and Tweneboah, G. (2008), 'Foreign Direct Investment and Stock market Development: Ghana's Evidence', *Munich Personal RePEc Archive (MPRA)*, Paper No. 11985.
2. Chousa, Pineiro, J., Tamazian, Artur, Vadlamannati and Chaitanya, K. (2008): 'Does Growth & Quality of Capital Markets drive Foreign Capital? The case of Cross border Mergers & Acquisitions from leading Emerging Economies', *Discussion Paper, Turkish Economic Association*, No. 2008/5.
3. Kalim, R. and Shahbaz, M. (2009), 'Impact of Foreign Direct Investment on Stock Market Development: The Case of Pakistan', *9th Global Conference on Business & Economic*, ISBN: 978-0-9742114-2-7.
4. Omodero, Onyinyechi, C. and Ekwe1, M.C., (2017), 'Impact of Foreign Direct Investment (FDI) on the Stock Market Performances in Nigeria', *Applied Finance and Accounting*, Vol. 3, No. 1, ISSN 2374-2410 E-ISSN 2374-2429.
5. Devajit, M. (2012), 'Impact of Foreign Direct Investment on Indian Economy', *Research Journal of Management Science*, Vol. 1(2), 29-31, ISSN 2319-1171.
6. Dhiman, R. and Sharma, P. (2013), 'Impact of Flow of FDI on Indian Capital Market', *European Journal of Business and Management*, Vol.5, No.9, ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online).
7. Jayachandran, G. and Seilan, (2010), 'A Casual Relationship between Trade, Foreign Direct Investment and Economic Growth for India', *International Research Journal of Finance and Economics*, (42) 74-88.
8. Ray, Sarbapriya. (2012), 'Impact of Foreign Direct Investment on Economic Growth in India: A Co integration Analysis', *Advances in Information Technology and Management (AITM)*, Vol. 2, No. 1, 2012, ISSN 2167-6372.
9. Sarkar, Rahul. (2018), 'A Study on the Cause-Effect Relationship between Foreign Institutional Investment and Indian Stock Market', *International Journal of Exclusive Management Research*. Special Issue January 2018. pp. 1-10.
10. Damodar Gujarati, 'Econometrics by Example', second edition.
11. [www.sayedhossain.com](http://www.sayedhossain.com)
12. <http://saeedmeo.blogspot.in>
13. <http://bse-1991-2000.blogspot.in>
14. <https://www.ibef.org>
15. <https://www.rbi.org.in>
16. [www.bseindia.com](http://www.bseindia.com)
17. <https://economictimes.indiatimes.com>
18. <https://www.investopedia.com>
19. [www.youtube.com](http://www.youtube.com)