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RAMIFICATIONS OF STOCK MARKET'S BEHAVIOR ON ECONOMIC GROWTH IN INDIA

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Abstract

The impeccable constituents of financial market i.e. Stocks and Securities and stock exchanges has an immediate effect on the Economic parameters of growth and development in any country. With increased growth in the stock markets in India, the relationship between economic growth and stock market performance has become a matter of intensive theoretic and empirical research. The main purpose of this study was to explore the causal link between stock market performance and economic growth in terms of a simple theoretical and empirical literature framework. Researchers hold diverse opinions regarding the importance of stock markets playing a significant role in economic growth processes by performing the functions like improving liquidity, aggregating and mobilizing capital, observing managers and exerting corporate control, providing risk-pooling and sharing services including investment levels. The growing theoretical literature argues that stock markets are crucially linked to economic growth. This paper is an attempt to study the study the impact of various economic indicators on GDP, Foreign Exchange Reserves and Inflation and to know the impact of BSE 30 index

on the growth of GDP and Foreign Exchange Reserve and also conclude with the results showing the changes in economic indicator with respect to growth and sustainability.

Keywords: Stock Market, BSESN, GDP, Foreign Exchange Reserves, Inflation, Economy

Introduction

The factors influencing the financial growth of a country are multidimensional. Certain factors play vital role in the contribution of financial status of a country such as GDP, stock market index, foreign reserve, foreign trade, inflation, government policies and infrastructures. The impact of stock market index on the economic growth in India is very crucial among all factors of development.

Stock Market Index determines the major factor of a country's financial growth. In this report the impact of stock market on Indian economic development is shown. Major economic indicators such as GDP, growth rate of agriculture/ industry/service sectors, foreign investments/ exports, foreign investments/ GDP, foreign exchange reserve, exports, imports, payments, receipts, gross fiscal deficit, gross primary deficit, and revenue deficit are taken to this study. Stock market index of BSESN is considered for analysis. To understand the impact of BSESN index growth on GDP a multiple regression model is used.

Overview of Indian Economy

The Gross Domestic Product (GDP) of Indian economy is composed of the following sectors sharing by 2015.

- 65 per cent of GDP is contributed by service sectors.
- An industry sector contributes 18 per cent to GDP.
- Agriculture sectors bear 17 per cent of GDP.
- Forex Reserves is US\$ 352,474 million as on May 29, 2015.
- Gross Fixed Capital Formation in India decreased to 4957.25 INR Billion in the second quarter of 2014 from 5356.22 INR Billion in the first quarter of 2014. Gross Fixed Capital Formation in India averaged 3568.76 INR Billion from 2001 until 2014, reaching an all-time high of 5356.22 INR Billion in the first quarter of 2014 and a record low of 2021.90 INR Billion in the first quarter of 2002. Gross Fixed

Capital Formation in India is reported by the Ministry of Statistics and Programme Implementation (MOSPI).

- Exports during April, 2015 were valued at US \$ 22054.72 million (Rs. 138400.44 crore) which was 13.96 per cent lower in Dollar terms (10.55 per cent lower in Rupee terms) than the level of US \$ 25634.08 million (Rs. 154718.60 crore) during April, 2014.
- Export Partners of India are US, Germany, UAE, China, Japan, Thailand, Indonesia and European Union. India is also tapping newer markets in Africa and Latin America.
- Cumulative FDI equity Inflow is US\$ 41,223 million (from April, 2014 to February, 2015)
- Major Sectors Attracting Highest FDI Equity Inflows are Services Sector, Construction Development, Telecommunications, Computer Software and Hardware, Drugs and Pharmaceuticals, Automobile (as in February 2015)
- India's economic profile recently got a lift as the country improved the way it measures economic output. (The IMF staff report, however, was prepared before the release of these new growth numbers.) The revised national accounts series incorporates numerous conceptual and methodological improvements that make them more consistent with international best practices.
- Based on this revised GDP, the IMF forecasts growth will strengthen to 7.2 percent in 2014/15 and rise to 7.5 percent in 2015/16, driven by stronger investment following improvements to the business climate.
- Inflation has fallen by half to around 5 percent, after hovering around 10 percent for several years. The report commended the Reserve Bank of India (RBI) for its steps to tighten monetary policy by raising interest rates during 2013–2014, as well as the government's efforts to contain food inflation, including by releasing buffer stocks of cereal and keeping agricultural procurement prices in check.

- The government has made strong efforts to put its public finances on solid footing, with the central government's fiscal deficit falling to 4.1 percent of GDP in 2014/15, helped by lower oil prices. By creating space for higher infrastructure spending, fiscal reforms can have a major impact on economic growth.
- The government has recently deregulated diesel prices and raised natural gas prices. The report suggests, however, that tax revenues can be increased, including through better tax administration, and spending controlled through further streamlining of subsidies. In addition, boosting spending on infrastructure, such as roads and ports, electricity transmission, and social spending (public health, education) would improve the quality of expenditure.
- In this regard, the report suggests that a national goods and services tax would also help create a single Indian market by replacing a myriad of local levies. The report also encourages the authorities to continue to move toward direct cash transfer payments—helped by India's unique identification system (Aadhaar)—in place of existing subsidies. This would help better targeting of subsidies (which can have large leakages) toward the vulnerable.
- Within the next 15 years, India will have the largest, and among the youngest, workforces in the world, and will need to create jobs for the roughly one hundred million young Indians who will enter the job market in the coming decade. Raising India's growth rate and ensuring it begins to generate sufficient jobs requires deeper structural reforms.

Literature Review

King and Levine (1990) concluded that financial market in general and stock market in particular positively contributes to economic growth.

Obstfeld (1994) analyzed the effect of risk diversification through integrated stock market on economic growth. This analysis found that the internationally integrated stock markets boost economic growth as it shifted society's savings into higher return projects.

Levine and Zervos (1996) evaluated the relationship between stock market growth and long run economic growth by employing cross-country growth regression. It is found that a strong relationship exists between stock market development and economic growth.

DebjitChakraborty (1997) analysed the reaction of stock market to the changes in the economic climate along with the relationship between major economic indicators and stock market. He concluded that inflation, money supply, C/D ratio and fiscal deficit imparted high influences on the stock market behaviour.

Madhusudan (1998) conducted a study on the BSE and national indices applying correlation analysis on monthly stock returns data over the period of January 1981 to December 1992. He concluded that the BSE sensitivity and national indices did not follow random walk.

Bhanu Pant and Dr. T R Bishnoy (2001) found that the Indian stock market indices did not follow random walk. He took data of daily and weekly returns of five Indian stock markets during period of April 1996 to June 2001.

Fase and Abma (2003) concluded that financial development matters for economic growth and causality runs from financial structure to economic development with a policy of financial reforms that could improve economic growth. His analysis was based on data of financial development and economic growth of South-East Asia covering 25 years of period.

Nath and Verma (2003) analysed the interdependence of three stock markets of India (NSE Nifty), Taiwan (Taiex) and Singapore (STI). By employing bivariate and multivariate co integration analysis model, it was founded that there was no long run equilibrium. No co-integration

was found for the entire period (daily data ranging from January 1994 to November 2002).

G, Singh.(2005), examined the cause and effect relationship between foreign institutional investors and the exchange rate in India was conducted (2005). It aims to concentrate on the ties between international institutional investors and the exchange rate. He used the Granger causality test for this. He disclosed in his article that there is a long-term relationship between them. The exchange rate in our country is driven by international institutional investors. In both, a positive relationship exists.

A research on the determinants of foreign institutional investors (FII) was conducted by Rai and Bhanumurthy (2005) in India. The researchers found that FII inflows essentially depend on three main economic measures, ex ante risk for inflation rates (both domestic and foreign), which are stock market returns. In their analysis, they did not find any causative connection between the inflow of stock returns from international institutional investors. They were trying to observe the impact of three major foreign institutional investor (FII) determinants, namely return risk and inflation. The researchers found that the domestic country's FII flows were adversely affected by the domestic country's inflation and risk ratio and the foreign country's return, and vice versa

Bansal and Pasricha (2009) studies the impact of market opening to FIIs, on Indian stock market behavior. India announced its policy regarding the opening of stock market to FIIs for investment in equity and related instruments in September 1992. Using stock market data related to Bombay Stock Exchange, for both before and after the FIIs policy announcement day. An empirical examination has been conducted to assess the impact of the market opening on the returns and volatility of stock return. We found that while there is no significant changes in the Indian stock market average returns, volatility is significantly reduced after India unlocked its stock market to foreign investors.

To find out the relationship between Net Foreign Institutional Investors, Stock Market and Market Capitalization, Dao (2011) did a report. They find that between return and International Institutional Investor, there is Uni-directional causality. Between market capitalisation and Foreign Institutional Investors, there is bi-directional causality.

Sood, N. (Year 2015). With the aid of both FDI and FII, our country's economic growth has been enhanced. He tried to figure out in his paper the importance of both Foreign Direct Investment (FDI) and Foreign Institutional Investors (FII) to our country's economic growth in the last decade. The data from secondary sources was gathered to achieve the goal and he used two statistical methods, correlation and regression. Both FDI and FII affect India's economic growth, but FDI has a large effect on India's economic growth, while FII is negligible. In India, only 35% of economic growth shifts are due to changes in international institutional investors and 65% of GDP (Gross Domestic Product) shifts are due to exchange rates, interest rates, governance, inflation, etc. In this paper, he concluded that since FDI investment is considered more advantageous for our country, FDI is most preferred over FII investment. In his research, he finds that the link between economic growth and FDI inflows in India is positive and strong. Whereas the relation between FII and economic growth is statically insignificant, the connection is statically important. In his article, he concentrated on both FDI and FII.

Arora and Kumar (2015) found out the effect of Foreign Institutional Investors (FII) on the Indian capital market. The FII trading activity effort on the Indian Capital market is analysed in this paper. This paper revealed that because of FII, there are no significant changes in the Indian capital market. In their analysis, they evaluate that institutional investors have also dominated the market of developing countries such as India whether or not. In our region, however there is a limit to the flow of FII.

Goyal (2016) in his research he mainly focused on Effects of FII on Indian capital market. Researcher determine whether FII makes impact on rate of inflation or not. He uses the monthly data from the RBI statistics books for this. In his study, he disclosed that FII does not cause inflation. He noticed that the inflation rate adjustment is not due to FII, but it can be seen on particular occasions that FII follows the inflation trend. Based on monthly data, he concluded in his study that a clear relationship between the rate of inflation and foreign institutional investors could not be identified. He also based his research on relationship between foreign institutional investor and exchange rate in India.

Himachalopathy (2016) conducted an analysis to find out the different determinants of India's inflow of foreign institutional investment. FII is the fund registered outside the country in which they invest. His research is focused on secondary data and the methods he has used are the correlation analysis of Pearson. He took exchange rates, inflation, industrial development, foreign exchange, reserves and BSE SENSEX returns as determinants of FII flows for his analysis. FII inflows are a mixed pattern of inflows and high volatility, he discovered. In his paper, he shows that IIP, REER and FER were the determinants of inflows from FII. Inflation and BSE returns, on the other hand, are negligible determinants. He recommended that favourable steps for increased FII inflows should be taken to follow suit.

In their analysis, the researchers tried to find out in Sethi and Patnack (2017) the effect of foreign capital flow on India's economic development. Foreign Direct Investment (FDI) and Foreign Institutional Interest (FII) outflows in India. By using monthly data, researchers revealed that FDI is affecting India's economic growth in a positive way. On the other hand, FII is adversely impacting the economic development of India.

Objective of the Study

- To study the impact of various economic indicators on GDP, Foreign Exchange Reserves and Inflation.
- To study the impact of BSE 30 index on the growth of GDP and Foreign Exchange Reserve.

Research Methodology

Research Design: The aim of this research study is to understand the impact of BSE 30 index on the growth of Indian GDP. Therefore, the research design is of Causal Research Design which helps in understanding the effect of one independent variable i.e. BSE 30 index growth on the dependent variable of GDP growth in India.

Sampling Design and Technique: This study has 72 observations comprising quarterly averages from 1997 to 2015 and the data collected in this report follows the Judgment method which is one of the types of the Non-Probabilistic Method

Collection of Data: The study is based on the secondary data which has been collected from various sources and websites. Maximum data is collected from the following sources:

- Handbook of Statistics on Indian Economy 2014-15
- Handbook of Monetary Statistics of India
- Statistical Tables Relating to Banks in India, 1979-2009
- Data book for planning commission

Data Analysis and Interpretation

This report studies a wide interactions and effect of various factors of economic indicators with the important three development indicators of Gross Domestic Product (GDP), Foreign Exchange Reserve (FER) and BSESN index.

Analysis-1 GDP and other Economic Indicators

This analysis is done to know the effect of other economic indicators on GDP. For this Multiple Regression Analysis is used to accomplish the objective. Following is the equation

$$GDP = a + b_1 Agriculture + b_2 Industry + b_3 service + b_4 FI/Ex + b_5 FI/GDP + b_6 Time$$

In the above equation,

- Dependent Variable is GDP (at factor cost)
- Independent Variables are Growth rate of Agricultural sector, Growth rate of Industry Sector, Growth rate of Service Sector, Foreign Investments/Exports, Foreign Investments/GDP, Time factor
- Partial regression coefficients are a, b₁, b₂, b₃, b₄, b₅, b₆

Table – 1 Regression Analysis on GDP & Economic Indicators (Ref. Annexure – 1)

	Coefficient	t-statistic	p value
Constant	-0.605	-0.531	0.597
Agriculture	0.143	3.610	0.001
Industry	0.012	2.500	0.015
Services	0.681	6.942	0.000
Foreign Investment/ Exports	-0.100	-0.590	0.557
Foreign Investment/ GDP	1.169	0.862	0.392
Time	0.027	0.915	0.364
R square = 0.85	Adj.R ² = 0.83	Multiple R = 0.922	

GDP = -0.605 + 0.143 Agriculture + 0.012 Industry + 0.681 service + (-0.100) FI/Ex + 1.169 FI/GDP + 0.027 Time

The above table shows that growth rate of agriculture, industry and service sector have positive and significant impact on the growth rate of GDP whereas the effects of rest of the economic indicators on the GDP are insignificant as their p-value (more than 0.05) output. The values of R² and adj. R² depict the more reliable. Here the economic indicators of agriculture, industry and service have positive significant impact on GDP.

		Significant	Relationship	Negligible
GDP	1	Agriculture	+	Foreign Investment/ Exports
	2	Industry	+	Foreign Investment/ GDP

	3	Service	+	
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Analysis-2 - Foreign Exchange Reserve (FER)& Economic Indicators

This analysis is undertaken to understand whether the following economic indicators exert any significant impact on the Foreign Exchange Reserve. The multiple regression equation for this analysis is as under.

$$FER = a + b_1 \text{ Export/GDP} + b_2 \text{ Import/GDP} + b_3 \text{ Receipt/GDP} + b_4 \text{ Payment/GDP} + b_5 \text{ Foreign Investment/Ex} + b_6 \text{ Foreign Investment /GDP} + b_7 \text{ Time}$$

The summary is shown in the table below:

Table – 2 Regression Analysis on Foreign Exchange Reserve & Economic Indicator
(Ref. Annexure - 2)

	Coefficient	t-statistic	p value
Constant	1761444.21	6.24	0.00000
Exports/ GDP	2831.92	0.11	0.91108
Imports/ GDP	13938.20	1.34	0.18397
Receipts/ GDP	17149.92	1.00	0.32245
Payments/ GDP	-119342.88	-3.89	0.00024
Foreign Investment/ Exports	-32915.71	-2.62	0.01108
Foreign Investment/ GDP	280618.99	2.79	0.00690
Time	-21300.57	-8.92	0.00000
R square = 0.98	Adj.R ² = 0.97	Multiple R = 0.990	

$$FER = 1761444.21 + 2831.92 \text{ Ex/GDP} + 13938.20 \text{ Import/GDP} + 17149.92 \text{ Receipt/GDP} + (-119342.88) \text{ Payment/GDP} + (-32915.71) \text{ FI/Ex} + 280618.99 \text{ FI/GDP} + (-21300.57) \text{ Time}$$

In the above table FER has positive relationship with Foreign Investment/GDP of economic indicator and negative relationship with other three economic indicators of Payments/ GDP, Foreign Investment/ Exports and Time. Out of seven economic indicators taken into consideration only four of them show significant impact on the FER. The value of R² and adj. R² are sufficiently high that shows more fitness of the model.

		Significant	Relationship	Negligible
FER	1	Payments/ GDP	-	Exports/ GDP
	2	Foreign Investment/ Exports	-	Imports/ GDP
	3	Foreign Investment/ GDP	+	Receipts/ GDP
	4	Time	-	

Analysis - 3- Inflation & Economic Indicator

In this analysis the degree of impact of different economic indicators on the inflation is studied. The regression equation of this analysis is as under,

$$INFLATION = a + b_1 \text{ Gross Fiscal Deficit} + b_2 \text{ Gross Primary Deficit} + b_3 \text{ Revenue Deficit} + b_4 \text{ Time}$$

	Coefficient	t-statistic	p value
Constant	29.5154166	5.2624331	0.0000016
Gross Fiscal Deficit	-4.8141432	-3.8271724	0.0002875
Gross Primary Deficit	5.2434111	10.0951387	0.0000000
Revenue Deficit	0.2242347	0.2322984	0.8170143
Time	0.0406003	2.0630886	0.0429827
R square = 0.629	Adj.R ² = 0.607	Multiple R = 0.793	

$$INFLATION = 29.5154166 + (-4.8141432) \text{ Gross Fiscal Deficit} + 5.2434111 \text{ Gross Primary Deficit} + 0.2242347 \text{ Revenue Deficit} + 0.0406003 \text{ Time}$$

The Gross Fiscal Deficit has negative significant impact on the Inflation rate whereas Gross Primary Deficit and Time

have negative significant impact on the Inflation. The Revenue Deficit has insignificant impact on the rate of Inflation. The values of R² and adj. R² show that the model is moderately reliable.

		Significant	Relationship	Negligible
Inflation	1	Gross Primary Deficit	+	Revenue Deficit
	2	Gross Fiscal Deficit	-	
	3	Time	+	

Analysis_4_ GDP and BSESN

An analysis of GDP and BSESN is conducted to know the extent of impact the BSESN index growth exerts on the GDP growth. The regression equation for this analysis is shown below.

$$GDP = a + b_1 BSESN + b_2 Time$$

The following table shows the summary of this analysis.

	Coefficient	t-statistic	p value
Constant	11.24159	3.67523	0.00047
BSESN close price	0.00016	1.28753	0.20221
Time	-0.00156	-0.03429	0.97274
R square =0.16403 Adj.R ² =0.13980 Multiple R = 0.405			

$$GDP = 11.24159 + 0.00016 BSESN + (-0.00156) Time$$

The growth of BSESN index has insignificant impact on the GDP growth. The values of R² and adj. R² are very low that show the model is poorly fitted. The relationship between the GDP and BSESN is unable to be established statistically through this model.

Analysis_5_ FER & BSESN

The relationship of the FER and the BSESN index are analyzed in this segment. The regression equation for this analysis is as under.

$$FER = a + b1 BSESN + b2 Time$$

The summary for this analysis is depicted as under,

Regressor	Parameter Estimate	t-statistic	p value
Intercept	1424500.797	14.17894	0.00000
BSESN close price	20.3772	4.91425	0.00001
Time	-21342.6706	-14.32322	0.00000
R square =0.97598	Adj.R ² =0.97529	Multiple R = 0.987	

$$FER = 1424500.797 + 20.3772 BSESN + (-21342.6706) Time$$

Here the table shows that both the BSESN and Time factor have significant impact on the growthrate of FER. The BSESN index has positive relationship whereas Time factor exerts negative relationship with FER.

		Significant	Relationship	Negligible
FER	1	BSESN	+	
	2	Time	-	

Conclusions

The strength of a country’s economy is indicated by economic indicators. This study attempts to establish a relationship among economic indicators and BSESN. The following observations and inferences are obtained from this research.

- The first analysis conducted in this research considers the multiple regression analysis between major economic indicators with GDP represents that GDP is positively influenced by growth in agriculture, industry and service sectors. This indicates that if the government will focus more on these sectors, the GDP will grow more.

- The second analysis is conducted between FER and economic indicators with an inference that FER has positive relationship with Foreign Investment/GDP of economic indicator and negative relationship with other three economic indicators of Payments/ GDP, Foreign Investment/ Exports and Time. This concludes that the more foreign investments to GDP ratio is favorable for the foreign exchange reserve.
- The third multiple regression analysis between Inflation and economic indicators concludes that the Gross Fiscal Deficit has negative significant impact on the Inflation rate whereas Gross Primary Deficit and Time have negative significant impact on the Inflation. It indicates that inflation is favorable for government's balance budget policy.
- The fourth analysis focuses on the impact of BSESN on GDP concluding that BSESN has insignificant impact on the GDP growth rate. No strong relationship between the two is proved by this multiple regression analysis model.
- The fifth multiple regression analysis concentrates on the FER and BSESN that draws conclusions that both the BSESN and Time factor have significant impact on the growth rate of FER. This signifies that stock market attractiveness opens scope to increase FER in one country.

Limitations of the Study

- This research study is time bound and due to this only a few aspects of the problem are taken up for study.
- Some of the conclusions also depend upon secondary data. To the extent these data are reliable, the conclusion derived from them are valid to the reliability of the data presented.
- The analysis is solely focused on the economic conditions and development in India only. So, it doesn't consider other country's economies and impacts.
- This study is based on the data of BSE and a particular index of it that is the BSESN index. It has no consideration of other stock exchanges except BSE.
- This study is conducted with the aim of establishing a causal relationship between BSESN and Indian economy. Hence this study neglects the inclusion of other country economies and stock exchanges.

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