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Impact of Global Economic Turmoil on Indian Stock Market

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ABSTRACT

Economic global crises and its spread have been increasing with the increase in the policy of globalization. The origin of crises may be different but the impact of the crises being felt in different parts of the world including India. Indian economy has recently faced the tremors of global recession originated from United States during the period 2007 to 2010. As per the opinion of economic researchers, Indian economy started reviving itself from the impact this global meltdown gradually from 2010 onwards. The present paper attempts to analyze the impact of economic turmoil on Indian stock market by evaluating the effect in pre and post-recession era by examining the trends of various macroeconomic indicators during this duration, as well as by establishing a statistical relationship reflecting the effect of these macroeconomic variables on the leading stock market indices of India.

1. Introduction

In today's era market is one of the most significant parts of the country. Whether the country is developed or underdeveloped is highly depends on the particular market. If the market of the country is healthy and majorly developed in the country, then most of the time a small jerk in the economic condition and government policy affect the share market accordingly.

As now a day the globe is developed and information communication and technology boomed tremendously the world has become a global village. Meaning there by, that a small change in the one country takes place then this news spread out in the other countries within a small span of time. Not only that but due to the effects of liberalization, privatization and globalization the Indian market is now linked with the each and all countries, which ultimately connect us with the other markets.

As we are connected with the other countries, economically and market base then the daily fluctuations in the other countries create a significant impact on Indian share market. None of the countries are deprived from the global ups and down. Whether it is Inflation, Recession or change in Government's trade related policies, going to affect the globe at large.

As we are analysing the stock market fluctuation concerned to Indian scenario then we have to have the knowledge of major Indian stock market.

There are mainly two stock markets in India.

1) NSE (National Stock Exchange)
2) BSE (Bombay Stock Exchange)

The stock market is the sum up of the all commodities and service industries which are there listed on it. Industry is a combination of the similar sector. The most reliable and major company listed on NSE or BSE and that represent the whole industry. As a small change take place in the economy of the country going to affect the company situated in the country. And finally that will fluctuate the stock market of the respective country. One country affected by the market going to affect the all countries connected with it directly or indirectly.

So far the present paper is concern, it is going to discuss about the turmoil took place in the United State and the impact of it on Indian stock market with the help of the reports of NSE, BSE Sensex and Nifty. In the year 2007 there was the great crisis of banking industry particularly of housing industry. The matter was actually regarding the loan given to the borrowers regarding housing that is known as HOUSING LOAN.

The housing banks started giving loans to the borrowers with the expectation of the good interest in return. The problem took place due to the non-repayment of the due amount to the bank. Borrowers could not pay the due amount to the banks and that is considered as NPA (Non-Performing Asset) in banking language. As bank could not collect the landed amount from the people most of the major banks went to meet crisis and bankrupted. Banking industry plays vital role in the economy and the banking crisis affect the economy and this turmoil spread out in the world.

As India is also linked with the globe, the fire of turmoil reached to Indian stock market also. In 2008 the effect of recession is clearly seen in the Indian industries, economy and stock market at last.

2. Literature Review

- K.S.Ravichandran(2005)conducted estimation of return on investment in share market through ANN (artificial neural network**)**. The paper aimed to estimate the return obtained from the investment through the share market and the risk associated to it. The study based on the secondary data collected from the major stock market NSE and BSE. This paper we newly propose a methodology in which the neural network is applied to the investor's financial decision making to invest all type of shares irrespective of the high / low index value of the scripts.

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The proposed network has been tested with stock data obtained from the Indian Share Market BSE Index. Finally, the design, implementation and performance of the proposed neural network are described.

- DEBJIBAN MUKHERJEE (2007) conducted the study on Comparative Analysis of Indian Stock Market with International Markets. The study aims to capture the trends, similarities and patterns in the activities and movements of the Indian Stock Market in comparison to its international counterparts. For the comparative analysis of the different stock exchanges, the period chosen is from 1st January 1995 to 31st July, 2006. This period is divided into different sets of years, like 1995-97, 1999-01, 2001-03, and 2003-06, in order to capture the effect and movement of stock exchanges with each other during different periods. It is found that the Indian exchanges are ready to make the transition should the government decides to further relax the regulations and open up. The financial sector as a whole, with the stock markets as its indicator, has indeed come a long way and are ready for the next level with regards to efficient trading and variety in the instruments traded.

- Rajesh V. Argiddi, Dr.Mrs.S.S.Apte, Bhagyashri U. Kale (2014) "An Analysis on Stock Market Intelligenceand Research Approaches." The study aimed to predict the variability in the return in the stock market and provide preventive steps to minimise the exposure. To analyse the numerical data the Data Mining Algorithms has been used. This paper is based on the secondary data collected from annual report. Finally it is concluded that improvements in stock market price prediction from several different perspectives including classic market intelligence techniques, pattern discovery and public web information used for stock data analysis.

- Dr.DebeshBhowmik (2013) has analysedstock market volatility: an evaluation. Objective of the study was to evaluate the multidimensional framework of stock market volatility. Political turmoil or instability or chaos made negative impact on stock market which spurs volatility. Stock market volatility, impact of volatility, factors of volatility, growth and volatility, trade and volatility are the major key variables of the study. The front of the volatility wave contains the same data used to calculate the CBOE VIX index. The stock market volatility has the negative nexus with the growth rate of a nation i.e. high volatility reduces growth rate. There is causality between them. Since stock market volatility brings forth economic crisis which has ultimately spill over on growth inversely to other countries as well. The international trade and stock market volatility is negatively related in the sense that volatility reduces the volume of trade and increases current account and capital account deficits.

3. Research Methodology

Research Design

The present study is based on descriptive and causal research designs.

Objectives

- To examine the trend in various macroeconomic indicators for the period under study, and especially during the global recessionary period from 2007 till 2012.
- To identify the core macro-economic drivers of Indian stock market.
- To evaluate the impact of global turmoil on major Indian stock market indices through macro-economic indicators.

Sampling Design

The data from 2000 to 2015 has been taken in order to study the impact of global recession on Indianstock market. The status of Indian economy has been evaluated using the data on various macro-economic indicators drawn from Hand book of statistics available from RBI website.The data of major stock market indices namely BSE Sensex and NSE Nifty has been drawn from the websites of NSE and BSE for the said period.

Table 1 VARIABLE DEFINITIONS

NAME	DEFINITION
GDP (GDP)	Gross Domestic Product
Inflation (INF)	Increase In Prices
Foreign Investment Inflows (FII)	Investment By Foreign Investors In India
Gross Domestic Savings (GDS)	Gross Savings Within India
Gross Inflow (GI)	Gross Investment Inflow
Foreign Direct Investment (FDI)	Investment Made By Foreign Investors
Employment (EMP)	Total Employed Population Of India
NSE Nifty	National Stock Exchange Index
BSE Sensex	Bombay Stock Exchange Index

Statistical Techniques Applied:

- Trend Analysis
- Descriptive Analysis
- Multiple Regression Analysis

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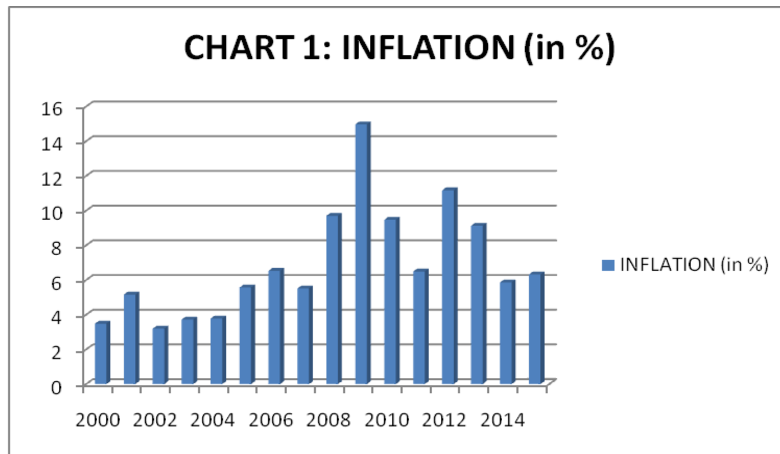
4. Data analysis and interpretation

In order to analyze the status of Indian economy in the period of study, trend analysis is carried out for the each of the discussed macro-economic indicators. The results for that are as under.

Inflation Rate

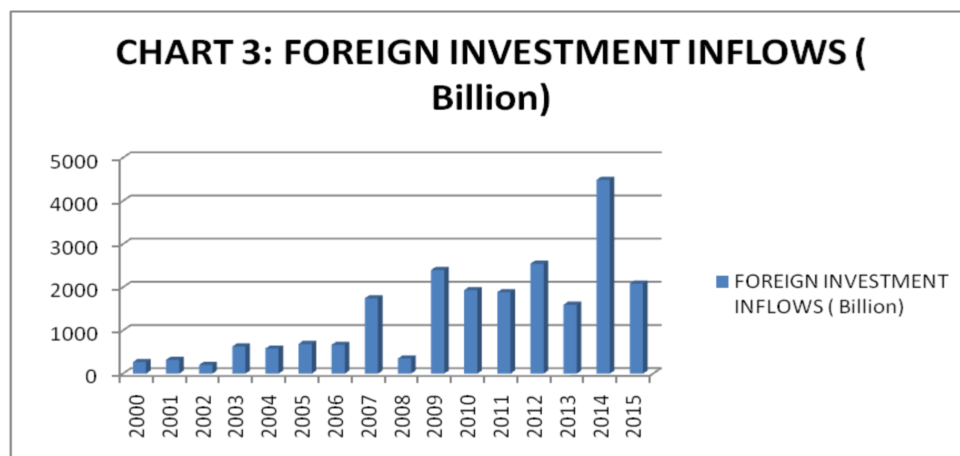


So far as inflation is concerned, from the last 16 years data of inflation it seems that from the base year 2000 till 2006 there are moderate fluctuation in it. But in the year 2007 there is a fall in the inflation considerably, and it's clearly seems the great hike of inflation in the year 2008 and in 2009 accordingly which shows the effect of global recession took place in the year 2007.

Gross Domestic Product

In the above graph its clearly seems that GDP is having consistent growth over the period of time from 2000 till 2016, which means there is no significant impact of global recession on Indian GROSS DOMESTIC PRODUCT. There is a continuous growth observed in GDP of India.

Foreign Investment Inflows



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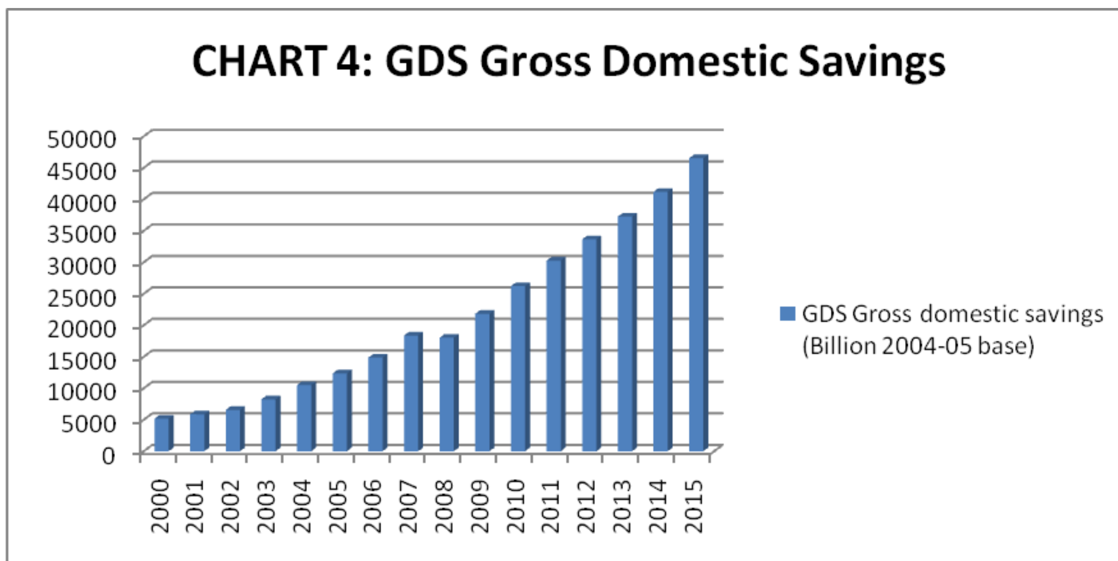
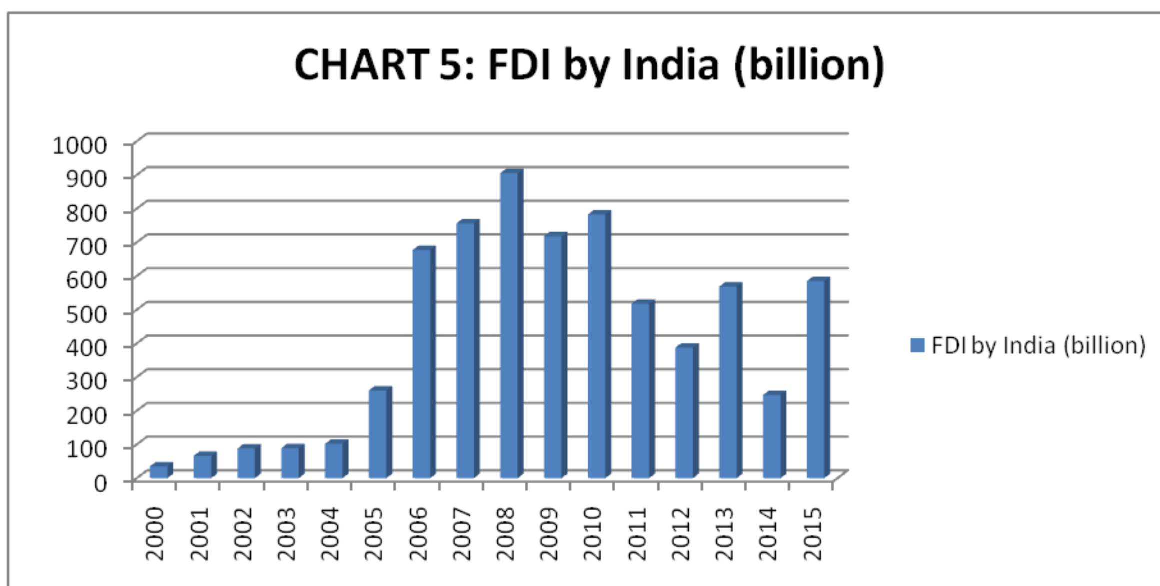
So far as foreign investment is concerned it is noted that from the year 2000 till 2006 there has been least fluctuations in it but in the year 2007 there was a good hike in foreign investment. Further it is to be noted that in the year 2008 there was a great fall in the foreign investment inflow more than one third of the previous year. That indicates the clear impact of global turmoil.

Gross Domestic Savings



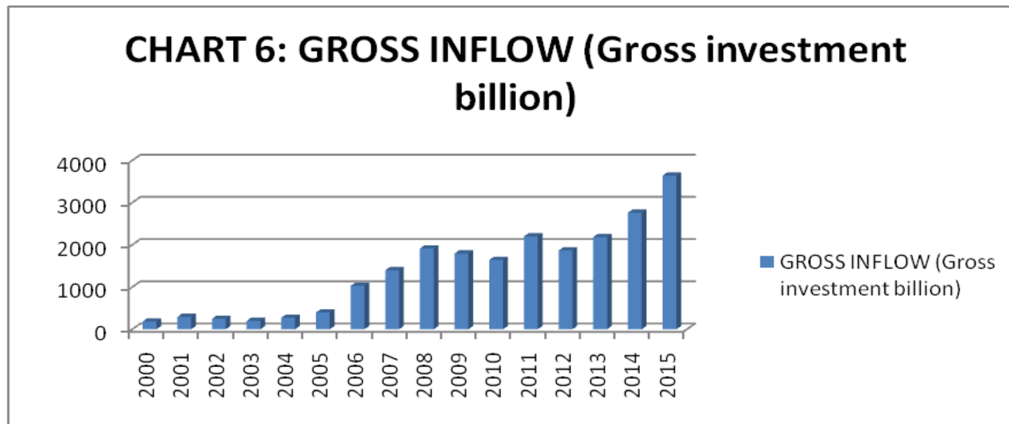
In the above graph its clearly seems that GROSS DOMESTIC SAVINGS is having consistent growth over the period of time from 2000 till 2016, which means there is no significant impact of global recession on Indian GROSS DOMESTIC SAVINGS.Yet there was a minute fall in GDS in the year 2008 due to Global Recession, Over and above there is a continuous growth observed in GDS of India during given period.

Foreign direct investment by India



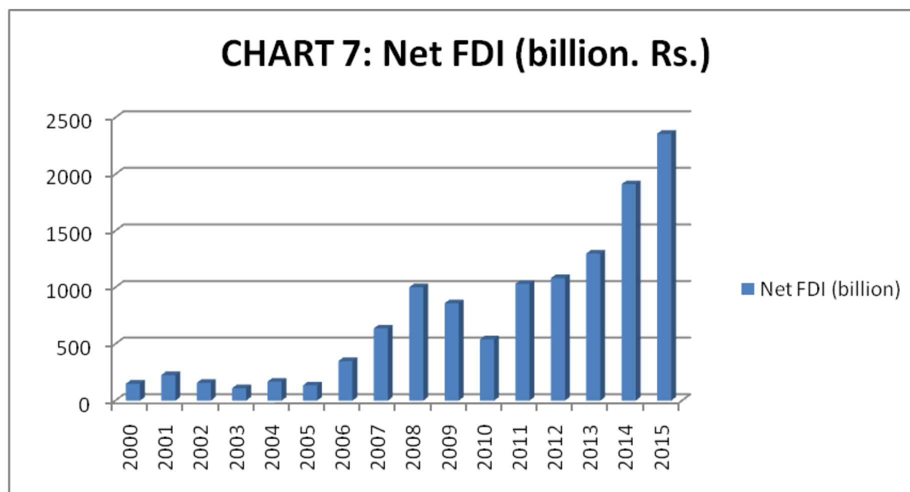
From the above chart discussed about the FOREIGN DIRECT INVESTMENT by india it is observed that from the year 2000 till 2005 there was normal improvement in FDI, but as it seems that there is almost 3 time hike in it in the year 2006 compared to the previous year. The improvement in FDI can be noticed in the next following years and in the year 2008 it was at the highest level of approximately 900 billion, which means due to global recession there was significant improvement in FOREIGN DIRECT INVESTMENT.

Gross Inflow



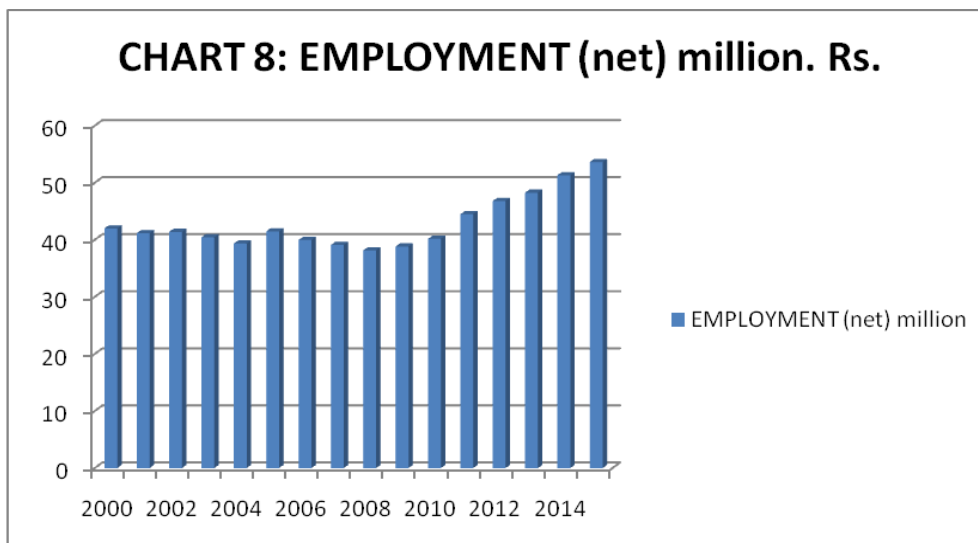
As seen in the above graph GROSS INFLOW in India was by and large not much fluctuating and there was not significant growth in it till the year 2005. From the year 2006 till 2008 there was constant growth observed in Gross Inflow. The Gross Inflow seems to be highest in the year 2015 as it was approximately 3500 billion.

Net foreign direct investment



From the above graph it is observed that from the year 2000 till 2006 there have been moderate fluctuations in NET FOREGN DIRECT INVESTMENT. As it seems that in the year there was a great hike in NET FDI followed by previous year. During 2010 it was downfall observed in FDI but that too revived and in the year 2015 NET FDI found to be the highest among 16 years.

Net Employment



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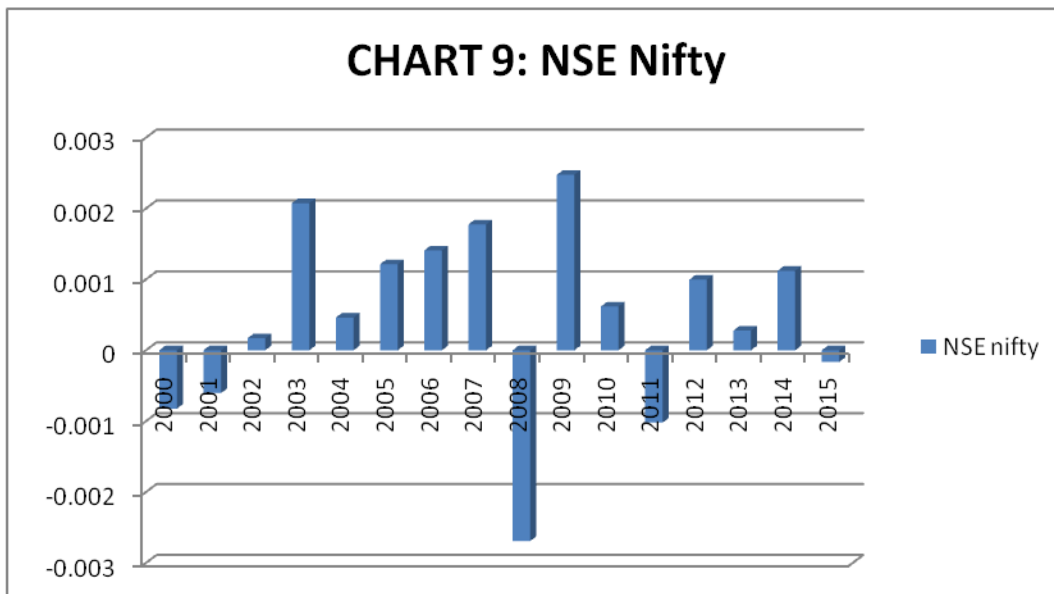
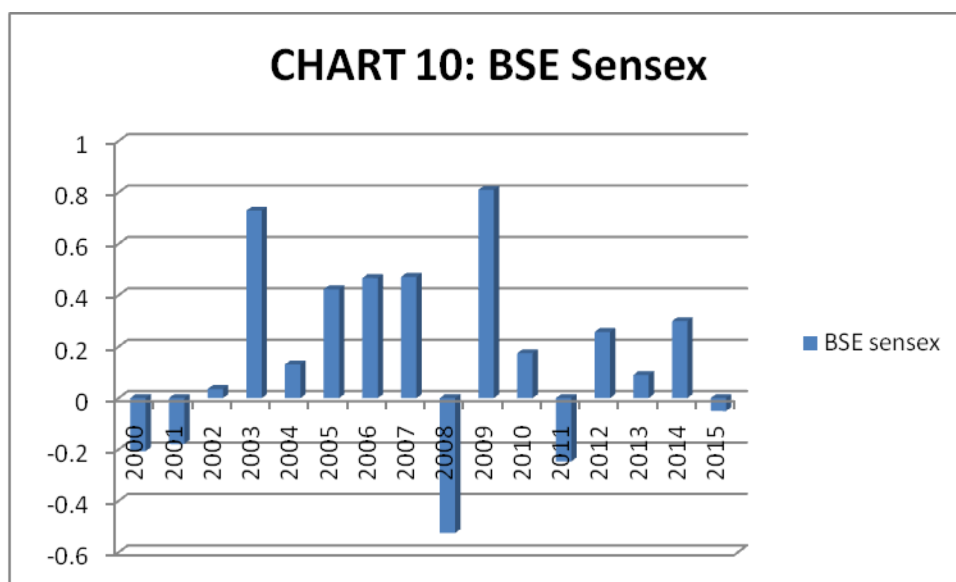
So far employment is concerned, during last 16 years there was not any major impact seen. There was minor downfall faced by India in the year 2008 and 2009 due to global recession, which gradually increased during the next following years.

NSE Nifty



Above graph of NATIONAL STOCK EXCHANGE showing Nifty indicates constant growth of stock market from the year 2004 till 2007, but as global recession took place in the year 2007 its great impact can be seen in the following year 2008 showing the most negative trend compared to the previous years. Further it should be noticed that NSE Nifty revived within a year seen in the year 2009.

BSE Sensex



Above graph of BOMBAY STOCK EXCHANGE showing Nifty indicates constant growth of stock market from the year 2004 till 2006, but as global recession took place in the year 2007 its great impact can be seen in the following year 2008 showing the most negative trend compared to the previous years. Further it should be noticed that BSESensex revived within a year seen in the year 2009 with the considerable hike.

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The Descriptive Analysis of the variables under study is shown in Table 2 below:

Table 2: Descriptive Statistics

	Mean	Std. Deviation	COEFFICIENT OF VARIATION
BSESENSEX	0.142296	0.391926	36.3068731
NSE NIFTY	0.000377	0.001482	25.4014195
GDP	90196.91	30511.25	295.618548
INFLATION	8.7356	3.08161	283.475196
FI	2115.09	1090.638	193.931433
GDS	30365.58	10139.9	299.466375
GINFLOW	2156.9	678.8152	317.744819
NETFDI	1191.432	592.1366	201.209025
EMPLOYMENT	44.5289	5.80476	767.110096

From the above table it is clearly seems that NSE is having the least coefficient of variation followed by BSE which shows the consistency in them. As far as indicators are concerned foreign investment is having least Coefficient of Variation which clearly indicates that even though there was a great turmoil took place still foreign investors kept faith on Indian stock market. On the other side GROSS INFLOW is having highest Coefficient of Variation followed by GROSS DOMESTIC SAVINGS which shows the higher consistency of these indicators.

Regression Analysis

In order to evaluate the impact of global turmoil on Indian stock markets Multiple Regression analysis was carried out between stock market indices and stock market indicators.

Table 3: RESULTS OF MULTIPLE REGRESSION ANALYSIS

	MODEL 1			MODEL 2		
DEPENDENT VARIABLE	BSE SENSEX			NSE NIFTY		
	COEFFICIENT	T	Sig.	COEFFICIENT	t	Sig.
CONSTANT	6.512	0.644	0.636			
INDEPENDENT VARIABLES						
GDP	.000	-1.855	.315	0.025	0.687	0.617
INF	.037	.594	.659	-4.342E-007	-2.159	.276
FI	.000	1.352	.405	9.915E-005	.439	.737
GDS	.000	1.557	.363	8.071E-007	1.445	.385
GII	-.001	-.856	.549	1.743E-006	1.818	.320
NETFDI	.002	.783	.577	-5.213E-006	-.960	.513
EMP	-.212	-.692	.615	5.707E-006	.804	.569
R^2	0.910			0.924		
F- value	1.440			1.747		
Sig. F	0.568			0.526		

MODEL-1:

SENSEX $=\beta_0+\beta_1\times GDP+\beta_2\times INFLATION+\beta_3\times FOREIGN\ INVESTMENT+\beta_4\times GDS+\beta_5\times GROSS\ INFLOW+\beta_6\times NET\ FDI+\beta_7\times EMPLOYMENT$

Estimated Model

SENSEX = 6.512+ 0.000 × GDP + 0.037 × INFLATION + 0.000 × FOREIGN INVESTMENT+ 0.002 × GDS + (-0.001) × GROSS INFLOW + 0.002 × NET FDI + (-0.212) × EMPLOYMENT

- The above results indicate that the INFLATION factor is having the highest impact on SENSEX. As GDP, INFLATION, FOREIGN INVESTMENT, GDS and NET FDI are showing positive results, which indicate direct effect. On the other hand variables like GROSS INFOW, and EMPLOYMENT having inverse effect.
- As R^2 having the range from 0 to 1, and in this model we have got the value of R^2=0.910 which means R^2 is nearer to 1 that further indicates that 91% of the dependent variable NSE NIFTY is being explained by the estimated regression model, and hence the model is powerful. But the P value of F-statistics for the significance of R^2 is greater than 0.05 which indicates that R^2 is insignificant, though high. Further almost all the coefficient estimates have the p-values greater than 0.05, which make them all insignificant.

Hence, the estimated model, even though powerful, does not indicate any major significant factor affecting the stock market index BSE SENSEX.

MODEL-2:

NIFTY $=\beta_0+\beta_1\times GDP+\beta_2\times INFLATION+\beta_3\times FOREIGN\ INVESTMENT+\beta_4\times GDS+\beta_5\times GROSS\ INFLOW+\beta_6\times NET\ FDI+\beta_7\times EMPLOYMENT$

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Estimated Model

NIFTY = 0.025 + (-0.0000004) × GDP + (-0.00009) × INFLATION +(-0.0000008) × FOREIGN INVESTMENT + 0.000001 × GDS + (-0.000005) × GROSS INFLOW + 0.000005 × NET FDI + (-0.001) × EMPLOYMENT

- So far NIFTY is concern its clearly seems that NET FDI is having the highest impact of the global meltdown as compared to the other variables. As the variables like GDS and NET FDI have the direct effect while on the other hand GDP, INFLATION, GROSS INFLOW and EMPLOYMENT showing the inverse effect of the global turmoil.
- As R^2 having the range from 0 to 1, and in this model we have got the value of R^2=0.924 which means R^2 is nearer to 1 that further indicates that 92.4% of the dependent variable NSE NIFTY is being explained by the estimated regression model, and hence the model is powerful. But the P value of F-statistics for the significance of R^2 is greater than 0.05 which indicates that R^2 is insignificant, though high. Further almost all the coefficient estimates have the p-values greater than 0.05, which make them all insignificant.

Hence, the estimated model, even though powerful, does not indicate any major significant factor affecting the stock market index NSE NIFTY.

5. Conclusion

The world-wide effect of the recent global recession has noticeably affected the economic growth and stock markets of several countries, India also being unexceptional. Hence an attempt has been made here to analyse the impact of this global turmoil on Indian stock markets with reference to the changes in the major macro-economic indicators during the period of recession and then after. The present analysis indicates that though there are significant fluctuations in many of the economic indicators during the period of study, the increasing trend of FIIs and FDIs has remained unaffected due to the increasing trend in GDP throughout the period. Thus, the foreign investors have not lost their trust in the Indian economy due to its strong fundamentals even in the recessionary period. In contrary, the stock market indices clearly indicate a noticeable downfall during the recessionary period.

The results of regression analysis also indicate that there is a strong but insignificant impact of the macroeconomic indicators on the stock market indices. This clearly indicates that the fluctuations in the stock market indices do not greatly depend only upon economic performance of India; rather they may be affected more by other factors such as Demand and Supply forces, Market Sentiments, and Market Efficiency.

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