Impact of Fiscal Stimulus on Stock Market and Economy: An Indian Scenario

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Abstract: GDP growth rate for India during the period of 2003-04 to 2007-08 was 8.8% which decreased to 6.7% in 2008-09. [1]This was because of the global financial crisis in the world which originated in USA. To revive the economies various governments gave fiscal stimuli to the various sectors and also launched many programs to increase the aggregate demand. This paper analyzes the effect of the stimulus packages announced by various governments across the world including India on their stock markets and also their economies with special emphasis on Indian economy. It is evident from the stock prices of major companies in Indian stock market and the market indices as S&P CNX Nifty, Sensex etc; the various indicators of economy as GDP, IIP, balance of payment that after the stimulus packages announcement and their flow in the economy the Indian stock market as well as the Indian economy has revived after the recession. Empirical evidence of this research paper by the paired t-test of various stock prices of companies and indices suggests that the mean statistic before the stimulus is less than the mean statistic after stimulus suggesting the positive effect of the stimulus packages. Also the regression analysis between the net FII inflows and Sensex movement show the interrelation between the both. Also this paper studies the effectiveness of the fiscal stimulus in India. The various negative effects of the fiscal stimulus like increasing deficits and increasing inflation is also studied through this project.

Keywords:- GDP, financial crisis, fiscal stimulus, S&P CNX Nifty, Sensex, inflation, balance of payments, paired t-test, fiscal deficit.

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[1] Source:- Central Statistical Organization

1. INTRODUCTION

The economic slowdown of the advanced countries which started around mid-2007, as a result of sub-prime crisis in USA, led to the economic crisis across the globe including India. The world economy, which was passing through unprecedented financial turmoil since August 2007, experienced a jolt in September 2008 when the failure of Lehman Brothers led to widespread panic across global financial markets. The liquidity crisis that not only engulfed developed markets but it also was quickly transmitted to emerging markets, including India. The US Federal Reserve responded by infusing dollar liquidity into large financial centers through currency swap arrangements with major foreign central banks in addition to massive injection of liquidity in the domestic market through several innovative schemes.

The financial crisis' impact was seen from the very fact of falling Stock markets, decreasing demand and decreasing industrial growth. The loss of confidence in the global financial markets has set off a chain of deleveraging, declining asset values, falling income, contracting demand and rising unemployment. The resulting collapse in output and the increase in unemployment also gave rise to the downward fall in the economy.

According to the November 2008 update of the World Economic Outlook (WEO) issued by the International Monetary Fund (IMF), global real GDP growth, on a purchasing power parity basis, was projected to decelerate from 3.7 per cent in 2008 to 2.2 per cent in 2009.[2] Reflecting the slowdown of international demand, crude oil prices also declined sharply in the last quarter of 2008. Prices of many other key commodities such as metals, cement, cotton and wheat too have dropped sharply.

Due to crisis the capital flows in India declined sharply in 2008. Reflecting lower flows through current and capital accounts, currencies of the country depreciated against the US dollar. The equity markets suffered large losses in the wake of reversal of portfolio flows. Bank lending to the country declined and credit spreads increased sharply due to the prevailing credit crunch in advanced economies. Also the country's exports declined because of tighter trade credit coming on top of slumping export demand.

Due to the impact of global economic recession, Indian stock market crashed from the high of 21,000 to a low of around 8,000 points. The main reasons for this tumbling of Indian Stock Market were: i) withdrawal of funds of FII from the stock markets and negative sentiments of investors which resulted to liquidity crunch .ii) Constraints in raising funds in a bearish domestic capital market and decline in the internal accruals of the companies iii) Credit crunch in various Indian banks and their increasing NPAs. All this also affected the money market which consists of credit market, debt market and government securities market. There was a huge decline in FII investment in the stock market during the crisis. The decline in FII is seen in **Figure 1** below which shows separately the decrease in capital (Blue line) as well as portfolio (Black Line) decrease:-

[2] Report on monetary policy of India 2008-09 by RBI.

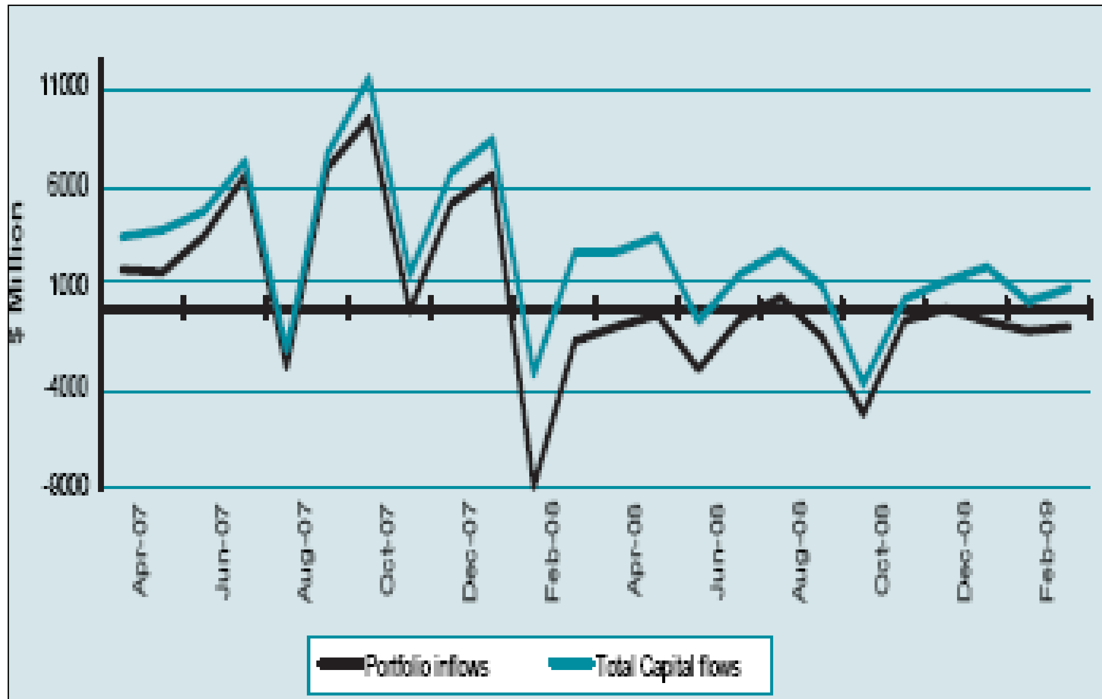

Figure1 Decline in FII Source: Economic Survey of India 2009-10

Capital flow reversals intensified in September and October 2008 though they have stabilized since then; international credit channels continue to be constrained; capital market valuations remain low; industrial production growth has slackened; export growth has turned negative; and overall business sentiment has deteriorated. The overall impact of the economic slowdown can be seen by the decrease in Indian GDP data in the following **Figure 2** which shows the quarterly GDP data at constant 2004-05 prices. It can be seen that there is a huge dip in the GDP growth rate in the Q3, Q4 of 2008-09 and Q1 of 2009-10:-

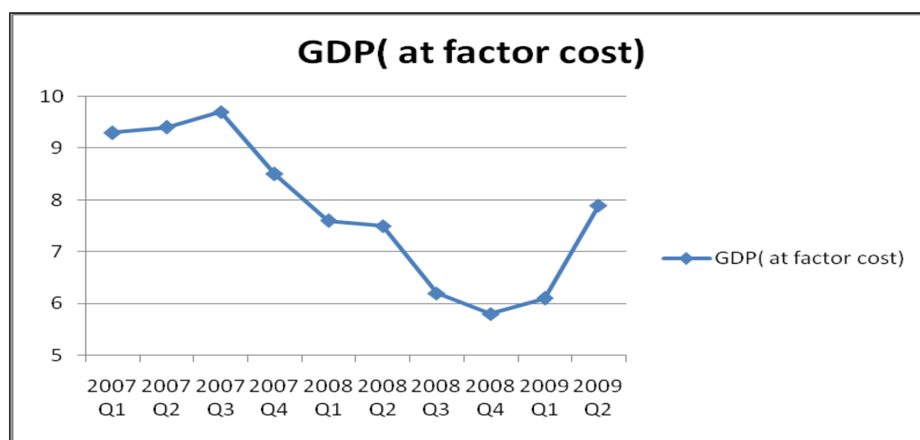

Figure2 GDP at constant 2004-05 prices (Source: Economic Survey 2009-10)

Governments and central banks across the globe responded by various fiscal and monetary measures to deal with liquidity and solvency problems in financial institutions.

Central banks reduced interest rates to unprecedented levels to support aggregate demand. In India the RBI responded to the emergent situation by facilitating monetary expansion through decrease in the CRR, Repo and Reverse Repo rates, and the Statutory Liquidity Ratio (SLR). Even SLR was lowered by 100 basis points from 25 per cent to 24 per cent with effect from the fortnight beginning November 8, 2008. But with the limited scope of monetary measures the governments had to bring the fiscal stimulus. The fiscal stimulus was given across the world. Japan, emerging Asia and the United States announced the largest packages, while the G20 countries in the euro area, Africa and Latin America have the smallest packages. In terms of the composition of the packages, general and targeted transfers dominated in Japan, government investment spending dominates in emerging Asia, and government consumption, targeted transfers and income tax cuts dominate in the United States.[3] The U.S. announced an $800 billion package. China had given approximately $600 billion on a variety of infrastructure projects and nation-building activities. The Government of India had also launched three fiscal stimulus packages to boost aggregate demand. The Government of India gave a bulk of this money towards pay rise for government servants, higher allocation for the National Rural Employment Guarantee Program , and farm loan waiver and exercise duty cut. These packages led to the increased money supply in the economy and increased confidence in the investors.

In Indian scenario a decline in all major elements of private demand, including exports and consumption, necessitated a compensating widening of the fiscal deficit above the Fiscal Responsibility and Budget Management Act (FRBMA) target. This got reflected in an increase of 20.2 per cent in government final consumption expenditure during 2008-09. The effect of this and subsequent fiscal stimuli (e.g. excise and service tax reduction) on private demand would be expected to appear gradually with a lag.[4]

Even as large fiscal stimuli packages are being implemented around the world, the effectiveness of fiscal policy to counter falling aggregate demand has been called increasingly into question. In particular, the evidence on the magnitude of fiscal multipliers has become a hotly debated among the economists. Also the key downside risk to the scenario described can emerge from financial crowding out of private investment. Additional domestic borrowing requirements of the central and state Governments will put pressures on the interest rates as well as on the availability of funds for private loans. Financing of this massive deficit without jeopardizing credit flows to the private sector will remain a major challenge for the Government. fiscal deficit could be seen to influence the inflation process either through growth of base money created by the RBI (i.e. net RBI credit to the Government), or through higher aggregate demand associated with an expansionary fiscal stance (which could increase growth in broad money). The immediate impact of the higher levels of fiscal deficit on inflation may be almost negligible, since: (a) the expansionary fiscal stance was only a partial offset for the deceleration in private consumption and investment demand, as the output-gap largely remained negative, indicating no risk to inflation in the near-term, and (b) despite large increase in the borrowing program of the Government to finance the deficit, there was no corresponding large expansion in money growth, since demand for credit from the private sector remained depressed. Thus, neither aggregate demand nor monetary expansion

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[3] *www.imf.org/external/pubs/ft/wp/2010/wp1073.pdf*

[4] Economic Survey 2008-09 (http://indiabudget.nic.in/es2008-09/chapt2009/chap11.pdf)

associated with larger fiscal deficits posed any immediate concern on the inflation front. The major risk to future inflation would arise from how the extra debt servicing could be financed while returning to sustainable levels through planned consolidation.

2. REVIEW OF LITERATURE AND METHODOLOGY

2.1) Objectives Of the Study:

- **To Study the impact of fiscal stimulus on Indian Stock Markets:** The main objective of this paper is to study the impact of fiscal stimulus on Indian stock markets. The impact on stimulus is seen by taking analyzing the stock prices of the market leader of the companies in the sector in which stimulus package have been given.
- **To Study the impact of stimulus of stimulus package on Indian economy:** As it is known that the fiscal stimulus is being given to bring revival in the economy, so by this paper the effect on the Indian economy by analyzing the major economic indicators like IIP, trade balance and GDP.
- **To Study the impact of stimulus of stimulus package on World economy:** Also by this paper there is a brief graphical analysis on the impact of stimulus packages across the world on the world's major economies as USA, Japan and China.
- **To Study the cost benefit analysis of fiscal stimulus in India:** The fiscal effectiveness of the stimulus package in India is also studied by the calculation of fiscal multiplier.

2.2) Hypothesis:

2.2.1) Impact on Indian stock markets:

This will be seen by seeing the mean of stock prices of the market leader of those sectors in which the stimulus has been given. Also the same will be done for the market indices.

H_0 : Means of stock prices of the various market leaders before stimulus package (Dec 2007 to Dec 2008) and after stimulus package (Dec2008 to Dec2009) are equal.($\mu_{1x} = \mu_{2x}$)

H_1 : There is difference in the means of stock prices of the various market leaders before stimulus package (Dec 2007 to Dec 2008) and after stimulus package (Dec2008 to Dec2009)($\mu_{1x} \neq \mu_{2x}$)where μ_{1x} , μ_{2x} are the mean stock prices of the market leader 'x' in a particular sector.

For the interrelation between the Sensex movement and FII data

H_0 : The Sensex movement and the FII data don't follow any linear relationship i.e. R2 =0

H_1 : The Sensex movement and the FII data follow a linear relationship i.e. R2 ≠0

2.2.2) Impact on Indian economy and world economy:

The various economic indicators like GDP, IIP, BOP will be studied.

H_0 : Means of these indicators before stimulus package (Dec 2007 to Dec 2008) and after stimulus package (Dec2008 to Dec2009) are equal.

H_1 : There is significant difference in these indicators' means before stimulus package (Dec 2007 to Dec 2008) and after stimulus package (Dec2008 to Dec2009).

2.2.3) Analyzing the cost benefit of the stimulus package:

H_0 : The fiscal multiplier is less than 1

H_1 : The fiscal multiplier is greater than or equal to 1

2.3) Data input & research methodology:-=

The data to be used in this study is secondary data. The monthly average closing prices of stocks, monthly average closing prices of indices will be taken for the descriptive statistics. These prices will be taken from the BSE and NSE websites. Apart from stock prices the economic indicators like GDP, IIP, BOP will be taken for graphical analysis from the websites of RBI, CSO etc. The data for the world's economy will be taken from the IMF website. All these data will be converted into natural log for having the same units. The descriptive analysis will be seen on the criteria of means, median, standard deviation. The time period for the observation taken is from 1st Jan 2008 to 31st Dec 2008 for the before stimulus data and from 1st Jan 2009 to 31st Dec 2009. This is because by the time of 1st Jan 2008 recession's effect was spread in most of the countries including India. The time for after stimulus is taken from 1st Jan 2009 because from that time most of the countries started to announce for the stimulus packages. From the hypothesis testing any of the null or alternate hypothesis will be rejected.

The tools used for the analysis are MS Excel 2007 and SPSS13.0.For the empirical study of the effect of stimulus all the data before and after the stimulus is analyzed with the help of descriptive analysis. After this to see whether there is significance difference between both these samples paired t-test is done. This is done because the sample size is less than 30 (it is 24). The significance level is 5%. Also graphical representation is shown to see the broad picture if the before mean is less than the after mean then this shows that fiscal stimulus has done a positive impact on the variable considered. In the t-test if the significance level is >0.05 then the H_0 (null hypothesis) is rejected and H_1 (alternate hypothesis) is accepted. The indicators for the Indian and world economy are seen just for the graphical analysis. The multiplier for seeing the effectiveness of fiscal stimulus is calculated by the formula. While the interrelation between the FII inflow and the Sensex movement is seen through the regression analysis. The value of R2 and F value is seen for accepting or rejecting the null hypothesis.

In the report 6 companies listed in both NSE and BSE and being as market leaders in their respective sectors have been chosen to see the impact of the stock prices. This analysis is divided into following parts:- 1)Summary about the companies and graph depicting the stock prices on NSE from 1st January 2008- 31st December 2009 and summary about the market indices and graph depicting the movement of the indices from 1st January 2008- 31st December 2009. 2) Table showing the mean statistic of the descriptive statistic of all these 6 companies and 2 indices obtained by the SPSS 13.0.3)_Table showing the significance level for the

companies and indices in the paired t-test where the share prices before and after the stimulus are taken for seeing whether there is significant difference in the means of the share prices of the two samples or not. The economic indicators for India taken are GDP, IIP, Trade Balance while for the world's economy it is the GDP data for USA, Japan and China are graphically analyzed.

2.4) Review of literature:

Various studies have been done by various economists and policy makers on the effect of fiscal stimulus on the economy across the globe. B.B.Bhattacharya (1992) in the book India's economic crisis debt burden and stabilization has discussed the fiscal crisis of 1990-91 faced by the Indian Government and said that the fiscal deficit is that phenomenon where the government is unable to finance its own expenditure. This is helpful for doing the study of the negative aspect of the fiscal stimulus. John Taylor (1997) in his book of economics has discussed the countercyclical policy which is used to combat a business cycle. In this he has also discussed the case of Japan which during the recession of 1980s in which they have given tax cuts and suggested that the governments should give a package which is sufficient for the economy. Yasukichi Yasuba (1999) in his paper Japanese Economy in 1990s has discussed the failure of the fiscal stimulus given by the government of Japan in 1990s to combat the recession and increased the public debt/ GDP ratio to a much higher extent. He concluded that the stimulus was not strong enough to realize the full utilization of capital and labor. Dornbusch, Fischer and Startz (2000) in their book on macroeconomics have discussed on various issues related to the fiscal policy and concluded that there should be a right policy mix of the monetary and fiscal policies. Also they have discussed the case of the recession and the recovery faced by the US economy during 1980s and in 1990-91. They have recommended that neither of the policies (monetary or fiscal) work good alone and both these policies should work together as monetary policy decreases the interest rates while fiscal increases it.

Mankiw (2001) in his book has discussed on the various effects of the fiscal policy in which the increase in the government purchases leading to crowding out effect has also been mentioned. He also discussed that expansionary fiscal policies lead to trade surplus because it increases the interest rates. He concluded that the fiscal policies should be short term as a continuous low saving decreases the capital stock and decreases the level of output. Padma Dua and Anirvan Banerji (2006) in their paper Business cycles in India have discussed about recession and business cycles in India. The timing of these cycles in Indian economy has been discussed in the paper. They have discussed the coincident index which is combination of various economic indicators as output, income, employment etc. This index is indicative of the business cycles in India. In the World Economic Outlook's report (2008) on Global Financial Stability Report mentioned the importance of fiscal stimulus as failure to restore confidence in the global financial system would cost greater to the real economy. Elmendorf & Furman (2008) proposed four canons for a successful fiscal stimulus — it should be well-targeted, timely, temporary, and fourth it should put incomes in the hands of people who are likely to spend quickly. In the Economic Survey of India 2008-09 the Indian economic growth after recession has been discussed with the various expansionary fiscal policies which the government. During the year 2008-09 India has exhibited a V shaped growth curve because of the downward dip in

the economy and then after the monetary and fiscal measures taken the economy has revived again. It has also discussed the various reasons for giving the fiscal stimulus package.

In Asian development India (2009) report on Indian Economic Review the positive effects of fiscal stimulus on consumption, IIP, GDP, exchange rate is given. There it is recommended that RBI has to do better monetary management because of the massive market borrowing program of the central Government. J. D. Foster (2009) in his article Keynesian Fiscal Stimulus Policies Stimulate Debt—Not the Economy has criticized the Federal government for focusing extra on the stimulus package and the size is too big. He recommends the US government that rather to give so huge packages it should work to strengthen the root of the system. C.R.L. Narsimhan (2009) in his column in The Hindu have discussed the various stimulus packages declared around the world and discussed the pros and cons related to these packages. Nidhi Choudhari (2009) in her paper global recession and its impact on Indian financial markets has discussed the various effects on Indian economy of global crisis specifically on Indian stock market, Indian money market and Indian Forex Market. She also has discussed the effect on GDP, exports and unemployment rate. Further she discusses the various measures taken by RBI and Government of India to combat this slowdown of economy in fiscal and monetary response. She had concluded that a sound and resilient banking sector, well-functioning financial markets, robust liquidity management and payment and settlement infrastructure, buoyancy of foreign exchange reserves have helped Indian economy to remain largely immune from the contagious effect of global meltdown.

Sri Srinivasan and Usha Nori (2009) in their paper Global Financial Meltdown and Indian Budgetary response have discussed the various steps taken by the Indian Government and RBI in response to the recession and identified the concern about the growing deficits. In the RBI report (2009) on Global Banking Developments have discussed the contraction in the GDP due to crisis, also there has been a comparison in the banking system of the developed countries and India. In this report the various reasons for the recession have also been discussed. The RBI report (2009) on Financial Stability has discussed why financial stability study is important and its difficulty to measure the financial stability. In this it has been suggested to have higher vigilance and some restrictions on the banking sector to avoid any such type of collapse.In Economic Survey of India 2009-10 the stimulus packages given by the Indian government has been mentioned. The effects on the Indian economy in terms of increased consumption, higher GDP and IIP have also been mentioned. Core industries and infrastructure services, led by the robust growth momentum of telecom services and spread across power, coal and other infrastructure like ports, civil aviation and roads, have also shown signs of recovery in 2009-10.

Coenen et al (2010) in IMF paper work have analyzed the fiscal multiplier for both temporary and permanent fiscal measures and concluded that the temporary fiscal policies have higher benefits. They have compared the various instruments of the fiscal policy for the increase in the real GDP. They have recommended the governments to implement the tax cut instrument the most as it also woks as automatic stabilizer. Becker and Posner (2010) in their blog on Fiscal Stimulus Packages: What are their Effects discussed that In reality there are several major considerations neglected in the Keynesian analysis and therefore there is a different multiplier. He suggested the governments on the proper utilization of the funds for the packages. Vidya Mahambare and Parul Bhardwaj (2010) in their discussion paper of CRISIL have discussed the fast recovery of Asian countries from crisis and concluded that fiscal and

monetary policies have played a crucial role in this revival. Roberto Guimarães (2010) in his paper what are the effects of fiscal policy shocks in India of IMF has calculated the various fiscal multipliers for Indian Economy and has concluded that due to the stimulus package there is a possibility of the crowding out in future. Jeevan Kumar Khundrakpam, Sitikantha Pattanaik (2010) in their paper Fiscal Stimulus and Potential Inflationary Risks: An Empirical Assessment of Fiscal Deficit and Inflation Relationship in India have discussed the future inflation arising from the increasing fiscal deficit as a result of high borrowing cost. They suggest to return on the path of fiscal consolidation at earliest.

2.4) Limitations of the project:

The following are the limitations of the project:

1) Time Span under study: Since the effect of any fiscal policy (in this case stimulus) should be seen in long perspective, but here the time for which this study is done is only for approximately 2 years.

2) Time and resource constraints: The project will be done in 12-14 weeks of time and therefore time is one of the constraints, the scope of the project could have been expanded. Also the recession and the announcement of these stimulus packages is a recent phenomenon (in Indian Scenario) , therefore enough study has not been done till now on this topic, so resource constraint is also there in this project.

3) Data: The data used is extensively the secondary data and some of the data is no accessible on sites and reports. So the study will be on the available data only.

2.5) Significance of the project:

Fiscal stimulus announcement is one of the most hotly debated issues today among the economists. So this study is important for seeing the impact of stimulus on the economy. This study will be helpful for the reasons that the economies cyclically face the business fluctuations, so it is v. important to see the impact of the government initiatives for the smoothening the business cycles. Also through this project the various reasons for the crisis are also studied so it can be also seen the things which can be avoided or amended for lessen these crisis.

2.6) Chapterisation:

The whole paper is divided into 6 chapters. The first chapter introduces the reader with the project .The second chapter the objectives of doing the project and related hypothesis, the methodology used in the project and the literature review related to the project. Also it gives the limitations and significance of doing the project. The third chapter gives the background material which is helpful for the reader to understand the report. The fourth chapter gives the data analysis with the different statistical techniques to give the empirical evidence. The fifth chapter gives the policy implications. Finally the sixth chapter gives the conclusion based on the study done and also gives some of the suggestions.

3. IMPACT OF FINANCIAL CRISIS

3.1) Global recession: The possible factors behind the current global financial crisis may be traced in to the deeply flawed institutions and practices of New Financial Architecture (NFA) – a

globally integrated system of giant bank conglomerates and the so-called 'shadow banking system' of investment banks, hedge funds and bank created Special Investment Vehicles. These institutions were lightly regulated an arrangement of financial economics theory of efficient capital markets. Some of the structural flaws of this architecture may be described as: 1) regulators have accepted very weak and seriously misleading the theoretical foundation of the NFA i.e. efficient capital market; 2) excessive risk-taking in the financial markets; 3) some of the innovative financial products like mortgage backed securities were so complex and nontransparent that they could not possibly be priced correctly and they collapsed once the excessive optimism of the boom faded; and 4) the NFA generated high leverage and high systemic risk, with channels of contagion that transmitted problems in the US sub prime mortgage market around the world.

3.2) Impact of financial crisis:-

<u>3.2.1)</u> Impact on the financial markets:

The sharp slowdown in the U.S. economy had several adverse consequences especially for trade and investment. The foreign institutional investors from Indian stock markets flew away which contributed to the tumbling of stock market indices. Led by the Dow Jones index, which dropped by about 680 points, stock market indices around the world, including in India, fell. [5]

The Indian Financial Markets were affected due to the crisis because of the 3 reasons; the first was the exit of foreign portfolio equity investments, resulting in decline in stock markets which together with rapid decline in export demand, exerted significant pressures on the exchange rate. The second was the drying up of overseas lines of credit for banks and corporate, which shifted demand to the domestic credit market. Third, there was severe constraint on trade emanating from drying up of trade finance.

The recession had destabilized the financial markets across the world. The effect on Indian stock market indices S&P Nifty (Blue line) and Sensex (Black line) can be seen by the **Figure 3** where it can be seen clearly that after the Lehman Crisis both the indices went down:-

Figure3 The tumbling of Sensex and Nifty Source: <u>Economic Survey of India 2008-09</u>

[5] http://www.hindu.com/2008/12/04/stories/2008120455120800.htm

The impact on the stock market can also be viewed by the FII inflows. The main reason of the tumbling of the stock markets was the withdrawal of funds of FII from the stock markets and negative sentiments of investors resulted to liquidity crunch. The net portfolio flows to India soon turned negative as Foreign Institutional Investors (FIIs) rushed to sell equity stakes in a bid to replenish overseas cash balances. So this is also reflected in the FII inflow after the stimulus packages announced. After the fiscal stimulus the FII inflows again increased in the economy and the markets again started to recover. Thus the interrelation between the FII inflows and the index movement can also be seen. The stock markets also recovered because of the increased investors' confidence which was because of the improving condition of world's major stock markets as NASDAQ, Dow Jones, Hong Kong Stock Exchange etc.

3.2.2) Impact on the Indian and World Economy:

The Indian economy also felt the heat of this recession as the GDP for 2008-09 was just 6.7%.During the year 2008-09 there was a sharp rise in Wholesale Price Index (WPI) inflation followed by an equally sharp fall, with the WPI inflation falling to unprecedented level of close to zero per cent by March 2009. But the headline inflation rose around the world to the highest rates which were pushed up by the surge in fuel and food prices. The increased food inflation in India in comparison to non food inflation can be seen in F**igure 4** where in 2009 the non food inflation (Dotted line) was v. low but the food inflation (Blue line) was v. high which is shown below:

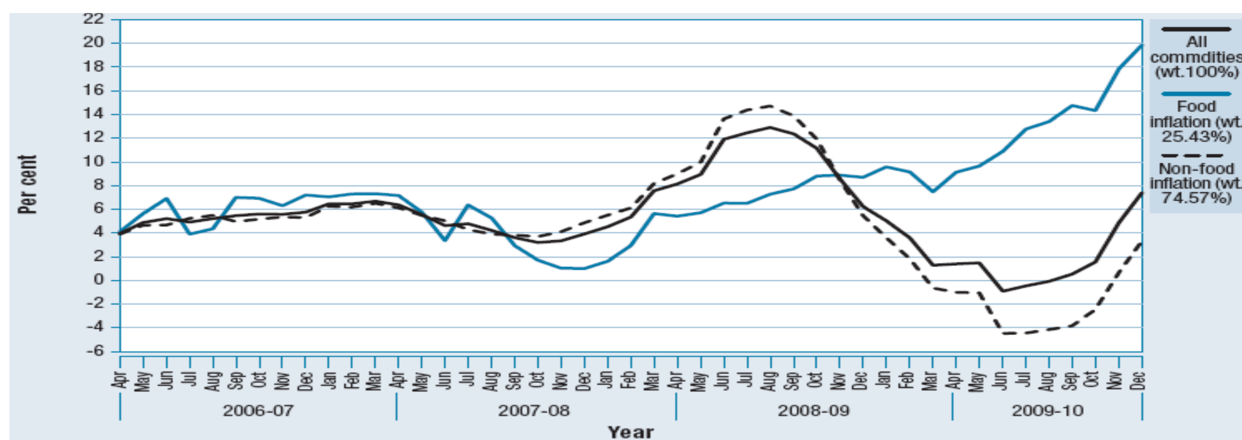

Figure 4 Trends in Food and non- food inflation in WPI **Source: Economic Survey of India**

The main global shocks important for India in 2008-09 were from elevated commodity (oil, food, and base metals) prices, a significant slowdown in the global growth momentum, turbulence in International financial markets, and a possible reversal of the USD towards an appreciation path. The exports were severely affected by the global crisis which can be depicted in the following F**igure 5** of year wise growth rate of the exports which declined from 28.9% in 2007-08 to a low of 3.6% in 2008-09:

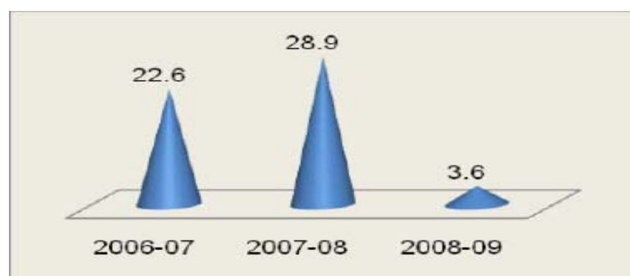

Figure 5 Decline in Export growth rate Source: CSO

The initial effect of the sub prime crisis was, in fact, positive, as the country received accelerated Foreign Institutional Investment (FII) flows during September 2007 to January 2008. This contributed to the debate on "decoupling," where it was believed that the emerging economies could remain largely insulated from the crisis and provide an alternative engine of growth to the world economy. The argument soon proved unfounded as the global crisis intensified and spread to the emerging economies through capital and current account of the balance of payments (BoP) crisis. The net portfolio flows to India soon turned negative as Foreign Institutional Investors (FIIs) rushed to sell equity stakes in a bid to replenish overseas cash balances. This had a knock-on effect on the stock market and the exchange rates through creating the supply demand imbalance in the foreign exchange market. The current account was affected mainly after September 2008 through slowdown in exports. The contribution of private consumption to aggregate growth declined dramatically from 53.8 per cent in 2007-08 to 27 per cent in 2008-09. Also the surge in the supply of foreign currency in the domestic market led inevitably to a rise in the price of the rupee. The rupee firstly gradually appreciated due to the high inflow of accelerated FIIs because of the mindset that the emerging economies won't be affected by the global crisis which was seen from the fact that the rupee appreciated from Rs. 46.54 per US dollar in August 2006 to Rs. 39.37 in January 2008, a movement that had begun to affect profitability and competitiveness of the export sector.[6] The global financial crisis effect however reversed the rupee appreciation because of the high current account deficit which was due to falling exports and after the end of positive shock around January 2008, rupee began a slow depreciation. The move in the USD- INR exchange rate is seen below in **Figure 6**:

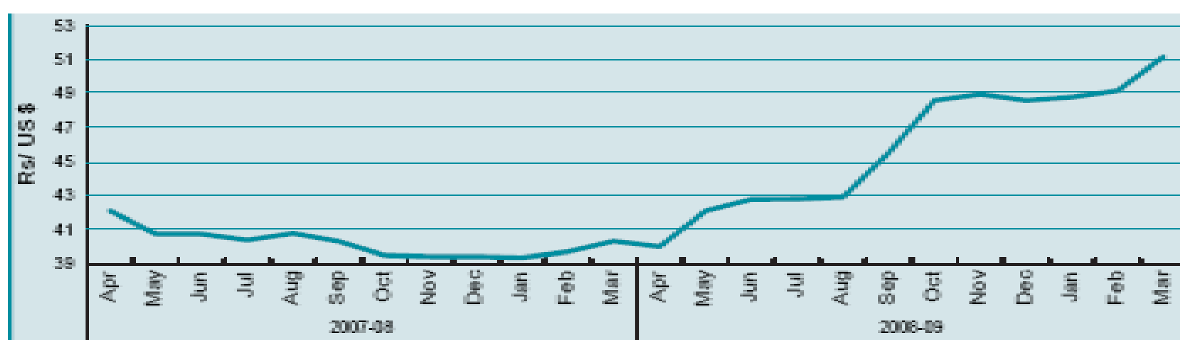

Figure 6 Changes in exchange rates Source: Economic Survey of India 2008-09

[6] Economic Survey of India 2009-10

The effect of the global crisis on the international financial markets was v. shocking as it went down to a v. low level. The corporate bond markets functioned more normally in the US as reflected in the yield of corporate bonds, which increased significantly as compared to 3 months US Treasury bill as well as 10 year US Government bond yield during the Q1 of 2009. This was because of the crash of the stock markets which shifted the money from risky stock markets to risk free government securities .The effect was also seen on the forex markets across the world as the US dollar generally appreciated against most of the currencies, except Japanese Yen and Chinese Yuan, during 2008-09. the US dollar started strengthening mainly on account of decline in the risk appetite of the US investors induced by the financial crisis in the US resulting in liquidation of their positions in overseas equity and bond markets as part of ongoing deleveraging process in the financial markets and repatriation of the proceeds back to the US on flight to safety considerations. During 2009-10 so far, the appreciating trend has been reversed because of declining safe haven flows to the US, large-scale quantitative easing undertaken in the US in the recent period and change in the market sentiment against the dollar.

3.3) Fiscal Stimulus declared by various governments:

The government launches a spending program to boost the aggregate demand and stimulate spending and economic activity. This is known as a Fiscal Stimulus. The two main ways of providing fiscal stimulus are: Tax Cuts, Government Spending. The first stimulus given in response to the recession was given by the US government which were given in 3 phases and its size were around $152 billion for 2008, $700 billion and $787 billion. The Indian Government launched three fiscal stimulus packages between December2008 and February 2010. These stimulus packages came on after the programs for the rural poor, the farm loan waiver package and payout following the Sixth Pay Commission report, all of which added to stimulating demand. All these stimulus packages ultimately helped in flow of money in the world economies and increased business activity. This ultimately boosted the investors and corporate confidence which ultimately led to gradual recovery.

3.4) Effectiveness of the fiscal multiplier:

The global recession of 2008-09, one of the longest and deepest since the Great Depression, has made the efficacy of fiscal-stimulus packages one of the most prominent policy debates in economics today. The spending component of these packages is typically motivated by the belief that the expenditure multiplier is greater than one – in other words, that total output in the economy will expand by *more* than the increase in government purchases.[7] Over-extended government finances and high fiscal deficits can lead to dearer cost of funds and higher interest rates, due to private investment being 'crowding out'. Also, high fiscal deficits can drive down the real effective exchange rate. And currency depreciation together with high interest rates may well show up as high inflation.

In Indian Scenario, seeing the decline in all major elements of private demand, including exports and consumption, necessitated a compensating widening of the fiscal deficit above the Fiscal Responsibility and Budget Management Act (FRBMA) target. This got reflected in an

[7] http://www.voxeu.org/index.php?q=node/4144

increase of 20.2 per cent in government final consumption expenditure during 2008-09. Fiscal deficit for 2009-10 was estimated to go up to 5.5 per cent of GDP, thus providing a continuing stimulus, relative to 2008-09, of 2.8 per cent of GDP. There was also a huge deceleration in M_0 (Reserve Money) was largely on account of the decline in net foreign exchange assets (NFA) of RBI (a major determinant of reserve money growth) due to reduced capital inflows. Taking the year as whole, broad money (M_3) recorded an increase of 18.4 per cent during 2008-09, as against 21.2 per cent in 2007-08. The money multiplier, which is the ratio of M3 to M0 was 4.3 in end-March 2008 and increased to 5.0 in December 2008.[8] All these have a negative impact on the economy. The fiscal deficit increased due to these stimulus packages. By this project the various aspects of the effectiveness of the fiscal stimulus is analyzed by the calculation of the multiplier. Hence after this it can be concluded for the Indian economy that whether the fiscal stimulus is beneficial or not.

4. DATA ANALYSIS

4.1) IMPACT ON THE STOCK MARKETS

For seeing the impact 6 companies named Infosys Ltd (IT industry), ACC Ltd (Cement Industry), BHEL Ltd (Capital Goods)., Tata Steel (Steel Industry), Grasim Industries (Textiles), Tata Motors Ltd.(Automobile Industry) and 2 indices named Sensex (BSE), S&P CNX Nifty (NSE) are taken for seeing the descriptive analysis and paired t-test from SPSS 13.0.

4.1.1) Table depicting the descriptive statistic:

Company	***Mean statistic***		***Standard Statistic***	
	Before Stimulus (Jan2008-09)	***After Stimulus (Jan2009-10)***	***Before Stimulus (Jan2008-09)***	***After Stimulus (Jan2009-10)***
Infosys Ltd	1533.03	1870.53	239.20	470.18
ACC Ltd	623.2	729.27	140.02	128.79
BHEL Ltd.	1693.28	1998.98	324.37	403.86
Tata Steel	577.99	388.34	261.25	153.88
Grasim Industries	1953.36	2130.80	685.09	537.55
Tata Motors Ltd.	445.87	405.86	211.85	215.00
Index	***Mean statistic***		***Standard Statistic***	
	Before Stimulus (Jan2008-09)	***After Stimulus (Jan2009-10)***	***Before Stimulus (Jan2008-09)***	***After Stimulus (Jan2009-10)***
Sensex	13941.4567886	17249.1568995	3154.345678	3785.564102
S&P CNX Nifty	4218.441666667	4822	908.4033860254	989.5425721654

Table1 Table depicting the result of descriptive statistic SPSS output 13.0 I

[8] Economic Survey 2008-09

Interpretation:

From the above table it can be inferred that the significance level in each case is > 0.05 so it can be said that the H_0 (null hypothesis) is rejected and the H_1 (alternate hypothesis) is accepted at α= 5% which means that there is significant difference in the means of these two samples i.e. the mean of the stock prices before the stimulus is significantly different from the mean of the stock prices after the stimulus.

4.1.2) Table depicting the result of paired t-test:-

Company	***95% Confidence Interval of the difference***		***t- value***	***df***	***Significance level***
	Lower	***Upper***			
Infosys Ltd	-738.35	63.36	-1.85	11	0.091
ACC Ltd	-268.56	56.42	-1.47	11	0.179
BHEL Ltd.	-754.35	142.95	-1.50	11	0.162
Tata Steel	-58.92	438.21	1.68	11	0.121
Grasim Industries	-903.33	548.36	-.538	11	0.601
Tata Motors Ltd.	-226.65	306.66	-.33	11	0.747
Company	***95% Confidence Interval of the difference***		***t- value***	***df***	***Significance level***
	Lower	***Upper***			
Sensex	-	3909.482	0.050	11	0.0951
S&P CNX Nifty	-1034.20747	1126.8741	0.094377	11	0.9265

Table 2 Table depicting the result of the paired t-test SPSS 13.0 output

Interpretation:

From the above table it can be inferred that the significance level in each case is > 0.05 so it can be said that the H_0 (null hypothesis) is rejected and the H_1 (alternate hypothesis) is accepted at α= 5% which means that there is significant difference in the means of these two samples i.e. the mean of the index value before the stimulus is significantly different from the mean of the index value after the stimulus.

4.1.2) Interrelation between the net FII investment and the sensex movement:

This is done by regression analysis of Net FII Investment and Sensex movement

Dependent Variable: Sensex Movement, Independent Variable: Net FII Investment, Significance Level: 0.05%, No. of samples: 26

Regression Statistics	
Multiple R	0.52
R Square	0.43
Adjusted R Square	0.42
Standard Error	2.93
Observations	26

Table 3 Table depicting the result of the regression analysis SPSS 13.0 output

Anova					
Model	Sum of Squares	df	Mean Squares	F value	Significance
Regression	3971768.164	1	3971768.164	302.14	0.232
Residual	3564.89	25	4935677.879		
Total	3975333.054	26			

Table 4 Table depicting the resultant Anova of regression analysis SPSS 13.0 output

4.2) IMPACT ON THE INDIAN ECONOMY

The three variables for the graphical representation can be visualized form the following graphs **(Figures 7, 8, and 9)**:

Figure 7

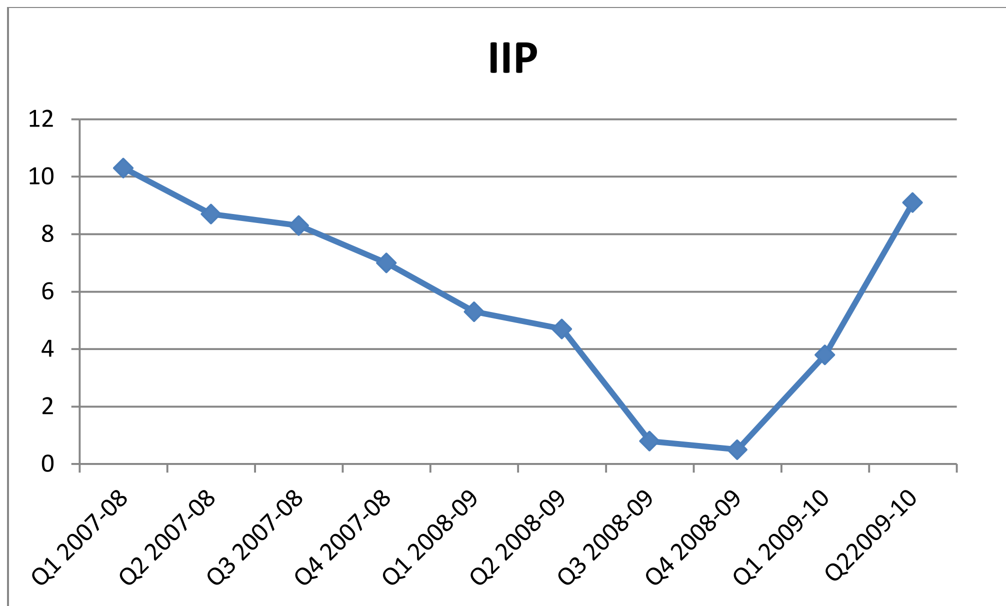

Figure 8

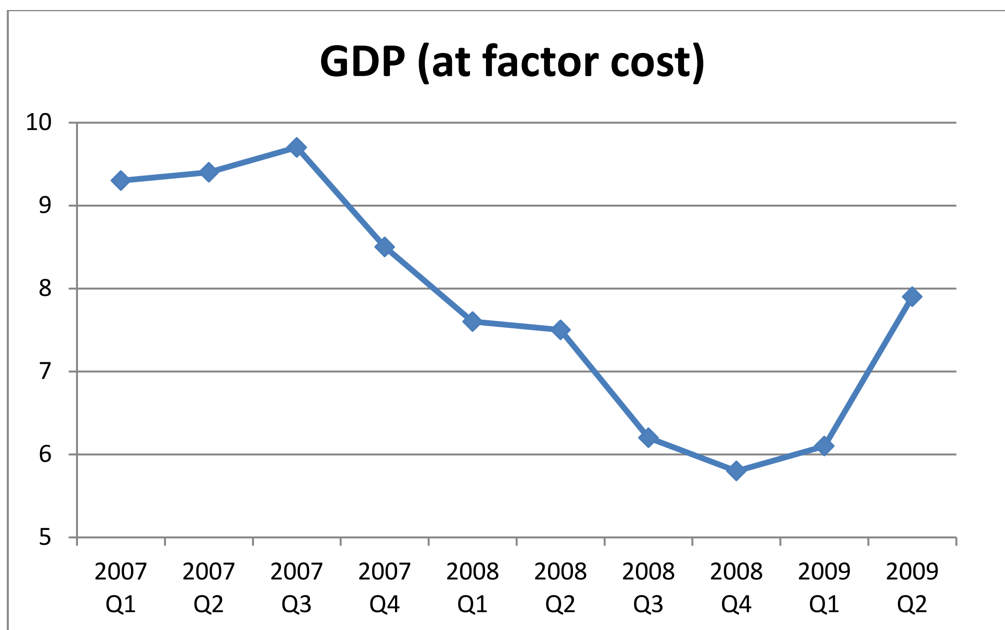

Figure 9

Therefore by seeing the graphical interpretation of the Trade balance, IIP and GDP data it can be interpreted that the H_0 (null hypothesis) can be rejected. This means that the fiscal stimulus has impacted positively on the Indian economy.

4.3) IMPACT ON THE WORLD ECONOMY

The impact on the world's major economies as USA, Japan and China is seen in the following **Figures 10,11, and 12** in which it is seen that the economies were in great pressure in the 2008-

09 and during the period of 2009-10 the economies started recovering as seen by the GDP growth rates:-

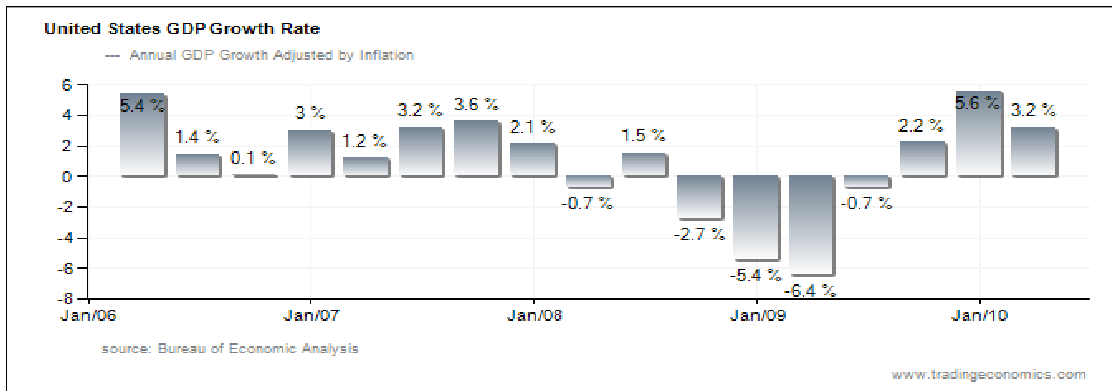

Figure 10 Quarterly GDP growth rates data for USA

Source: http://www.tradingeconomics.com/Economics/GDP-Growth.aspx?Symbol=USD#ixzz0ngybagdf

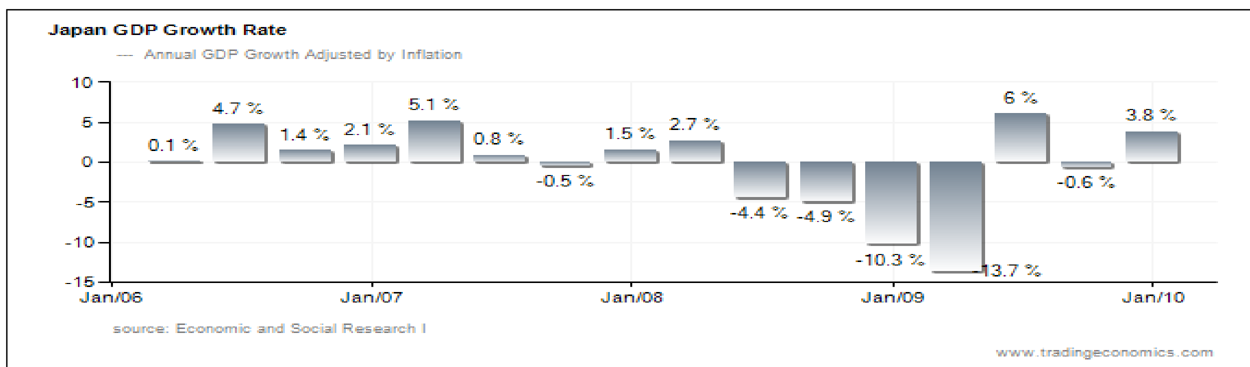

Figure 11 Quarterly GDP growth rates data for Japan

Source : http://www.tradingeconomics.com/Economics/GDP-Growth.aspx?Symbol=JPY#ixzz0ngzuzYL4

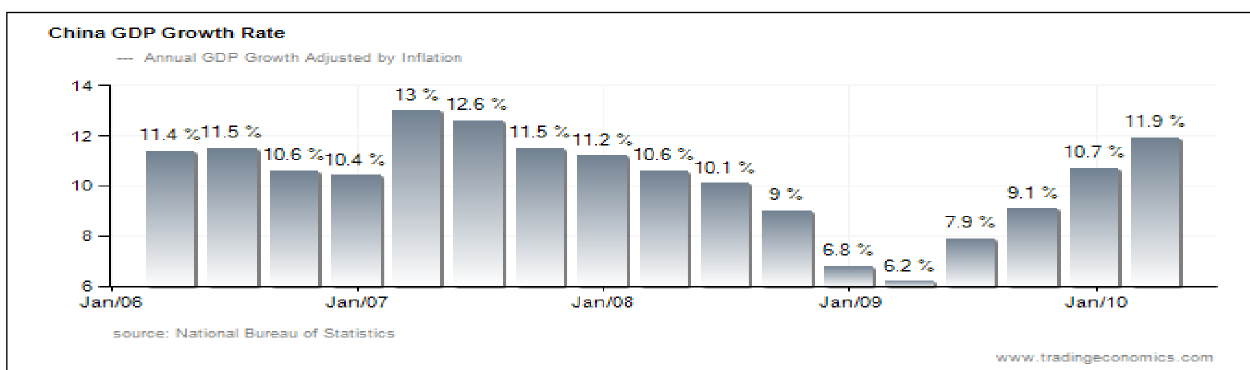

Figure 12 Quarterly GDP growth rates data for China

Source: http://www.tradingeconomics.com/Economics/GDP-Growth.aspx?Symbol=CNY#ixzz0nh0z5aFb

Therefore by seeing the graphical interpretation of the GDP data of USA, Japan and China it can be interpreted that the H_0 (null hypothesis) can be rejected. This means that the fiscal stimulus has impacted positively on the World's major economies.

4.4) COST BENEFIT ANALYSIS OF FISCAL STIMULUS IN INDIA
Multiplier calculation:

This multiplier can be calculated by the following formula:-

$$\alpha = \frac{\Delta Y}{\Delta A}$$

where ΔY is the change in the output i.e. change in GDP and ΔA is the change in the autonomous aggregate demand which is equal to the size of the fiscal stimulus given by the government in that year.[9]

$\alpha = \frac{1.7}{1.6}$ = **1.0625**

thus the multiplier comes to be greater than 1 which indicates that the stimulus was beneficial for the economy and it helped to increase the aggregate demand of the Indian economy. Hence it can be said that the the H_0 (null hypothesis) can be rejected which means that for this particular time the fiscal stimulus has impacted and helped the Indian Economy to recover.

5. POLICY IMPLICATIONS

The fiscal stimulus can be seen as one of the main reasons for stimulating demand and thus has brought revival in the world's major economies. But it must also be considered that these stimulus packages also increase a lot of pressure on the governments, increasing the cost of stimulus. The cost will ultimate increase because whenever there is high supply of money leads to increase the inflation thereby the to control it the central bank will take the contactionary monetary policy leading to increase of interest rates. Thus increasing interest rates will increase not only the fiscal stimulus cost but also discourage the industrialists to raise money thereby leading to crowding out effect. So its v. important for the governments and central banks to take a important role for the monetary management. The thing to be considered here are that the major reasons for the crisis was the v. less regulation of the banking system in the developed countries which lead to high no. of defaults and frauds. This should be regulated in those countries.

In the Indian scenario, the government is gradually moving to rollback of stimulus package in 2010 as seen in the Union Budget 2010-11. This policy is right in the sense that this rollback is quite gradual and thus doesn't lead to crowding effect and increase the pressure on the fiscal deficit. India being a developing country should increase the demand by spending in the more programs on infrastructure and to decrease the poverty (which are India's one of the greatest challenges before the Indian Economy). As it can be seen that the India's current account expenditure is much higher than the capital expenditure, all these programs will help

[9] DORNBUSCH, FISCHER, STARTZ, 2000, *Macroeconomics* New Delhi: Tata McGraw-Hill Publishing Co., Ltd. (page 197)

the Indian economy to reduce this problem. Also India should depend more on the domestic demand to decrease the effects of these kinds of crisis on the country.
Thus it can be said that the apart from the stimulus packages the governments should also focus on the reasons that lead to the crisis and amend the system.

6. CONCLUSION AND SUGGESTIONS

Hypotheses Interpretation:

Hypotheses 1) Null hypotheses (H_0) is rejected i.e. there is a significant difference in the means of stock prices of the Infosys Ltd., ACC Ltd., BHEL Ltd., Tata Steel Ltd., Grasim Industries and Tata Motors Ltd. and the indices i.e. Sensex and S&P CNX Nifty before stimulus package (Dec 2007 to Dec 2008) and after stimulus package (Dec2008 to Dec2009)($\mu_{1x} \neq \mu_{2x}$)where μ_{1x} , μ_{2x} are the mean stock prices of the market leader 'x' in a particular sector or the market index.

Hypotheses 2) Null hypotheses (H_0) is rejected i.e. the Sensex movement and the FII data follow a linear relationship i.e. R2 ≠0 which comes to be 0.43

Hypotheses 3) Null hypotheses (H_0) is rejected i.e. there is a significant difference in the indicators' means (IIP, Trade balance and GDP) before stimulus package (Dec 2007 to Dec 2008) and after stimulus package (Dec2008 to Dec2009).

Hypotheses 4) Null hypotheses (H_0) is rejected i.e. the multiplier is equal to or greater than 1 and it came to be 1.0625.

Conclusion:

From the data analysis and hypothesis interpretation it can be interpreted that the fiscal stimulus has impacted positively on the world as well as Indian economy. Large and timely fiscal stimulus measures implemented by the world including India have ensured that the downswing in its economy has neither been steep nor painfully long. In India, on the positive side, capital market and banking regulation in India ought to be commended for its stabilizing role. Unlike regulators in other countries, SEBI did not attempt to check volatility through ad hoc measures such as halting trade for a long time, and freezing index sales. It is also a positive reflection on the regulatory framework that no scam has emerged in the Indian bourses even in these stressful days. This was one of the biggest reasons why India was not engulfed in the global recession and was one of the earliest economies to recover from it.

So at last it can be said that the fiscal stimulus has impacted positively on the economy by increasing the demand and government expenditure in the economy. But it should also be taken care that high fiscal deficit will also increase the government's external borrowings and thus increasing the cost of the fiscal stimulus. Thus the fiscal stimulus should be utilized in an optimum way so that there is minimum wastage and leakage to see the maximum impact of the fiscal stimulus.

Suggestions:

- In the recent period, fiscal stimulus rather than fiscal rectitude has become the desirable policy option. It needs emphasis, however, that uncontrolled expenditure on non-essential areas cannot serve as a meaningful fiscal stimulus. What is needed is a well thought out spending package that focuses on building physical infrastructure and strengthening the infrastructure in areas such as education and health.
- The government should not roll back the fiscal stimulus early as its effect won't be seen then. So the government should gradually rollback the stimulus and move again to the path of fiscal consolidation. This is because the cost of fiscal deficit in terms of rupee depreciation and increasing interest rates should not become more for government because this will ultimately have a negative impact on the economy.

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