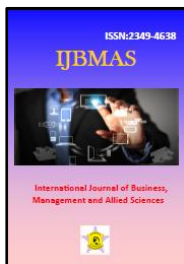

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**AN EMPIRICAL STUDY OF ECONOMIC FACTORS ON INDIAN
EQUITY MARKET
(WITH SPECIAL REFERENCE TO FINANCIAL CRISIS)**

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ABSTRACT

Investment, in the broadest sense, means the sacrifice of current money for the future income. There are two attributes involved: time and risk. The investment takes place in the present and is generally certain. The reward comes later and the amount of reward is generally uncertain. The most important challenge faced by them is the investment decision. The investigation of previous studies reveals the significance of various factors which affect their investment decision making behaviour. This study makes an attempt to show how the economic factors affect the Indian Equity market with special reference to financial crisis (2008). The explained variables in the study includes average monthly closing price of BSE 100 while the explanatory variables are Crude Oil Price (CP), Interest Rates (IR), Foreign Institutional Investment (FII), Exchange rate (ER), Gold Price (GP) and US Bond yields (USB). The data used in the study is in the monthly frequency and period of the study includes from January 2002 to December 2015. The empirical results exhibit significant impact of macroeconomic variables on Indian stock market.

Key words: Stock Exchanges, Industrial Production, Growth Rate, Macroeconomic Variables.

1. INTRODUCTION

Every major change in country and economy is reflected in the prices of shares. The rise or fall in the share prices indicates the boom or recession cycle of the economy. Stock exchange is also known as a pulse of economy or economic mirror which reflects the economic conditions of a country.

Stock markets refer to a market place where investors can buy and sell stocks. The price at which each buying and selling transaction takes is determined by the market forces (i.e. demand and supply for a particular stock).

Many foreign institutional investors (FII) are investing in Indian stock markets on a very large scale. The liberal economic policies pursued by successive Governments attracted foreign institutional investors to a large scale. Global investors now ardently seek India as their preferred location for

investment. Once viewed with skepticism, stock market now appeals to middle class Indians also. Many Indians working in foreign countries now divert their savings to stocks.

The unpredictable behaviour of the market gave it a tag – ‘a volatile market.’ The factors that affected the market in the past were crude oil prices, FII, US dollar price, Interest rates, WPI, GDP, Inflation, Changes in government policies, Taxes etc. Stock exchange encourages people to invest in ownership securities by regulating new issues, better trading practices and by educating public about investment. As everyone knows Crude oil prices play a very significant role on the economy of any country. India’s growth story hovers around the import of oil as India imports 70% of its crude requirements. Any negative change in the crude oil price has an immediate positive impact on the increment in the GDP and IIP. A one-dollar fall in the price of oil saves the country about 40 billion rupees. That has a three-fold effect spread across the economy. The fall in international prices of oil will have a soothing effect on inflation. But it won’t be strong enough because the consumption of oil in industry is not that high except in the manufacture of certain products like carbon black.

The impact of dollar index on currency market is quite obvious. When the dollar index rises, other currencies including the INR falls relative to the USD. On the other hand, when the Dollar Index falls the INR appreciates with respect to the USD. Commodity prices are usually inversely related to the dollar index. Therefore, when the dollar index raises, prices of commodities like crude, metals etc falls and vice versa. Repo rate is the key driver for lending in the economy and banks take their call on lending rates based on the changes in repo rate. Every time when the repo rate changes are announced, the broad based market has a tendency to react sharply to the news. Change in repo rate acts like double whammy for the stock market. Increase in repo rate not only means change in the cost of capital for business but it also redistributes investment in favour of deposits which offer higher rate of return. The same happens when the repo rate is cut. But the most important thing to note here is that while market may react to news sharply on the date of repo rate change announcements real impact comes only over a period of time.

The financial crisis of 2007–2008, also known as the global financial crisis and the 2008 financial crisis, is considered by many economists to have been the worst financial crisis since the Great Depression of the 1930s. The precipitating factor was a high default rate in the subprime home mortgage sector. The crisis threatened the collapse of large financial institutions, which was prevented by the bailout of banks by national governments, but stock markets still dropped worldwide. In many areas, the housing market also suffered, resulting in evictions, foreclosures and prolonged unemployment.

2. REVIEW OF LITERATURE

Pooja Singh (2014) states that gold has adverse effect on Indian Stock market that shows the increasing interest of investors in the precious metal. The increasing investment in gold would create huge burden on import of India as the precious metal accounts nearly 8 to 10 % of the import bills. The stock market declines due to the decrease in the value of rupee with respect to US dollar. The money supply has positive impact on the stock market that reveals that larger money in circulation has favourable impact on stock market during the period of study. The foreign capital has become the major factor that accelerates the stock prices.

Vishal Geete (2015) used weekly data for a time span of 3 years (2011–2014) and had done regression analysis to study the impact of gold price and dollar price on Nifty. The independent factors are represented by gold price and dollar price and dependent variable is Nifty. He observed a positive correlation between gold and Nifty, and negative relation between dollar price and Nifty but have less effect on Nifty compared to other factors. The results of this analysis should not be treated as conclusive for an investment in Nifty because there are various other factors which affect Nifty.

P.Hemavathy and Guruswamy (2014) states “Whilst the general global economy is slipping into global recession, the gold market is a lucrative investment for investors”. Slump in equity market could stimulate a change to safety and hence in the short run, there could be augmented demand for

gold in domestic market leading to ascend in domestic gold prices. The movements in stock market indices can surrogate positive or negative exceptions, regarding future, and hence it can be an idyllic challenger variable to symbolize features like shift to safer assets during times of crisis. Gold is considered as inflation hedge in the long run the level of inflation can affect the gold prices. If the inflation level is towering, gold consumption may amplify leading to higher gold prices in India. The upward movement in gold prices appears to have gained strong momentum, and the yellow metal has attracted sustained demand during periods of economic uncertainty.

Gaurav Agarwal, Anirudh Srivatsav and Ankita Srivatsav (2010) empirically examines the dynamics between the volatility of stock returns and movement of Rupee-Dollar exchange rates, in terms of the extent of interdependency and causality. Application of Jarque-Bera test yielded statistics that affirmed non-normal distribution of both the variables. The coefficient of correlation between the two variables was computed, which indicated slight negative correlation between them. Hence, Granger Causality test was applied to the two variables, which proved unidirectional causality running from stock returns to exchange rates, that is, an increase in the returns of Nifty caused a decline in the exchange rates but the converse was not found to be true.

Anubha Shrivastav (2013) observed that investments by FIIs and the movements of Sensex are quite closely correlated in India and FIIs wield significant influence on the movement of sensex. There is little doubt that FII inflows have significantly grown in importance over the last few years According to findings and results, he concluded that FII did have high significant impact on the Indian capital market. BSE CG, BSE CD, and BSE IT showed positive correlation but BSE FMCG showed negative correlation with FII. The degree of relation was low in all the case. It shows low degree of linear relation between FII and other stock index. This implies that their impact on the stock prices varies from sector to sector which is further influenced by the industry to which it belongs to and the sectoral performance. In the absence of any other substantial form of capital inflows, the potential ill effects of a reduction in the FII flows into the Indian economy can be severe which can be seen at the time of U.S subprime crisis. Data on shareholding pattern show that the FIIs are currently the most dominant non-promoter shareholder in most of the Sensex companies and they also control more tradable shares of Sensex companies than any other investor groups.

Reena Rani (2014) observed and concluded that there are various factors that influence the individual investor's behavior in stock market. Some factors affect majorly while other have slight role in influencing the behavior of an individual investor. The factors can be classified into demographic, economic, social, and psychological in nature. The most general factors that have a significant impact on the investors' behavior are herding, over-reaction, cognitive bias, confidence (over or under), gender, age, income, education, risk factor, dividends, influence of people's opinion (friends or family), past performance of the company, accounting information, ownership structure, expected corporate earnings.

S.P Narang and Raman Preet Singh (2013) examined the casual relationship between Sensex and gold price and the results of Augmented Dickey- Fuller test conclude that the series are stationary and integrated of order one. There is a positive correlation between stock returns and gold price from 2002 to 2007 but due to economic crisis in USA in 2008 and 2011 this correlation seems to be fading and it was establish by using correlation and Johansen's co-integration test that there is no relation between gold prices and stock returns i.e. Sensex return in the long run period. The results of Granger causality test reveals that returns of Sensex index does not lead to increase in gold price and rise in gold price does not lead to increase in Sensex.

Krishna Murari and Rajesh Sharma (2013) stated that depreciation and appreciation in rupee is not a permanent phenomenon but it is due to various reasons and listed out those factors which influence the fluctuation in Indian rupee against dollar. Here six factors have been identified to be specific to rupee fluctuation and are modelled with multivariate regression analysis. They are forex reserves, FII, money supply, trade balance, inflation and relative interest rates. The result of analysis

shows that these variables can explain the exchange rate dynamics to the extent of 94.8%. Since there are various internal as well as external reasons behind rupee appreciation and depreciation to a large extent, It takes time to bring back the situation to the normal state. The RBI and other Government agencies have to play their role to tackle this situation.

Pratap rai and Palash Bairagi (2014) analyses the oil price movements on the stock markets and also evaluated the possible causes behind oil price fluctuations over a period. The degree of such relationship varies from market to markets and different time periods. It is generally observed that rising oil prices tends to result in diminishing returns from the stock market and vice versa. His study also indicates that oil prices tend to follow the fundamental economic principles of Supply and Demand in the long run and are also affected by global socio-economic and political developments like global recession (2008), Iraq war (2003). Thus, the study doesn't not attribute all the fluctuations happening in Indian stock market to oil prices, as it is one among the large number of factors like inflation, GDP, exchange rate, etc. which impact corporate earnings.

Dharmendra Singh (2010) found mixed and ambiguous results as there is undoubtedly strong correlation between BSE Sensex and IIP, Sensex and WPI but not between exchange rate and Sensex. Although there is strong correlation between the Sensex and macroeconomic variables even then the causality that has come out is just amongst a one macroeconomic variable (IIP) and stock market variable which further strengthens the issue that stock markets in India are in their nascent phase as their impact on macro economic variables is less as that in developed countries and moreover effect of macroeconomic variables is weak on stock market index in case of causality.

The reason behind the ambiguity may be that stock market is in nascent stage in India and only a meager percent of people invest in stock market which makes it not so good representative of the Indian financial health. Bilateral causal relationship is observed only in case of SENSEX and IIP. This means that IIP results can be used to predict the stock market movement. Whereas, other two variables i.e. WPI and exchange rate, they can't be used to predict the movement of stock market. Therefore, we can say that Indian stock market is showing the weak form of market efficiency. This concludes that Indian stock market is approaching towards informational efficiency at least with respect to two macroeconomic variables, viz. exchange rate and inflation (WPI)

3. RESEARCH PROBLEM

This study focuses on identifying the economic factors which influence the Indian equity market and their impact on the BSE Sensex. An attempt has been made to study the relation between the economic factors and sensex before and after the financial crisis(2008).

The economic factors which are considered for the research are crude oil prices, dollar prices, REPO rate, FII (Foreign Institutional Investors), US bond yields and Gold prices. A study of how EMH (Efficient Market Hypothesis) is prevailing in the Indian Equity Market is analysed and is checked whether EMH is satisfied or not in the time duration selected. The research also checks whether Elliot Wave theory and Efficient Market Hypothesis (EMH) is proved in the chosen time period of the Indian Equity market.

4. OBJECTIVES OF THE STUDY

- To calculate correlation and causality, if any, between the stock market index SENSEX and macroeconomic variable in two phases i.e before and after financial crisis.
- To shed light on the nature of causal relationship that exists between the stock market and macro economic variables

5. HYPOTHESIS

H1: There is causal relationship among macroeconomic variables and stock market in the pre financial crisis.

H2: There is causal relationship among macroeconomic variables and stock market in the post financial crisis.

6. THEORETICAL FRAME WORK

6.1 EFFICIENT MARKET HYPOTHESIS (EMH)

The efficient market hypothesis (EMH) is an investment theory that states it is impossible to "beat the market" because stock market efficiency causes existing share prices to always incorporate and reflect all relevant information. According to the EMH, stocks always trade at their fair value on stock exchanges, making it impossible for investors to either purchase undervalued stocks or sell stocks for inflated prices. As such, it should be impossible to outperform the overall market through expert stock selection or market timing, and the only way an investor can possibly obtain higher returns is by purchasing riskier investments.

6.2. ELLIOTT WAVE THEORY

Ralph Nelson Elliott developed the Elliott Wave Theory in the late 1920s by discovering that stock markets, thought to behave in a somewhat chaotic manner, in fact traded in repetitive cycles. Elliott discovered that these market cycles resulted from investors' reactions to outside influences, or predominant psychology of the masses at the time. He found that the upward and downward swings of the mass psychology always showed up in the same repetitive patterns, which were then divided further into patterns he termed "waves".

A correct Elliott wave count must observe three rules:

- Wave 2 never retraces more than 100% of wave 1.
- Wave 3 cannot be the shortest of the three impulse waves, namely waves 1, 3 and 5.
- Wave 4 does not overlap with the price territory of wave 1, except in the rare case of a diagonal triangle formation.

A common guideline called "alternation" observes that in a five-wave pattern, waves 2 and 4 often take alternate forms; a simple sharp move in wave 2, for example, suggests a complex mild move in wave 4. Corrective wave patterns unfold in forms known as zigzags, flats, or triangles. In turn these corrective patterns can come together to form more complex corrections. Similarly, a triangular corrective pattern is formed usually in wave 4, but very rarely in wave 2, and is the indication of the end of a correction.

The Elliott Wave Theory is interpreted as follows:

- Every action is followed by a reaction.
- Five waves move in the direction of the main trend followed by three corrective waves (a 5-3 move).
- A 5-3 move completes a cycle.
- This 5-3 move then becomes two subdivisions of the next higher 5-3 wave.

7. RESEARCH METHODOLOGY

In our research, we have selected the deductive approach which means what we focus is testing a theory rather than generate theory. In order to test the hypothesis, we collect data of five indicators (FII, Crude oil prices, Dollar value, REPO rate, US bond yields) which are described in a numerical way. The data are collected directly from reports of RBI, yahoo finance and money control websites. As a result, the quantitative data and statistical analysis maintain the objective conception in a study of social reality. Therefore, quantitative research is more appropriate for this topic.

SPSS is a widely used program for statistical analysis in social science. It is also used by market researchers, health researchers, survey companies, government, education researchers, marketing organizations, data miners, and others.

To test the hypotheses we have made in the last part, we need to build regressions to measure the relationships of dependent and independent variables. "The regression analysis tests the statistical strength of the model as hypothesized".

In statistical modeling, regression analysis is a statistical process for estimating the relationships among variables. It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or

more independent variables (or 'predictors'). Regression analysis is widely used for prediction and forecasting, where its use has substantial overlap with the field of machine learning. Regression analysis is also used to understand which among the independent variables are related to the dependent variable, and to explore the forms of these relationships.

Multivariate regression model needs to be introduced in the situation where there are more no:of independent variables

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_i X_i + \epsilon_i$$

Where:

i goes from 1 to N and indicates the observation number

X_i is the independent variable

Y_i is the dependent variable

β_0 is the intercept

β_1 is the slope

ϵ_i is the residuals

The proposed model for this study is as follows:

$$\bullet \text{ BSE100} = \alpha_0 + \beta_1 \text{CP} + \beta_2 \text{FII} + \beta_3 \text{IR} + \beta_4 \text{ER} + \beta_5 \text{USB} + \beta_6 \text{GP} + \epsilon$$

α_0 =Constant

ϵ = Error term

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ and β_6 are the coefficients of independent variables CP, FII, IR, ER and USB respectively. The dependent variables are average monthly closing price of BSE 100 index while independent variables includes Crude oil prices (CP), Foreign Institutional Investors (FII), REPO rate(IR), Exchange rate(ER), US bond yields (USB) and Gold price(GP).

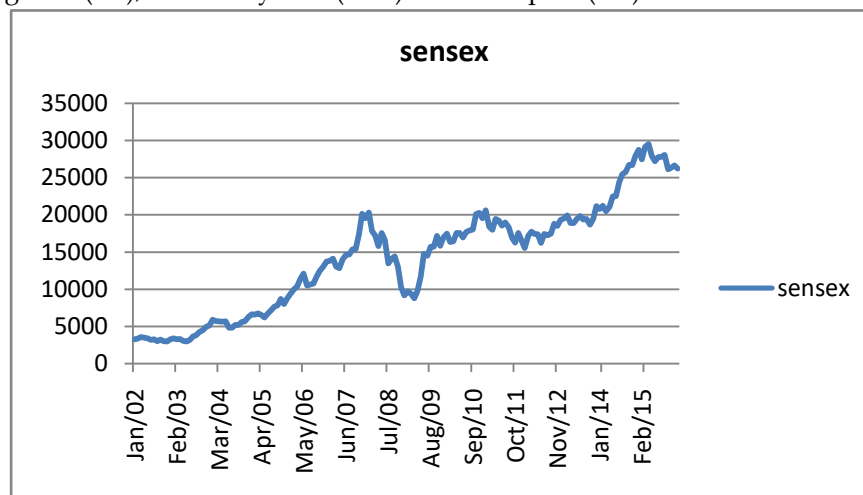


Figure 1

The figure1 depicts that sensdex undergoes through many phases like accumulation phase, mark-up phase, greed or late majority phase, distribution phase, mark-down phase. The total cycle is repeated twice in the period of 2002-2015. From 2002-2009 there exists one cycle and another cycle is repeated from 2009-2015. Now the phase that Indian equity market is going through is the mark-up phase. According to the Elliott Wave Theory "Every action is followed by a reaction" is proved in the case of the Indian Equity market. In this case, action is the financial crisis and reaction is the drastic changes in the market trends. Figure1 explains that EMH is proved in this case i.e "stock market efficiency causes existing share prices to always incorporate and reflect all relevant information".

7.1 PRE FINANCIAL CRISIS

CORRELATIONS

| | | Sensex | crude oil | dollar value | FII | Repo | US bond yields | Gold Price |
|----------------|---------------------|---------|-----------|--------------|---------|--------|----------------|------------|
| Sensex | Pearson Correlation | 1 | .872** | -.759** | .073 | .323** | .210* | .870** |
| | Sig. (1-tailed) | | .000 | .000 | .254 | .001 | .028 | .000 |
| crude oil | Pearson Correlation | .872** | 1 | -.667** | -.075 | .278** | .042 | .878** |
| | Sig. (1-tailed) | .000 | | .000 | .248 | .005 | .353 | .000 |
| dollar value | Pearson Correlation | -.759** | -.667** | 1 | -.261** | -.029 | -.096 | -.461** |
| | Sig. (1-tailed) | .000 | .000 | | .008 | .398 | .192 | .000 |
| FII | Pearson Correlation | .073 | -.075 | -.261** | 1 | -.153 | .132 | -.129 |
| | Sig. (1-tailed) | .254 | .248 | .008 | | .083 | .116 | .121 |
| Repo | Pearson Correlation | .323** | .278** | -.029 | -.153 | 1 | .193* | .335** |
| | Sig. (1-tailed) | .001 | .005 | .398 | .083 | | .039 | .001 |
| US bond yields | Pearson Correlation | .210* | .042 | -.096 | .132 | .193* | 1 | -.016 |
| | Sig. (1-tailed) | .028 | .353 | .192 | .116 | .039 | | .441 |
| Gold Price | Pearson Correlation | .870** | .878** | -.461** | -.129 | .335** | -.016 | 1 |
| | Sig. (1-tailed) | .000 | .000 | .000 | .121 | .001 | .441 | |

** . Correlation is significant at the 0.01 level (1-tailed).

* . Correlation is significant at the 0.05 level (1-tailed).

c. Listwise N=84

The table shows the correlation matrix of BSE 100 index with the selected set of macroeconomic variables. The correlation results reveal the positive association of BSE sensex index with Crude oil prices, Foreign Institutional Investments, Interest rate, US bond yields, Gold prices while negative with Dollar price. Highly significant positive relationship exists among Crude oil prices (0.872), gold prices (0.870) and BSE 100 index at 1% level of significance. A mere little relation exists between BSE sensex and FII (0.073). Thus it demonstrates that foreign investors do not have significant effect on the index during the period of study because at that time FIIs are not attracted to invest because of the economic issues, political support and taxes imposed in India. The appreciation in the exchange rate leads to the decline in the value of Indian rupee with respect to US dollars. Thus the currency become weaker in the international market which makes adversely affects the balance of trade of India. The exchange rate has negative association with gold price in India. The crude oil prices also have strong negative relationship with the exchange rates i.e US dollar price.

The null hypothesis that is considered in the study of pre financial crisis includes:

H₀: There is no significant impact of macroeconomic variables on the stock market in the pre financial crisis.

H₁: There is causal relationship among macroeconomic variables and stock market in the pre financial crisis

COEFFICIENTS

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. | Correlations | | |
|-------|----------------|-----------------------------|------------|---------------------------|---------|------|--------------|---------|-------|
| | | B | Std. Error | Beta | | | Zero-order | Partial | Part |
| 1 | (Constant) | 27191.749 | 3418.475 | | 7.954 | .000 | | | |
| | crude oil | -30.982 | 12.251 | -.167 | -2.529 | .013 | .873 | -.277 | -.059 |
| | dollar value | -899.856 | 69.154 | -.498 | -13.012 | .000 | -.759 | -.829 | -.306 |
| | FII | .021 | .022 | .026 | .995 | .323 | .073 | .113 | .023 |
| | Repo | 637.119 | 164.456 | .101 | 3.874 | .000 | .321 | .404 | .091 |
| | US bond yields | 1653.139 | 252.933 | .164 | 6.536 | .000 | .003 | .597 | .154 |
| | Gold Price | .513 | .036 | .793 | 14.360 | .000 | .870 | .853 | .338 |

a. Dependent Variable: sensdex

The hypothesis rejected in case of one variable i.e. FII while accepted in case of all the variables during the year 2002-2008.

The pre financial crisis period from year 2002- 2008 brings five variables that are included in the model are crude oil, dollar value, repo rate (IR), US bond yields and gold price. Rest all the selected variables are excluded from the model.

The crude oil and dollar value has negative impact on BSE Sensex index that signifies that market react in adversely with the increase in exchange rate as well as crude oil prices. As the value of Indian currency declines in the year with the appreciation in exchange rate, the market reacts negatively with this impact.

The fitted regression model is

$$\text{BSE sensdex} = 27191.749 - 30.982 \text{ CP} - 899.856 \text{ ER} + 637.119 \text{ IR} + 1653.139 \text{ USB} + 0.513 \text{ GP}$$

7.2 POST FINANCIAL CRISIS

CORRELATIONS

| | | Sensex | crude oil | dollar value | FII | repo | Us bond yields | Gold Price |
|--------------|---------------------|--------|-----------|--------------|-------|--------|----------------|------------|
| Sensex | Pearson Correlation | 1 | -.157 | .719** | .151 | .414** | -.409** | .386** |
| | Sig. (2-tailed) | | .153 | .000 | .171 | .000 | .000 | .000 |
| crude oil | Pearson Correlation | -.157 | 1 | -.181 | .132 | .506** | -.037 | .559** |
| | Sig. (2-tailed) | .153 | | .100 | .233 | .000 | .739 | .000 |
| dollar value | Pearson Correlation | .719** | -.181 | 1 | -.046 | .490** | -.483** | .511** |
| | Sig. (2-tailed) | .000 | .100 | | .677 | .000 | .000 | .000 |
| FII | Pearson Correlation | .151 | .132 | -.046 | 1 | .144 | .010 | .073 |
| | Sig. (2-tailed) | .171 | .233 | .677 | | .190 | .925 | .507 |
| Repo | Pearson Correlation | .414** | .506** | .490** | .144 | 1 | -.710** | .902** |

| | | | | | | | | |
|----------------|---------------------|---------|--------|---------|------|---------|---------|---------|
| | Sig. (2-tailed) | .000 | .000 | .000 | .190 | | .000 | .000 |
| Us bond yields | Pearson Correlation | -.409** | -.037 | -.483** | .010 | -.710** | 1 | -.727** |
| | Sig. (2-tailed) | .000 | .739 | .000 | .925 | .000 | | .000 |
| Gold Price | Pearson Correlation | .386** | .559** | .511** | .073 | .902** | -.727** | 1 |
| | Sig. (2-tailed) | .000 | .000 | .000 | .507 | .000 | .000 | |

** . Correlation is significant at the 0.01 level (2-tailed).

b. List wise N=84

The table shows the correlation matrix of BSE 100 index with the selected set of macroeconomic variables. The correlation results reveal the positive association of BSE sensx index with Exchange rates (dollar price), Foreign Institutional Investments, Interest rate, US bond yields, and Gold prices while negative relationship with Crude oil price. Highly significant positive relationship exists among Exchange rates (0.719) and BSE 100 index at 1% level of significance. A mere little relation exists between BSE sensx and FII (0.151). Thus it demonstrates that foreign investors do not have significant effect on the index during the period of study because FIIs are not attracted to invest because of the economic issues, political support and taxes imposed in India. The appreciation in the exchange rate leads to the decline in the value of Indian rupee with respect to US dollars. Thus the currency become weaker in the international market which makes adversely affects the balance of trade of India. The BSE sensx has positive association with gold price in India.As the second largest country in the world in the consumption of gold after china, India has huge demand of goldin the national market due to several reasons. This yellow metal has emerged as safe investment avenue for the investors due to its huge return and high liquidity. As an importing country of gold, appreciation in exchange rate would depreciate the value of rupee that would lead to the increase in gold prices. Thus, it brings the issues of multicollinearity among independent variables.

The null hypothesis that is considered in the study of post financial crisis includes:

Ho: There is no significant impact of macroeconomic variables on the stock marketin the post financial crisis.

H1: There is causal relationship among macroeconomic variables and stock market in the post financial crisis

COEFFICIENTS

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. | Correlations | | |
|-------|----------------|-----------------------------|------------|---------------------------|--------|------|--------------|---------|-------|
| | | B | Std. Error | Beta | | | Zero-order | Partial | Part |
| 1 | (Constant) | -28270.584 | 5986.802 | | -4.722 | .000 | | | |
| | crude oil | -158.405 | 34.720 | -.761 | -4.562 | .000 | -.155 | -.461 | -.295 |
| | dollar value | 249.071 | 73.557 | .383 | 3.386 | .001 | .720 | .360 | .219 |
| | FII | .070 | .021 | .219 | 3.272 | .002 | .151 | .349 | .212 |
| | Repo | 2533.049 | 640.088 | .686 | 3.957 | .000 | .428 | .411 | .256 |
| | Us bond yields | 6011.334 | 1327.071 | .813 | 4.530 | .000 | -.348 | .459 | .293 |
| | Gold Price | .201 | .087 | .624 | 2.296 | .024 | .386 | .253 | .148 |

a. Dependent Variable: sensx

The hypothesis rejected in case of one variable i.e. Gold price while accepted in case of all the variables during the year 2008-2015.

The post financial crisis period from year 2009- 2015 brings five variables that are included in the model are crude oil, dollar value, repo rate (IR), US bond yields and FII. Rest all the selected variables are excluded from the model.

The crude oil has negative impact on BSE Sensex index that signifies that market react in adversely with the increase in crude oil prices. There is significantly less change in the value of BSE Sensex with respect to the changes of FII and gold price.

The fitted regression model is

$$\text{BSE sensex} = -28270.584 - 158.405 \text{ CP} + 249.071 \text{ DP} + 0.070 \text{ FII} + 2533.0491 \text{ IR} + 6011.334 \text{ USB}$$

8. FINDINGS OF THE STUDY

PREFINANCIAL CRISIS

- The correlation results reveal that there is positive association of BSE sensex index with Crude oil prices, Foreign Institutional Investments, Interest rate, US bond yields, Gold prices while negative with Dollar price.
- Highly significant positive relationship exists among Crude oil prices (0.872), gold prices (0.870) and BSE 100 index at 1% level of significance.
- A mere little relation exists between BSE sensex and FII (0.073)
- The crude oil prices also have strong negative relationship with the exchange rates i.e US dollar price
- The crude oil and dollar value has negative impact on BSE Sensex index that signifies that market react in adversely with the increase in exchange rate as well as crude oil prices.

POST FINANCIAL CRISIS

- The correlation results reveal the positive association of BSE sensex index with Exchange rates (dollar price), Foreign Institutional Investments, Interest rate, US bond yields, and Gold prices while negative relationship with Crude oil price.
- Highly significant positive relationship exists among dollar price (0.719) and BSE 100 index at 1% level of significance.
- A mere little relation exists between BSE sensex and FII (0.151).
- The appreciation in the exchange rate leads to the decline in the value of Indian rupee with respect to US dollars. Thus the currency become weaker in the international market which makes adversely affects the balance of trade of India.
- The BSE sensex has positive association with gold price in India.
- The crude oil has negative impact on BSE Sensex index that signifies that market react in adversely with the increase in crude oil prices. There is significantly less change in the value of BSE Sensex with respect to the changes of FII and gold price.

9. RECOMMENDATIONS

After the analysis of the project study, following recommendations can be made:

- 1) Simplifying procedures and relaxing entry barriers for business activities and providing investor friendly laws and tax system for foreign investors.
- 2) Allowing foreign investment in more areas. In different industries indices the FIIs should be encouraged through different patterns like futures, options, etc.
- 3) Somewhere, a restriction related to the track record of Sub- Accounts is also to be made on the investors who withdraw money out of the Indian stock market who have invested with the help of participatory notes.
- 4) We have to modernize and also have to save our culture. Similarly the laws should be such that it protects domestic investors and also promote trade in country through FIIs.
- 5) Encourage industries to grow to make FIIs an attractive junction to invest.

10. CONCLUSION

Financial crisis makes huge impact on the Indian equity market where the results were altered before and after financial crisis. Before financial crisis Indian market is negatively correlated with the dollar price i.e Exchange Rate and highly positively correlated with the crude oil prices. But after financial crisis Indian market is positively correlated with the dollar price i.e Exchange rate and highly negatively correlated with the crude oil prices where the Efficient Market Hypothesis (EMH) is proved in case of Indian Equity market.

The investors need to regain their faith in the market as the market need to perform upon the expectations of the investors. The inflow of foreign capital is value addition to the market as it has significant impact over stock market. The empirical results exhibit significant impact of macroeconomic factors on Indian stock market. The study also signifies long run equilibrium relationship among the variables. Foreign investors do not have significant effect on the index during the period of study because at that time FIIs are not attracted to invest because of the economic issues, political support and taxes imposed in India. The appreciation in the exchange rate leads to the decline in the value of Indian rupee with respect to US dollars. Thus the currency become weaker in the international market which makes adversely affects the balance of trade of India. As the second largest country in the world in the consumption of gold after china, India has huge demand of gold in the national market. due to several reasons. This yellow metal has emerged as safe investment avenue for the investors due to its huge return and high liquidity.

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