"AN IMPACT OF USA EQUITY MARKET INVESTMENT AND VOLATILITY ON INDIAN EQUITY MARKET"

Pradip S Thombare, Asst.Prof.Sinhgad Institute OF Management, SPPU,Pune

---

ABSTRACT:

The purpose of the study the volatility of the Equity Capital Market of India. It tells about the relationship between market risk and volatility. There are various factors behind the Volatility of the Indian Equity Market. The Volatility in US market affect the 'Indian Equity Market'. It establishes the Degree of Correlation between SENSEX and DJIA index, between SENSEX and TSE index and between SENSEX and NIKKEI 225 index. The project describes about factors like the effect of Foreign Institutional Investors, Hedge Funds, Inflation, Budget, Crisis in Sub-Prime Market in 2008 and other Economical factors those are affecting Indian Equity Market. The study will be helpful for the company to interpret the Indian Equity Market. The result will be helpful in analyzing the services provided by the company and do improvement where it is required. Markets across the world are seeing a lot of short term volatility (frequent rise or fall in stock market) mainly driven by news and events in the global markets. For example, news/rumors related to tough rules of outsourcing of business from USA, Stringent and strict rule of doing business with American companies. These are some fundamental reasons why global markets, especially the Indian stock market behave in a volatile manner based on developments in USA markets.

Indian economy is increasingly exposed to global markets post liberalization in the early 90s. We are seeing fast economic growth in last few years and as a result we have seen large fund inflows into Indian market from across the world. Most of these foreign funds are large momentum players and their activity in the market results in large volatility in stock markets.

Key words: BSE, NSE, NASDAQ, DJIA index, FII,VOLATALITY

INTRODUCTION:

INDIAN FINANCIAL MARKET:

Indian Economy is World second largest developing Economy. Indian Financial System is the backbone of the Indian economy. Indian Financial Market is classified in Capital Market and Money Market. Capital Market is further classified in Primary Market and Secondary Market.

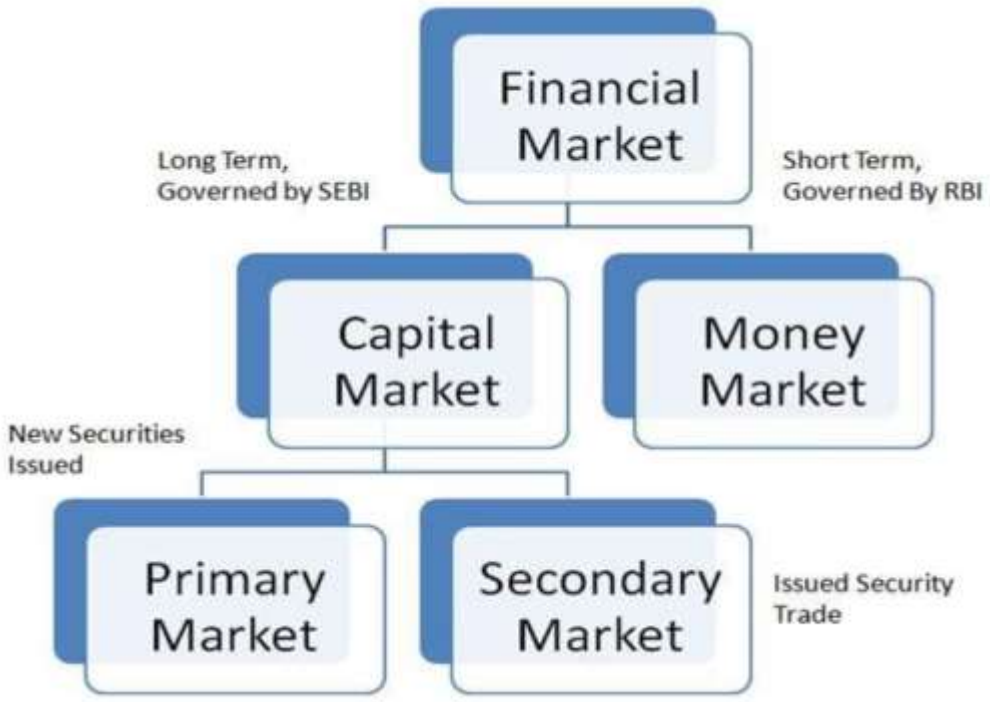

Fig No 1: Structure of Financial Market

We know that, money always flows from surplus sector to deficit sector. That means persons having excess of money lend it to those who need money to fulfill their requirement. Similarly, in business sectors the surplus money flows from the investors or lenders to the businessmen for the purpose of production or sale of goods and services. So, we find two different groups, one who invest money or lend money and the others, who borrow or use the money. Now it can be thought, how these two groups meet and transact with each other. The financial markets act as a link between these two different groups. It facilitates this function by acting as an intermediary between the borrowers and lenders of money.

OBJECTIVES OF THE STUDY:

- To study the effect of US market Volatility on Indian Equity Market.
- To analyze the effect of Indian Bond Yield on Indian Equity Market
- To gain idea about effect of US Bond Yield on Indian Equity Market.
- To study the correlation between USA (NASDAQ) & Indian (Sensex & Nifty)
- To study the 4 selected stock market indices such as Bombay Stock Exchange, National Stock Exchange, New York Stock Exchange, NASDAQ.

LITERATURE REVIEW:

Kenneth (1987) in his article stated that the relationship between stock returns and stock market volatility. They found evidence that the expected market risk premium is positively related to the predictable volatility of stock returns. They also find the evidence that the unexpected stock market returns are negatively related to the unexpected change in the volatility of stock returns. This negative relation provides indirect evidence of a positive relation between expected risk premiums and volatility. They suggest that these variables have fluctuated widely over the past sixty years.

Yasushi Hamao et al. (1990) observed a short-run interdependence of prices and price volatility across the three major international stock markets. They examined the daily opening and closing prices of major stock indexes for the Tokyo, London and New York stock markets. They analyse that the price volatility spillovers from New York to Tokyo, London to Tokyo and New York to London, but no price volatility spillover effects in other directions are found for the pre October 1987 period. They found that the effect on the Please purchase PDF Split-Merge on www.verypdf.com to remove this watermark. 63 conditional mean is consistent with international financial integration, while the magnitude of volatility spill over is generally much less in this case.

Jaemin Kim (2007) examined changes in daily return volatility associated with open market share repurchases. He employed Univariate analyses; control the analyses and multiple regression analyses to explore relations between daily return volatility and a number of variables. He finds evidence that an open market share repurchase firm, by actively buying back its shares when the share price falls, reduces daily return volatility. His results suggest that it is the

subsequent actual buyback trading activity, not the announcement that is significantly negatively associated with changes in daily return volatility.

Kumar (2010) examined the statistical properties of the volatility index of India, its relationship with the Indian stock market and its predictive power for forecasting future variance. He examined the volatility transmission between India and developed markets. He employs quintile regression methodology to examine the empirical relationships of a volatility index. Volatility spillovers between emerging and developed markets are studied using volatility indices that are ex ante. During the study period they observed that the average Ivix level is 35.89 per cent and the higher movements. Volatility forecasts obtained from Ivix contain important information about realized market volatility and the results indicate that Ivix is an unbiased estimator of future realized volatility.

Kenneth Kim and Ghon Rhee (1997) claimed that price limits decrease stock price volatility, counter overreaction and do not interfere with trading activity. Conversely, price limit critics claim that price limits cause higher volatility levels on subsequent days, prevent prices from efficiently reaching their equilibrium level and interfere with trading due to limitations imposed by price limits. Their empirical research does not provide conclusive support for either position. They examine the Tokyo Stock Exchange price limit system to test these hypotheses. Their evidence supports all three hypotheses suggesting that price limits may be ineffective.

Subrahmanyam (1994) also inquires the true effects of circuit breakers on market volatility. He empirically shows that circuit breakers end up having the exact opposite effect on market volatility; that is, they increase it causing stock prices to move more than before. This is in agreement with Schwert (1990). Moreover, when a 49 circuit breaker is introduced in one market, traders shift their actions in other markets where there is no such halting. As a result, high volatility levels are transmitted into other markets as well. The author advises policy makers to recognize that the current regulations have the opposite result of what they intended, hence improve or eliminate them in the future.

Lockwood & Linn (1990) test the effect of specific changes in the structure of financial markets on market return volatility. These structure changes include (1) the opening on NASDAQ in 1971, (2) the standardization of stock option in 1973, (3) the negotiable commissions in 1975, (4) the beginning of stock index futures in 1982 and (5) the increased margin requirements for stock index futures in 1988. They report that the level of stock market volatility changes through time. They are able to connect shifts in volatility levels to the financial structural changes mentioned above. More specifically, the market variance is found to increase after the introduction of NASDAQ in 1971, after the options are standardized in 1973 and 1982 after the beginning of stock index futures. A general decline in the market variance is reported after the commission period and after the increase in margin requirements.

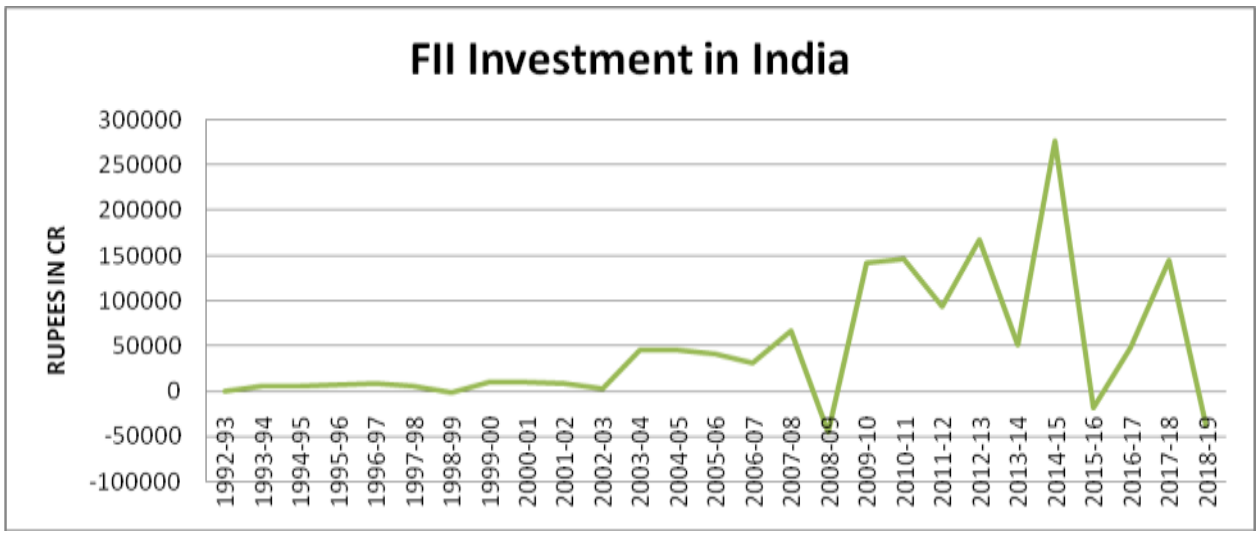

Chart-1

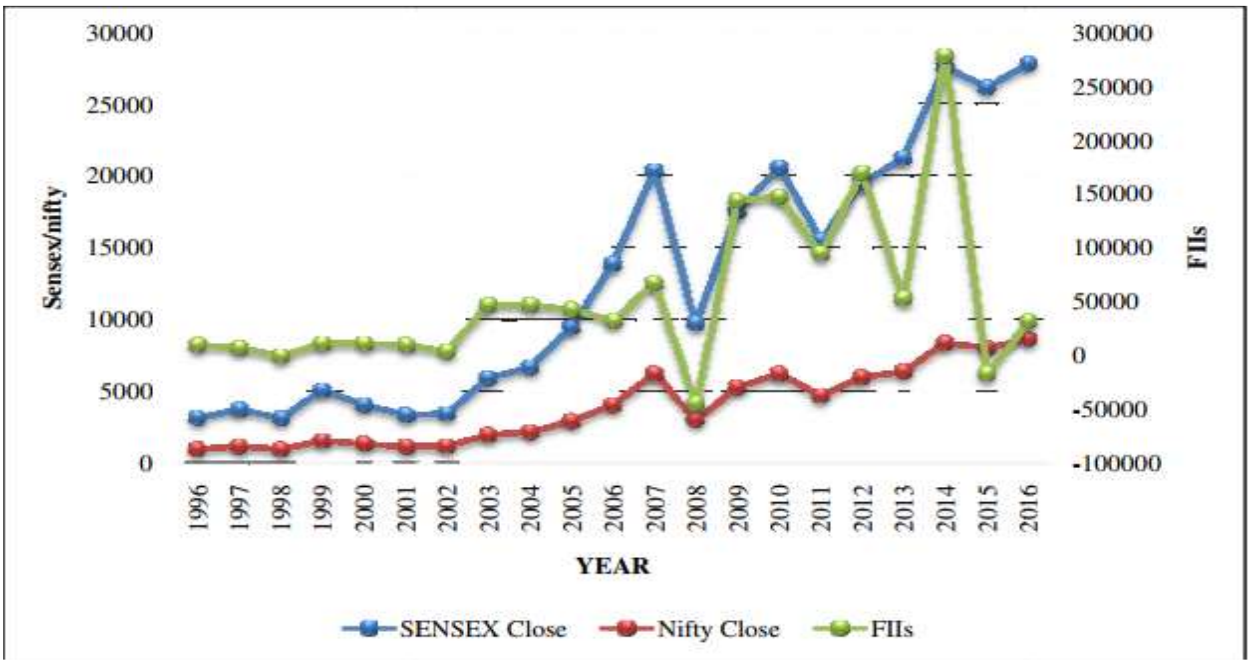

Chart-2 Trends of SENSEX, NIFTY and FII

RESEARCH METHODOLOGY:

RESEARCH DESIGN:

Descriptive studies are closely associated with observational studies, but they are not limited to observation data collection method, and case studies, as well as, surveys can also be specified as popular data collection methods used with descriptive studies

This is the exploratory research which tries to shows the factors which are making stock market volatile. Any fluctuation in foreign market has more effect on Indian stock market than that of domestic market. In the given volatile economic conditions, the market is efficient to any news and information.

DATA COLLECTION:

Data used in this study is of secondary in nature. Sensex and Nifty is taken as a source of information which widely describes Indian stock market. Here monthly prices of both indexes are taken for the study purpose.

Sources of information are,

- Internal data such as databases, sale reports, past primary researchers
- Government statistics and information from government agencies
- Information resources companies and
- A collection of secondary data from books, Magazines, the Internet.

DATA ANALYSIS:

Use of Coefficient Correlation as a tool for Data Analysis:
The main result of a correlation is called the correlation coefficient (or "r"). It ranges from -1.0 to +1.0. The closer r is to +1 or -1, the more closely the two variables are relate. With the help of Coefficient correlation tool we have tried to explain how the movement of one stock market affects the other stock market.

ANALYSIS AND FINDINGS:

Degree of Correlation between BSE Index (SENSEX) and NYSE Index (DJIA):

I. To find the degree of correlation, the data is collected from Jan 2016 to March 2019 :

Degree of Correlation between Movement of Sensex and Movement of FTSE Index:

Formula used:
Slope of the Best- Fitting Regression Line:

$$b = \frac{\Sigma XY - n\,\bar{X}\bar{Y}}{\Sigma X^2 - n\bar{X}^2}$$

b = slope of the best fitting regression line
X= values of the independent variable
Y= values of dependent variable
$\bar{X}$= mean of the values of the independent variable
$\bar{Y}$= mean of the values of the dependent variable
n = number of data points

Y-Intercept of the Best – Fitting Regression Line:

$$a = \bar{Y} - b\,\bar{X}$$

a= Y-Intercept
b= slope of the best fitting Regression line
$\bar{X}$= mean of the values of the independent variable
$\bar{Y}$= mean of the values of the dependent variable

Date	BSE Sensex	D J I A	X^2	Y^2	XY
19-Mar	366.7143	254.4968	134479.3778	64768.62121	93327.61586
19-Feb	358.6744	259.16	128647.3252	67163.9056	92954.0575
19-Jan	362.5669	249.9967	131454.757	62498.35001	90640.52853
18-Dec	360.6833	233.2746	130092.4429	54417.03901	84138.25253
18-Nov	361.943	255.3846	131002.7352	65221.29392	92434.66828
18-Oct	344.4205	251.1576	118625.4808	63080.14004	86503.82617
18-Sep	362.2714	264.5831	131240.5673	70004.21681	95850.89005
18-Aug	386.4507	259.6482	149344.1435	67417.18776	100341.2286
18-Jul	376.0658	254.1519	141425.4859	64593.18827	95577.8376
18-Jun	354.2348	242.7141	125482.2935	58910.13434	85977.78067
18-May	353.2238	244.1584	124767.0529	59613.32429	86242.55785
18-Apr	351.6036	241.6315	123625.0915	58385.78179	84958.50527
18-Mar	329.6868	241.0311	108693.3861	58095.99117	79464.77206
18-Feb	341.8404	250.292	116854.8591	62646.08526	85559.9174
18-Jan	359.6502	261.4939	129348.2664	68379.05974	94046.33343
17-Dec	340.5683	247.1922	115986.767	61103.98374	84185.82733
17-Nov	331.4935	242.7235	109887.9405	58914.69745	80461.26255
17-Oct	332.1313	233.7724	110311.2004	54649.535	77643.13112
17-Sep	312.8372	224.0509	97867.1137	50198.80579	70091.45621
17-Aug	317.3049	219.481	100682.3996	48171.90936	69642.39676
17-Jul	325.1494	218.9112	105722.1323	47922.11349	71178.84533
17-Jun	309.2161	213.4963	95614.5965	45580.67011	66016.49325
17-May	311.458	210.0865	97006.08576	44136.33748	65433.12112
17-Apr	299.184	209.4051	89511.06586	43850.49591	62650.65544
17-Mar	296.205	206.6322	87737.40203	42696.86608	61205.4908
17-Feb	287.4332	208.1224	82617.84446	43314.93338	59821.28742
17-Jan	276.5596	198.6409	76485.21235	39458.20715	54936.04785
16-Dec	266.2646	197.626	70896.83721	39056.03588	52620.80784
16-Nov	266.5281	191.2358	71037.22809	36571.1312	50969.71443
16-Oct	279.3021	181.4242	78009.66306	32914.74035	50672.16005
16-Sep	278.6596	183.0815	77651.17267	33518.83564	51017.41756
16-Aug	284.5217	184.0088	80952.59777	33859.23848	52354.49659
16-Jul	280.5186	184.3224	78690.68495	33974.74714	51705.8616
16-Jun	269.9972	179.2999	72898.48801	32148.45414	48410.47096
16-May	266.6796	177.872	71118.00906	31638.44838	47434.83381
16-Apr	256.0662	177.7364	65569.89878	31590.22788	45512.28455
16-Mar	253.4186	176.8509	64220.98683	31276.24083	44817.30749
16-Feb	230.02	165.165	52909.2004	27279.47723	37991.2533
16-Jan	248.7069	164.663	61855.12211	27113.90357	40952.82427
SUM	12290.2536	8558.975	3940322.915	1916134.355	2745744.219
AVG($\bar{x}$, $\bar{Y}$)	315.1347077	219.4608974	101033.9209	49131.65013	70403.69794
$\bar{x}^2$, $\bar{Y}^2$	99309.88399	48163.0855			

Table1: Movement of SENSEX AND DJI from Jan 2016 to March 2019

Regression Statistics	
Multiple R	0.962644877
R Square	0.926685159
Adjusted R Square	0.924703677
Standard Error	8.651505529
Observations	39

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	35004.62397	35004.62	467.6727	1.36966E-22
Residual	37	2769.396273	74.84855		
Total	38	37774.02025			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-7.919679614	10.60522073	-0.74677	0.459921
X Variable 1	0.721534542	0.033364614	21.62574	1.37E-22

Sample Coefficient of Determination:

$$r^2 = \frac{a\Sigma Y + b\,\Sigma XY - n\,\bar{Y}^2}{\Sigma Y^2 - n\bar{Y}^2}$$

Coefficient of Correlation: r = Under root of r^2
Coefficient of Correlation: r = .xxx
Degree of Correlation between BSE (SENSEX) & Dow Jones Industrial Average (DJI)
Slope of The Best- Fitting Regression Line:
b= 0.7215
Y- Intercept of the Best- Fitting Regression Line:
a= -7.9197
Sample Coefficient of Correlation:
r2= 0.9266
Coefficient of Correlation:

r = 0.9626

Interpretation:

Movement of indexes from Jan 2016to March 2019

We have taken closing index of two stock exchanges i.e. Bombay Stock Exchange (SENSEX) and Dow Jones (DJIA) for a period of 39 months to find out the Coefficient of Correlation between them. We find out that the value of Coefficient of Correlation between them is 0.9626 which is near about to 1. It indicates that Bombay Stock Exchange is dependent on the Dow Jones. It means anything happened in the US stock market, Indian stock market will get affected.

II: To analyze the effect of Indian Bond Yield on Indian Equity Market.

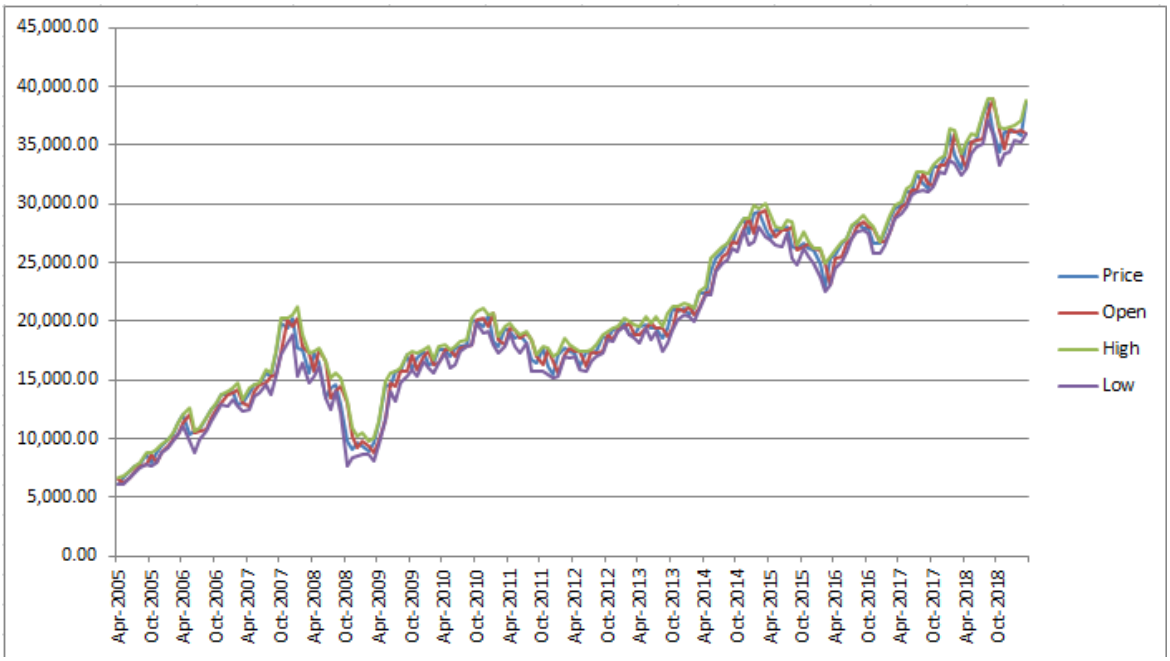

Fig No 5: BSE Sensex 30 from Jan 2005 to Mar 2019

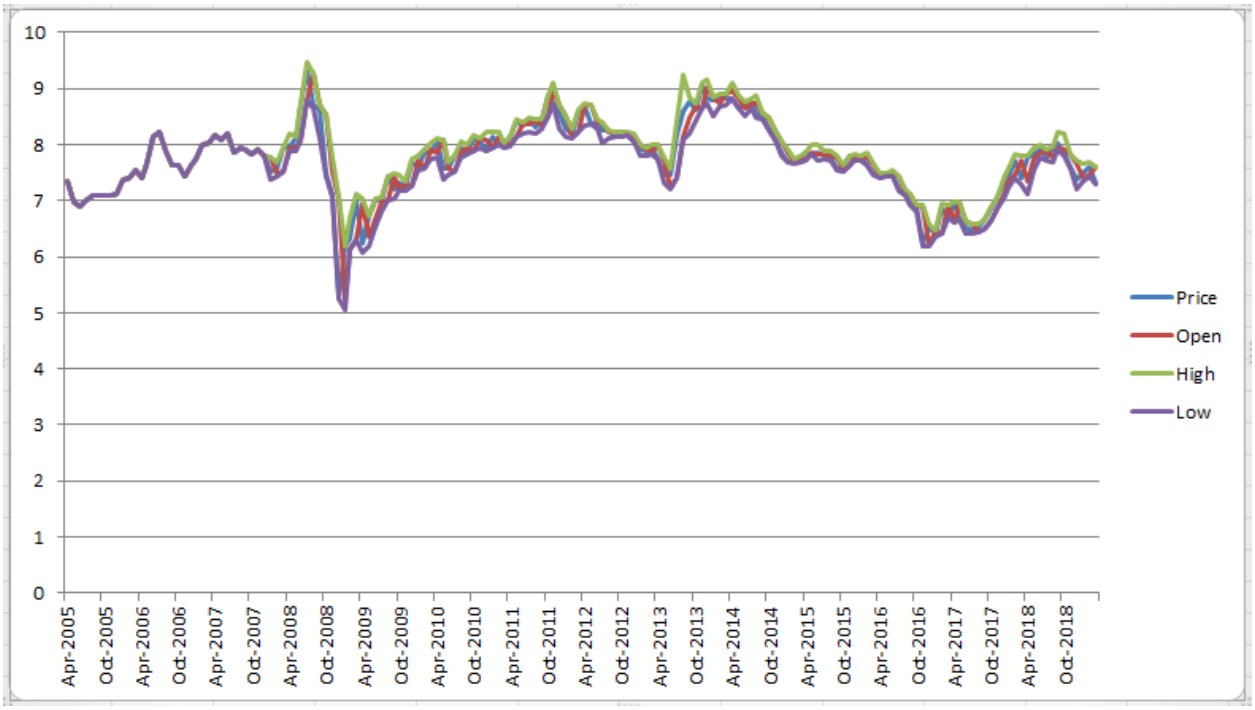

Fig No 6: IndianBond Yield from Jan 2005 to Mar 2019

Slope of The Best- Fitting Regression Line:
b= -0.0004
Y- Intercept of the Best- Fitting Regression Line:
a= 7.8144
Sample Coefficient of Correlation:
r2= 0.0022
Coefficient of Correlation:
r = 0.0473

Interpretation:

Movement of BSE Sensex And Indian Bond Yield from April 2005 to March 2019.

We have taken closing index of BSE Sensex And Indian Bond Yield for a period from April 2005 to March 2019 to find out the Coefficient of Correlation between them. We find out that the value of Coefficient of Correlation between them is 0.0473 which is not near to 0. It indicates that there is no relation between Bombay Stock Exchange and the Indian Bond Yield.

III: To gain idea about effect of US Bond on Indian Equity Market.

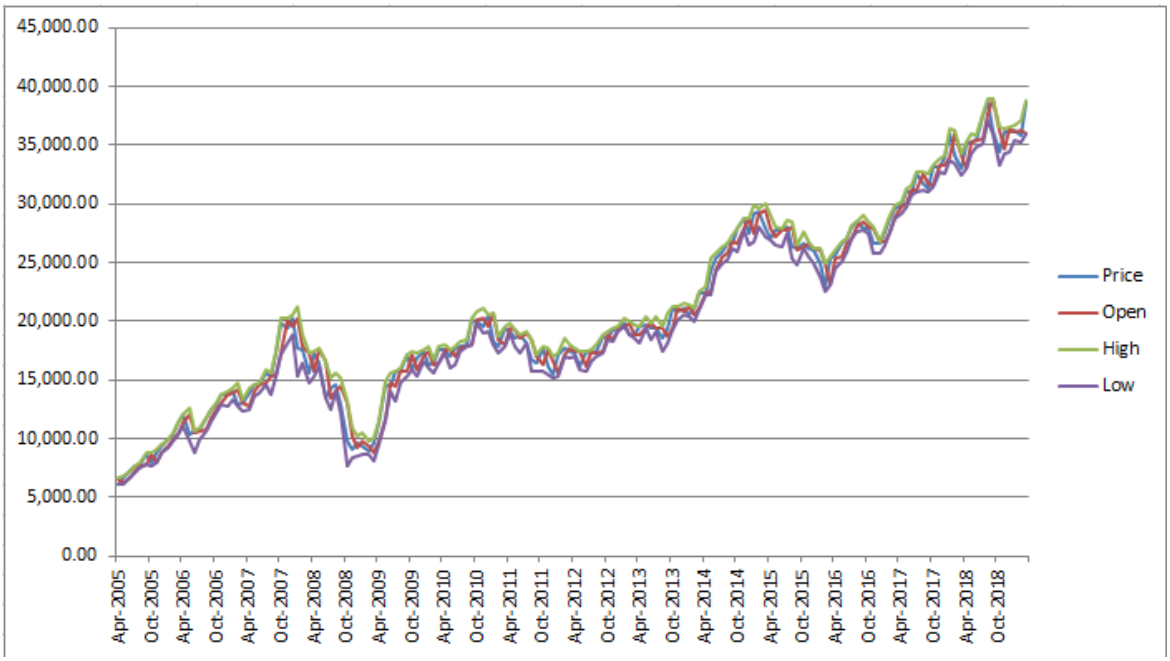

Fig No 7: BSE Sensex 30 from Jan 2005 to Mar 2019

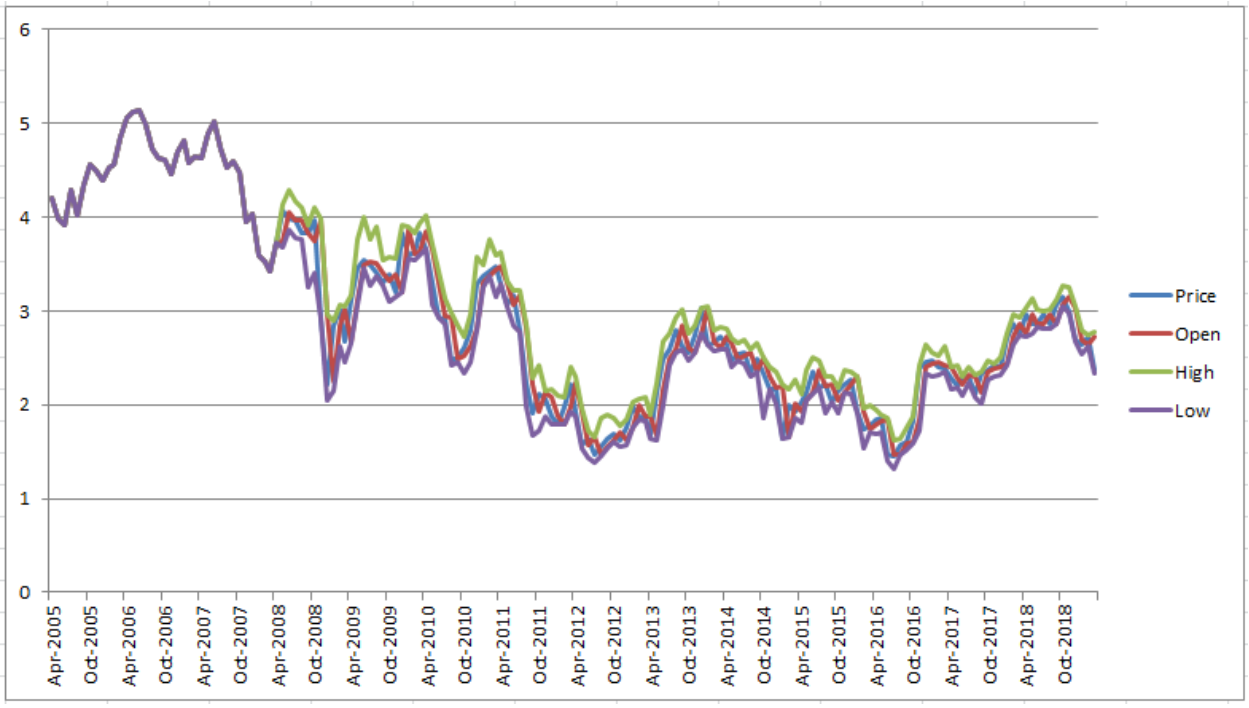

Fig No 8: U S Bond Yield from Jan 2005 to Mar 2019

Slope of The Best- Fitting Regression Line:
b= -0.0069
Y- Intercept of the Best- Fitting Regression Line:
a= 4.4042
Sample Coefficient of Correlation:
r2= 0.3076
Coefficient of Correlation:
r = 0.5546
Interpretation: Movement of BSE Sensex And US Bond Yield from April 2005 to March 2019

We have taken closing index of BSE Sensex And US Bond Yield for a period from April 2005 to March 2019 to find out the Coefficient of Correlation between them. We find out that the value of Coefficient of Correlation between them is 0.5546 which is not near to 1. It indicates that there is very less Inverse relation between Bombay Stock Exchange and US Bond Yield.

OBSERVATION& FINDINGS:

1. NASDAQ is the second-biggest stock exchange in the world and it holds 100 biggest companies in its list, many companies registered over NASDAQ are also registered over many Global Indexes. Similarly many companies listed over NIFTY are also present in USA registered as the affiliate of NIFTY and business centered over USA. Reliance, Tata, Infosys, Wipro etc. many are in list.
2. So the connectivity between USA Equity Market and Indian Equity Market is, USA markets open approximately around 7:30 PM IST, and they get closed by 2:30 AM IST. Thus any variance occurred during this moment will have impact on Asian market followed by Indian markets too. So NASDAQ is the major trend setter of market decision.
3. When US Stock Market shows some correction then it leads to cash crunch in Indian Economy as FII (Foreign Institutional Investors) will get panic while investing in Indian Stock Market.
4. A rise in interest rates due to whatever reasons in the US will have a worldwide impact on al countries' monetary policies, cost of capital and eventually the supply of money.
5. A growing US GDP suggests there is an overall demand for production around the world to some extent and that is positive sign. Commodities are priced in US dollars so if their currency depreciates against oil or gold, then our Imports will cost us much higher.

CONCLUSION:

The study of the various factors affecting Indian Equity Market will be helpful for us to interpret the Indian Equity Market.

India has been witness to a four-year up and down cycle in the stock markets. Since1992, the Indian markets have peaked every fourth year and then dropped 35-45%during the next three years. What is surprising though is that the Dalal Street has bucked the trend this time around. Some of the major conclusions derived in the study are as under.After the report been studied we can conclude that Indian Equity market is highly dependent on American stock market and this has been proved with the help of Correlation and coefficient data analysis technique.

America, being Economic leader the world is dependent on them for Business and other trade purposes. If we take the case of Indian Market which is vastly dependent on USA for trade and other investments. America has the biggest FII(Foreign Institutional Investor) in India. So it has a huge impact on India's economy and stock market.

Various political factors plays important role in the volatility of Indian stock market. Political events, especially during the prime ministerial elections, influence Indian stock markets considerably. Before the elections, there's tremendous volatility in the market. A rise or fall depends on expectations of the voters from the government. A coalition outlook accompanies bear runs in stock prices. On the contrary, full majority outlook makes the market bullish.

Other important factors are related to global financial circumstances we can find that oil prices and subprime crises are major factors which can be affect stock market. The same kinds of factors are grouped as global level factors. As Liberalization, privatization and Globalization opened doors for Indian Investors at other countries and domestic market for foreign players.

Volatility of major foreign trading partners was one of the important determinants of stock return volatility in a domestic market. The prominent ones being political reasons, economic policies, regulations of the government, privatization and globalization, the net effect of FIIs, civil disturbances in the country as well as outside the country, psychological factors etc. With increasing integration any shock that occurs in one market is quickly transmitted to the other markets.

With respect to the satisfaction level of the people investing in stock market with the help of the data we collected through our research we can conclude that majority of the public who have invested in Public sector large capital company for long term period are highly satisfied with the return on investment they have received. The research tells that people investing in private sector midcap companies for long term is not as highly satisfied as the one were in Public sector companies.

Another important factor is Debt market related to secured returns compare to the Stock market. In India most of the people prefer to invest money, where they can earn secured returns. Compare to the other country like US interest rates are higher in India. That is the reason there is no impact on Indian Stock market of Indian Bond market. In India, most of the FII (Foreign Institutional Investor) are from the America. After the report studied, there is relation between US bond market and Indian Stock Market.

REFRENCES:

- Bansal, K. P. (2014). Foreign Institutional Investments and Liquidity of Stock Markets:
- Dr. Rakesh Kumar, M. S. (2015). An Empirical Study On Impact Of Fii And Other Stock Exchanges Volatility On Bse Stock.
- Gandhi, D. K. (2015). A Study of Foreign Institutional Inflows andndian Stock Market Volatility. 4. Juneja, S. (2013). Understanding The Relation Between FII and Stock Market. 7.
- Shrivastav, A. (2013). Influence of FII Flows on Indian Stock Market..
- www.moneycontrol.com
- www.sebi.gov.in
- www.nse.com
- www.trendlyne.com
- www.nseindia.com
- www.bseindia.com
- www.nirmalbang.com
- www.sebi.gov.in
- www.moneycontrol.com
- www.yahoofinance.com
- www.ijird.com
- www.inflibnet,ac.in
- www.surveysystem.com