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FACTORS AFFECTING VOLATILITY IN INDIAN STOCK MARKETS

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ABSTRACT

Stock Market is considered to be back bone of the financial system of an economy. The phases of growth and decline in an economy are first evident on the stock market. Stock market is basically a platform for trading of securities of companies listed in the market and also a platform to raise money from the market by an Initial Public Offer (IPO). IPO helps a company's share to get listed on the stock market and once the shares are listed on the market, they can be traded on the market. The platform form on which the stock / shares / are traded is termed as stock exchanges. The two most dominant stock exchanges in India are Bombay Stock Exchange and National Stock Exchange.

There are lots of factors which have direct as well as indirect impact on the economic growth of India. The factors mostly include the macroeconomic indicators like GDP, Inflation, Government Spending on the country, FII, FDI, currency, IIP etc. The prime objective of this paper is to put light on the important factors which have significant impact on the volatility of Indian Stock Market.

KEYWORDS: Volatility, GDP, FDI, FII, Derivatives, Monetary policy, Interest Rate, Inflation Rate

INTRODUCTION

India became a global market on the page of world economy after the Liberalization, Globalization and Privatization in 1991. Few other major reforms which took place were digitalization of stock market in 1992, Nationalization of Banks etc. The opening of international doors of the Indian Market made India one of the most sought out country for Investment. This not only made India a land of opportunities for the foreign direct investment (FDI) and Foreign Institutional Investment (FII) but also made the Indian Stock Market more vulnerable to the global factors. The GDP growth of India became more dependent on the growth of the foreign direct investment. Also the floating of Indian Rupee in the International Currency Market was one more toppling.

The Indian Stock Market has almost tripled in all respects in the past two decades due to continuous reforms and increasing of the FIIs investment. The introduction of derivative products led to the increase in players in the stock market and added to the risks and volatility. Over the past two decades a wide variety of factors have played a significant role in the contributing to the volatility of the Stock Market. Presently there are around 23 stock markets India. The activities of stock market are controlled and regulated by the Securities and Exchange Board of India (SEBI).

The major factors which play a dominant role in the volatility of the market are:

- Foreign Direct Investment and Foreign Institutional Investment
- Inflation Rate
- Monetary Policies

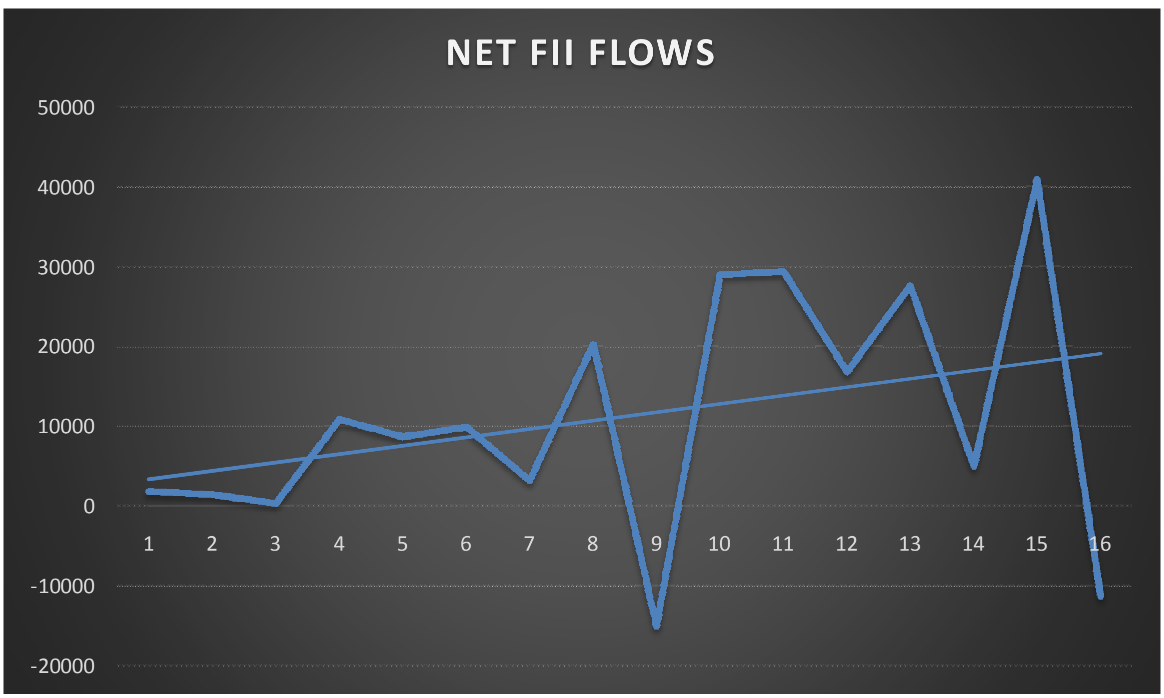
- Exchange Rate

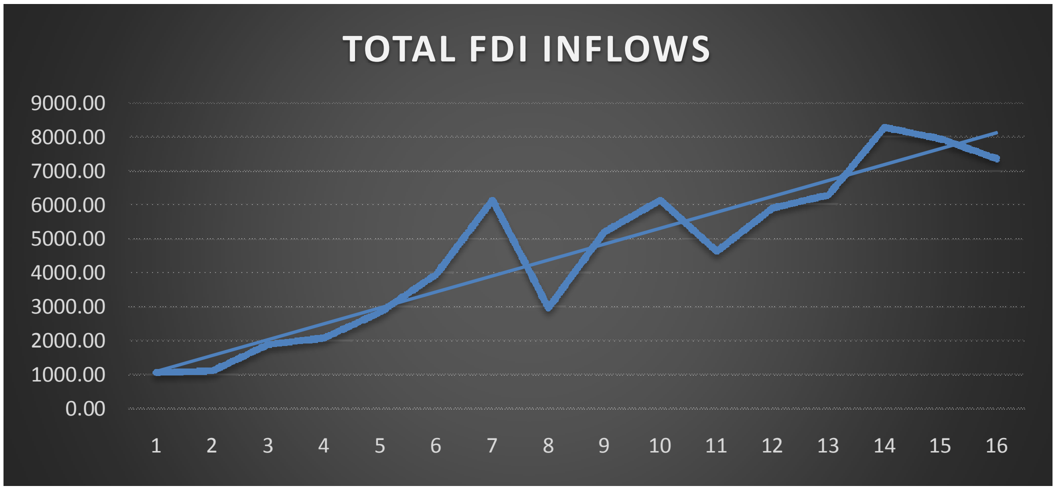
The impact of each of the factors stated above and how do they contribute to the volatility of the market has been discussed in this paper. Most of the factors affecting the market are interlinked as the effect of one parameter is the result of the action taken due to the other parameter on the markets. Also the importance of Volatility Index is also discussed in this paper

FOREIGN DIRECT INVESTMENT AND FOREIGN INSTITUTIONAL INVESTMENT

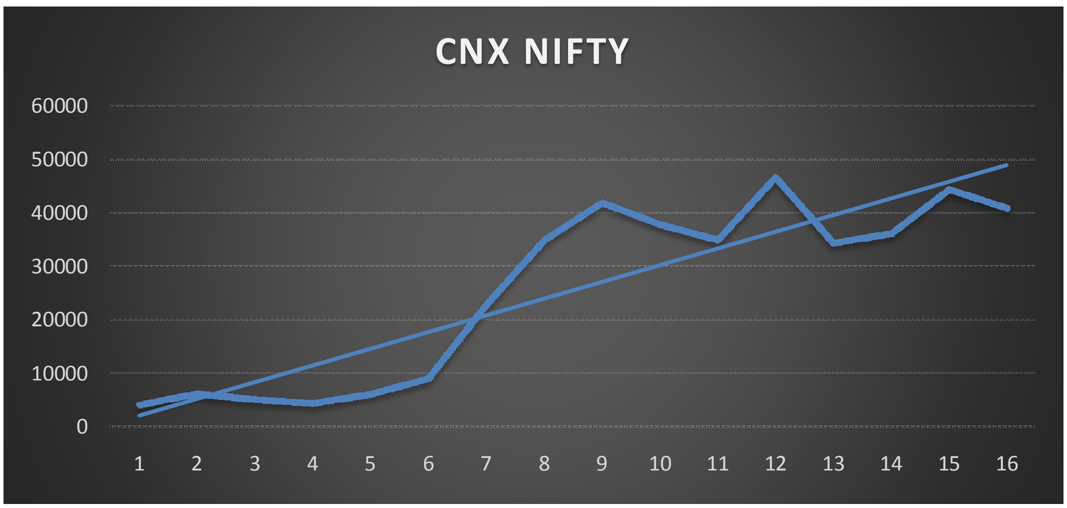
Foreign Direct Investment refers to the direct inflow from a foreign company into Indian economy. The same can be in the form of setting up manufacturing operations or setting up services by having a Joint Venture with an Indian Company which is engaged in the same business as the foreign company. Foreign Institutional Investment is the case when a foreign company invests in the assets of an Indian company mostly through stock market.

The FIIs are the most dominant players in the Indian Stock Market. In fact, FIIs are considered to be market movers as most of volume generated in the stock market are generated by the FIIs. FIIs are considered to be the main driver of stock market and the trend in market either be it bearish or bullish, mostly gets generated by the trading of FIIs. The graphs below show the flow of FIIs, FDIs and in Indian Market and the graph of CNX Nifty for the past 15 years





Source: *http://dipp.nic.in/English/Publications/FDI_Statistics/FDI_Statistics.aspx*



Analyzing the inflows of FDI and FII, though the trend line of both FDI and FIIs are uptrend, just like CNX Nifty, performing a basic regression analysis (excel) gives a proper insight of their effect on the stock market. In Regression Analysis, CNX Nifty is the dependent variable and FDI & FII are the independent variable

Table 1

REGRESSION STATISTICS			
	FDI & CNX NIFTY	**FII & CNX NIFTY**	**INTERPRETATION**
Multiple R	0.819768	0.247813	Correlation Coefficient: Correlation between Dependent Variable and Independent Variable
R Square	0.67202	0.061411	Coefficient of Determination: The number of points which fall on the regression line
Adjusted R Square	0.648593	-0.00563	Tells whether an additional variable improves the regression or not.
Standard Error	1426.827	2413.711	Expected error between actual value of dependent variable and estimated value
Observations	16	16	Total Number of Observations

The Regression Statistics shows the correlation between the FDI and CNX Nifty is having more correlation than the correlation between FII and CNX Nifty. More the Multiple R value closer to 1, more is the correlation between the variables. The R-Square value shows around 67% of the value of FDI and 6% of FII values lies on the nifty line.

INFLATION RATE

The general escalation in the rate of average price which the consumer spends on a basket of goods is termed as Inflation Rate. Inflation helps in determining the pricing power of the consumer.

The volatility in the inflation rate is mostly governed by the liquidity conditions in the market. Higher the Liquidity Higher the Inflation rate and vice versa. The liquidity in the market is basically the flow of money in the markets. When we say liquidity conditions are favorable in the market, the consumer has better purchasing opportunities. Thus it has positive impact on stock market and better buying or investing opportunities makes the stock market bullish.

However excessive high inflation can result in crash of stock market as the investor has less money to invest and at the same time it may result in excessive selling in the market. Also the increase in the inflation rate also results in increase in the nominal interest rate

(1 + Nominal Interest Rate) = (1 + Real Interest Rate) + (1 + Inflation Rate)

The nominal interest rate is the rate which is mentioned on the loan documents or which is the interest cost which is incurred on the loan. Thus increase inflation rate also results in increase in the interest cost which has a direct impact on the earnings of organizations which makes the market volatile.

As mentioned earlier most of the factors affecting the stock market are interlinked. One case is Linking of Inflation Rate and the Monetary Policy which is managed by the Reserve Bank of India (RBI). In the monetary policy RBI declares the changes in Key Ratios managed by RBI. Considering the example of CRR (Cash Reserve Ratio), it is the ratio which decides the minimum cash reserve which should be maintained by the banks. A decrease in CRR results in more scope for the banks to give loans and vice versa.

Higher the loan giving capacity of banks, results in higher liquidity which increases the inflation rate and vice versa. Thus to have a stable economy, there should be proper balance between the liquidity and the inflation rate. Thus the changes in the inflation rates have a significant impact on the economy which makes the market highly volatile to this factor.

EXCHANGE RATE

In the global economic scenario, the appreciation or depreciation of Indian Rupee is mostly monitored with the movement of US Dollar. The current exchange rate in market is

1 USD = 68.2 Rupee (as on 27.01.2016)

The exchange rate keeps on fluctuating in the foreign exchange (for–ex) market. Foreign exchange market is considered to be one of the most traded markets in the global economy.

Few of the major Factors responsible for appreciating or depreciating of Indian Rupee are elaborated below

Inflation Rate

An economy which is having high inflation rate, the demand for goods and services for that economy will be low as compared to the goods and services demand of an economy which is having low inflation rate. Thus higher the inflation rate, the more the currency will depreciate and vice-versa.

Export – Import

The major impact of exchange rate of an economy is generated by the exports and imports transaction done through the economy and also the trading of currency derivatives in for–ex market. If the number of imports transaction by Indian economy increase, the flow of the Indian Rupee in other countries will increase. This will increase the demand of Indian currency abroad and subsequently will result in appreciation of Indian Rupee.

Thus if the number of exports increase then it would result in depreciation of the Indian Rupee. However, this is a case of trade off and the balance of exports and imports is also very important to maintain the current account deficit / surplus. When the value of imports is greater than the value of exports, it is termed as current account deficit and when total value of exports is greater than imports, it is termed as current account surplus.

Currently, the Indian economy has a current account deficit of $8.2 billion which is around 1.6% of total GDP of the country.

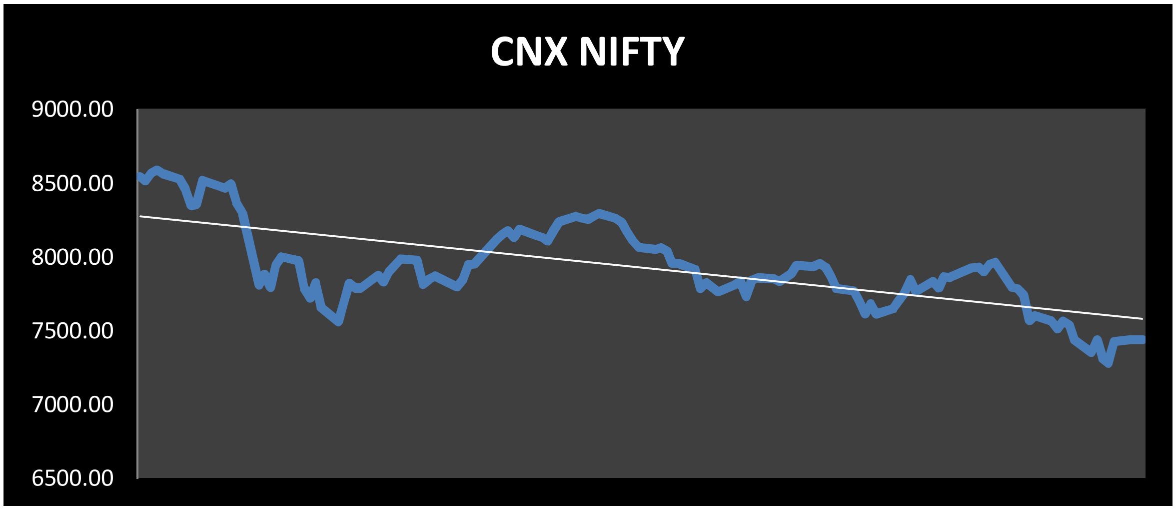
Difference in Interest Rates

The difference in interest rate of two countries also has significant impact on the demand of currency. For a developing country like India where the current interest rate in market is around 8% to 9%, there would be more capital inflows as an investor would have more returns than a developed country where the interest rate is around 3% to 4%.

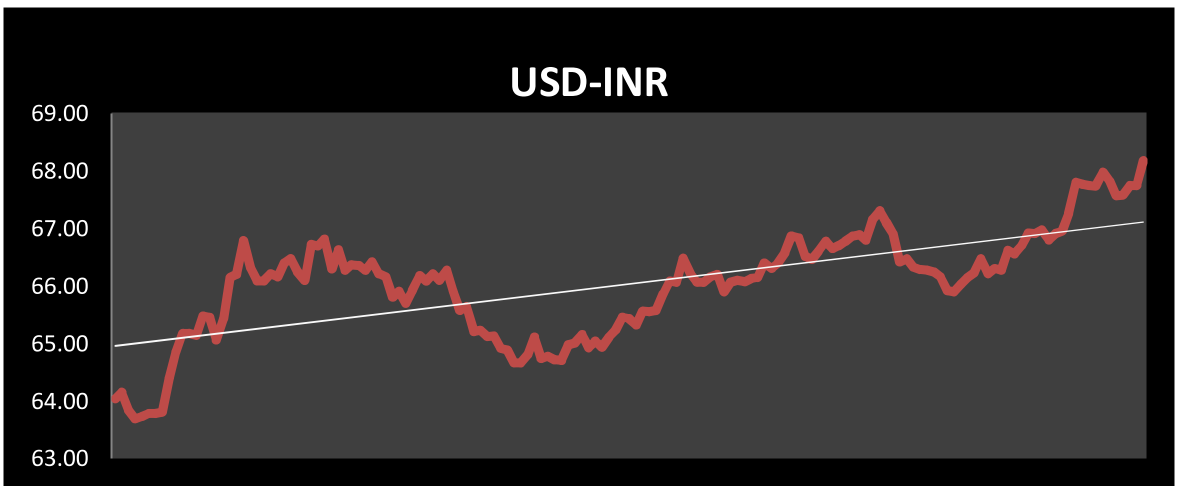
As the Indian capital market is dominated by Foreign Institutional Investors, the exchange rate fluctuations have a significant impact on the volatility of the markets. A small change in exchange rate can significantly have an impact on the flow of FIIs money in India.Also as the Indian currency is actively traded on for – ex market, the volatility in for – ex market also directly affects the volatility of the Indian Stock Market.

Few sectors whose revenue is highly dependent on revenue from overseas operations (in USD), especially the IT sector, depreciating of Indian Rupee will increase the company's profitability as they would be paid in USD which would increase their revenue after converting it to Indian Rupee.

A general correlation between nifty and exchange rate is inversely proportional relationship. The same has been elaborated from the graphs below. The duration of graphs is from **Aug – 2015 to Jan – 2016**. Also the trend line is included in the graph which indicates the inverse proportional nature of the exchange rate and the NSE index Nifty.



Source: www.nseindia.com



Source: www.exchange-rates.org

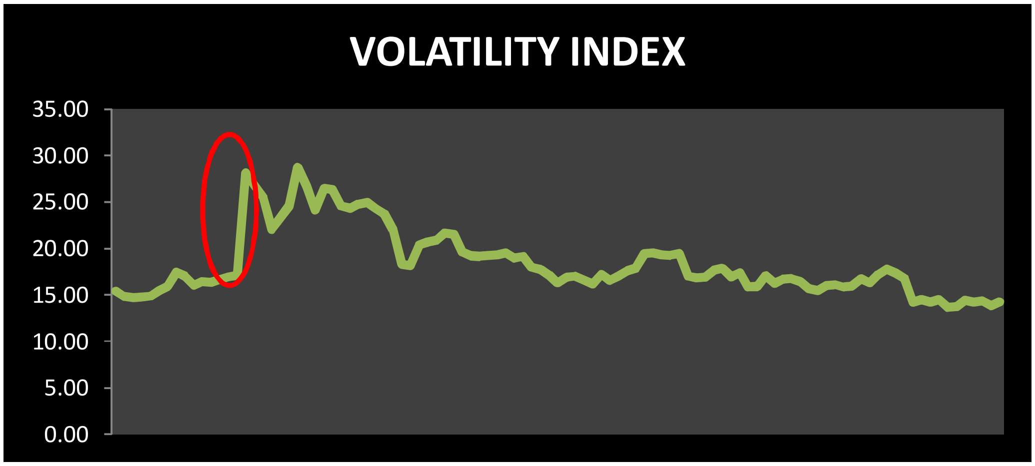
VOLATILITY INDEX (VIX)

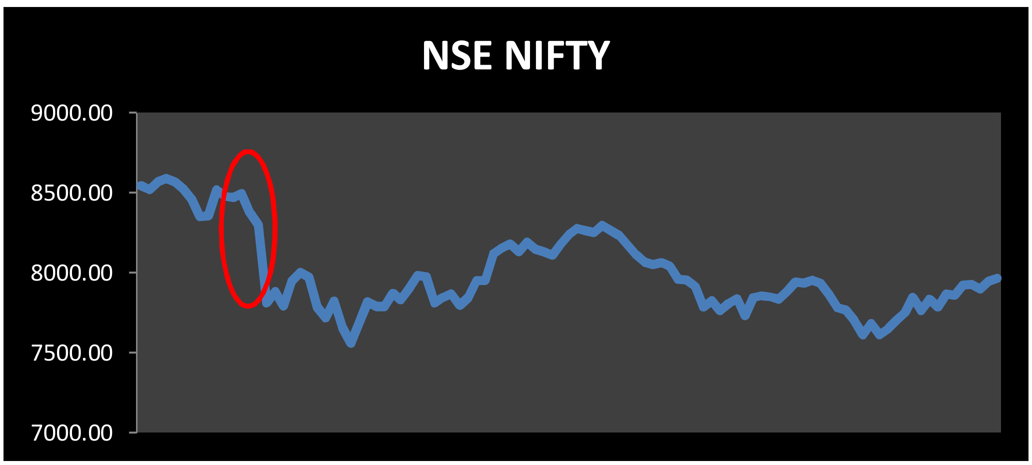
Volatility Index is one of the most important parameter for measuring the short term volatility in the stock market. Generally it is used to measure the expected volatility of market in the next 30 days. VIX is calculated by the National Stock Exchange.

Unlike the main index of the market viz. BSE Sensex and NSE Nifty, which are calculated by the underlying stock in it, Volatility index is calculated using the index option prices of Nifty and is denoted as annualized percentage. The best bid ask quotes of the out – of – money options and mid month Nifty options are used to calculate Volatility Index. Other important factors required for determining the VIX value is Time to expiry of options, Forward index level and the interest rate.

The higher the percentage value of VIX, higher is the volatility and vice-versa. The movement of VIX and NSE Nifty are in inverse proportion. Higher results mostly results in selling in market which makes the market bearish.

A general trend of VIX chart and NSE Nifty from Aug 2015 to Jan 2016 is shown below. Mostly in terms of free falling market, there is witnessed a steep rise in the Volatility Index chart. A steep rise in VIX is an indication of very high volatility in market which is accompanied panic selling resulting in free fall in markets.





The area marked in the charts below shows the relationship between VIX and NSE Nifty. A Steep Rise in VIX is accompanied by Free Fall in Nifty.

CONCLUSIONS

In order to assess the market volatility, the factors mentioned in these papers should be studied collectively as each of the factors in generally either the impact or the reason of the other factors. For e.g. – FIIs inflows are dependent on the current inflation rate as well as the exchange rate of India.

The historical data obtained from stock market was considered for the analysis purpose in this paper for plot the charts.

The prime drivers of Indian Stock Market are the FIIs and with the current reforms which are being carried out to make market more favorable for investment purposes, the volatility factors will continue to increase and so will be the volatility. But at the same time, these reforms are making Indian Stock market more competitive in the global economic scenario which would have a net effect of the growth and sustainable development of the India economy for business as well as investment needs.

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