IMPACT OF FLUCTUATION: SENSEX AND RUPEE/ DOLLAR

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ABSTRACT

On August 28, 2013 Indian rupee has touched historic low of 67.95 before recovering little in next sessions. The depreciating rupee has a cascading effect o Indian economy and that is why the policy makers and RBI are taking the matter more seriously. This research paper delves to signify the relationship between SENSEX and value of rupee/dollar. SENSEX which is a barometer of Indian stock market adversely affected by rupee devaluation and simultaneously discourage FIIs and other investors; resultant economic volatility persists in the market.

Key Words: Depreciation, Forex, SENSEX, FIIs, Volatility of Market and Variables.

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INTRODUCTION

SENSEX is a free float market-weighted stock market index of financially sound companies listed on Bombay Stock Exchange (BSE). It is the oldest index and widely utilized by people interested in tracking economic condition in India. It is an indicator of stock price of all the major companies of the BSE. Investors can analyze performance on the index to get an insight idea of how the Indian market is acting and to take note of regular and exceptional event that may influence market performance. Volatility on the index usually interprets volatility on the stock exchange as a whole and dramatic rises and falls can also be associated with important market movements. Tracking these ups and downs and responding them rapidly is critical task for investors interested in keeping ahead of the market but movements in SENSEX are the result of a complex interplay of a host of factors. Therefore, it is not an easy to make a correct appraisal of its movement, and the task becomes all the more difficult when SENSEX depicts a lot of volatility. One of the most important affecting factors of SENSEX is unexpected depreciation of rupee against US Dollar. This year by over 25 percent of volatility of rupee has caused a great concern for the Government of India, RBI and corporate of India. The Indian rupee touched a lifetime and historic low 67.95 against the US dollar on August 28, 2013. The rupee plunged by 3.7 percent on the day in its biggest single-day fall in more than two decades. India being a developing economy with high inflation, depreciation of the currency is quite natural. Depreciation of rupee is good, so long as it is not volatile. A random depreciation that we have seen in these months is undesirable and it definitely has hurt the economy. Economists predict that the drastic fall of rupee against US Dollar will help rupee to find its real value in global economy.

OBJECTIVES OF THE STUDY

To analyze trend and see whether a statistical relationship exists between the SENSEX and value of rupee/dollar. Further to check different models for testing the relationship significance.

REVIEW OF LITERATURE

There are several studies relevant to this issue are relatively scarce.

Kalra N et al (2012) has carried out the research to study for the period 2008 to 2011 to analyze the impact of various global and domestic factors on Indian stock market. They have shown that there exists a positive and significant relationship of gold prices and BSE SENSEX.

Joshi K et al (2012) have analyzed the relationship and impact of crude oil, Forex, Stock on gold. He found that when SENSEX is relatively volatile: value of rupee/dollar is relatively stable and crude oil prices are relatively volatile. The individual value of stock market determines only 64 percent influence on gold prices, individual value of rupee/dollar determines 78 percent influence and crude oil price determines 89 percent influence.

Wang M et al (2010) have studied the relationship between the fluctuations in crude oil prices, gold price and exchange rate of US Dollar with various currencies on the stock price indices of the US, Germany, Japan and China for the period 2006 to 2009.

In Indian context the fluctuation in stock market causes economic uncertainty that favors investment in gold, more speculative activities, discourage FIIs' and other investors, higher disequilibrium in exchange rate, inflation etc.

Formulation of Hypothesis

Hypothesis gives us an idea about indispensable associations, which exist between the different fundamentals of subject matter. Therefore, the hypothesis of the present study is:

H0: There is no relationship between SENSEX and value of rupee/dollar.

H1: There exists a relationship between SENSEX and value of rupee/dollar.

Research Design and Data Collection

a. Statistical tools and software (SPSS or PASW and Excel Spreadsheet) are used to test hypothesis such as Coefficient of correlation, Regression analysis, ANOVA.

b. The data are secondary in nature and collected for the fluctuation in the BSE SENSEX and value of rupee/dollar during 1 July 2013 to 31 Aug 2013. The above figures are considered to study the association between the SENSEX and the value of rupee/dollar because in this period degree of volatility is very high**.**

Analysis of Data

Let us consider the following table-1 showing the value of SENSEX and value of rupee/dollar. Indian currency has depreciated close to 25% in these months and adverse movement of

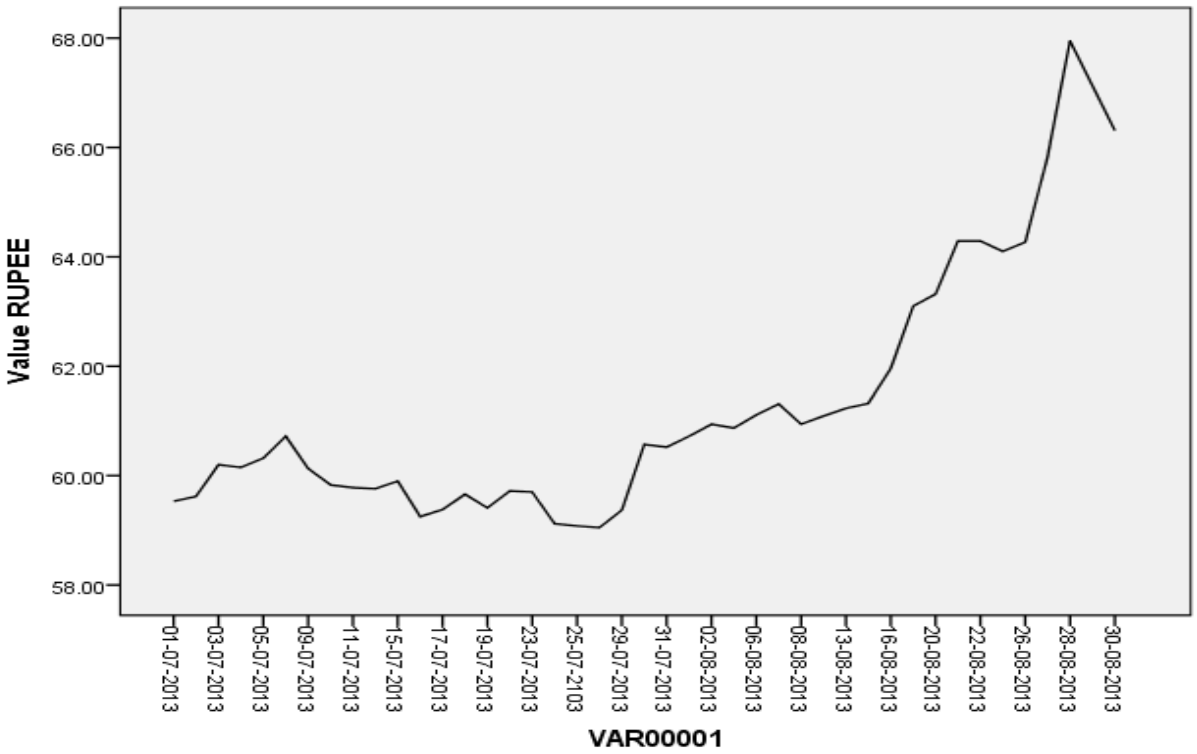
exchange rates especially against US Dollar many a times creates a crisis like situation in Indian economy**.**

Table: 1

Time	BSE SENSEX	VALUE of Rs/Dollar	Time	BSE SENSEX	VALUE of Rs/Dollar
01-07-13	19577	59.53	31-07-13	19345	60.52
02-07-13	19463	59.62	01-08-13	19317	60.72
03-07-13	19177	60.20	02-08-13	19164	60.94
04-07-13	19410	60.15	05-08-13	19182	60.87
05-07-13	19495	60.32	06-08-13	18733	61.11
08-07-13	19324	60.72	07-08-13	18664	61.31
09-07-13	19439	60.13	08-08-13	18789	60.94
10-07-13	19294	59.83	12-08-13	18946	61.09
11-07-13	19676	59.78	13-08-13	19229	61.23
12-07-13	19958	59.76	14-08-13	19367	61.32
15-07-13	20034	59.90	16-08-13	18598	61.96
16-07-13	19851	59.25	19-08-13	18307	63.10
17-07-13	19948	59.38	20-08-13	18246	63.32
18-07-13	20128	59.66	21-08-13	17905	64.29
19-07-13	20149	59.41	22-08-13	18312	64.29
22-07-13	20159	59.72	23-08-13	18519	64.10
23-07-13	20302	59.70	26-08-13	18558	64.27
24-07-13	20090	59.12	27-08-13	17968	65.83
25-07-03	19804	59.08	28-08-13	17996	67.95
26-07-13	19748	59.05	29-08-13	18401	67.13
29-07-13	19593	59.37	30-08-13	18619	66.31
30-07-13	19348	60.57			

Source: http://www.bseindia.com, www.xchangerate, Source: Exchange rate.org.uk

Table-2



In the above graph drastic decline of rupee against dollar, especially in the month of Aug 2013 is a cause of concern. Indian rupee is currently caught in vicious circle; and has touched historic low of 68 before recovering little in next session.

Table-3 Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	VAR00003[b]	.	Enter

a. Dependent Variable: VAR00002(SENSEX)

b. All requested variables entered.

Table-4

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	-0.853[a]	.727	.720	351.79583

a. Predictors: (Constant), RUPEE

In the above table R shows the correlation degree -0.853 of the SENSEX with the value of rupee/dollar that is highly negatively or inversely related to each other. R2 is coefficient of

determination that shows the percentage of the total variation of dependent variable. R square also tells how well the sample regression line fits the data. R2 of 1.0 indicates that the regression line perfectly fits the data. In table-4 R2 is 0.727, which means that about 72 percent variations in the dependent variable SENSEX is explained by the independent variable rupee/dollar. Whereas adjusted R2 attempts to yield a more realistic picture of the fit of regression value to estimate the R square.

Table-5

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13502572.685	1	13502572.685	109.103	.000[b]
	Residual	5074172.639	41	123760.308		
	Total	18576745.324	42			

a. Dependent Variable: SENSEX

b. Predictors: (Constant), RUPEE

Table-6

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	34209.888	1436.809		23.810	.000
	RUPEE	-244.566	23.414	-.853	-10.445	.000

a. Dependent Variable: SENSEX

In table 5 regressions, residual and total are the source of variable. Sum of squares for the regression and residual count up to the total value, showing the total is partitioned into regression and residual variance. R2 can be fetched from dividing regression sum of squares by total sum of squares because R square is the part of the variance explained by the independent variable. Similarly to find mean square, sum of squares are divided by their respective degree of freedom (df). F value (109.103) can be calculated by dividing mean square regression by mean square of residual. The p-value associated with the F-value which is very small (o.ooo) that is why it can be inferred that independent variable (rupee/dollar) explains variations in the dependent variable (SENSEX) which is statistical very significant. Moreover B represents the value for the regression. This value forecasts the dependent variable from the independent variable.

Correlation can vary from +1 to -1. Values close to +1 indicate a high-degree of positive correlation and values close to -1 indicate a high degree of negative relationship between dependent and independent variable. Moreover Standard error that is 23.414 can also be used to form a confidence interval for the parameter. Beta (-0.853) is a standardized coefficient that would obtain if we standardized the entire variable in the regression, including the dependent and the independent variable. Lastly t-value (-10.445) at p-value of 0.00 or 0.05 that is statistically significant. Hence, null hypothesis can be rejected.

LIMITATION OF THE STUDY:

Although impact on SENSEX is inversely correlated with depreciation of rupee and persistent decline in rupee is a cause of concern but there are lots of other factors that directly influence the degree of stock market are not studied in the paper e.g. current account deficit, inflation, import of crude oil and gold, lack of reforms, continuous global uncertainty. So multiple regression with association of other factors perhaps can depict the clear picture of SENSEX in better way.

CONCLUSION

The Indian rupee has depreciated drastically against the US Dollar that marking a new milestone of risk in Indian economy. In the time of global uncertainty investors prefer USD as a safe heaven and FIIs take U-turn from Indian stock market. This research paper is an attempt to uncover the relationship between SENSEX and value of rupee/dollar with help of statistical tools. Regression test is used to analyze correlation between the SENSEX and the value of rupee/dollar. In the regression model, SENSEX are used as dependent variables, while the rupee/dollar is used as independent variables. The analysis shows that correlation between the SENSEX and value of rupee/dollar has a perfect negative. More will the volatility of rupee/dollar more will the unpredictability of SENSEX. Nevertheless, a lot depends on the global economic outlook, oil prices, current account deficit, and the future of Euro zone that will help to determine the future of rupee.

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