

## FORECASTING VOLATILITY IN EQUITY PRICES

**DR. S.D. VASHISHTHA\*; DR. SHYAM VASHISHTHA\*\*; RAJESH KUMAR\*\*\***

\*Dean and Professor,  
Faculty of Commerce,  
M.D. University, Rohtak.

\*\*Assistant Professor,  
B.L.J.S.P.G.College, Tosham.

\*\*\*Research Scholar,  
Department of Commerce,  
M.D. University, Rohtak.

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### ABSTRACT

Volatility Forecasting helps to investors or players in the capital market to find out the buy and sell signals about shares on the basis of quantity of risk thereon. In this paper researchers examine the volatility in equity share prices of selected units under study. To measure the volatility, the prices (for the financial year 2010-11) of Tata Motors Ltd. and Eicher Motors Ltd. were analyzed with the help of statistical tool like, Mean, S.D. and t-statistics. The volatility in the prices of Tata Motors was found of gyrated nature. It was concluded that volatility analysis is a faithful analysis to measure the risk on financial assets and it is also helpful to take short and long position in the market.

**KEYWORDS:** Volatility, Security, Short Position, Long Position, Market.

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### INTRODUCTION

Prices of securities move up and down everyday in the stock markets. These ups and downs are known by namely Fluctuation in the prices. Fluctuation in prices of a security comes from the unbalanced demand and supply of that security. If demand side of a security is greater than its supply, the price would start to go up and if supply side is greater than its demand, the price would start to go down. The relative rate of fluctuation at which price of a security moves up and down is called volatility or in other words, volatility refers to the amount of risk about the size of changes in a security's value. It means if volatility increases in the prices of a financial instrument, the risk also increases on that instrument. Sometime question arises that why volatility is important? The volatility does not measure the direction of prices but it measures the desperation among the prices which helps to know the risk (probable deviation from the expected) on an instrument. On the basis of risk on an instrument, investors can analyze their capacity to bear risk and also can make decisions relating to invest their excess fund in financial assets.

## REVIEW OF LITERATURE

In the past, various numbers of works have been conducted and completed on this topic and some of the renowned works out of them are mentioned below:

Roy, et al. (1995)<sup>1</sup> focused on two key issue: (a) what is the average level of volatility and whether it has increased in the current period; (b) whether the present trend of share price movement is likely to impair the development process of our economy through study 'Stock Market Volatility: Roots and Results'. In this study, they examined that, several volatility measures based on different price indices had been used to evaluate the stock price movement in historical perspective. In such, instance, the conclusion was essentially the same, i.e., stock market volatility had increased in the that period if the changes in share prices had been response to fundamental economic factor or information and expectations about them, there was no social cost associated with such volatility.

Reddy, (1996)<sup>2</sup> analyzed the volatility of securities traded on the National Stock Exchange (NSE) and the Bombay Stock Exchange (BSE). In this study, researcher employed stock market trading data relating about 3,000 securities traded on Bombay Stock Exchange (BSE) and over 1,000 securities traded on NSE. Volatility of individual securities was also analyzed in this study and it was found that the securities traded on BSE had more volatility than the securities traded on NSE. Researcher also showed through this study that Indian Capital Markets were highly volatile.

Mitra (2002)<sup>3</sup> made a study on 'Profiting from Technical Analysis in Indian Stock Market'. He tried to find out a trading strategy that is profitable even after transaction cost. He used daily closing prices of ACC, Reliance industries, State bank of India, and TISCO from the stock market published quotes during the period Dec, 1995 to Feb, 1999. He used two tools for analysis purpose:

Moving average crossover, and Filter rules.

The trading tools or methods tested in the study were giving profitable results, which helps investor to believe that making profit in stock market is not just a matter of chance. He concluded that investor do not always to be right to enjoy the trading, but they need to have an analytical and systematic approach to make trading profit on a cumulative basis.

Rao, (2007)<sup>4</sup> in the study 'Impact of Financial Derivatives Products on Spot Market Volatility: A study on Nifty' examined the impact of index future, index options, stock options and stock futures on the volatility of Nifty. For the purpose of this study the collected data from National Stock Exchange and time period of study was June-7, 1999 to dec-31, 2005. He found that Nifty volatility has increased with the introduction of derivatives product such as index futures. This may be due to speculative operation and the Foreign Institutional Investors' active participation in the market.

Sharma, (2007-08)<sup>5</sup> tried to find out answers to these:-

To account the nature of individual investors in the investment-regions,

To study the methods and aspects which are considered by the individual investor while investing in secondary market?

To find out the problems of individual investors.

Sharma examined, the most of investors belongs to the age group of 40-50 years, and Bombay is having the highest (30.50%) numbers of investors in age group of 40-50 years. He found that most of investors have high risk bearing capacity (45.16%). The maximum percentage of high risk bearer investors' was obtained in Delhi area (48.75%) as compared to Bombay (42.25%) and Calcutta (44.50%). He also found that, the investors of different areas were influenced by almost six factors:-

News papers' news reading capital market and politics, Business magazines, Self knowledge/ assessment, Brokerage view points, the analysis plus news on business channels on T.V. and the discussion with fellow investors and friends influences the investment behavior and decision of the investor in the market.

Khan, et al. (2010)<sup>6</sup> indicated through this paper 'Causality and Volatility in the Firm Level Stock Returns and Volume in India: Evidence from National Stock Exchange' towards the presence of inefficiencies in Indian equity market. The information regarding trading volume and returns may be used to predict the future prices. However, indication are that the changes in the regulations and functioning of the Indian equity markets for the period under study are in positive direction and inefficiencies seem to weaken in the later sub period (on the National Stock Exchange).

## **OBJECTIVE OF THE STUDY**

The objectives of the present study are:

1. To analyze the volatility of share prices of unit under study.
2. To test the significance of price fluctuations of the unit under study.

## **RESEARCH METHODOLOGY**

The present study has been conducted to find out a solution for the problem 'Forecasting Volatility in Equity Share Price'. Thus, an analytical research design has been used in this study.

## **STUDY AREA AND UNITS**

The study is concerned with the some units selected from the sector of Indian automobile industry. Two units were selected from category of light & heavy vehicles manufacturers (Tata Motors Ltd. and Eicher Motors Ltd.). Each unit was matched for their size, technology, product

and organizational structure with the other unit in same category. Shares of each unit were listed on the Bombay stock Exchange and the listing procedures of the securities of these units ensure almost similar guidelines issued by SEBI. Both the units are quite old, i.e. two decades.

**UNIT PROFILE:** Unit wise profile of the selected units is given below:

**TATA MOTORS LTD.** - this company was established in 1945 by the founder, Mr. J. R. D. Tata in Jamshedpur (Jharkhand). It is India's largest automobile company and it is the leaders in commercial vehicles in each segment, and among the top three in passenger vehicles with winning products in the compact, midsize car and utility vehicle segment. In this company over 25,000 employees are guided by the vision to be "best in the manner in which we operate, best in the products we deliver, and best in our value system and ethics"

**EICHER MOTORS LTD.** – this company incorporated in 1982, is the flagship company of the Eicher Group in India and a leading player of the Indian automobile industry. A 50-50 joint venture with Volvo Group has been made by this company in July, 2008 in the form of VE Commercial Vehicles Ltd (VECV). Buses and trucks are produced by VECV Ltd. and tractors are produced by Eicher Group for agriculture sector.

### SAMPLE DESIGN

A total of two securities of two units (Tata Motors Ltd. and Eicher Motors Ltd.) were selected by accidental sampling. Sampling design is given in the Table-1.

**TABLE-1: SELECTED UNITS IN THE SAMPLE**

Name of the Unit	Type of Manufacturers	Type of Security
Tata Motors Ltd.	Light, Commercial, and defense vehicles	Equity shares
Eicher Motors Ltd.	Light and Commercial Vehicles	Equity shares

Sample for the study includes the 100% of risky securities (because all selected securities are risky in nature such as equity shares) as indicated in Table-1

### PROCEDURE OF DATA COLLECTIONS

Analysis of every research work is based on relevant data and it can be collected by two ways: by way of primary data collection and by way of secondary data collection.

**PRIMARY DATA** – primary data are that data which are collected afresh and for the first time, and thus happen to be original in character. It may be collected by observation, interview, mail questionnaires, through schedules etc.

**SECONDARY DATA** – secondary data are that data which have been already collected by someone else and which have already been passed through the statistical process. It may be collected from published or unpublished sources.

In our study, secondary data about two units have been collected from different sources, these were:

(A) News papers:-

- (i) Economic Times Of India, and
- (ii) The Times of India

(B) Website:- Website of Bombay Stock Exchange of India – <http://www.bseindia.com>

Data collected from all the sources were matched in the manner of consistency and finally the data collected from the website of Bombay Stock Exchange of India have been taken for the analysis purpose.

### **TIME PERIOD**

Every research work is always limited by shortage of time and resources. Therefore, under the study, share prices of selected companies from April, 2010 to March, 2011 were analyzed by the researcher with the help of mean, standard deviation and t-test

### **HYPOTHESIS**

Hypothesis refers to the assumption which is made about the sample before reading the final result. It gives the direction for the whole project of the research. In our study, the hypotheses which have been adopted given below:-

Ho: There is no significant difference between volatility of two time period.

Ho: Opening volatility does not differ from closing volatility.

### **STATISTICAL METHODS**

To test the hypothesis and to meet the objectives of the study, raw data were treated with different kinds of analysis. For carrying out the analysis the different types of tests were used like t-test and to know the volatility in the equity of unit of sample mean and standard deviation were used. It may be clarified that the confidence level of probability to accept the hypothesis fixed for T-test was 0.05.

The following are the procedures and formulas for the different tests:

**ARITHMETIC MEAN**

The central tendency was measured by using arithmetic mean. The arithmetic mean was obtained by adding the observations and dividing by the number of observations. The steps were:

- (i) Compute N (number of observations)
- (ii) Compute  $\sum X$  (sum of all the items of data)
- (iii) To get mean apply formula :-

$$\text{Mean } \bar{x} = \frac{x_1 + x_2 + x_3 + \dots + x_n}{N} = \frac{\sum X}{N}$$

**STANDARD DEVIATION**

The volatility in the share prices of selected company was measured by using standard deviation. The standard deviation is the square root of the variance of a series. The steps were:

- (i) First compute  $\bar{x}$  (mean) of data
- (ii) Take deviations of data from actual mean
- (iii) Ensure that  $\sum (x - \bar{x}) = \text{Zero}$
- (iv) Square the deviations, i.e.,  $dx^2$  or  $(x - \bar{x})^2$  and add it to find  $\sum dx^2$
- (v) Divide  $\sum dx^2$  by number of items in the data and take under root to find standard deviation or

$$\text{S.D.} = \sqrt{\frac{\sum dx^2}{N}}$$

**T-Test**

The significant of differences of between means was tested by t-test which is appropriate for two dependent groups the steps were:

- (i) compute  $n_1$  and  $n_2$
- (ii) Compute  $\bar{x}_1$  and  $\bar{x}_2$

$$\bar{x}_1 = \frac{\sum x_1}{n_1} \text{ and } \bar{x}_2 = \frac{\sum x_2}{n_2}$$

(iii) Compute combined standard deviation of the two sample:

$$S = \sqrt{\frac{n_1 - 1 \bar{S}_1^2 + n_2 - 1 \bar{S}_2^2}{n_1 + n_2 - 2}}$$

(iv) t-value:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{S} \sqrt{\frac{n_1 n_2}{n_1 + n_2}}$$

Here,

$n_1$  = number of observations in the first sample

$n_2$  = number of observation in the second sample

$\bar{x}_1$  = mean of first sample

$\bar{x}_2$  = mean of Second sample

$S$  = combined standard deviation of two samples

$t$  = value of t-Test

Degree of freedom =  $n_1 + n_2 - 2$  or  $(n - k)$

After obtaining the  $t$  and  $df.$ , the standard tables can be referred to ascertain the probability. The test was used to see the significant mean difference between various types of equity share prices.

## ANALYSIS AND EXPLANATION

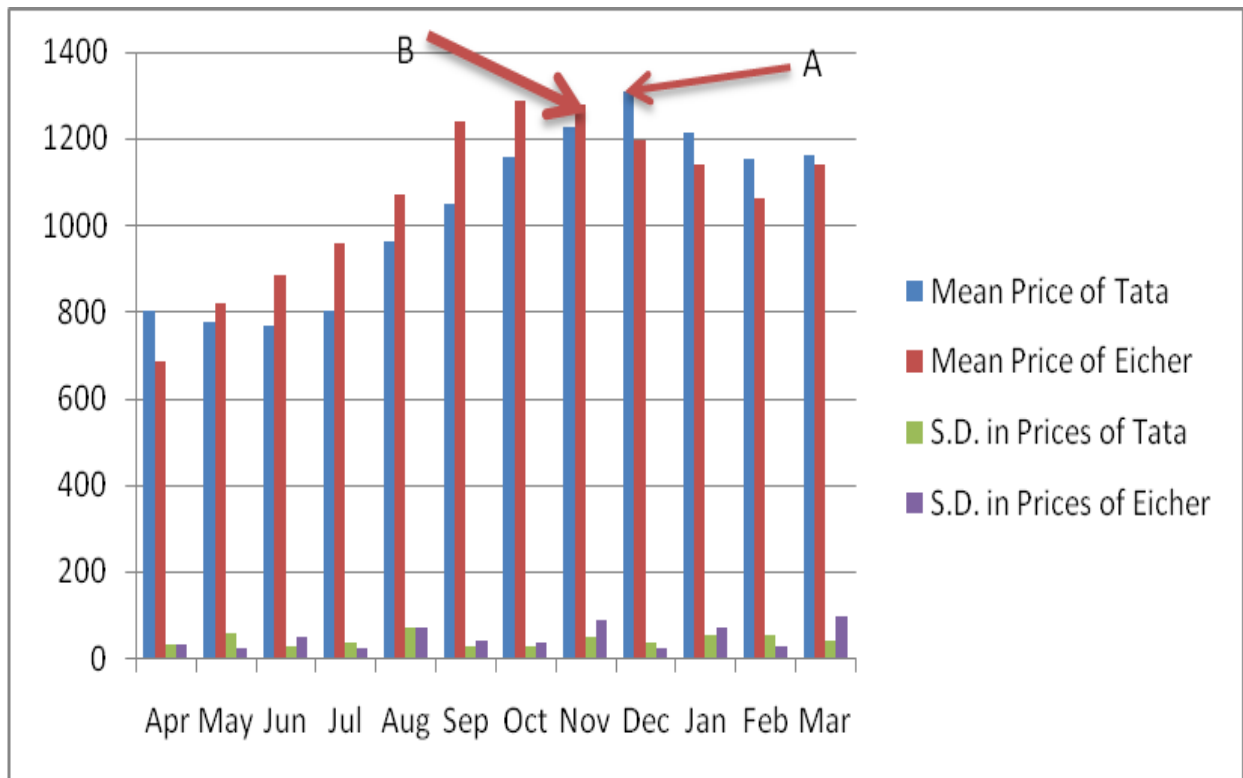
**TABLE-2: STATISTICS (MEAN & STD.) OF MONTH TO MONTH OPEN SHARE PRICES OF TATA MOTORS LTD. AND EICHER MOTORS LTD. (YEAR 2010-11)**

Months	Tata Motors Ltd.		Eicher Motors Ltd.	
	Mean	Standard Deviation	Mean	Standard Deviation
April	801.285	30.09	683.97	31.69
May	777.742	57.3	818.335	22.74
June	768.704	23.99	885.281	47.01

July	803.627	32.96	957.484	23.158
August	961.743	70.85	1071.652	67.31
September	1048.7	27.48	1241.471	37.97
October	1158.63	26.92	1287.143	33.08
November	1228.62	48.15	1278.486	88.74
December	1309.88	35.57	1196.466	21.35
January	1214.06	52.89	1140.79	68.30
February	1151.21	53.81	1059.765	28.14
March	1161.34	38.28	1139.877	97.39

Source: Self calculated

**CHART-1: STATISTICS (MEAN & STD.) OF MONTH TO MONTH OPEN SHARE PRICES OF TATA MOTORS LTD. AND EICHER MOTORS LTD. (YEAR, 2010-11)**



Source: Based on Table-2

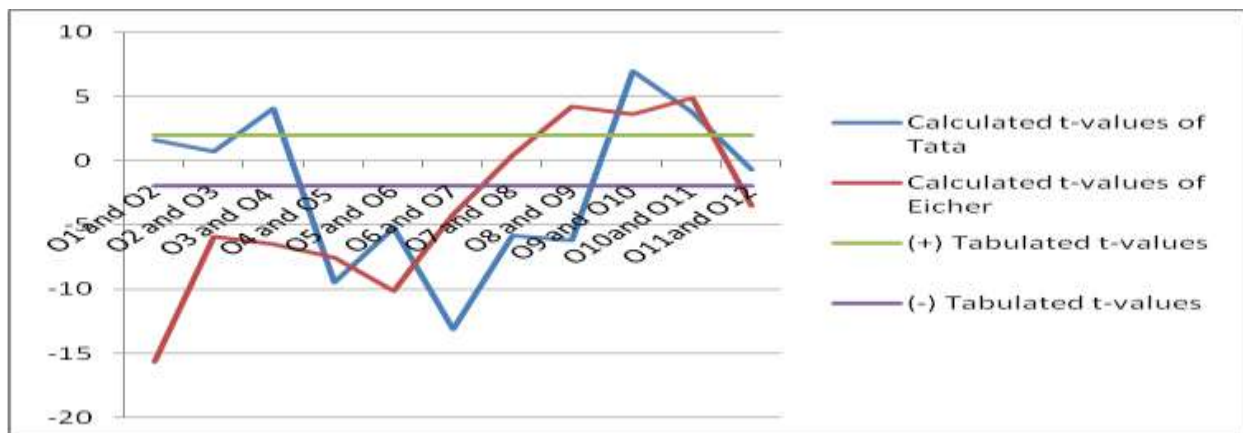


**TABLE-3: RESULTS OF T-STATISTICS OF MONTH TO MONTH OPEN SHARE PRICES OF TATA MOTORS LTD. AND EICHER MOTORS LTD. (YEAR, 2010-11)**

Sr.	Months	Calculated t-values		Tabulated t-values	D.F.	Significant/Non-significant	
		Tata	Eicher			Tata	Eicher
1	O1 and O2	1.632	-15.64	1.96	39	NS	S
2	O2 and O3	0.678	-5.896	1.96	41	NS	S
3	O3 and O4	4.016	-6.46	1.96	42	S	S
4	O4 and O5	-9.485	-7.522	1.96	42	S	S
5	O5 and O6	-5.254	-10.12	1.96	41	S	S
6	O6 and O7	-13.09	-4.154	1.96	40	S	S
7	O7 and O8	-5.813	0.418	1.96	40	S	NS
8	O8 and O9	-6.16	4.208	1.96	41	S	S
9	O9 and O10	6.945	3.634	1.96	40	S	S
10	O10and O11	3.725	4.904	1.96	38	S	S
11	O11and O12	-0.705	-3.54	1.96	40	NS	S

Source: Self calculated

**CHART-2: CHART REPRESENTS THE RESULTS OF T-STATISTICS MONTH TO MONTH OPEN SHARE PRICES OF TATA MOTORS LTD. (YEAR, 2010-11)**



Source: Based on Table-3

Note:

- (i) O1- mean price of opening prices for April-2010, O2-mean price of opening prices for May-2010, O3-for June-2010 and so on, up to March-2011.

The opening prices of the selected units under study were analyzed with the help of averages and standard deviations. The data are of monthly nature. Month to month volatility was arrived at by assessing the standard deviations. It was found that from June to January of the year 2010-11 the volatility was statistically significant at 95% level of confidence (the values of statistics of Mean, Standard Deviation and t-values are given in the Table-2 and Table-3) and decisions about buy and sell of securities were effected by the volatility in share prices.

This volatility was graphically presented (Chart-1), it were being indicated by the chart of statistics that as the standard deviation starts to come down sell out the security, in other words take the short position and the lowest value of standard deviation signifies the opportunity to take a long position. However, the trend of standard deviation's portrays that if invested at one time; hold the security at least for more than six months (in case of Tata Motors Ltd as indicated by point A) and more than five months (in case of Eicher Motors Ltd as indicated by point B)

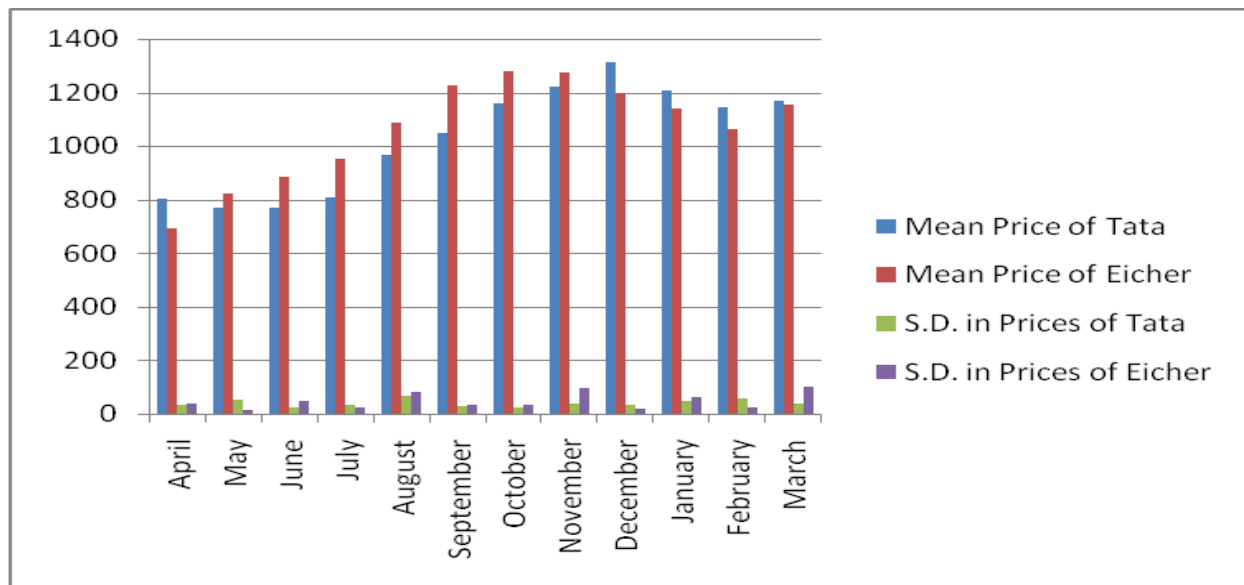
**TABLE-4: STATISTICS (MEAN & STD.) OF MONTH TO MONTH CLOSE SHARE PRICES OF TATA MOTORS LTD. AND EICHER MOTORS LTD. (YEAR, 2010-11)**

Months	Tata Motors Ltd.		Eicher Motors Ltd.	
	Mean	Standard Deviation	Mean	Standard Deviation
April	805.832	32.38	693.115	37.93
May	771.707	53.52	823.223	15.82
June	769.145	23.81	884.606	47.91
July	805.965	35.03	953.99	25.27
August	969.331	67.85	1086.82	80.45
September	1049.61	29.64	1229.062	33.98
October	1158	24.83	1281.314	32.14
November	1223.13	39.34	1273.645	98.43
December	1312.48	32.94	1198.495	21.18

January	1205.26	47.52	1139.435	62.774
February	1144.80	57.94	1062.27	22.18
March	1167.20	38.59	1156.405	99.90

Source: Self calculated

**CHART-3: CHART REPRESENTS THE STATISTICS (MEAN & STD.) OF MONTH TO MONTH CLOSE SHARE PRICES OF TATA MOTORS LTD. AND EICHER MOTORS LTD. (YEAR, 2010-11)**



Source: Based on Table-4

**TABLE-5: RESULTS OF T-STATISTICS OF MONTH TO MONTH CLOSE SHARE PRICES OF TATA MOTORS LTD. AND EICHER MOTORS LTD. (YEAR, 2010-11)**

Sr.	Months	Calculated t-values		Tabulated t-values	D.F.	Significant/Non-significant	
		Tata	Eicher			Tata	Eicher
1	C1 and C2	2.43	-14.43	1.96	39	S	S
2	C2 and C3	0.203	-5.582	1.96	41	NS	S
3	C3 and C4	-4.076	-6.006	1.96	42	S	S
4	C4 and C5	-9.02	-7.386	1.96	42	S	S

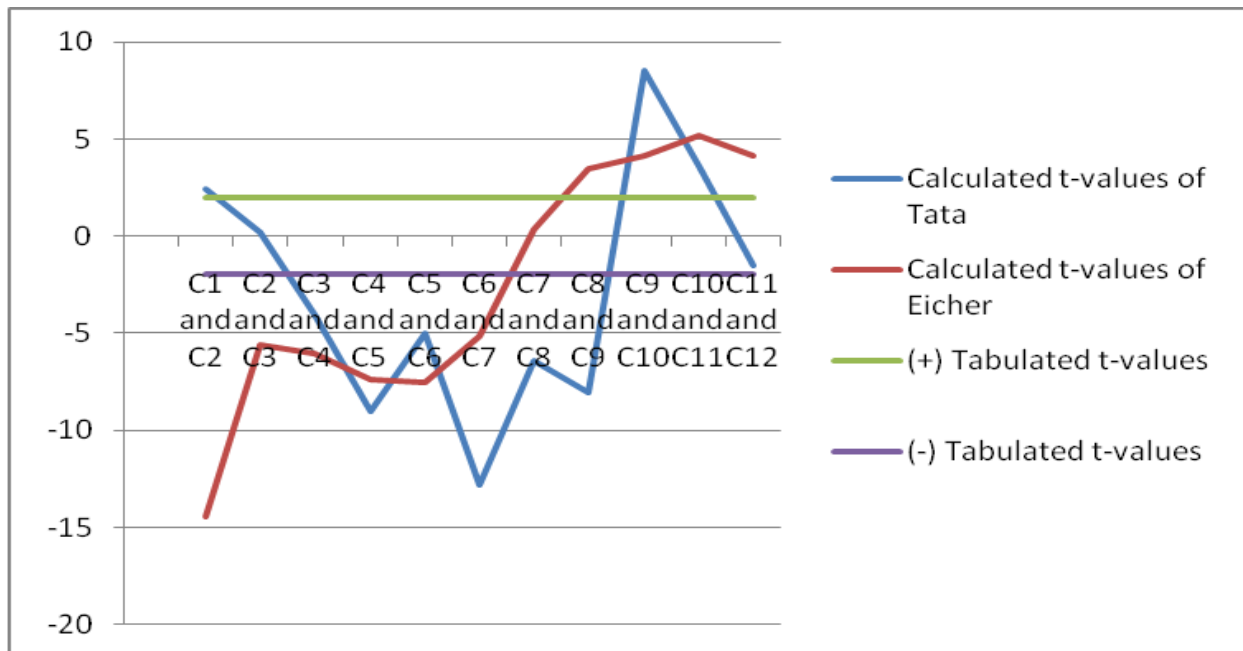
5	C5 and C6	-4.98	-7.486	1.96	41	S	S
6	C6 and C7	-12.83	-5.116	1.96	40	S	S
7	C7 and C8	-6.415	0.336	1.96	40	S	NS
8	C8 and C9	-8.06	3.497	1.96	41	S	S
9	C9 and C10	8.54	4.165	1.96	40	S	S
10	C10 and C11	3.608	5.182	1.96	38	S	S
11	C11 and C12	-1.48	4.117	1.96	40	NS	S

Source: Self calculated

Note:

- (i) C1- mean price of closing prices for April-2010, C2-mean price of closing prices for May-2010, C3-for June-2010 and so on, up to March-2011.

**CHART4: CHART REPRESENTS THE RESULTS OF T-STATISTICS MONTH TO MONTH CLOSE SHARE PRICES OF TATA MOTORS LTD. (YEAR, 2010-11)**



Source: Based on Table-5

- (ii) C1- mean price of closing prices for April-2010, C2-mean price of closing prices for May-2010, C3-for June-2010 and so on, up to March-2011.

To know the volatility in closing prices, month to month closing prices of the units were analyzed with statistical tools as averages and standard deviations. The results were found that, the volatility from April to March (except May and March in case of Tata Motors and except October in case of Eicher Motors) of the year 2010-11 was statistically significant at 5% level of significance (the values of statistics of mean, standard deviation and t-values are given in the Table-4 and Table-5) and decisions about buy and sell of securities were effected by the volatility in share prices.

This volatility was also presented by graph mode (Chart-3). The sell and Buy signals were being indicated by the chart of statistics that as the standard deviation starts to come down, sell out the security and the lowest value of standard deviation signifies the opportunity to take the long position. However, the trend of standard deviation's portrays that if invested at one time hold the security at least for more than six months (in case of Tata Motors) and more than five months (in case of Eicher Motors). The graphical presentation (Chart-4) of t-statistics were being indicated that mostly month to month calculated t-values don't lie between the boundaries of their Tabulated values, therefore these are significant at 5% level of significance and it is concluded that mostly month to month closing prices are volatile.

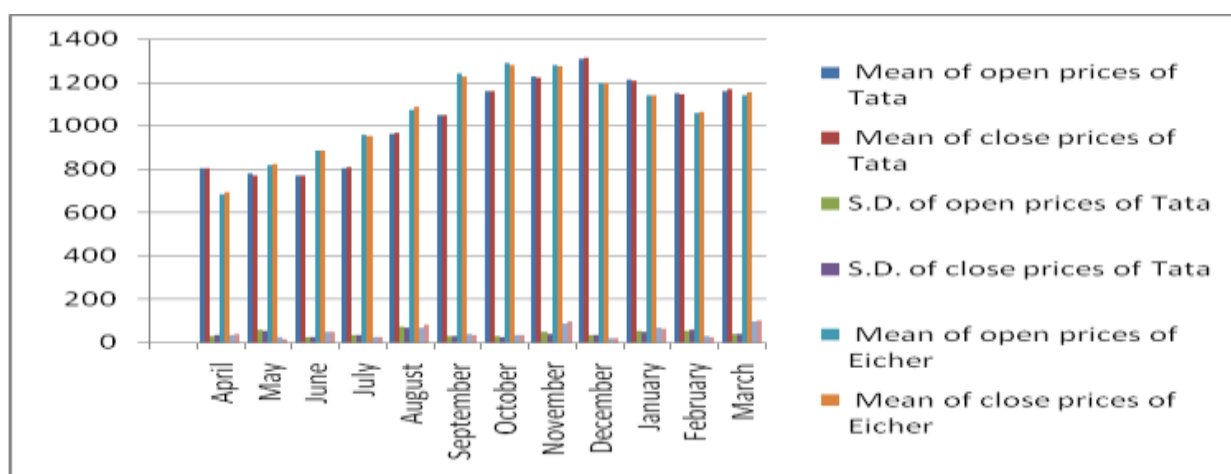
**TABLE-6: STATISTICS (MEAN OF OPENING & CLOSING AND S.D. OF OPENING & CLOSING) OF MONTHLY OPENING & CLOSING SHARE PRICES OF TATA MOTORS LTD. (YEAR, 2010-11)**

Months	Mean		Standard Deviation		Mean		Standard Deviation	
	Opening	Closing	Opening	Closing	Opening	Closing	Opening	Closing
April	801.285	805.832	30.09	32.38	683.97	693.115	31.69	37.93
May	777.742	771.707	57.3	53.52	818.335	823.223	22.74	15.82
June	768.704	769.145	23.99	23.81	885.281	884.606	47.01	47.91
July	803.627	805.965	32.96	35.03	957.484	953.99	23.158	25.27
August	961.743	969.331	70.85	67.85	1071.652	1086.82	67.31	80.45
September	1048.7	1049.61	27.48	29.64	1241.471	1229.062	37.97	33.98
October	1158.63	1158	26.92	24.83	1287.143	1281.314	33.08	32.14
November	1228.62	1223.13	48.15	39.34	1278.486	1273.645	88.74	98.43

December	1309.88	1312.48	35.57	32.94	1196.466	1198.495	21.35	21.18
January	1214.06	1205.26	52.89	47.52	1140.79	1139.435	68.30	62.774
February	1151.21	1144.80	53.81	57.94	1059.765	1062.27	28.14	22.18
March	1161.34	1167.20	38.28	38.59	1139.877	1156.405	97.39	99.90

Source: Self calculated

**CHART-5: CHART REPRESENTS THE RESULTS OF T-STATISTICS OF MONTHLY OPENING & CLOSING SHARE PRICES OF TATA MOTORS LTD. AND EICHER MOTORS LTD. (YEAR, 2010-11)**



Source: Based on Table-6

**TABLE-7: RESULTS OF T-STATISTICS OF MONTHLY OPENING AND CLOSING SHARE PRICES OF TATA MOTORS LTD. AND EICHER MOTORS LTD. (YEAR, 2010-11)**

Sr.	Months	Calculated t-values		Tabulated t-values	D.F.	Significant/Non-significant	
		Tata	Eicher			Tata	Eicher
1	O1 and C1	-0.458	-0.825	1.96	38	NS	NS
2	O2 and C2	0.349	-0.806	1.96	40	NS	NS
3	O3 and C3	-0.059	0.046	1.96	42	NS	NS
4	O4 and C4	-0.225	0.477	1.96	42	NS	NS

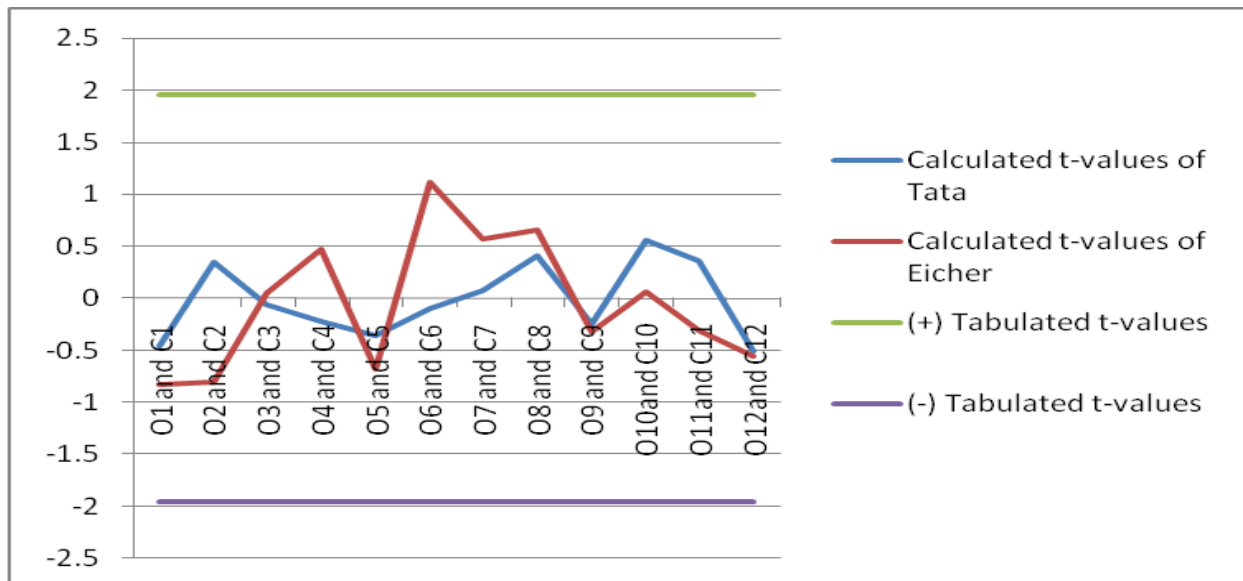
5	O5 and C5	-0.351	-0.676	1.96	42	NS	NS
6	O6 and C6	-0.100	1.114	1.96	40	NS	NS
7	O7 and C7	0.077	0.576	1.96	40	NS	NS
8	O8 and C8	0.401	0.66	1.96	40	NS	NS
9	O9 and C9	-0.248	-0.315	1.96	42	NS	NS
10	O10and C10	0.553	0.063	1.96	38	NS	NS
11	O11and C11	0.36	-0.309	1.96	38	NS	NS
12	O12and C12	-0.504	-0.553	1.96	42	NS	NS

Source: Self calculated

Note:

- (i) O1- mean price of opening prices for April-2010, O2-mean price of opening prices for May-2010, O3-for June-2010 and so on, up to March-2011.
- (iii) C1- mean price of closing prices for April-2010, C2-mean price of closing prices for May-2010, C3-for June-2010 and so on, up to March-2011.

**CHART-6: CHART REPRESENTS THE RESULTS OF T-STATISTICS OF MONTHLY OPENING & CLOSING SHARE PRICES OF TATA MOTORS LTD. (YEAR, 2010-11)**



Source: Based on Table-7

- (ii) O1- mean price of opening prices for April-2010, O2-mean price of opening prices for May-2010, O3-for June-2010 and so on, up to March-2011.
- (iv) C1- mean price of closing prices for April-2010, C2-mean price of closing prices for May-2010, C3-for June-2010 and so on, up to March-2011.

In the above Table-6 pertaining to the mean of opening & closing and standard deviation of opening and closing monthly share prices of the units for the year 2010-11. By analysing the mean and standard deviation of opening and closing share prices exhibit that- there is volatility in the monthly opening and closing share prices. Table-7 related to t-values between open and close share prices of a month. The volatility were being indicated non-significant at 5% level of significance between opening and closing share prices of a month.

This also has been showed by graph. It is being portray by the technical Chart at no.6 that the volatility starts to come down gradually when the standard deviation is highest. One more interesting finding is that, as an average as the volatility increase at the highest level (eg. standard deviation of August, 2010-11 is 70.85 and 67.85 at highest in case of Tata Motors and standard deviation of March, 2010-11 is 97.39 and 99.90 at highest in case of Eicher Motors) the prices of the share increase that the highest level 1312.48 after December, 2011 (for Tata Motors) and 1287.143 after October, 2011 (for Eicher Motors). The investors started to take the short position (as inference from results) and resultantly the prices started to come down by virtue of more share supply in the market. The prices of Tata motors was Rs. 889.5 as a close on an August 5, 2011. It showed a tremendous negative volatility strength the reason needing detailed fundamental analysis for the reason of volatility. However, it is the best time to take the long position.

## FINDINGS

- I. The volatility in share prices of selected units was of gyrated nature (Table No. 2 may be referred),
- II. The volatility was found significant in monthly open to open and close to close share prices at 95% level of confidence (Table No. 3 & 5 may be referred), and
- III. The volatility in monthly opening and closing share prices, when was compared, no difference was statistically significant. It indicates that the volatility in opening and closing prices of selected units was almost same in every month (Table No. 7 may be referred).

## CONCLUSIONS

With the above study it can now be concluded that volatility analysis is an effective analysis to measure the risk on financial instruments. This study also infers that, more wise full investment decision can be taken by investors with the help of forecasting volatility in the share prices, because it analyzes the security on the basis of range of price fluctuation of a security. But it should not forget that actual share price are influenced by many factors as such- internal



information, speeches of the ministers, and etc. So, decisions relating to buy and sell of securities should not take only on the basis of volatility analysis.

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