A Study on Equity Share Price Volatility of Selected It Sectors In National Stock Exchange

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Abstract
This paper is a humble attempt to measure the volatility of the IT stocks and compare it with that of the volatility of NIFTY. Stock markets in general are considered volatile and volatility plays a key role in measuring the risk return trade-offs. While there are so many factors that make the stock market volatile, one is very curious to understand if the volatility of the stock market in India is in line with the volatility of the different sectors in India, in this case the IT sector. Estimating volatility enables the pricing of securities and, understanding stock market volatility or individual stock price volatility enables good decisions on the part of investors. Investors who are risk-averse would not be happy to invest in a highly fluctuating stock, whereas those with a thirst for riskiness would happily invest in a highly volatile market. Volatility is simply a measure of variability or dispersion from the mean values. In this study standard deviation, variance and individual beta values have been calculated to get an idea of the volatility.
Keywords: Volatility, Risk-Return, Beta, NIFTY.

1. INTRODUCTION

The capital market in India is a very robust market and has undergone drastic changes in the last two or more decades. Stock markets in India have now become more transparent than ever. Stock markets in general are considered volatile and volatility plays a key role in measuring the risk –return trade-offs. While there are so many factors that make the stock market volatile, it is of general interest to understand if the volatility of the stock market in India in line with the volatility of the different sectors in India. IT sector have been major contributors to the fluctuations in the stock market index. Estimating volatility enables the pricing of securities and understanding stock market volatility or Individual stock price volatility enables good decisions on the part of investors. Investors who are risk-averse would not be happy to invest in a highly fluctuating stock, whereas those with a thirst for riskiness would

Happily invest in a highly volatile market. Volatility is simply a measure of variability or dispersion from the mean values. If the dispersion is more it is considered more volatile.

National stock exchange of India limited is an electronic exchange with all over the country presence. It offers trading facility through its fully automatic, screen based trading system. A variety of financial instruments, which includes, equities, debentures, government securities, index future, index option, stock futures, stock options, currency futures, interest rate futures etc. are trade on its electronic raise area.
NSE is the largest stock exchange in India, with a significant of market share in equities and derivatives. It is also one of the most important global exchanges. NSE uses a state of the art telecommunication network to provide investors an efficient and visible market. It has produced new benchmark in technology infrastructure, risk management system, clearing and decision systems, investor's services and top encourages.

2. REVIEW OF LITERATURE:

M. N. A. Ana sari (1994) made a difference between the Badla system and the future and option system, the factors which led to replacement of Badla system and the problems and reform measures that are required to be taken in the stock market for the production of future and options.
Yarram Subha Reddy (1998) studied the efficiency of a stock market. The operational, allocation and informational efficiency of the market are examined and the weak form information efficiency of Bombay Stock Exchange is analyze.
Pitabas Mohanty (1998) examined the question of whether excess returns can be earned by forecasting EPS alone. It is concluded that, one can make excess returns in India by forecasting the direction of movement of EPS (Earning per Shares) and this excess return cannot be explained away by any risk measures. In this paper P-E approach (Price – Earning) used to value the shares of a company.

S. K. Santi Swarup, Ambika Verma (1998) examined the important stock exchange reforms during the period 1992-1997 and their impact on capital market development as perceived by intermediaries. A sample of 30 brokers from Delhi was selected and their perceptions were studied using questionnaires and informal interviews.

R. P. Hooda (1998) analysis investor's behavior in stock market. It is found that majority of investors follow the mixed approach, safe reasonable return combined with speculative benefits. The composition of investment in term of the amount held in different security alternatives is characterized by highest share of investment in fixed deposits, with equity shares being very close by. Performance shares are the least preferred among different security alternatives accounting for extremely low proportion of investment.

S. Amanulla, B. Kamiah (1998) tested the CAPMC (Capital Asset Pricing Model) in risk premium form by using the monthly return of stock traded on Bombay Stock Exchange during the period 1987 to 1994. For this purpose two stock market indices viz. BSE sensitive index and BSE national index were used to represent the market index. It concluded that, through the CAPM model describes stock return well in Indian context.

Anand Mittal (2000) studied the hypothesis which this study has to test is the economic reform programmes have been instrumental in overall improvements and development of India's capital market. This requires construction of improved quantitative and qualitative indices like SINDEX, ANDEX, and CAPDEX for the analysis of Indian capital market between 1989-90 to 1999-2000. It also studied leading factors affecting capital market development. Following are the important recommendations of the study.

3. STATEMENT OF THE PROBLEM
- Study analyse the performance of the five IT companies for the last three years and comparison is made for their performance in different years.
- There is a change in Beta value day by day, Stock Market volatility on equity create and blow on firms financial growth.
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OBJECTIVES OF THE STUDY
- To analyze the risk and return of the selected IT sectors in NSE.
- To compare the performance of IT with their returns and variance.
- To analyze volatility of IT in comparison with the stock price

4. RESEARCH METHODOLOGY

The data which is used for the study is purely from secondary sources are books, journals, articles, newspapers. The monthly closing prices have been collected from the official website of National stock exchange for a period of 3 years from 2013-2015. Tools which are used for the analysis is risk, the average, standard deviation, beta, through descriptive statistics and for testing hypothesis 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 hypothesis
Which have been adopted given below:-
1. HO --There is significance difference between stock return and risk
2. H_1--There is no significance difference between stock return and risk.

MEAN:

When used without specification, "mean" refers to the arithmetic average of a data set. To calculate mean, add all the values in the data set and divide by the number of observations.

$$= \sum /$$

Where,

(Sometimes call the X-bar) is the symbol for mean,

$\sum$ (The Greek letter sigma) is the symbol for summation,

X is the symbol for the scores,

N is no of values.

5. STANDARD DEVIATION

Standard deviation is measure of dispersion of a set of data from its mean. The more spread apart the data, the higher the deviation. Standard deviation is calculated as the square root of variance.

$$\sigma = \sqrt{\sum (-)_{-1}}^2$$

Where,

σ = the standard deviation,

x = each value in the population,

x = the mean of value,

N = the number of values (the population).

BETA:

A measure of the volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole. Beta is used in the capital asset pricing model (CAPM), a model that calculates the expected return of an asset based on its beta and expected market returns. When standard deviation determine the volatility of a fund according to the disparity of its returns over a period of time, beta, another useful statistical measure, determines the volatility (or risk) of a fund in comparison to that of its index or benchmark. A beta greater than 1 indicates greater volatility than the overall market, and a beta less than 1 indicates less volatility than the benchmark.

β = opening price - closing . . ..

price No. of days

DATA ANALYSIS AND INTERPRETATION:

TABLE.1 EQUITY SHARE PRICE ON WIPRO:

Year	Mean	standard deviation	sample variance
2013	0.03565	0.1168	0.0136
2014	0.000711	0.0532	0.00283
2015	0.00265	0.0642	0.00411

INFERENCE:
From the above table shows the highest mean value as 0.035658 in the year of 2013. Lowest mean value as 0.00265 in 2015. The highest standard deviation as 0.1168 in the year 2013 and lowest standard deviation 0.053 in 2014. Highest variance as 0.0136 in

2013 and lowest value as 0.0028 in 2014. It indicates high volatility of the study period

Year	Mean	standard deviation	sample variance
2013	0.040271	0.109641	0.012021
2014	-0.03146	0.156095	0.024366
2015	-0.03064	0.164031	0.026906

TABLE.2 EQUITY SHARE PRICE ON INFOSYS:

INFERENCE:

From the above table shows the highest mean value as 0.040 in the year of 2013. Lowest mean value as -0.030 in the year 2015. The highest standard deviation as 0.164 in 2015 and lowest standard deviation as 0.109 in 2013. Highest variance as 0.026 in 2015 and lowest value as 0.012 in 2013. It indicates high volatility of the study period.

TABLE.3 ON EQUITY SHARE PRICE ON TCS:

Year	Mean	standard deviation	sample variance
2013	0.050401	0.090506	0.008191
2014	0.015197	0.057503	0.003307
2015	-0.0033	0.040631	0.001651

INFERENCE:

From the above table shows the highest mean value as 0.050 in the year of 2013, Lowest mean value as -0.003 in the year 2015. The highest standard deviation as 0.0905 in 2013, lowest standard deviation as 0.040 in 2015. Highest variance as 0.0081 in 2013, and lowest

Years	Wipro	Infosys	TCS	HCL	Polaris
2013	1.1135	1.249	0.968	0.773	0.013
2014	0.8760	0.778	0.831	0.966	-0.16
2015	1.1708	1.916	0.514	2.392	0.465

Value as 0.0016 in 2015. It indicates high volatility of the study period.

TABLE.4 ON EQUITY SHARE PRICE ON HCL:

Year	Mean	standard deviation	sample variance
2013	0.064049	0.080398	0.006464
2014	0.02206	0.070925	0.00503
2015	-0.03088	0.177558	0.031527

INFERENCE:

From the above table shows the highest mean value as 0.064 in the year of 2013, Lowest mean value as -0.030 in 2015. The highest standard deviation as 0.177 in 2015, lowest standard deviation as 0.070 in 2014. Highest variance as 0.0315 in 2015, and lowest value as 0.005 in 2014. It indicates high volatility of the study period.

TABLE.5 ON EQUITY SHARE PRICE ON POLARIS:

Year	Mean	standard deviation	sample variance
2013	0.017747	0.086001	0.007396
2014	0.029565	0.144365	0.020841
2015	0.02379	0.121995	0.014883

INFERENCE:

From the above table shows the highest mean value as 0.029 in the year of 2014, Lowest mean value as 0.017 in the year 2013. The highest standard deviation as 0.144 in 2014, lowest standard deviation as 0.086 in 2013. Highest variance as 0.0208 in 2014, and lowest

value as 0.0073 in 2013. It indicates high volatility of the study period.

6. **ANALYSIS OF BETA VALUES:**

Beta value is highest in WIPRO, INFOSYS, HCL and POLARIS in2015. It shows that there is a highest trend between stock return and the market return, where a lowest trend between the stock return and the market return.

T-TEST OF WIPRO

t-Test: Paired Two Sample for Means		
	Return	*Risk*
Mean	0.013006	0.006295
Variance	0.00674	0.000158
Observations	36	36
Pearson Correlation	-0.00357	
Hypothesized Mean Difference	0	
Df	35	
t Stat	0.48459	
P(T<=t) one-tail	0.315493	
t Critical one-tail	1.689572	
P(T<=t) two-tail	0.630986	
t Critical two-tail	2.030108	

Calculated value t stat is **0.48459** is less than tabulated value **2.030108** it is not significant. Hence null hypothesis has been accepted at level of significant and we conclude that the experimental results support the theory.

T-TEST OF INFOSYS

t-Test: Paired Two Sample for Means		
	Return	*Risk*
Mean	-0.00727	0.01934
Variance	0.021055	0.00237
Observations	36	36
PearsonCorrelation	-0.81283	
Hypothesized Mean Difference	0	
Df	35	
t Stat	-0.85449	
P(T<=t) one-tail	0.199323	
t Critical one-tail	1.689572	
P(T<=t) two-tail	0.398645	
t Critical two-tail	2.030108	

Calculated value t stat is **-0.85449** is less than tabulated value **2.030108** it is not significant. Hence null hypothesis has been accepted at level of significant and we conclude that the experimental results support the theory.

T-TEST OF TCS

t-Test: Paired Two Sample for Means		
	Return	*Risk*
Mean	0.020767	0.004018
Variance	0.004643	4.12E-05
Observations	36	36
Pearson Correlation	0.011137	
Hypothesized Mean Difference	0	
Df	35	
t Stat	1.469944	
P(T<=t) one-tail	0.075255	
t Critical one-tail	1.689572	
P(T<=t) two-tail	0.15051	
t Critical two-tail	2.030108	

Calculated value t stat is **1.469944** is less than tabulated value **2.030108** it is not significant. Hence null hypothesis has been accepted at level of significant and we conclude that the experimental results support the theory.

T-TEST OF HCL

t-Test: Paired Two Sample for Means		
	Return	*Risk*
Mean	**0.018408**	**0.013145**
Variance	**0.015073**	**0.001521**
Observations	**36**	**36**
Pearson Correlation	**-0.68219**	
Hypothesized Mean Difference	**0**	
Df	**35**	
t Stat	**0.207644**	
P(T<=t) one-tail	**0.418355**	
t Critical one-tail	**1.689572**	
P(T<=t) two-tail	**0.83671**	
t Critical two-tail	**2.030108**	

Calculated value t stat is **0.207644** is less than tabulated value **2.030108** it is not significant. Hence null hypothesis has been accepted at level of significant and

we conclude that the experimental results support the theory.

T TEST OF POLARIS

t-Test: Paired Two Sample for Means		
	Return	*Risk*
Mean	**0.023701**	**0.023701**
Variance	**0.013576**	**0.013576**
Observations	**36**	**36**
Pearson Correlation	**-0.99647**	
Hypothesized Mean Difference	**0**	
Df	**35**	
t Stat	**2.2816**	
P(T<=t) one-tail	**0.5**	
t Critical one-tail	**1.689572**	
P(T<=t) two-tail	**1**	
t Critical two-tail	**2.030108**	

Calculated value t stat is **2.2816** is more than tabulated value **2.030108** it is significant.

FINDINGS

- From the study it was observed that the mean of WIPRO, TCS, INFOSYS, POLARIS and HCL in 2013. It was high in WIPRO, TCS INFOSYS, and HCL in 2013. And it was low in WIPRO, HCL, INFOSYS and TCS in 2015.
- Whereas standard deviation of WIPRO, TCS was high in 2013 and INFOSYS, HCL is high value in the 2015 and POLARIS was high in 2014.
- Beta value is highest in WIPRO, INFOSYS, HCL and POLARIS in 2015 where as lowest in 2014.
- Hypothesis testing is not significant in WIPRO, INFOSYS, HCL, and TCS. But Polaris was significant.

7. CONCLUSION

The objective of the paper was to present the nature and extent of relationship between returns and volatility of the IT Index stocks and the NSE NIFTY. IT sector in India as in any country are highly regulated and the macro level decisions of the economy could have a direct impact on the banking sector.

Stock markets in general are considered volatile and volatility plays a key role in measuring the risk –return

trade-offs. While there are so many factors that make the Stock market volatile, this study attempted to measure the volatility of the banking sector and compare it with that of NIFTY. Estimating volatility enables the pricing of securities and, understanding stock market volatility or individual stock price volatility enables good decisions on the part of investors. Investors who are risk-averse would not be happy to invest in a highly fluctuating stock, whereas those with a thirst for riskiness would happily invest in a highly volatile market.

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