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Measuring And Comparing The Market Efficiency Of National Stock Exchange (Nse) And Bombay Stock Exchange (Bse)

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Abstract National Stock Exchange and Bombay Stock Exchange had a breaking record hitting their returns high with NSE recording 24% and BSE recording 21% during the period of 21 October 2021. The high returns were recorded after a breakthrough from covid-19 lockdown as the economy recover to normalcy. Hence this study is conducted to measure and compare the efficiency of NSE and BSE in weak form of efficiency and strong form of efficiency based on two major indices namely, Nifty 50 and S&P BSE Sensex and on selected ten stocks listed on both NSE and BSE. Skewness was used to test if the price series follows a normal distribution, Runs test was used to test the randomness of market prices and Security Market Line to measure the efficiency in strong form of efficiency. The results of the study showed that both NSE and BSE are weak form inefficient and strong form inefficient. However, NSE is more efficient than BSE.

Keywords: Market Efficiency, Stock markets, Normality, Randomness, Security Market Line.

1. INTRODUCTION

Stock market refers to institutionalized place where buyers and sellers of financial instruments interact, exchange and transact physically or electronically. While stock market and stock exchange are used interchangeably, the difference is that stock exchange is a subset of stock market and traders in the stock market buy and sell shares listed on stock exchange. In India, the major stock exchanges are the National Stock Exchange and the Bombay Stock Exchange. National stock exchange is the biggest stock exchange in India with a catalytic role in modernizing the Indian securities market in terms of microstructure, market practices and trading volumes.

Bombay stock exchange is the Asia's oldest stock exchange offering high speed trading. It is the first stock exchange in the country to obtain permanent recognition in 1956 from the Government of India under the Securities Contracts (Regulation) Act, 1956.The Exchange has a crucial role in the development of the Indian capital market and its widely recognized index, SENSEX, is tracked worldwide. NSE and BSE are also regarded as the country's economic barometer that measures the pressure of business behavior in the Indian economy thereby enhancing liquidity in the country.

The Indian Stock market plays a very crucial role in the economy through investing, trading, hedging, speculating and providing arbitrage opportunities, as thus the performance and efficiency of a stock market is of interest to various stock market participants. The efficiency of the stock market avoid cases where investors turn to outperform the market by earning excess profits. If markets are efficient, securities' prices reflect normal returns of their level of risks.

The efficient market depicts the availability of information which makes the stock price to move randomly other than in orderly. Stock prices that are moving randomly are said to follow a random walk model. Random walk theory gained more attention into the literature as it questioned the assumption of Technical analysis which states that stock price movement is quite orderly. The Random walk theory stipulates that a change in stock prices happens only because of some certain changes in the economy, industry or company. Information about these changes alters the stock prices immediately and the stock moves to a new level, either upwards or downwards, depending on the type of information.

Therefore the random walk theory is based on the hypothesis that the stock markets are efficient in processing information. According to Downey (2022), share prices in an efficient market hypothesis reflect all information and consistent alpha generation is impossible (Lucas Downey, 2022). This availability of information averts investors from mispricing stocks constantly as price movements are mostly random and unpredicted. According to Lee (1991), if the random walk hypothesis holds, the weak form of the efficient market hypothesis must hold, but not vice versa. Thus, evidence supporting the random walk model is the evidence of market efficiency, but violation of the random walk model need not be evidence of market inefficiency in the weak form (LEE, 1991).

The efficiency of the Indian market is of interest to every investor as they need to decide on which stock indices to invest their money for profitability. The policy makers also need information on the performance of different indices for revision and implementation of policies. The efficiency of the market is positively correlated to the wealth of the country and may equally be of great significance to the public and players in the capital markets industries as undertaking efficient market hypothesis provides insights and exposure on how to ply their trade in a more efficient manner for the good and benefit of their clients and overall market standing.

II. SCOPE OF THE STUDY

If stock price movements were predictable then the stock market would be inefficient implying that investors can outperform the market. Therefore, this study examines the market efficiency of the Indian Market in its weak form of Efficient Market Hypothesis (EMH). The index of two major stock indices that is Nifty 50 (NSE) and S&P Sensex (BSE) are undertaken for the purpose of the study. The present study entails data from January 2020 to December 2021. Daily average prices (open, high, low, and closing) of two indices and prices of selected IT Stocks are used for the analysis of the study.

III. REVIEW OF LITERATURE

The concept of an efficient capital market has been one of the dominant themes in academic literature since the 1960s. Samuelson (1965) explained in his article that if market prices fully incorporate the information and expectations of all market participants, then price changes must be random. Fama (1965) and Scholes (1972) provided further evidence that stock market prices follow a random walk and conclude that the market is efficient (Eugen, 1965b). KO and Lee in their dissertation suggests that "If the random walk hypothesis holds, the weak form of the efficient market hypothesis must hold, but not vice versa. Thus, evidence supporting the random walk model is the evidence of market efficiency. But violation of the random walk model need not be evidence of market inefficiency in the weak form".

David (1994) criticized the evidence provided by this immediate "efficient" response, pointing out that an immediate response is not necessarily efficient, and that the long-term performances of the stock in response to certain movements are better indications. "Efficient market hypothesis is associated with the idea of a "random walk", which is a term loosely used in Finance literature to characterize a price series where all subsequent price changes represent random departures from previous prices" (Malkiel, The Efficient Market Hypothesis and Its Critics , 2003). In this regard, researchers and academic scholars have time and again conducted volumes of

investigations in the Indian market still trying to figure out the inconclusiveness of the status of Indian stock market on whether it follows random walk theory or not. It is also revealed that BSE broad market indices do not follow a random walk and Indian stock market is as weak-form inefficient (Elangovan Rajesh, 2022). Another finding is that the Indian stock market is weak-form inefficient and therefore can be outperformed (Jain. D, 2020). The study on weak Form of Capital Market Efficiency with an empirical evidence from BSE and NSE by has shown that there is negative correlation between Sensex prices for one period and second period of study which denoted both the prices are not moving in same direction hence market is not efficient in weak form (Sajeev Kumar, 2020). Similarly for Nifty prices correlation is negative which indicates market is not efficient in weak form.

An empirical analysis of the weak form market efficiency of the Indian stock market based on fifteen selected BSE Sensex and found that the market is efficient in weak form and most of the stocks confirm to be independently and identically distributed (P & Kumar, 2019). A tendency of dependencies in returns is also viewed in Indian stock market (Pankunni & Pankunni, 2025). Also, using an appropriate model for equity pricing stock return can be predicted (Pankunni & Kumar, Risk Adjusted Efficient Market Return for Stocks, 2020). The application of swarm intelligence is also made for predicting stock returns (Pankunni & Pankunni, Advances in the Applications of Swarm Intelligence in Portfolio Optimization, Stock Price Prediction and Risk Management, 2024). Studies revealed that market can be outperformed and thus violates random walk theory which denotes market is not efficient (Patel.A, 2018). Ramkumar (2015) examined the efficiency of sectoral indices of BSE and NSE, the results revealed that both BSE and NSE sample sectoral indices were not weak form efficiency. Khan (2011) employed a Runs Test to test the hypothesis and the results proved that Indian Capital market neither follow random walk model nor is a weak form efficient. Mallikajuneppa (2003, 2004a) and tested the reaction of stock market prices towards announcement of quarterly earnings and results showed that Indian stock prices do not respond immediately to available announcements hence Indian stock market is not efficient in semi-strong form efficiency. The empirical reviews in this area concludes with indecisive results as some research supported the random walk theory while other studies rejected it and that itself calls for a continuous study time again and again. The literature revealed that many researchers have used daily closing prices for data analysis, nonetheless the present study used the average of open, high, low and closing prices as to nullify the volatility of prices. The methodology used for comparing efficiency of stocks is also not commonly applied by many researchers in India. Therefore, this study will be a value addition in the present scenario and will assist all the stakeholders.

IV. STATEMENT OF THE PROBLEM

India is currently characterized by technological advancement and the country is digitally empowered in the field of technology. With this change in technology, it is expected that information is readily available to investors to accurately predict the stock prices based on available information. So the rational of this study stems from attempting to test whether Indian market returns series do follow the random walk model or not.

Secondly, in October 2021, key benchmark indices had witnessed a breaking record hitting the new highs (with Sensex 21% and NSE Nifty24%) as the economy was showing signs of recovery from Covid-19 lockdown and Covid-19 vaccination across the country. So the study tries to find out if increased returns were a reaction towards the available information of economy recovery.

V. RESEARCH QUESTIONS

The study attempts to answer the following questions;

1. How efficient the stock exchanges (NSE and BSE) are?
2. Which stock exchange is more efficient?

VI. OBJECTIVES OF THE STUDY

1. To find the nature of the Indian stock market by testing the randomness in the daily market returns.
2. To compare the market efficiency of National Stock Exchange and Bombay Stock Exchange.

VII. METHODOLOGY

This section explains the research design that is used in the study. This involved discussing data collection techniques, the population under study and data analysis techniques.

7.1 Research Design

This study is a descriptive research as it finds the position of NSE AND BSE and also finds which stock is more efficient between NSE AND BSE.

7.2 Sampling Method

The population of the study constitutes the stocks listed in Indian stock exchanges. For testing market efficiency, a sample of two major stock indices in India which are the S&P BSE Sensex and Nifty 50 were selected based on judgement and convenience sampling method. Further, for comparison of efficiency, the ten Blue Chip IT stocks have been selected as proxies of information efficiency in NSE and BSE. For reducing unbiasedness, all ten IT selected stocks are all listed both on BSE AND NSE.

7.3 Data Collection

This study used Secondary data which was collected from the official websites of NSE, BSE and Reserve Bank of India (RBI).The period of study is from 1st January 2020 to 31st December 2021. This study will use the historical data incorporating the average of open, high, low and closing prices of NSE Nifty index and S&P BSE Sensex. The average was used to account every variability and for the control of price volatility.

7.4 Variables of the Study

The study is used to test the randomness of market returns of the Indian market derived from daily historical prices of Nifty 50 share index and S&P BSE Sensex. Therefore the dependent variable is the current prices and independent variable is the previous prices (prices at t-1).

VIII. EMPIRICAL TESTS

8.1 Returns

The returns determine the capacity of the investors to gain from their investments. They determine if the investors made efficient market hypothesis in the investments made or not. Hence daily market returns can exhibit if there is a trend towards increased market efficiency.

The Natural Logarithm of Market Returns was used as the proxy for market returns as they are more likely to be normally distributed.

$Rt = \ln (Pt / Pt-1)$

Where; R is the Market return in period t,

P is the price index at day t,

P (t-1) is the price index at period t-1 and

1n is the natural logarithm of the daily market returns.

Also, for comparing the efficiency, weekly returns of selected ten NSE IT stocks and BSE IT stocks were employed.

8.2 Summary Statistics

To conduct this research, descriptive statistics test (mean, standard deviation and skewness). Skewness helps to find if the distribution is normal or not. Here skewness is measured by using the data of market daily returns. If the skewness is 0 it can be said that the distribution is normal. If it is negative it can be said that the left tail is longer the right tail which indicate that the distribution of the return should not be normal. And if it is negative it can be said that the right tail is longer than the left tail. Which also indicate that the stock prices are not normal.

8.3 Runs Test

Runs Test is a non-parametric test used to determine whether successive price changes are independent. It ignores the absolute value in a time series and takes into consideration the price changes of the same sign. In runs test, actual number of runs is being compared with the expected number of runs. If the actual number of runs is not significantly different from the expected number of runs, then the price changes are considered independent, and if this difference is significant then the price changes are considered dependent. The difference between actual number of runs and expected number of runs can be expressed by a standardized value 'Z' given as;

$$Z = \frac{R+0.5-E(R)}{\text{S.E}} \qquad (1)$$

Where, R = Actual number of runs. 0.5 = Continuity adjustment.

8.4 Security Market Line (SML)

Security Market Line is a graphical representation of the Capital Asset Pricing model (CAPM). SML indicates the returns expected to be provided by security given the amount of systematic risk taken in by the security.

For comparing the efficiency of NSE and BSE, the equation of Security Market Line (SML) for NSE and BSE is formulated. In an efficient market, all the stocks are laying on the Security Market Line. If there is any difference, then the stock exchange is not in a strong form of efficiency, hence the distance of sample security is calculated to find out which stock is more efficient than the other.
SML incorporates Capital Asset Pricing Model (CAPM) formula as follows:

Expected returns= risk free rate of return +beta*(market return - risk free rate)

Expected returns- risk free rate =beta* (market return –risk free rate)
Which in simple forms can be illustrated as follows;

$$Y = mx + c \qquad (2)$$

m = risk premium
c= risk free rate

After SML calculations, distance of each sample stock from the SML is calculated using the following formula. This formula is consistent and used by (Tarun Kanti Bose, 2014) when comparing efficiency of two Bangladesh stock exchange (DSE and CSE).

$$d = \frac{\left|a_{x1+b_{y1+c}}\right|}{\sqrt{a^2+b^2}}$$

Where “d” is distance, “x1” is regarded as beta coefficient, y1 as actual return, “a” as risk premium, “c” is risk free rate and the value of ‘b’ is one (1).The lower average distance indicate higher efficiency than the others.

IX. ANALYSIS OF MARKET EFFICIENCY OF NATIONAL STOCK EXCHANGE AND BOMBAY STOCK EXCHANGE

The aim of the study was to test the existence of random walk in the Indian stock market returns and to compare the efficiency in the market of two stock exchanges (NSE and BSE). Using the methodology considered in chapter three, data analysis was conducted through SPSS statistical package and MS Excel. Therefore this chapter presents results obtained by analyzing data explained in the following manner;

1. The descriptive statistic results of daily market returns of NSE and BSE.
2. The Runs test results of independence or randomness of NSE and BSE market return series
3. The results of average distance from Securities Market Line (SML) for efficiency comparison of IT stocks from both NSE and BSE.

9.1 Descriptive Statistics Results

For random walk to hold, the time series should follow a normal distribution. Results below summarizes the descriptive analysis of the distribution of the natural logarithm of the market returns.

Table 9. 1: Descriptive Statistics for NSE Nifty 50 index daily market returns

	N	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Std. Error
Nifty returns returns(NSE)	496	1.000774	.0125706	-1.051	.110
Valid N (list-wise)	496				

Table 9.1 presents results from a data of 496 days taken for descriptive analysis. It further shows that the mean returns of investments from Nifty 50 index is 1.000774 with standard deviation of 0.0125706 showing risk investors are exposed to when investing in NSE and finally the skewness of -1.051.

For testing the random walk model, one of the assumptions is that price series should be normal, that is independent. For normality, skewness should be zero, however, the results on table 9.1 show a negative skewness 0f -1.051 which means the left tail is longer than right tale. This means Nifty 50 price index are not normal.

Table 9. 2: ***Descriptive Statistics for S&P BSE Sensex daily market returns***

	N	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Std. Error
Sensex returns(BSE)	499	.000682	.0125751	-1.039	.109
Valid N (list-wise)	499				

Table 9.2 presents the descriptive statistics for S&P BSE Sensex. The results show the data of 499 days taken for descriptive analysis. It further shows that the mean returns of investments from S&P BSE Sensex index is 0.000682 less than Nifty 50 mean returns with standard deviation of 0.0125751 showing risk investors are exposed to when investing in BSE and finally the skewness of -1.039.

For a random walk to hold, the assumption is that price series should be independent of the previous prices. Therefore normality holds if skewness is zero, however, the results on table 9.2 show a negative skewness of -1.039 which means the left tail is longer than right tale. This analysis also concludes that S&P Sensex price series are not normal.

9.2 Runs Test Results

Runs Test is a non-parametric test used to determine whether successive price changes are independent.

Hypothesis testing for market returns of Nifty 50 index

H_o: Market returns of Nifty 50 index follow the random walk model.

H_1: Market returns of Nifty 50 index do not follow the random walk model.

Table 9.3: Runs test results of daily market returns (NSE)

	Runs test (NSE)
Test Value (a)	1.0018
Cases < Test Value	248
Cases >= Test Value	248
Total Cases	496
Number of Runs	196
Z	-4.764
Significance. (2-tailed)	.000

a. Median

Table 9.3 shows results of runs test of randomness for nifty 50 index with cut of value 1.0018(median).The number of runs registered by Nifty index is 196 with total cases of 496. For a random walk to hold, the actual number of runs should be significantly different from the expected number of runs as represented by z value, therefore table 9.3 shows the z-value of -4.764 not falling within the ±1.96 at 95% confidence interval. It can also be seen from table 4.3 that the p-value is 0.000 and is less than 0.05 significance level. Hence the null hypothesis can be rejected and concluded that NSE Nifty returns series do not follow a random walk.

Hypothesis testing for market returns of S&P BSE Sensex

H_o: Market returns of S&P BSE Sensex index follow the random walk model.

H_1: Market returns of S&P BSE Sensex index do not follow the random walk model.

Table 9.4: Runs test results for daily market returns (BSE)

	Runs test (BSE)
Test Value (a)	.0019
Cases < Test Value	249
Cases >= Test Value	250
Total Cases	499
Number of Runs	191
Z	-5.332
Significance (2-tailed)	.000

a. Median

Table 9.4 shows results of runs test of randomness for S&P BSE Sensex index with cut of value of 0.0019(median).The number of runs registered by S&P BSE Sensex is 191 with total cases of 499.The z-value of -5.332 is not within the ±1.96 at 95% confidence interval. It can also be seen that the p-value is 0.000 and is less than 0.05 significance level. Hence the null hypothesis can be rejected and concluded that S&P BSE Sensex price series do not follow a random walk.

9.3 Security Market Line (SML)

Security Market Line is a graphical representation of the Capital Asset Pricing model (CAPM). SML indicates the returns expected to be provided by security given the amount of systematic risk taken in by the security.

For comparing the efficiency of NSE and BSE, the equation of Security Market Line (SML) for NSE and BSE is formulated. In an efficient market, all the stocks are laying on the Security Market Line. If there is any difference, then the stock exchange is not in a strong form of efficiency, hence the distance of sample security is calculated to find out which stock is more efficient than the other.

The required returns were calculated based on weekly 90 days Treasury bills published by Reserve bank of India. Treasury bills were used as proxy for risk free rate on market returns.

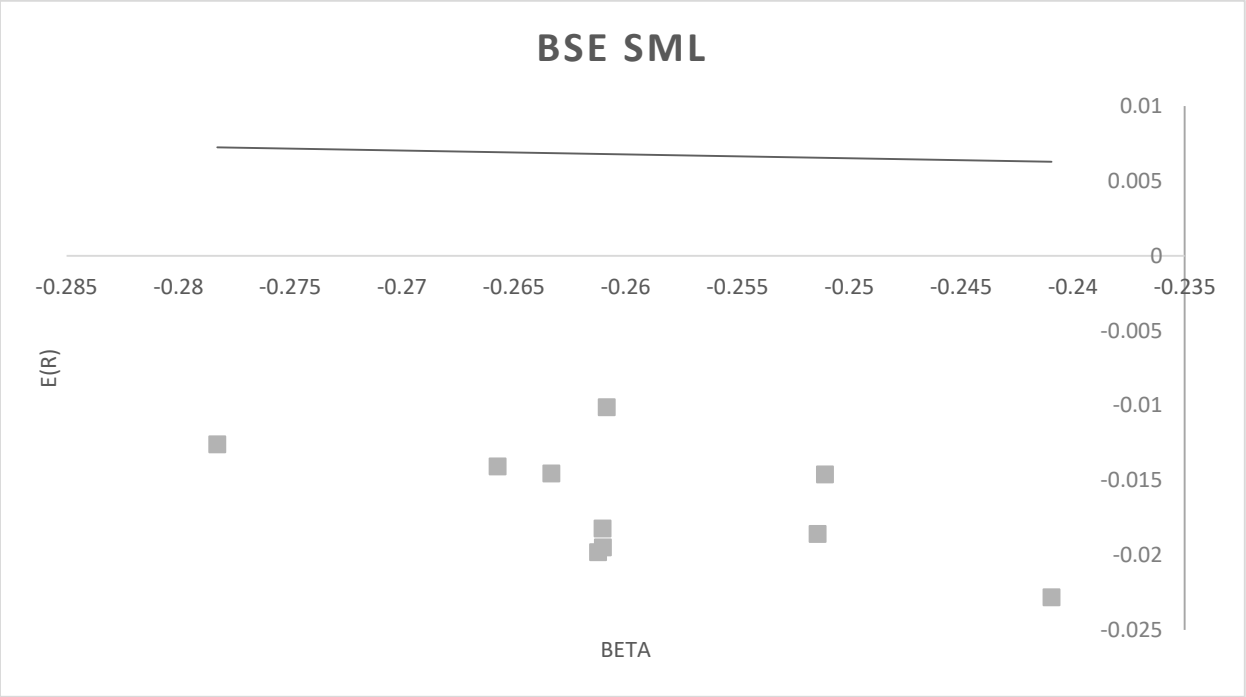
Table 9.4: Results of SML from selected IT stocks listed on BSE

NAME OF STOCK	ACTUAL RETURN	BETA	REQUIRED RETURN	DISTANCE FROM SML
INFYSYS Ltd	-0.018584314	-0.251415	0.006561072	0.023544468
TATA COONSULTACY SERVICE	-0.022802165	-0.240952	0.006288006	0.019056058
HCL TECHNOLOGIES LIMITED	-0.01980323	-0.261238	0.006817409	0.022582431
WIPRO	-0.018218537	-0.261036	0.006812146	0.024160978
COFORGE	-0.014065274	-0.265725	0.006934492	0.028434198
L&T INFOTECH	-0.0125855	-0.278269	0.007261852	0.030240327
L&T TECHNOOGY SERVICE	-0.014591109	-0.251079	0.006552292	0.027526664
MINDTREE	-0.010108281	-0.260842	0.006807077	0.032261632
TECH MAHINDRA	-0.019475898	-0.26102	0.006811721	0.022903895
MPHASIS	-0.014528222	-0.263323	0.006871819	0.027908869
AVERAGE DISTANCE				**0.025861952**

Table 9.5 shows that all selected BSE IT securities have negative values of beta indicating that the rate of returns on their investments have reduced to less than the risk free rate of 0.03581, which tend to be strange and unusual since it is assumed that at least the return on investment be equal to risk free rate return. The table also shows that although all the stocks are less volatile than the market with evidence of negative betas being less than one, further comparison made between them showed that the stocks of L&T Infotech is less volatile than other stocks with beta of -0.278269 while Tata Consultancy Services is more volatile than all other stocks with beta of -0.240952.

The results further shows that the required return of L&T Infotech is higher with value of 0.07261852 than required returns for other stocks while required return for Tata Consultancy Services is lesser of them all other stocks with value of 0.06288006. This brings to a conclusion that stocks with higher volatility do not exhibit higher returns than stocks with lower volatility. It can further seen from the table 9.5 that securities listed from Bombay Stock Exchange covers more distance from Security Market Line.

9.3.1 Graphical Representation of Security Market Line for BSE selected IT stocks.



GRAPH 9.1: Illustration of SML graph on BSE Returns

Graph 9.1 shows that the Bombay Stock Exchange selected IT stocks actual returns are less than the required returns. In terms of the Security Market Line, the securities lying on the Security Market Line are said to be priced fairly and efficient, also securities plotted below the Security Market Line are said to be overpriced. Hence it can be seen from graph 9.1 that Bombay Stock Exchange selected IT securities are listed below the Security Market Line and as a matter of fact are said to be overpriced and not fairly priced. The overpricing of securities means that they offer lower returns that expected from securities with same risk.

Table 9.5: Results of SML For selected IT stocks listed on NSE

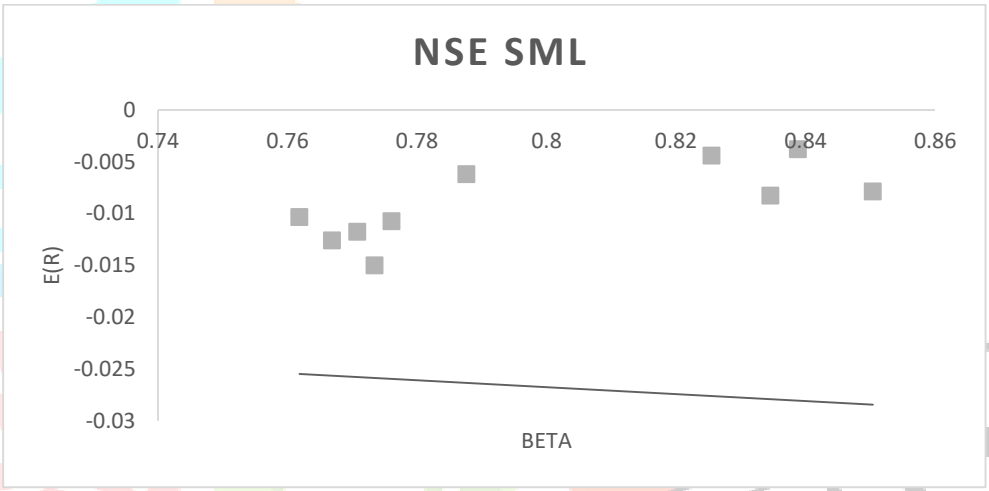
NAMES OF STOCKS	ACTUAL RETURN	BETA	REQUIRED RETURN	DISTANCE FROM SML
INFYSYS Ltd	-0.010761094	0.776084	-0.02596523	-0.001147455
TATA CONSULTANCY SERVICE	-0.015019416	0.773474	-0.025877912	-0.005316118
HCL TECHNOLOGIES LIMITED	-0.012606461	0.766897	-0.025657858	-0.002684561
WIPRO	-0.010345223	0.761875	-0.025489827	-0.000256634
COFORGE LTD	-0.00622187	0.787654	-0.026352308	0.003002331
L&T INFOTECH	-0.004428711	0.825515	-0.027619024	0.003528355
L&T TECHNOOGY SERVICE	-0.007883885	0.850386	-0.028451124	-0.000756603
MINDTREE	-0.003807458	0.838866	-0.028065693	0.003702797

TECH MAHINDRA	-0.11784135	0.770821	-0.025789139	-0.001993916
MPHASIS	-0.008289875	0.8345	-0.027922325	-0.00063381
AVERAGE DISTANCE				**-0.000255561**

Table 9.6 shows that NSE selected securities have a positive beta of less than one implying that they are less volatile than the market risk. Also, the actual returns are negative which is not satisfactorily as the assumption is they should at least be equal to risk free rate return. It can also be seen that because of negative actual returns, the required returns turned to be negative.

Table 9.6 further shows that IT stocks listed in NSE covers lesser distance from Security Market Line as compared to IT stocks listed in Bombay Stock Exchange.

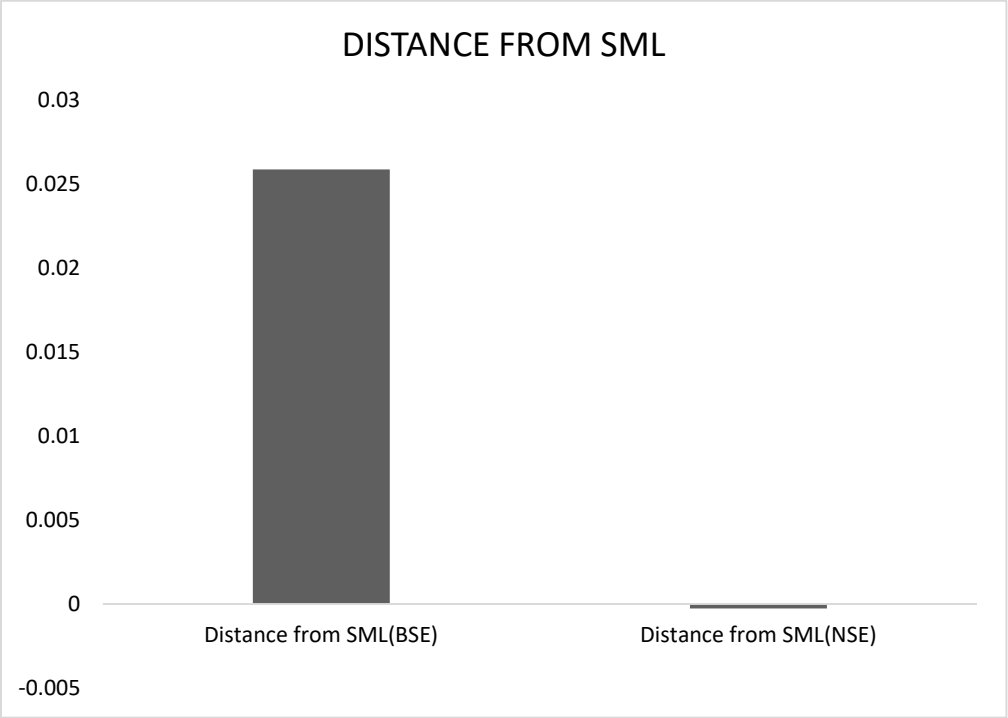
9.3.2 Graphical Representation of Security Market Line for NSE selected IT stocks.



GRAPH 9.2: Illustration of SML graph on NSE Returns

Graph 9.2 shows that the NSE selected IT stocks actual returns are higher than the required returns. In terms of the Security Market Line, the securities lying on the SML are said to be priced fairly and efficient, also securities plotted above the SML are said to be underpriced. Hence it can be seen from graph 4.2 that NSE selected IT securities are listed above the SML and as a matter of fact are said to be underpriced and not fairly priced. This underpricing of securities means they offer higher returns than expected from securities with same risk. Hence securities that are plotted above SML are highly demanded by investors with the assumption that they are profitable.

9.3.3 Graphical illustration of the average distance of both NSE and BSE Stocks from SML



GRAPH 9.3: Comparison of Market Efficiency of NSE and BSE

The average distance of National Stock Exchange IT stocks from SML is -0.000255561 and average distance of Bombay Stock Exchange IT stocks from SML is 0.025861952. National Stock Exchange IT stocks have on average lower distance than Bombay Stock Exchange IT stocks implying that National Stock Exchange stocks are better priced than Bombay Stock Exchange stocks. Graph 4.3 further illustrate that the distance of National Stock Exchange IT stocks from the Security Market Line is way more less and closer to the Security Market Line than for Bombay Stock Exchange IT stocks. Thus National Stock Exchange is more efficient than Bombay Stock Exchange.

X. RESEARCH FINDINGS

The summary of the research findings are listed as follows;

1. The results from the descriptive statistics conducted showed that the return series for both National Stock Exchange and Bombay Stock Exchange indices do not follow a normal distribution.
2. The results from Runs test also rejected the null hypothesis of randomness and provided evidence that National Stock Exchange and Bombay Stock Exchange market returns series do not follow random walk.
3. The results from the Security Market Line conducted on selected IT stocks showed that none of the securities from both National Stock Exchange and Bombay Stock Exchange were efficient in strong form of Market efficiency.
4. The selected IT stocks listed on National Stock Exchange were underpriced while selected IT stocks listed from Bombay Stock Exchange were overpriced.
5. The distance of National Stock Exchange IT stocks from Security Market Line was lower than the distance of Bombay Stock Exchange securities from Security Market Line.
6. The overall results also provided evidence that Stocks with higher volatility do not exhibit higher returns otherwise stocks with lower volatility proved to unveil better returns.

XI. CONCLUSION

This study was conducted to test the efficiency of the Indian stock market by testing the weak form of efficiency and strong form of efficiency of National Stock Exchange and Bombay Stock Exchange. The results of the study conclude that the market return series of both National Stock Exchange and Bombay Stock exchange do not follow normal distribution and they are non-random. This means that the prices on Nifty 50 index and S&P BSE Sensex are dependent on the previous prices and the Indian stock market can be outperformed.

The comparison of efficiency between National Stock Exchange and Bombay Stock Exchange showed that both the stock exchanges are not efficient in strong form of efficiency as none of the selected IT stocks were lying on the Security Market Line. However, graph 4.3 showed that National Stock Exchange is more efficient than the Bombay Stock Exchange since its graph is closer to the Security Market Line and its average distance found to be lower. Therefore the conclusion is both National Stock Exchange and Bombay Stock Exchange are weak form inefficient and strong form inefficient. This presupposes that both indices are in semi strong form of efficiency and high market returns unveiled during period of study were influenced by the availability of public information in the period of study. This conclusion is in consistent with (Manickaraj.N, 2004)**.**

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