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ANALYSIS OF MARKET EFFICIENCY OF BSE – PSU INDEX

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ABSTRACT

An Efficient Market is one where the market is an unbiased estimate of the true value of the investment. The prevalence of efficiency has an impact on the investment strategy of investors. The Public Sector Companies are considered to be one of the important sectors of an economy for its growth and development. Indian Public Sector is currently passing through a challenging phase. This Paper seeks to investigate the market efficiency of the sample companies listed on the BSE- PSU Index by using daily returns of the share price during the period of 1st January 2005 to 31st December 2009. The Study used Runs Test, Autocorrelation Test and Augmented Dickey Fuller (ADF) Test for analysis.

Keywords: Market Efficiency, BSE PSU Index, Stationary and Non-Stationary Testing

INTRODUCTION

Capital Markets play a vital role in the capital formation of the Indian Economy. Capital Market Efficiency is an important concept which helps us to understand the working of capital markets. The efficiency of the emerging markets assumes greater importance as the trend of investments is accelerating in these markets as a result of regulatory reforms and removal of other barriers to international equity investments. The term Market Efficiency, is used to explain the relationship between information and share prices in the Capital Market Literature. An Efficient Market is one where the market price is an unbiased estimate of the true value of the investment. The concept of Market Efficiency does not require that the market price should be equal to true value at every point in time. All it requires is that errors in the market price are unbiased, that is, the prices can be greater than or less than true value. Market Efficiency has influenced the investment strategy of an investor because in an Efficient Market, there will be no undervalued or overvalued stocks. This implies that stocks will not offer higher than deserved expected returns, given their risk. On the other hand, if the market is not efficient, excess returns can be made by correctly picking the stocks. In this study, an analysis of stock prices of PSU Index in Bombay Stock Exchange (BSE) was carried out to test the efficiency of Indian Stock Market. A capital market is deemed to be efficient with respect to an information item if the prices of securities fully share price returns implications. There are three categories of Efficient Market. In the Weak Form Efficiency, the current stock. Prices reflect all the information that is contained in the historical sequence of prices. In the Semi-Strong Form Efficiency, current market prices not only reflect all information content of historical prices but also reflect all the information which are publicly available about the companies under the study. Finally, Strong Form Efficiency is one in which current prices reflect all information whether it is publicly available or private information.

In India, Public Sector Undertaking (PSU) is a term used for a Government Owned Corporation (company in the public sector). The term is used to refer to companies in which the Government, either the Union Government or State Government, owned a majority of the company's equity. A public sector utility is a company or organization established by the Government/Public Sector which is involved in the creation and distribution of universally needed services or commodities. This economic activity is a dynamic process which includes many aspects of economic and social theory including exchange, regulation, and enforcement. By its nature, it is necessarily difficult to observe study, define, and measure.

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The analysis covers the market efficiency of Public Sectors in the Indian Economy. It focuses on the key points of the latest reforms of economy as initiated by the Government of India. Indian Public Sector overlaps the Private Sector in producing or providing certain goods and services. Therefore, this paper tests the market efficiency across the companies under PSU, listed on the BSE, by using daily closing share prices during the study period.

REVIEW OF LITERATURE

An attempt has been made to review the research works undertaken in the area of efficiency analysis to study the gap in research and adopt the tested methods used by Researchers.

Anand Pandey (2003) carried out an analysis to test the efficiency level in the three popular stock indices of Indian Stock Market and the random walk nature of the stock market by using the Runs Test and the Autocorrelation Function of ACF. The analysis found that the Autocorrelation and Runs Test Analysis helped him to conclude that the series of stock indices in the Indian Stock Market are biased random time series.

Raja.J and Suresh Kumar.A (2006) attempted to test the semi strong form of Efficient Market Hypotheses in the Indian Capital Market. This paper tries to predict future performance of the firm through stock market and it is concluded that the model has predictive ability very similar to the Z score analysis in predicting the future corporate performance.

Mahdi M. Hadi (2006) examined the association between accounting numbers and security return in order to find out whether accounting data carry any information content to security market or not, and if so, whether it is impounded in the security price. The results indicate that the security market reacted with mixed signal on releasing profitability, liquidly and solvency information.

A study was carried out by **Hareesh Kumar.V and Malabike Deo (2007)** to test the informational efficiency of Indian Securities Market with respect to a widely reported market anomaly. They found out the prevalence of Day-of-the-Week Effect in the Indian Stock Market which attached both to the stock return and volatility and thus proved the Indian Stock Market to be in efficiency.

Abdullah Yalama and Sibel Çelik (2008) investigated semi strong form efficiency in Stock Exchange Market, Foreign Exchange Market and Interbank Money Market in Istanbul in respect to changes in Currency in Circulation by using Toda Yamamoto Causality Test. The researchers found that there was no causality relationship running from Currency in Circulation to Istanbul Stock Exchange Market. This result implies that while money markets are semi strong form efficient, capital market is not efficient in Turkey.

Mishra. P.K and Pradhan. B.B (2009) studied the capital market of India which presents a picture of better efficiency, liquidity, transparency and regulatory oversight. Indian Capital Market shows greater volatility due to global financial crisis during the study period. This has affected the informational efficiency of the market and became the cause and consequence of financial innovation.

Raja.M, Clement Sudhahar.J and Selvam.M (2009), in their article, made an attempt to test the efficiency of Indian Stock Market with respect to Stock Splits announced by IT companies. The results of the study showed that the security prices were affected the announcement of bonus issue. The study found that IT Sector in the Indian Capital Market was efficient but not perfectly efficient to the announcement of bonus issue.

Mishra.P.K, Das.K.B and Pradhan.B.B (2009) examined some empirical evidence on the efficiency of Indian Stock Market in the context of recent global financial crisis. The result of unit root tests on the sample of daily stock returns presents the evidence of weak form market efficiency in India. The paper further examines the mean reversion implication of market inefficiency and suggests the existence of mean reversion illusion in India.

The above literature provides an overview of different models used to study the sectoral efficiency around the world, including India, with respect to both BSE and NSE Indices. However, there was no comprehensive study carried out in Indian Stock Markets with respect to Public Sector Undertakings. Thus an attempt has been made in this study to evaluate market efficiency in the Indian Context by applying the models used in the above studies.

STATEMENT OF THE PROBLEM

The Capital Market is a vital institution because it facilitates economic development. No wonder many researchers are interested in the efficiency of the Capital Market. In the Capital Market share prices change day by day. Nowadays, people invest their money in share market and wish to get more returns. The retail investors can be motivated to save and invest their savings in corporate securities only if their securities are appropriately priced. It is important to note that there were no comprehensive studies carried out to test the sectoral efficiency in the Indian Context. In this competitive world, the share prices suffer more volatility in the market. No one knows when the market prices increase or decrease. Further, particularly it is difficult to know which sector and which company performs best currently. The individual investors are not fully informed of the market efficiency in the Indian Stock Market. Therefore, the present study aims to investigate the efficiency of Indian Stock Market with reference to PSU Index. This study analyses the market efficiency of the sample companies from PSU listed in the BSE.

NEED OF THE STUDY

The present study was focused on the efficiency of Indian Capital Market during a period of five years in BSE-PSU Index. This study evaluates the Normal Distribution, Significant Level and Stationary or Non-Stationary of sample companies in BSE-PSU Index on the basis of daily share price returns to discover the market efficiency. The study proposes to identify the PSU index which attains weak form efficiency in the market.

OBJECTIVES OF THE STUDY

The following are the objectives of this study

1. To examine the market efficiency of the companies listed in BSE- PSU Index.
2. To test the normality of the sample companies return series.
3. To measure and compare the stationarity level of sample companies
4. To summarize the findings and offer the conclusion of the study.

HYPOTHESES

The present study tested the following Null Hypotheses.

NH1 There is no normal distribution in the returns of sample companies.

NH2 There is no significant difference in the share price behavior of sample stocks.

NH3 There is no stationarity in the returns of sample companies.

Methodology of the Study

Sample Selection

The present study was undertaken to scrutinize the market efficiency of stocks of PSU Companies listed on the BSE PSU Index. In PSU Index, there were totally 55 companies listed on PSU Index by 30th July 2010. Out of these 55 Public Sector Companies, only 44 Companies could provide sufficient data relevant for the study. The details of sample population are given in **Table-1.**

Sources of Data

The study was based on data collected from secondary sources. The data for this study were taken from the daily returns of companies and Index, which were collected from Prowess Corporate Database. Further, the other related information were collected from websites like www.bseindia.com and www.directoryoffinance.com.

Period of the Study

The analysis of this study covers a period of five years from January 2005 to December 2009. The data consist of daily share price returns of BSE in PSU Index.

Tools used for Analysis

To assess the market efficiency of sample companies listed on BSE PSU Index, tools like Runs Test, Autocorrelation and ADF Test were used for testing the market efficiency of the Indian Stock Market.

(a) Runs Test- It is a non-parametric test used for measuring market performance. It does not require specification of the probability distribution. It depends only on the price movements. They are essentially concerned with direction of changes in price movement.

$$M = \frac{N(N+1) - \sum_{i=1}^{3} n_i^2}{N}$$

Where,

M = Expected number of runs
n_i = Number of price changes of each sign (i=1,2,3)
N = Total number of price changes.

(b) Autocorrelation- It is the statistical tool used for measuring the company's successive terms in a given time series and dependence of the successive share price changes.

$$p_k = \frac{\sum_{t=1}^{n-k}(R_t - \overline{R})(R_{t+k} - \overline{R})}{\sum_{t=1}^{n}(R_t - \overline{R})^2}$$

Where,

K = Number of lags
R_t = Real rate of returns
n = Total number of observations
P_k = Sample autocorrelation function for the lag K
R = Mean returns

(c) Augmented Dickey Fuller Test

In statistics and econometrics, an Augmented Dickey Fuller Test is a test for a Unit Root in a time series sample. It is an augmented version of the Dickey Fuller Test for a larger and more complicated set of time series models. In the Augmented Dickey Fuller Test Statistic, more negative the number, stronger the reason for the rejection of the hypotheses and there is a Unit Root at some level of confidence.

$$\Delta y_t = \alpha + \beta t + \gamma y_{t-1} + \delta_1 \Delta y_{t-1} + \cdots + \delta_p \Delta y_{t-p} + \varepsilon_t,$$

Where,

α is a constant, β the coefficient on a time trend and p the lag order of the autoregressive process. Imposing the constraints α=0 and β=0 corresponds to modeling a random walk and using the constraint β=0 corresponds to modeling a random walk with a drift.

Analysis of Market Efficiency and stationary of PSU stocks

The present study aims to test the Indian Market Efficiency and Stationarity of PSU Companies. This section deals with the analysis of Runs Test, Autocorrelation Test and ADF Test of all sample companies belonging to PSU Index during the study period. The analysis was arranged as follows.

Market Efficiency of PSU - Runs Test
Market Efficiency of PSU - Autocorrelation Test
Stationary level for PSU - ADF Test

Market Efficiency of PSU - Runs Test

The results of Runs Test, by having Mean Value as the base for Sample PSU Companies, are given in **Table-2**. It is clear that out of 44 sample companies, 22 companies in the PSU Index, namely, Allahabad Bank, Bank of India, Bank of Maharashtra, BEML, Bharat Electronics, Canara Bank, Chennai Petroleum, Dena bank, Gujarat Mineral Development Coporation Ltd, Hindustan copper Ltd, HMT, Mangalore refineries, National Aluminium, Neyveli Lignite, Oriental Bank of Commerce, Rashtriya Chemical, State Bank of India, Shipping Corporation, STC, Syndicate Bank, UCO Bank and Vijaya Bank followed normal distribution. The remaining

stocks, namely, Andhra Bank, Balmer Lawrie, BHEL, Bank of Baroda, Dredging Corporation, Engineers India, GAIL India, HPCL, IDBI, Indian Overseas Bank, Jammu and Kashmir Bank, MTNL, National fertilizers Ltd, NTPC, ONGC, Punjab National Bank, SAIL, State Bank of Travancore, STC and Union Bank, did not follow normal distribution because its mean values were not significant. The z values of the above 22 companies were not significant under normal distribution at 5% level. Therefore, the Null Hypothesis **(NH1)**, "There is no normal distribution in the returns of sample companies", is partially accepted.

The results of Runs Test by having Median Value as the base for Sample PSU Companies, are presented in **Table-3**. From the above Table it is understood that 23 stocks out of 44 stocks in the PSU companies did not follow normal distribution. These stocks are, Andhra Bank, Balmer Lawrie, Bank of Baroda, BPCL, Chennai Petroleum, Engineers India, GAIL India, Gujarat Mineral Development Corporation Ltd, HPCL, IDBI, IOC, IOB, Mangalore Refineries, MTNL, National Aluminium, National Fertilizers Ltd, Neyveli Lignite, ONGC, PNB, SAIL, shipping Corporation, State Bank of Travancore and Union Bank. Hence the Z values for the 23 companies were not significant under normal distribution at 5% level. It is clear that majority of sample companies did not follow the normal distribution. Thus the Null hypothesis **(NH1)** "There is no normal distribution in the returns of sample companies", is accepted under Median Base Analysis.

Market Efficiency of PSU - Autocorrelation Test

Table-4 reveals the autocorrelation results of Sample PSU Stocks during the study period. It is understood from the above Table that out of 44 sample companies taken for this Study, 28 companies earned significant value in all the ten lags. These companies are Allahabad Bank, Andhra Bank, Bank of India, BEML, Bharat Electronics, BHEL, Bank of Baroda, Canara Bank, Chennai petroleum, Engineers India, GAIL, Gujarat Mineral Development corporation Ltd, Hindustan Copper, HMT, IDBI, IOC, IOB, Jammu and Kashmir, National aluminium, National Fertilizers, Oriental Bank of Commerce, Rashtriya Chemical, SAIL, State bank of India, Shipping Corporation, STC, UCO Bank and Vijaya Bank. Further, it is to be noted that the values of these 28 companies were significant at 5%. The analysis of autocorrelation reveals the fact that there are 16 companies, namely, Balmer Lawrie, Bank of Maharashtra, BPCL, Container Corporation, Dena Bank, Dredging, HPCL, Mangalore Refineries, MTNL, Neyveli Lignite, NTPC, ONGC, PNB, State Bank of Travancore, syndicate Bank and Union Bank, which did not earn significant value at 5% level in all the ten lags. Hence Null Hypothesis **(NH2)**, "There is no significant difference in the share price behavior of sample stocks", is rejected.

Stationary Level for PSU - ADF Test

The results of Augmented Dickey Fuller Test for return of PSU Companies during the study period are displayed in **Table-5**. It is to be noted that the sample companies attained stationarity in the level difference itself with the value of -34.25737 and with the probability of 0.000000. Test Statistic Value was less than the critical value and the critical values were -3.435462, -2.863679 and -2.567936 at 1% level, 5% level and 10% level respectively. It is concluded that during the study period, the returns of PSU Companies were stationary in the level difference itself. Hence the return series were considered to be stationary. Thus the Null hypothesis **(NH3)**, "There is no stationarity in the returns of sample companies", is rejected.

FINDINGS

It is found from the analysis of Runs Test that out of 44 sample companies, 22 companies did not follow normal distribution, based on their mean values during the study period.

The market efficiency of Public Sector Companies was tested by Runs Test on the basis of Median Values and they indicated that there was not efficiency in the Indian Stock Market, because the returns for 23 companies did not follow normal distribution during the study period.

Under the Autocorrelation Test during the study period, it is found that the returns of the 16 PSU Sample Companies were not significantly random.

It is proved that during the study period under ADF Test, the returns of PSU Index Sample Companies were stationary in the level difference.

Table-1
Name of the Companies

Sl.No	Name of the Company	Sl.No	Name of the Company
1	Allahabad Bank	23	Indian Oil Corp
2	Andhra Bank	24	Indian Overseas Bank
3	Balmer Lawrie	25	Jammu and Kashmir Bank
4	Bank of India	26	Mangfalore Refineries
5	Bank of Maharashtra	27	MTNL
6	BEML	28	National aluminium Ltd
7	Bharat Electronics	29	National Fertilizers Ltd
8	BHEL	30	Neyveli Lignite
9	Bank of Baroda	31	NTPC
10	BPCL	32	ONGC
11	Canara Bank	33	Oriental Bank of Commerce
12	Chennai Petroleum	34	Punjab National Bank
13	Container corporation	35	Rahtriya Chemical Ltd
14	Dena Bank	36	SAIL
15	Dredging corporation Ltd	37	SBI
16	Engineers India	38	Shipping Corporation
17	GAIL India	39	State Bank Travancore
18	Gujarat Mineral Development Corp Ltd	40	STC
19	Hindustan Copper	41	Syndicate Bank
20	HMT	42	UCO Bank
21	HPCL	43	Union Bank
22	IDBI	44	Vijaya Bank

Source.www.bseindia.com

Table-2
Runs Test Analysis for Mean Base Public Sector Undertaking

Name of the Companies	N	Significant level	Z
Allahabad Bank	554	.000	-3.746
Andhra Bank	613	.707	-.376
Balmer Lawr	516	.165	.872
BOI	570	.004	-2.850
Bank of Maharastra	561	.002	-3.152
BEML	558	.001	-3.349
Bharat Electronics Ltd	573	.010	-2.574
BHEL	587	.074	-1.788
BOB	596	.194	-1.299
BPCL	603	.378	-.882
Canara Bank	578	.022	-2.282
Chennai Petroleum	584	.050	-1.946
Container Corporation	557	.226	-.996
Dena Bank	582	.038	-2.080
Dredging Corporation	617	.890	.138
Engineers India	583	.129	-1.519
Gail India	631	.684	.494
Gujarat Mineral	579	.037	-2.083
Hindustan Copper	554	.000	-2.508
HMT	568	.028	-2.200
HPCL	593	.136	-1.492
IDBI	594	.133	-1.504
Indian oil Corporation	586	.062	-1.869
IOB	594	.151	-1.435
J&K Bank	587	.081	-1.747
Mangalore Refenie	584	.048	-1.978
MTNL	596	.168	-1.379
National Aluminium	621	.029	-2.977
National Fertilizers	599	.303	-1.030
Neyveli Lignite	581	.038	-2.074
NTPC	651	.073	1.792
ONGC	637	.348	.938
Oriental bank of commerce	573	.007	-2.698
PNB	628	.644	.462
Rashtriya chemical	574	.017	-2.389
SAIL	599	.225	-1.214
SBI	623	.026	-2.564
Shipping Corporation	601	.045	-1.051
State Bank of Travancore	567	.254	-1.140
STC	565	.013	-2.471
Syndicate Bank	585	.045	-2.002
UCO Bank	559	.001	-3.180
Union Bank	592	.124	-1.538
Vijaya Bank	560	.001	-3.367

Source: computed from PROWESS

Table-3
Runs Test Analysis for Median Base Public Sector Undertakings

Name of the Companies	N	Significant Level	Z
Allahabad Bank	546	.000	-4.234
Andhra Bank	615	.756	-.311
Balmer Lawr	559	.143	.986
BOI	578	.016	-2.415
Bank of Maharastra	557	.000	-3.609
BEML	564	.001	-3.212
Bharat Electronics Ltd	583	.033	-2.131
BHEL	585	.044	-2.018
BOB	588	.065	-1.847
BPCL	615	.755	-.313
Canara Bank	584	.038	-2.075
Chennai Petroleum	588	.065	-1.844
Container Corporation	523	.026	-2.233
Dena Bank	584	.038	-2.075
Dredging Corporation	621	.029	-2.297
Engineers India	611	.589	-.540
Gail India	631	.494	.684
Gujarat Mineral	587	.058	-1.899
Hindustan Copper	365	.000	-2.280
HMT	564	.001	-3.212
HPCL	601	.268	-1.108
IDBI	597	.182	-1.335
Indian oil Corporation	592	.105	-1.620
IOB	588	.065	-1.846
J&K Bank	569	.003	-2.927
Mangalore Refenie	594	.132	-1.506
MTNL	606	.410	-.824
National Aluminium	617	.843	-.198
National Fertilizers	611	.589	-.540
Neyveli Lignite	601	.268	-1.108
NTPC	655	.050	1.962
ONGC	637	.348	.938
Oriental bank of commerce	570	.004	-2.866
PNB	610	.551	-.597
Rashtriya chemical	577	.013	-2.472
SAIL	609	.514	-.653
SBI	621	.029	-2.412
Shipping Corporation	601	.269	-1.105
State Bank of Travancore	543	.271	-1.166
STC	556	.000	-3.666
Syndicate Bank	583	.033	-2.130
UCO Bank	564	.001	-3.211
Union Bank	598	.204	-1.269
Vijaya Bank	574	.008	-2.643

Source: computed from PROWESS

Table-4

Results of Autocorrelation for Public Sector Undertakings

Name of the Company	Lag1	Lag2	Lag3	Lag4	Lag5	Lag6	Lag7	Lag8	Lag9	Lag10
Allahabad Bank	.001	.003	.008	.015	.022	.030	.019	.011	.018	.028
Andhra Bank	.001	.005	.013	.010	.012	.023	.021	.025	.041	.042
Balmer Lawr	.938	.915	.965	.838	.877	.796	.613	.689	.776	.489
BOI	.006	.021	.038	.045	.029	.008	.015	.014	.023	.021
Bank of Maharastra	.111	.199	.199	.322	.446	.571	.683	.771	.715	.454
BEML	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Bharat Electronics Ltd	.041	.012	.019	.015	.021	.026	.045	.015	.014	.022
BHEL	.005	.002	.004	.011	.001	.000	.001	.001	.001	.002
BOB	.003	.012	.029	.034	.002	.003	.005	.007	.009	.012
BPCL	.548	.372	.562	.720	.333	.444	.560	.667	.148	.110
Canara Bank	.027	.046	.015	.024	.023	.034	.045	.028	.011	.015
Chennai Petroleum	.003	.009	.021	.044	.040	.047	.031	.040	.020	.008
Container Corporation	.615	.260	.281	.372	.492	.246	.295	.383	.429	.393
Dena Bank	.346	.208	.295	.264	.308	.272	.340	.281	.368	.439
Dredging Corporation	.192	.067	.085	.142	.055	.089	.135	.097	.113	.161
Engineers India	.000	.000	.000	.000	.000	.000	.001	.002	.003	.003
Gail India	.021	.002	.007	.015	.011	.006	.003	.004	.007	.003
Gujarat Mineral	.000	.000	.000	.001	.001	.001	.000	.000	.000	.000
Hindustan Copper	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
HMT	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001
HPCL	.128	.258	.429	.192	.216	.238	.222	.261	.299	.347
IDBI	.011	.022	.048	.037	.036	.027	.027	.045	.034	.010
Indian oil Corporation	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
IOB	.000	.000	.001	.001	.003	.001	.0028	.003	.004	.005
J&K Bank	.000	.001	.000	.000	.000	.000	.001	.001	.002	.003
Mangalore Refenie	.082	.081	.129	.225	.309	.425	.124	.180	.247	.325
MTNL	.256	.517	.575	.626	.684	.795	.495	.407	.377	.469
National Aluminium	.000	.001	.002	.004	.008	.015	.007	.009	.014	.016
National fertilizers	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Neyveli	.110	.277	.192	.267	.392	.389	.115	.102	.139	.182
NTPC	.785	.085	.072	.111	.135	.012	.009	.004	.007	.011
ONGC	.099	.252	.229	.341	.098	.083	.063	.066	.055	.069
Oriental Bank of Commerce	.000	.000	.000	.000	.001	.000	.001	.001	.002	.002
PNB	.378	.642	.799	.906	.886	.938	.863	.866	.841	.890
Rashtriya Chemicals	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
SAIL	.034	.049	.017	.003	.045	.020	.036	.009	.004	.004
SBI	.004	.011	.028	.050	.008	.002	.003	.001	.001	.002
Shipping Corporation	.012	.010	.017	.0228	.011	.020	.030	.029	.024	.035
State Bank Travancore	.260	.334	.510	.342	.403	.426	.122	.177	.245	.310
STC	.000	.000	.000	.000	.000	.000	.000	.000	.0008	.000
Syndicate Bank	.070	.062	.062	.074	.086	.051	.080	.106	.104	.075
UCO Bank	.000	.000	.001	.000	.000	.001	.002	.000	.000	.000
Union Bank	.098	.110	.137	.144	.214	.072	.095	.097	.100	.139
Vijaya Bank	.008	.030	.048	.009	.012	.002	.002	.0018	.001	.001

Source: Computed from PROWESS

Scope for Further Research

The followings are pointers towards further research.

The study with similar objectives could be made with reference to other Stock Exchanges.

BSE Sector Indices, Midcap Indices and Small Cap Indices could be taken up for further study.

There could be further study to examine the Information Content related to economy, political, legal procedure etc.

The study, to determine the market factors which affect the share price movements of the companies, could be taken up.

CONCLUSION

The focus of this study was to examine and analyse the efficiency of Capital Market under the BSE-PSU Index. The study analysed the returns of 44 sample companies for market efficiency by applying Runs Test, Autocorrelation Test and ADF Test. The study reveals the fact that the result of all tests (Runs, Autocorrelation and ADF) for the companies, namely, Allahabad Bank, Andhra Bank, Bank of India, BEML, Bharat Electronics, Canara Bank, Hindustan Copper, HMT, Oriental Bank of Commerce, Rashtriya Chemicals Ltd, State Bank of India, STC, UCO Bank and Vijaya Bank followed normal distribution and earned significant returns. This shows that the above 14 companies were in good position during the study period and investors in these PSU Companies earned maximum returns through stock market operations. In short, the overall analysis of the Public Sector Companies in BSE demonstrates them to be weak form efficient in the Indian Capital Market.

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