



# Application of Technical Analysis in Indian Stock Market: An Empirical Study of CNX IT Index Stocks

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## Abstract

*In order to forecast future price trends of the stocks and indices Technical Analysis is a practice of finding recurrent patterns of historical prices. It is stated that Weak Form of Efficient Market Hypothesis explains that historical price quotations of a security or index does not add value to the investors, as this type of information is reflected in the current price quotations of the security or index. Resultantly, all trading rules, tools and techniques of Technical Analysis developed based on historical information are of no use to predict the market. This rejects the usefulness of Technical Analysis. On the other hand, if there exist no Weak Form of Market Efficiency, it means future price movements can be determined by the information embedded in historical price series, consequently, Technical Analysis can be applied to determine the future share prices. The present study explored the application and importance of Technical Analysis in CNX IT Index constituents select companies of Indian Stock Market. For this, Efficiency of Weak Form of Market was tested by taking stock returns calculated on daily basis for the CNX IT Index constituent companies from April 2009 to March 2015, i.e., 7 years. Descriptive Statistics as well as One Sample Kolmogorov-Smirnov (KS) Test were applied to check the normality. Runs Test and Autocorrelation Test were applied to determine Weak Form of Stock Market Efficiency.*

**Keywords:** Technical analysis, Weak form of market efficiency, CNX IT index stocks, Indian stock market.

## Introduction

Industrial development and economic growth both are linked to the financial market of the country. The progression of financial market is linked to stock market. It is used as barometer of progress of industrial development and economy of the country. The progress of the any economy largely depends upon efficiency of the stock market. Efficiency of a stock market is a vital parameter to judge any financial system efficiency. Stock markets are getting developed as profitable and reliant opportunity of investment especially in developing nations. As for as, stock trading is concerned there is only win or lose position for the investor.

**Technical Analysis:** In case of stock market Technical Analysis relates to searching for recurrent and predictable patterns of stock prices, their returns as well as in the indices. Technical Analysis may be considered as an evaluating method of statistics and historical data, for i.e., the past stock prices and volumes.

The Technical analysis attempts to establish specific rules for trading securities to maximize profits and minimize loss risks. Technical analysts are called as chartists because they study stock market data to prepare charts. The charts of past stock prices are prepared in anticipation of finding some patterns, so that one can exploit to make profits.

**Weak Form Efficient Market Hypothesis:** Weak Form Efficient Market Hypothesis information is related to past historical information and records of the security prices. It is reflected by the prevailing price quotations of the securities. It is also called as Random Walk which is followed in by the current stock prices. According to Weak Form Efficient Market Hypothesis stock market is fully fledged efficient as all the information sets are available in the market. It is assumption of Weak Form of Market Hypothesis that market rate of return should be self-reliant and future rate of return are not affected by the past prices<sup>1</sup>.

**The Dilemma:** The application of Efficient Market Hypothesis (EMH) Theory is very essential for stock market development. If stock market is efficient enough then exercises of fundamental and Technical Analysis are useless se, because all available information set is already taken into consideration and reflected in the prices of the stocks. Thus, it is not possible to gain extra ordinary returns over and above the average stock market returns<sup>2</sup>. Technical Analysis is a sub discipline of security analysis and is used for forecasting the future price directions by studying past and historical market data regarding trade, volume and prices. Various models are employed by technical analysts. Trading rules are based on prices and volumes transformations. Different aspects of technical Analysis are incorporated in behavioral economics and quantitative analysis. It stands in contradiction with majority of

modern portfolio theories. But according to Weak Form of EMH, forecasting methods are valueless as prices follow random walk and the prices are unpredictable otherwise also. The efficient market hypothesis concept is concerned with the nature of market prices and the concerned level of market returns that investors hope to receive. The model of Efficient Market Hypothesis opposes and contradicts the Technical Analysis concept because its system rests all different set of assumptions. The Efficient Market Hypothesis theoretically contradicts to Technical Analysis resulting into dispute concerning the correspondence between the theory and the reality. So, a debate is being raised between Technical Analysis and Weak Form Efficient Market Hypothesis<sup>3</sup>. The efficient market propositions emphasized that the stock market itself considers all information pertaining to the securities and stocks and their prices and the information's are automatically reflected into the prices. So, Technical Analysis is not helpful in predicting future upward and downward movement of the price quotations. Fundamental analysis and private information can be useful to earn extra returns<sup>1</sup>. So there is a problem of selection of which is useful.

**The Dilemma Led Rationale:** Weak Form of Efficiency hold good, when the current share prices fully reflect the historical information and hence, future price movements cannot be determined by the information embedded in the historical price series so generated; as share price changes are always random, it is called as Random Walk Hypothesis. Resultantly, it is claimed that all the trading rules, tools and techniques of Technical Analysis developed based on historical information, are of no use. It rejects the importance and uses of Technical Analysis for share trading and investing. On the other hand, if their exist no Weak Form of Market Efficiency, means future price movements can be determined by the information embedded in the historical price series, consequently, all the trading rules, tools and techniques of Technical Analysis so developed based on historical information can be applied to determine the future share prices and their trends, which shows the application and importance of Technical Analysis. As there is dilemma about the usefulness of Technical Analysis and Weak Form of Market Efficiency Theory, the present study explored the Weak Form of Stock Market Efficiency for Indian Stock Market to find application and importance of Technical Analysis.

**Literature Review:** In one research, Indian Stock Markets Weak Form Efficiency was tested by using Autocorrelation and Run Test. To find out how well a data series fits a particular distribution One-sample Kolmogorov-Smirnov Test was applied upon. The results of the tests found that the share prices did not follow Random Walk and significant Autocorrelation Co-efficient at different lags; rejected the null hypothesis of Weak Form of Market Efficiency<sup>4</sup>. A study examined Weak Form of EMH for Asia-Pacific Stock Markets. It used Autocorrelation, Ljung-Box Q-Statistic Test, Runs Test, Unit Root Test, and Variance Ratio Test on the monthly stock returns of Pakistan, India, Sri Lanka, China, Korea, Hong Kong, Indonesia,

Malaysia, Philippines, Singapore, Thailand, Taiwan, Japan and Australia for the period January, 2004 to December, 2009 period. The results showed that the monthly returns did not follow Random Walk Theory in all the studied countries taken as sample<sup>5</sup>.

Random Walk Hypothesis or Weak Form of EMH for Bombay Stock Exchange, and National Stock Exchange, the two major equity markets of India was tested for the period from 1997 to 2011 taking quarterly data. It found mixed results regarding quarterly data. Augmented Dickey-Fuller (ADF), Phillips Perron (PP) and Kwiatkowski, Phillips, Schmidt and Shin (KPSS) Tests supported to Weak Form of Efficiency the sample period 2007 to 2011. But with slight conflict for earlier the period 1997 to 2007 as for this later period only Phillips Perron (PP) Test exhibited Weak Form Inefficiency. For monthly data set, all the tests showed the consistency on the Weak Form Efficiency for the sample period 2007 to 2011 and were not efficient for the period 1997 to 2007. For the daily and weekly data, all the tests rejected Weak Form of Stock Market Efficiency for entire sample periods<sup>6</sup>.

Weak Form of Efficiency Hypothesis was tested for the Indian Stock Market by taking daily index returns of Sensitive Index (SENSEX) of the Bombay Stock Exchange, for the study period July 1, 1991 to Dec. 29, 2006. The results of Variance Ratio Test and Unit Root Test were similar and accepted the Random Walk Theory for the Indian Stock Market. The result of Autocorrelation and Ljung Box Test rejected the hypothesis of Random Walk Theory<sup>7,8</sup>. Weak Form of Market Efficiency of Indian Stock Market was examined by taking daily stock returns of 50 Nifty Stocks from 2003 to 2013, i.e., for 11 years totaling to 2742 observations. The Runs Test and Autocorrelation Test concluded that Indian Stock Market was inefficient in its Weak Form for the study period<sup>9</sup>.

A comparative analysis of stock market efficiency of India and Pakistan was undertaken. For the purpose of realizing the study objectives, the adjusted daily closing prices of CNX Nifty (NSE India) and KSE 100 (KSE Pakistan) were taken into consideration for the period from 01/04/2003 to 31/03/2013. Descriptive Statistics, ADF Test, Autocorrelation Test and Jarque-Bera Statistic and Runs Test were applied for analysis of the data. The results derived by using various parametric tests and non-parametric tests clearly rejected the null hypothesis of the stock markets of India and Pakistan being efficient in their weak form. The study provided vital indications to investors, hedgers, arbitragers and speculators as well as the relevance of fundamental and technical analysis as far as the trading/investing in the capital markets of India and Pakistan was concerned<sup>10</sup>.

**Objectives of the Study:** i. To check the normality of data series of daily returns of CNX IT Index Constituents Companies of National Stock Exchange. ii. To test the Weak Form Market Efficiency of daily returns of CNX IT Index Constituents Companies of National Stock Exchange.

## Methodology

**The Study:** The present study is an empirical research. Weak Form of Market Efficiency of CNX IT Index constituent companies of the National Stock Exchange were examined taking daily stock returns. The study was related to cash segment of National Stock Exchange for CNX IT Index Constituents Companies. The present study is based on secondary data. The study aims to find out the importance and application of Technical Analysis with the help of results of Weak Form Market Efficiency.

**The Sample:** The CNX IT Index of National Stock Exchange comprises of 20 Information Technology companies. Out of the 20 IT companies big 10 IT companies were selected.

**Data and Methodology:** The study was based on secondary data taken from stock market. The daily closing prices of equity shares were considered to find stock return. The data set were gathered from the website of National Stock Exchange<sup>11</sup>. To normalize the time series data set, natural returns were calculated by taking natural log of the daily closing stock prices.

**Period of the Study:** The study undertook the period of 6 years from April, 2009 to March, 2015.

**Null Hypothesis:** Following null hypothesis were framed to test the objectives: i.  $H_{01}$ : Daily returns of CNX IT Index Constituent Companies of National Stock Exchange are not normally distributed. ii.  $H_{02}$ : Daily returns of CNX IT Index Constituent Companies of National Stock Exchange are Random, i.e., Weak Form Efficient. iii.  $H_{03}$ : There is no Serial Correlation between the CNX IT Index Constituent Companies of National Stock Exchange.

**Tools for Analysis:** The normality was tested by taking Descriptive Statistics and One Sample Kolmogorov-Smirnov (KS) Test. Weak Form of Stock Market Efficiency of CNX IT Index Constituent Companies of National Stock Exchange was examined by Non-parametric Runs Test through the software SPSS 17 version. Parametric Autocorrelation Test was applied to test Weak Form of Stock Market Efficiency through the Eviews 7 version.

## Results and Discussion

**Descriptive Statistics:** The normal distribution of stock returns can be examined through the study of Descriptive Statistics. The value Skewness at 0 and Kurtosis at 3 shows that the observed distribution is normal. Jarque-Bera Test is a statistics that is used to test whether or not a series is distributed normally. Under the testing of normality in distribution, the Jarque-Bera should be equal to 0. The Table-1 showed Descriptive Statistics on daily stock returns of sample CNX IT Index Constituent Companies. It was found that the value of Skewness and Kurtosis were not equal to 0 and 3 respectively for all of the sample companies. The value of Jarque-Bera was not equal to 0. Thus, the Null Hypothesis,  $H_{01}$ : Daily returns of CNX IT Index

Constituent Companies of National Stock Exchange are not normally distributed, was accepted. It indicated that the daily stock returns of the sample CNX IT Index Constituent Companies of National Stock Exchange were not normally distributed for the concerned study period.

**One Sample Kolmogorov-Smirnov (KS) Test:** To test the normality of the data series KS Goodness of Fit Test was also applied on the daily stock returns. The KS Goodness of Fit Test results were shown in Table-2.a and 2.b, which indicated  $p < 0.05$  for the Z at the 5 percent level of significance for the entire sample CNX IT Index Constituent Companies. Hence, the Null Hypothesis,  $H_{01}$ : Daily returns of CNX IT Index Constituent Companies of National Stock Exchange are not normally distributed, was accepted. It showed that daily stock returns of the sample CNX IT Index Constituent Companies were not normally distributed for the concerned study period.

**Runs Test:** To test the Weak Form of Market Efficiency Runs Test was used on the sample CNX IT Index Constituent Companies of National Stock Exchange to judge the randomness of the data. The results of Runs Test were exhibited in Table-3.a and 3.b. The result showed that taking Median as Base Value in the case of the entire sample CNX IT Index Constituent Companies of National Stock Exchange, the probability value was more than 0.05. Hence, the null hypothesis,  $H_{02}$ : Daily returns of CNX IT Index Constituent Companies of National Stock Exchange are Random, i.e., Weak Form Efficient was accepted. Acceptance of the null hypothesis was further supported by the determined Z value, which fall in the acceptance region limited by the critical value  $\pm 1.96$  at 5% level of significance. So, it was concluded that daily returns of CNX IT Index Constituent Companies of National Stock Exchange are Random, i.e., Weak Form Efficient<sup>12</sup>.

**Autocorrelation Test:** Autocorrelation Test was also carried upon daily stock returns of sample CNX IT Index Constituent Companies of National Stock Exchange, shown in Table-4.a and 4.b as presented above. The entire sample CNX IT Index Constituent Companies had negative Autocorrelation in their maximum lags at 5% level of significance. The daily stock returns of majority of the sample CNX IT Index Constituent Companies exhibited negative Autocorrelation which indicated their significance with high Q-statistics at different lags. For higher order of Autocorrelations up to lag 10, majority of the stock return series exhibited consistent pattern of negative Autocorrelation. The P Values of the Q-Statistics were zero at all lags for all the sample companies. So, the Null Hypothesis,  $H_{03}$ : There is no Serial Correlation between the CNX IT Index Constituent Companies of National Stock Exchange was rejected. The rejection indicated that there was Serial Correlation in the daily stock returns of the sample CNX IT Index Constituent Companies of National Stock Exchange and hence they do not move randomly stating not Weak Form Efficient.

**Table-1**  
**Results of Descriptive Statistics**

	HCL Tech. Ltd.	Hexaware Tech. Ltd.	Infosys Ltd.	Mindtree Ltd.	NIIT Tech. Ltd.	Polaries Ltd.	Rohta India Ltd.	TCS Ltd.	Tech Mahindra Ltd.	Wipro Ltd.
Mean	0.00153	0.00165	0.00036	0.00112	0.00105	0.00075	0.00040	0.00059	0.00099	0.00047
Median	0.00133	0.00037	0.00092	0.00056	-0.00028	-0.0006	-0.00083	0.00096	0.00115	0.00116
Maximum	0.17027	0.21862	0.15516	0.18522	0.18539	0.18232	0.44050	0.14437	0.22802	0.11815
Minimum	-0.71287	-0.79347	-0.6866	-0.68460	-0.36909	-0.20101	-0.49057	-0.68559	-0.7067	-0.5017
Std. Dev.	0.02925	0.03653	0.02626	0.02915	0.02648	0.03279	0.03473	0.03123	0.03092	0.02445
Skewness	-9.75876	-6.96100	-12.793	-8.66474	-1.41229	0.43936	0.43207	-13.8655	-7.76932	-6.4126
Kurtosis	246.027	157.866	329.501	214.986	31.7566	7.30533	57.6679	305.828	193.475	129.979
Jarque-Bera	362851	147583	654728	276144	50964.9	1178.59	182473.	564477	222938	994269
Probability	0	0	0	0	0	0	0	0	0	0
Sum	2.25022	2.42466	0.5313	1.64373	1.54226	1.10348	0.5929	0.8725	1.45339	0.69588
Sum Sq. Dev.	1.25302	1.95422	1.0077	1.24475	1.02703	1.57436	1.76676	1.42818	1.40018	0.87584
Observations	1465	1465	1465	1465	1465	1465	1465	1465	1465	1465

**Table-2a**  
**Results of One Sample Kolmogorov-Smirnov (KS) Test**

Particulars		HCL Tech.Ltd.	Hexaware Tech. Ltd.	Infosys Ltd	Mindtree Ltd.	NIIT Tech. Ltd.
N		1465	1465	1465	1465	1465
Normal Parameters a,b	Mean	.001535	.001655	.000362	.001136	.001052
	Std. Deviation	.029255	.036535	.026235	.029163	.026486
Most Extreme Differences	Absolute	.112	.104	.154	.134	.069
	Positive	.112	.093	.145	.124	.067
	Negative	-.112	-.104	-.154	-.134	-.069
Kolmogorov-Smirnov Z		4.282	3.984	5.905	5.121	2.634
Asymp. Sig. (2-tailed)		.000	.000	.000	.000	.000

a. Test distribution is Normal. b. Calculated from data.

**Table-2b**  
**Results of One Sample Kolmogorov-Smirnov (KS) Test**

Particulars		Polaris C&S Ltd.	Rolta India Ltd.	TCS Ltd.	Tech Mahindra Ltd.	Wipro Ltd.
N		1465	1465	1465	1465	1465
Normal Parameters a,b	Mean	.000753	.000404	.000595	.000992	.000475
	Std. Deviation	.0327930	.0347391	.031233	.030925	.024459
Most Extreme Differences	Absolute	.076	.113	.166	.135	.107
	Positive	.076	.113	.146	.135	.101
	Negative	-.059	-.111	-.166	-.127	-.107
Kolmogorov-Smirnov Z		2.915	4.333	6.355	5.184	4.084
Asymp. Sig. (2-tailed)		.000	.000	.000	.000	.000

a. Test distribution is Normal. b. Calculated from data.

**Table-3a**  
**Results of Runs Test**

Runs Test	HCL Tech.Ltd.	Hexaware Tech. Ltd.	Infosys Ltd	Mindtree Ltd.	NIIT Tech. Ltd.
Test Value a	.001337196544	.000378429522	.00092826576	.000586136173	-.000286245887
Cases < Test Value	732	732	732	732	732
Cases >= Test Value	733	733	733	733	733
Total Cases	1465	1465	1465	1465	1465
Number of Runs	758	763	720	716	719
Z	1.281	1.542	-.706	-.915	-.758
Asymp. Sig. (2-tailed)	.200	.123	.480	.360	.449

a. Median

**Table-3b**  
**Results of Runs Test**

Runs Test	Polaris C&S Ltd.	Rolta India Ltd.	TCS Ltd.	Tech M. Ltd.	Wipro Ltd.
Test Value a	-.000606244335	-.000835771047	.000964447052	.001157720193	.001167997018
Cases < Test Value	732	732	732	732	732
Cases >= Test Value	733	733	733	733	733
Total Cases	1465	1465	1465	1465	1465
Number of Runs	757	670	718	727	741
Z	1.228	-3.319	-.810	-.340	.392
Asymp. Sig. (2-tailed)	.219	.001	.418	.734	.695

a. Median

**Table-4a**  
**Results of Autocorrelation Test**

Company	Lag	Lag 1	Lag 2	Lag 3	Lag 4	Lag 5	Lag 6	Lag 7	Lag 8	Lag 9	Lag 10
<b>HCL Tech. Ltd.</b>	AC	-0.489	-0.016	-0.031	0.081	-0.082	0.079	-0.046	-0.018	0.012	0.036
	PAC	-0.489	-0.335	-0.304	-0.164	-0.207	-0.099	-0.098	-0.135	-0.127	-0.081
	Q-Stat	350.55	350.93	352.37	361.94	371.84	380.97	384.06	384.54	384.75	386.67
	Prob.	0	0	0	0	0	0	0	0	0	0
<b>Hexaware ltd</b>	AC	-0.513	0.004	0.009	0.004	-0.014	0.03	-0.03	0.014	-0.029	0.042
	PAC	-0.513	-0.351	-0.26	-0.2	-0.183	-0.119	-0.122	-0.1	-0.136	-0.09
	Q-Stat	385.76	385.78	385.9	385.92	386.21	387.56	388.93	389.24	390.45	393.04
	Prob.	0	0	0	0	0	0	0	0	0	0
<b>Infosys Ltd</b>	AC	-0.494	-0.012	-0.031	0.057	-0.025	0.017	-0.013	-0.016	0.023	0.017
	PAC	-0.494	-0.339	-0.308	-0.206	-0.181	-0.133	-0.115	-0.135	-0.109	-0.058
	Q-Stat	358.04	358.25	359.65	364.5	365.46	365.86	366.11	366.49	367.27	367.72
	Prob.	0	0	0	0	0	0	0	0	0	0
<b>Mindtree Ltd</b>	AC	-0.479	-0.029	0.017	-0.014	0	0.011	-0.008	-0.01	-0.003	0.018
	PAC	-0.479	-0.335	-0.237	-0.201	-0.174	-0.138	-0.126	-0.131	-0.142	-0.119
	Q-Stat	336.2	337.43	337.85	338.16	338.16	338.33	338.43	338.57	338.58	339.07
	Prob.	0	0	0	0	0	0	0	0	0	0
<b>NIIT Tech</b>	AC	-0.482	-0.006	-0.025	0.018	0.018	-0.051	0.017	0.026	-0.009	-0.03
	PAC	-0.482	-0.31	-0.257	-0.194	-0.126	-0.163	-0.155	-0.105	-0.09	-0.125
	Q-Stat	340.86	340.91	341.81	342.3	342.75	346.64	347.08	348.08	348.21	349.53
	Prob.	0	0	0	0	0	0	0	0	0	0

**Table-4b**  
**Results of Autocorrelation Test**

Company	Lag	Lag 1	Lag 2	Lag 3	Lag 4	Lag 5	Lag 6	Lag 7	Lag 8	Lag 9	Lag 10
<b>Polaris Ltd</b>	AC	-0.48	-0.078	0.077	0.011	-0.073	0.067	-0.025	-0.015	-0.003	0.048
	PAC	-0.48	-0.401	-0.26	-0.164	-0.207	-0.128	-0.128	-0.132	-0.156	-0.095
	Q-Stat	337.86	346.9	355.67	355.85	363.62	370.21	371.14	371.48	371.5	374.86
	Prob.	0	0	0	0	0	0	0	0	0	0
<b>Rolta india Ltd</b>	AC	-0.434	-0.174	0.092	0.142	-0.176	-0.033	0.154	-0.049	-0.033	-0.033
	PAC	-0.434	-0.447	-0.325	-0.07	-0.164	-0.226	-0.1	-0.099	-0.033	-0.116
	Q-Stat	276.77	321.08	333.57	363.26	408.65	410.25	445.28	448.86	450.46	452.09
	Prob.	0	0	0	0	0	0	0	0	0	0
<b>TCS Ltd</b>	AC	-0.49	-0.018	0.006	0.011	0.009	-0.013	-0.038	0.028	0.019	-0.021
	PAC	-0.49	-0.339	-0.256	-0.19	-0.129	-0.107	-0.153	-0.14	-0.099	-0.101
	Q-Stat	352.42	352.88	352.93	353.1	353.23	353.47	355.6	356.73	357.28	357.95
	Prob.	0	0	0	0	0	0	0	0	0	0
<b>Tech M Ltd</b>	AC	-0.449	-0.065	-0.021	0.042	0.024	-0.046	0.029	-0.01	-0.003	-0.001
	PAC	-0.449	-0.334	-0.296	-0.215	-0.134	-0.149	-0.096	-0.084	-0.078	-0.071
	Q-Stat	295.31	301.57	302.24	304.85	305.71	308.78	310.03	310.17	310.18	310.18
	Prob.	0	0	0	0	0	0	0	0	0	0
<b>Wipro Ltd</b>	AC	-0.519	0.029	-0.035	0.042	-0.017	-0.016	0.035	-0.042	0.022	0.023
	PAC	-0.519	-0.33	-0.286	-0.199	-0.164	-0.171	-0.112	-0.142	-0.133	-0.074
	Q-Stat	395.81	397.06	398.86	401.42	401.84	402.19	403.97	406.57	407.27	408.07
	Prob.	0	0	0	0	0	0	0	0	0	0

**Discussion:** For checking normality of the financial data through Descriptive Statistics and One Sample Kolmogorov-Smirnov (K-S) Test, it was revealed that the daily stock returns of CNX IT Index Constituent Companies were not normally distributed. Further, Non Parametric Runs Test and Parametric Autocorrelation Test were undertaken. The Runs Test showed Weak Form of Efficiency for all the CNX IT Index Constituent Companies. Further, Autocorrelation Test showed that returns of the stock of the CNX IT Index Constituent Companies did not Walk Randomly, i.e., not Weak Form Efficient. And they were dependent on each other. This inefficiency may be due to stock market irregularities and market volatility. The inter dependency also showed and reflected that the stock price mechanism was deciding prices on historical prices as well the information was not readily available to all. As per Autocorrelation there is no Weak Form Efficiency which showed that there were some patterns in the prices of CNX IT Index Constituent Companies. The technical analysts could derive the benefit in short run through predicting the future stock prices and their movements. It meant that there existed some opportunities for the traders, speculators, and investors to predict the upcoming future stock prices of the securities. And one could earn higher return than the average market returns and outperform the Indian Stock Market<sup>12</sup>.

## Conclusion

On the application of Descriptive Statistics and One Sample Kolmogorov-Smirnov (K-S) Test, it was exhibited that the daily stock returns of CNX IT Index Constituent Companies of National Stock Exchange were not normally distributed. On the application of Runs Test by taking Median as a base value, Weak Form Market Efficiency was found. Further, Autocorrelation Test showed that stock prices of CNX IT Index Constituent Companies of National Stock Exchange were not Weak Form Efficient.

Finally, Autocorrelation Test was considered on the basis of the relative strength of the tests and it is concluded that the Indian Stock market was not Weak Form Efficient with reference to CNX IT Index Constituents Companies of National Stock Exchange. This rejects the usefulness of Weak Form of Market Efficiency. It meant that future price movements could be determined by the information embedded in historical price series, resultantly; all the trading rules, tools and techniques of Technical Analysis so developed based on historical information can be applied to determine the future share prices and their trends. It shows the application and importance of Technical Analysis. This accepts the usefulness of Technical Analysis for share trading and investing.

**Implications of the Study: For Investors:** A major implication of this evidence of Weak Form Inefficiency for investors is that the stock returns and share prices may be predictable from the historical prices and the volume traded in the stock market. It is, therefore, is possible to beat the market and to make abnormal

profits therein. Anyhow, investors should be aware that, in such inefficient and liquidated market, making large losses is also be the outcome.

**For Government:** Moreover, as the Indian Stock Market is growing rapidly, it is very important for the Government and regulatory bodies to take measure that improves informational efficiency and establishes investors' confidence.

**Suggestions:** It is suggested that Technical Analysis should be used by the investors and portfolio managers, but with due care as Technical analysis is meant for short time outcomes. For long term prospective fundamental analysis should be used. Government should put additional efforts to make market efficient gradually with the ultimate objective of full market efficiency.

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