



## Testing the Weak form of Efficiency of Indian Stock Market with Reference to National Stock Exchange

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### Abstract

Market efficiency has an effect on the investment strategy of the investors, mutual fund companies, stock brokers, government institution and regulatory agencies. Efficiency of the market depends upon the quick assimilation of new information. In weak form market, current price reflects all the available information obtained in the past prices. Investors and Researchers have been engrossed to the pay attention to the dynamic growth of stock market. Present study researchers examined whether the Indian stock market is weakly efficient or not. This study we check the random walk of the Indian stock market with special reference to NSE. Data for the analysis was collected from January 01st 2017 to December 31st 2022 (5 years). For analysing the data we used three statistical techniques namely Autocorrelation test with lagged, Durbin-Watson test and Runs test. Result shows that the evidence of the weak form efficiency of the Indian stock market. Further we understood that the market is efficient in which the current price does not reflect from the past information. Hence, investors hardly to earn abnormal return from weak form efficiency.

## INTRODUCTION

Market efficiency has an impact on the investment strategy of an investor; the market is efficient the analysis would not help the investors to earn the abnormal returns out of their investment. On the other hand, if the market is inefficient excess returns can be made by correctly choosing the right stock. The weak form of efficient market hypothesis implies that current stock price fully reflects all available information implied by the past prices. It states that stock prices are random and it does not influence by past events. The Random Walk Hypothesis is mathematical model which believes that the prices are evolving according to the random walk. The Random Walk Theory helps in understanding by arising the questions like whether one can predict the future movement of prices by past data, is there any chances to earn abnormal profit from such prediction etc.,

In order to get a clear insight with these queries, the study is conducted to provide empirical evidence on the market efficiency of Indian stock market (National Stock Exchange) especially evaluating the weak form of efficiency. An analysis of Nifty 50's returns is carried out to test the efficient level of the stock market and the random walk nature by using Durbin-Watson Test, Autocorrelation Test and Runs test.

## REVIEW OF LITERATURE

### 1. TO EXAMINE WHETHER THERE IS A WEAK FORM OF EFFICIENT IN THE MARKET:

#### (a). For Weak-form of efficiency:

##### (i). Studies in Indian Context:

Gupta (1985) tested random walk hypothesis using daily and weekly share prices of 39 shares together with the Economic Times and Financial Express indices of share prices. The study concluded that the Indian Stock Markets might be termed as competitive and 'weakly' efficient in pricing shares. Ramachandran (1985) tested weekend prices of 60

stocks covering the period 1976 - 1981 for the weak form of EMH. Researcher used Filter Rule tests in addition to Runs and Serial Correlation tests and found the support for the weak form of EMH. Rao (1988) examined using weekend price data over the period July 1982 to June 1987 for ten blue chip companies by means of Serial Correlation analysis, Run tests and Filter Rules only to confirm the weak form of efficiency. Yalawar (1988) conducted a study using monthly closing prices of 122 stocks listed on the Bombay Stock Exchange during the period 1963-1982. Researcher used Spearman's rank correlation test and Runs test and found that only 21 out of 122 lag 1 correlation coefficients were significant at 5% level thereby supporting the weak form efficiency. Obeidullah (1991) used weekly prices covering the period 1985-1988 and examined Serial correlation and Runs test. Study found that there is a significant support for the weak form of EMH. Ramasastry. A. S. (2001) conducted a study on stock market efficiency using spectral analysis. The researcher studied the efficiency of Indian stock market since the beginning of 1996 to 1998 using a powerful technique. Spectral analysis, Correlogram based on Sensex establishes that Indian Stock Market has been efficient.

## **(ii). Studies in International Context:**

Barnes (1986) confirmed high degree weak form market efficiency of the Kuala Lumpur Stock Exchange (KLSE) and further confirming his results Laurence (1986) suggest only slightly deviation from perfect weak-form efficiency for 16 individual stocks traded on the KLSE sample period of 1 June 1973 to 31 December 1978. Laurence (1986) used observations of price of the individual stock in the period of 1973-1978 in both the Kuala Lumpur stock exchange (KLSE) of Malaysia and the Stock exchange of Singapore (SES). Both Runs and Auto-correlation test were employed showing the fact that not only KLSE but also SES is not weak-form efficient. Findings from Barnes' studies (1986), on the other hand, are of contradiction when researcher found evidence for KLSE holding a high level of weak-form efficiency (Barnes 1986). Yet the study made by Lai, Melvin et al. (2002) rejects random walk in KLSE.

Urrutia (1995) employed both variance ratio test and run tests to study the random walk in the stock markets of Argentina, Brazil, Chile and Mexico. Results from variance ratio test reject RWH for all markets but Run tests prove that such stock markets are weak-form efficient. Researcher used these testing results to conclude that there is mixed evidence for the existence of weak-form efficiency in these stock markets. Experimental results from a study conducted by Grieb and Reyes (1999) in Brazilian and Mexican stock markets are also in conformity with results reported by Urrutia. In addition, Ojah and Karemera (1999) used Runs tests, Multiple Variance ratio and Single Variance Ratio to test random walk for 4 emerging stock markets studied by Urrutia in 1995. Results show evidence for the conclusion that all of these 4 emerging stock markets are weak-form efficiency.

Abrosimova (2002) in their study, tested weak-form in the Russian stock market. In order to test RWH, researcher used Unit root, Auto-correlation, Variance Ratio tests, and model comparison approach (ARIMA and GARCH). Results showed evidence for the existence of weak-form efficiency in the Russian stock market. Akinkugbe (2005) with data of 738 weekly observations from June 1989 to December 2003, researcher employed Phillip-Perron unit root tests, Autocorrelation and Augmented Dickey-Fuller to investigate the weak-form efficiency in the Botswana Stock Exchange. Researcher obtained results find evidence supporting weak and semi-strong form in the Botswana Stock Market.

## **(b). Not weakly efficient or inefficient:**

### **(i). Studies in Indian Context:**

Poshakwale (1996) conducted a study using daily prices of BSE National Index for the period 1987- 1994 to test existence of day of the week effect in BSE. Researcher used K-S Goodness of Fit test, Serial correlation test and Run test and found that weekend effect is evident thus rejecting any possibility of weak form efficiency. Samanta (2004) used daily data on the BSE-100 for the period of January 1993 to December 2001 and establish interesting results that market efficiency differ in different time periods. Market was found inefficient during each sub-period till June 1996 and high level of efficiency during July 1996 to December 1999 and showed efficiency at a relatively lower level thereafter. Singh Tarika and Seema Mehta (2008) conducted a study to test the weak form market efficiency of Indian stock market and concluded that the movements in prices are not at random i.e., the market is not weak form efficient. Srinivasan (2010) studied the daily closing values of CNX NIFTY and the BSE SENSEX for the period 1st July 1997 to 31st August 2010 using more advanced test techniques like ADF test and PP test. The results confirmed that the return series does not contain any unit root and hence the market is not efficient in the weak form. Siddiqui and Gupta (2010) rejected the presence of weak-form efficiency in Indian stock market using parametric test like Auto-correlation test, Auto-regression, ARIMA model and non-parametric tests such as Kolmogrov-Smirnov Normality test and Run test.

### **(ii). Studies in International Context:**

Saw and Tan (1989) found that the Malaysian Stock Market is weak form inefficient, using weekly data for 6 sector indices from 1975 to 1982. However, market efficiency existed when monthly data was used. Shiguang and Michelle (2001) tested both Shanghai and Shenzhen Stock Market for efficient market hypothesis using Serial correlation, Runs and Variance Ratio test to index and individual share data for daily, weekly and monthly frequencies and found that Chinese Stock Markets were not weak form efficient. Gilmore and McManus (2003) investigated whether or not the Central

European Stock Markets including Czech, Hungary, and Poland are weak-form efficient. In order to do that, they used different tests consisting of Univariate methods, Multivariate test, and model-comparison approach. Based on the results found, they came to the conclusion that such markets are not yet weak-form efficient.

#### **RESEARCH GAP:**

From the review of earlier studies, we understood that there is no elaborate study to explain the weak form efficiency in Indian context with National Stock Exchange (NSE). Hence, we propose to conduct the present study.

## **2. TO TEST WHETHER THE INDIAN STOCK MARKET REACTS TO THE PUBLIC AVAILABLE INFORMATION:**

### **(i). Studies in Indian Context:**

Sharma and Kennedy (1977) conducted a study by comparing the behaviour of stock indices of the Bombay, London and New York Stock Exchanges during 1963-1973 using run test and spectral analysis. Researcher ensured the random movement of stock indices for all the three stock exchanges. Kulkarni (1978) investigated the weekly RBI stock price indices for Bombay, Calcutta, Delhi, Madras and Ahmedabad Stock Exchanges and monthly indices of six different industries by using spectral method. Researcher concluded that there is a repeated cycle of four weeks for weekly prices and seasonality in monthly prices. This study has thus rejected the hypothesis that stock price changes were random. Barua (1981) conducted research on daily price changes of 20 securities and Economic index from July 1977 to June 1979. Researcher found no dependence in individual security price changes but the market index exhibited significant serial dependence. Bhanu Pant and Bishnoi T.R (2002) conducted research on testing random walk hypothesis for Indian Stock Market Indices. The analysis of the behaviour of daily and weekly returns of 5 Indian market indices for random walk during April 1996 - June 2001 shows that the Indian stock market indices do not follow random walk. Pandey (2003) conducted a study where NSE indices used the daily and weekly values of three leading indices namely CNX DEFTY, CNX NIFTY and CNX NIFTY JUNIOR for the period 1996-2002. Researcher performed Autocorrelation analyses and Runs test and concluded that the series of stock indices in the Indian Stock Market are biased random time series.

### **(ii). Studies in International Context:**

Fama and French (1988) found that almost forty percentage of variation of longer holding period returns were predictable from the information on past returns for U.S. Stock markets. Porterba and Summers (1988) confirmed the presence of mean reverting tendency and absence of random walk in the U.S. Stocks. Kim, Nelson and Startz (1991) examined the pattern of stock prices by using weekly and monthly returns in five Pacific-Basin Stock Markets and found that all stock markets except Japanese Stock Market did not follow random walk. Huang (1995) conducted the experiment of random walk hypothesis in nine countries and territories in Asia (including Korea, Singapore, Hong Kong, Indonesia, Japan, Malaysia, Philippines, Taiwan, and Thailand). Researcher employed the single variance ratio tests with data collected from January 1988 to June 1992. Results prove that stock markets in Hong Kong, Korea, Malaysia, Philippines, Singapore, and Thailand themselves show various levels of positive serial correlations hence RWH is rejected in such markets.

Smith and Ryoo (2003) employed variance ratio test to investigate market efficiency of five stock markets including Greece, Hungary, Poland, Portugal, and Turkey. Results found show the fact that RWH is rejected due to the existence of Auto-correlation in stock returns in the markets of all investigated countries except for Turkey, which implies a rejection of EMH towards stock market. Chakraborty (2006) investigated the stock price behaviour of Sri Lankan Stock Market using daily closing figures of Sri Lanka Price Index along with twenty-five underlying individual companies included in the index. The study found that stock market in Sri Lanka did not follow random walk. Haque Hassan (2006) testing the efficiency of 7 European emerging stock markets (Greece, Czech, Slovakia, Hungary, Turkey, Russia, and Poland), employed the methods of Q-statistic, runs, variance ratio tests and data of weekly stock index from international financial companies in the period of December 1988 - August 2002. Using the results found, they came to a conclusion that the European emerging markets in general are unpredictable. Finally, results found showed the existence of Auto-correlation in the European emerging markets. Cvetkovic (2007) employed two different approaches which were tests of RWH and tests of predictability of technical analysis. The study proved the fact that the Serbian stock market does not follow a random walk, that changes in stock prices in the market are predictable. Implication from such results is that the Serbian Stock Market is not weak-form efficient. Borges (2008) compares the behaviour of stock market indices of France, Germany, Greece, Portugal and Spain during the period 1993-2007. By using the daily and monthly returns and conventional methodologies i.e Correlation, Runs and MVR tests, the researcher finds that only monthly returns follow a random walk in all the equity markets considered.

#### **RESEARCH GAP:**

From the earlier studies, we found that there is no detailed study regarding the random walk hypothesis explaining the random walk in Indian context with National Stock Exchange. Thus, generated idea to conduct present study.

### **3. TO EMPIRICALLY UNDERSTAND WHETHER INVESTORS CAN EARN ABNORMAL PROFITS FROM THE WEAK FORM OF EFFICIENT MARKET:**

Siddiquee and Begum (2015) examine the market efficiency of the pharmaceutical company of the Dhaka Stock Exchange (DSE). The results showed that there exists a predictable pattern in the data, which suggests that formulating a technical trading rule can result in investors making large profits.

#### **RESEARCH GAP:**

From the review of earlier studies, we understood that there is no elucidate study explaining whether the investors would earn abnormal profit during the weak form of efficient market in Indian context with National Stock Exchange (NSE). Hence, it proposed to conduct the present study.

#### **STATEMENT OF THE PROBLEM**

This study is conducted to check whether the market is efficient or not especially in weak form. Weak form efficiency states that current stock price fully reflects all available information and past data does not affect a stock's price and can't be used to predict its future price and it is impossible to find price patterns and take advantage of price movements.

#### **OBJECTIVES OF THE STUDY**

The main objective of the study are as follows:

1. To examine whether there is a weak form of efficient exist in the Indian market.
2. To test whether the Indian stock market reacts to the public available information.
3. To empirically understand whether investors can earn abnormal profits from the weak form of efficient market.

#### **RESEARCH METHODOLOGY**

Descriptive Research is used for the study. It is the scientific method involves in observing and describing the behaviour of a subject without influencing it in any way. The data is directly collected using the secondary source such as Internet from the National Stock Exchange website ([www.nseindia.com](http://www.nseindia.com)). Books, Articles and Journal are also used to build the research. The data is analysed using the descriptive statistical model. Return is found out using the natural log function from the closing price of the data. Throughout the analysis returns is used for further the research. The sample size of the study is 1231 observations. It is corresponding to the number of days in 5 years from 2017 to 2022.

#### **Statistical Tools:**

##### **A. Descriptive Statistics**

##### **B. Test the stationarity of the time series data by**

- Augmented Dickey-Fuller Test (ADF Test)
- Phillips-Perron Test (PP Test)
- Kwiatkowski-Phillips-Schmidt-Shin Test (KPSS Test)

##### **C. Parametric Test:**

- Autocorrelation Test or Serial Correlation Test
- Durbin Watson Test
- Autocorrelation Test (with lagged)

##### **D. Non-Parametric Test:**

- Run Test

#### **CHALLENGES**

The limitations of the study are as follows:

1. Small variations are found in the stock prices from website to website. Since we collected our data from its respective domain, it would be accurate.
2. Reliability of the data depends upon the information which is provided by the concerned institution.
3. Institution has not revealed much information to the outsider if it is may also lead to improve the quality of the research.
4. We may not know about the accuracy of the study which is interpreted.
5. Assumptions may not be correct.
6. Each of the investors reacts differently while hearing the information.
7. Investors cannot rely of the past data wholly.

**ANALYSIS & INTERPRETATION:**

**1. DESCRIPTIVE STATISTICS IN TIME SERIES DATA:**

**STATIONARITY:**

Stationarity refers to constant. It means that the statistical properties of the process do not change over time. We should be aware of constant mean and constant variance. To check whether there is a constant mean the data, stationary is found out.

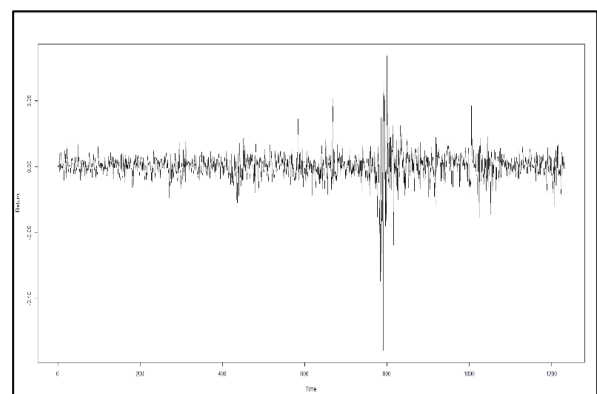
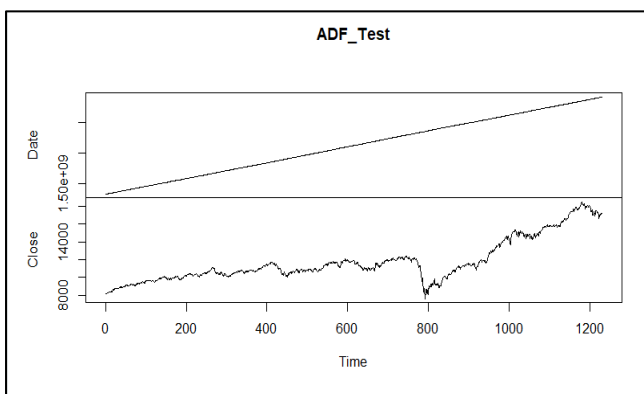
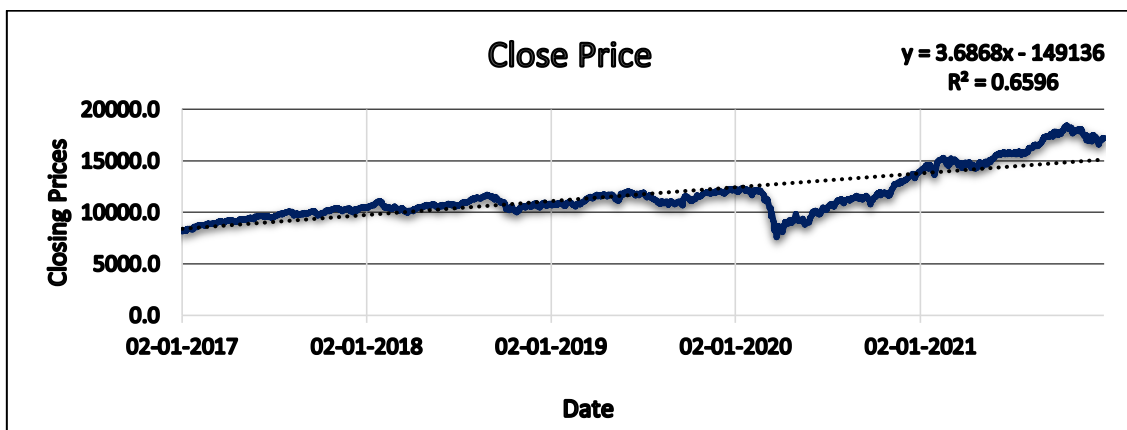
**INTERPRETATION:**

A time series is said to be stationary if it does not increase or decrease with time linearly or exponentially (no trends), and if it doesn't show any kind of repeating patterns (no seasonality). Mathematically, this is described as having constant mean and constant variance over time

If p-value is less than 0.05 (p-value: low), we reject the null hypothesis and assume that the data is stationary. But if the p-value is more than 0.05 (p-value: high), then we fail to reject the null hypothesis and determine the data to be non-stationary.

If it is not stationary, we can perform the transformation based on the requirement. If the data is found to be not stationary, we can proceed transforming the data by "Differencing". It is a common way to transform the data to stationary, which is nothing but finding the differences between consecutive data terms and shift them by 1. First, we try the first-order differencing to the data and then the second, third, and so on, until the data becomes stationary. But each differencing step comes at the cost of losing a row of data.

From our data, we got p-value as 0.01 which is less than the 0.05 it means that the data becomes stationary at the first difference itself.



```

> View(ADF_Test)
> attach(ADF_Test)
> library(tseries)
Registered S3 method overwritten by 'quantmod':
  method      from
  as.zoo.data.frame zoo

  'tseries' version: 0.10-52

  'tseries' is a package for time series analysis and computational finance.
  see 'library(help="tseries")' for details.

warning message:
package 'tseries' was built under R version 4.2.2
> plot.ts(ADF_Test)
> adf.test(ADF_Test)
Error in adf.test(ADF_Test) : x is not a vector or univariate time series
> adf.test(Close)

      Augmented Dickey-Fuller Test

data:  Close
Dickey-Fuller = -1.5119, Lag order = 10, p-value = 0.7849
alternative hypothesis: stationary

> rclose=diff(log(Close))
> adf.test(rclose)

      Augmented Dickey-Fuller Test

data:  rclose
Dickey-Fuller = -9.9521, Lag order = 10, p-value = 0.01
alternative hypothesis: stationary

warning message:
In adf.test(rclose) : p-value smaller than printed p-value
> plot.ts(rclose)
> kpss.test(rclose)

      KPSS Test for Level Stationarity

data:  rclose
KPSS Level = 0.091283, Truncation lag parameter = 7, p-value = 0.1

warning message:
In kpss.test(rclose) : p-value greater than printed p-value
> pp.test(rclose)

      Phillips-Perron Unit Root Test

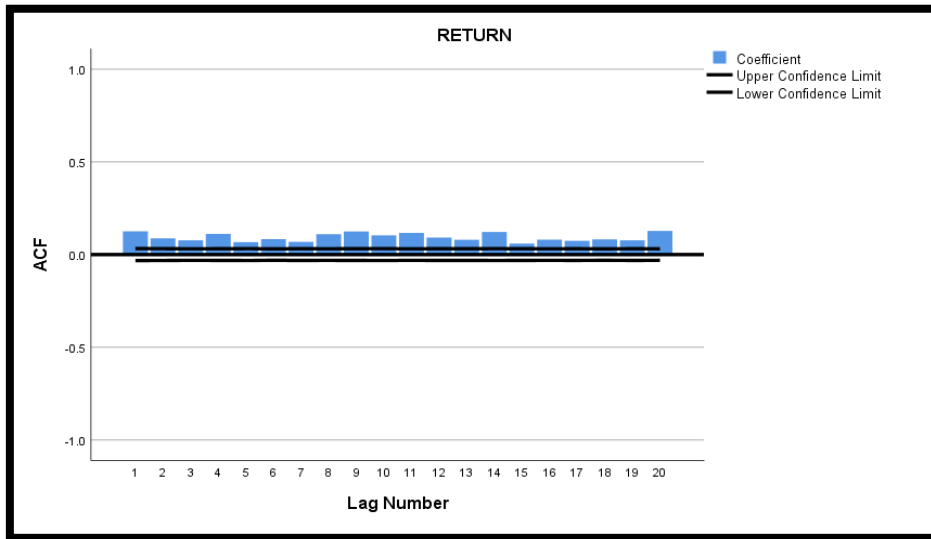
data:  rclose
Dickey-Fuller Z(alpha) = -1382.8, Truncation lag parameter = 7, p-value = 0.01
alternative hypothesis: stationary

warning message:
In pp.test(rclose) : p-value smaller than printed p-value

```

**2. PARAMETRIC TEST:**

**A. SERIAL CORRELATION & LJUNG-BOX TEST:**



Autocorrelations					
Series: Return					
Lag	Auto Correlation	Std. Error	Box-Ljung Statistic		
			Value	df	Sig.
1	0.126	0.016	60.108	1	.000
2	0.088	0.016	90.293	2	.000
3	0.077	0.016	114.578	3	.000
4	0.111	0.016	164.664	4	.000
5	0.067	0.016	182.310	5	.000
6	0.084	0.016	211.287	6	.000
7	0.069	0.016	229.915	7	.000
8	0.110	0.016	279.607	8	.000
9	0.125	0.016	341.042	9	.000
10	0.104	0.016	383.119	10	.000
11	0.117	0.016	438.995	11	.000
12	0.091	0.016	472.456	12	.000
13	0.080	0.016	498.144	13	.000
14	0.122	0.016	555.901	14	.000
15	0.059	0.016	570.100	15	.000
16	0.081	0.016	596.948	16	.000
17	0.074	0.016	619.243	17	.000
18	0.082	0.015	647.257	18	.000
19	0.077	0.016	670.766	19	.000
20	0.128	0.016	738.116	20	.000
<i>a. The underlying process assumed is independence (white noise).</i>					
<i>b. Based on the asymptotic chi-square approximation.</i>					

**HYPOTHESIS:**

**H<sub>0</sub>:** there is no relationship between the past price and future price.

**H<sub>1</sub>:** there is a relationship between the past prices and future price.

**INTERPRETATION:**

The value which are obtained from the Autocorrelation table is falls between 0 to 0.25 it signifies low correlation or no correlation. We accept the null hypothesis because the autocorrelation does not differ significantly from zero. Thus, we can conclude that the market is efficient in the weak form. Furthermore, in Ljung-Box test it is found that p-value is significant it implies the existence of autocorrelation in the data. So, we can conclude that the market is efficient in weak form.

**B. DURBIN-WATSON STATISTIC:**

<b>Durbin Watson Test</b>	
Sum of Square difference of Residuals	0.291584
Sum of Square Residuals	0.134846
<b>Durbin-Watson Statistic</b>	<b>2.162351</b>

**INTERPRETATION:**

Durbin-Watson test is parametric test worked to test the weak efficiency of the market. It is calculated from the residuals which is found from regression function. If the market is weak form efficient then there is no correlation between the successive prices. The output of this test should range between zero to four (0 to 4). If the value is 0 it represents that there is no correlation. Further if the value is greater than 2, it represents that there is negative correlation. And if the value is below 2 it indicates that there is positive correlation between the samples. From our analysis we got 2.16 which are approximately closer to 2 so it interpreted as there is no correlation between the data. Thus, it is concluded that the market is efficient in the weak form.

**3. NON-PARAMETRIC TEST:****A. RUNS TEST:**

Positive Run	<b>n<sub>1</sub></b>	638
Negative Run	<b>n<sub>2</sub></b>	591
Total Run	<b>N</b>	596
Mean	<b>μ</b>	614.6013
Standard Deviation	<b>σ</b>	17.4957
Degree of Freedom	<b>df</b>	1228

<b>RESULTS</b>					
<b>For 1%:</b>			<b>For 5%:</b>		
t-value	<b>t</b>	2.5798	t-value	<b>t</b>	1.9619
Lower Limit	<b>L</b>	569.4659	Lower Limit	<b>L</b>	580.2765
Upper Limit	<b>U</b>	659.7367	Upper Limit	<b>U</b>	648.3992
Total Run	<b>N</b>	614.6013	Total Run	<b>N</b>	614.6013

**INTERPRETATION:**

A Runs test is conducted in order to test the weak form of market efficiency of the Indian stock market (NSE). As simple as possible this test is carried on by finding the mean value, standard deviation, t-value and range (Lower and Upper Limit). This study is tested with both 1% and 5% level of significance. In such case, we observe that N is not falls outside of the range from 569.46 to 659.73 for 1% and 580.27 to 648.39 for 5%. Then we can conclude that the market is weakly efficient.

**FINDINGS & SUGGESTION****FINDINGS:****In Run Test:**

Out of 1231 counts, total number of runs obtained is 596 in which positive runs and negative runs are 638 and 591 respectively. Then hypothesised mean and standard deviation is 614.60 and 17.49. At 1% and 5% level of significance we evaluated upper and lower limit ranges between 569.46 & 659.73 and 580.27 and 614.60. In order to attain the weak

form of efficient, total runs should fall between the range of upper and lower limit. For 1% and 5% level of significant we can conclude that the market is efficient in weak form.

#### **In Durbin-Watson Test:**

The sum of squared difference of the residuals and the sum of squared residuals are 0.2915 & 0.1348 respectively. Durbin-Watson test works by dividing the two values which we obtained (0.2915 / 0.1348). The value we obtained is 2.16 which the value is closer to 2. It implies that there is no correlation. Thus, we can conclude that the market is efficient in weak form.

#### **In Autocorrelation Test (with lags) & Ljung-Box Test:**

The values which are obtained from the autocorrelation table are falls between 0 to 0.25. it signifies that there is no correlation. Here, we can observe that autocorrelation does not differ significantly from zero. Hence, we can conclude that the market is efficient in weak form. Furthermore, In Ljung-Box test, p-value is significant it implies the existence of autocorrelation in the data. Thus, it also confirms weak form of efficient in the market.

As overall we found that the market is efficient in the weak form. In weak form of efficiency, it asserts that market prices are wholly impound all the market information which is related to the prices. So, this test indicates that the investors cannot earn abnormal return out of technical analysis by predicting the future prices and its movements.

## **CONCLUSION**

This study examines that Indian stock market (NSE) is efficient in the weak form. It expresses that NSE does not follows random walk model from the 5 years data (2017-2022). Non-Parametric test like Run test and Parametric Test such as Durbin-Watson test, Autocorrelation test with lagged & Ljung Box Test are employed for the study, they confirm the non-existence of random walk and aids that the stock market is efficient in the weak form. These tests symbolically represents that the movement of stock market index cannot determine the present stock prices and/or predict the future movement of price and the volume traded. The investors or a trader cannot make abnormal profit out this frame.

In order to provide better clarity to the interpretations derived this part explain the criteria for those tests which are incorporated. In Durbin-Watson Test, the statistics ranges from zero to four, the value 2.0 implies zero correlation, value below 2.0 means there is positive correlation and above 2.0 means negative correlation. Since the value we obtained is 2.1 it closely equals to 2.0, if the market is efficient such case there should be no correlation. Hence, it is concluded that market is efficient in weak form. In Autocorrelation Test, if the value falls between  $\pm 0.75$  to  $\pm 1$  it implies high correlation, if  $\pm 0.25$  to  $\pm 0.75$  implies moderate correlation and if 0 to  $\pm 0.25$  implies low correlation. For the efficient market the result which we are obtaining should be zero correlation or low correlation. Since those values are clearly indicating to 0 and 0.11 under those 20 lags it confirms that market is weakly efficient. Under Ljung-Box Test statistic, if the p-value is significant it explains that there is autocorrelation. If p-value is below 0.005, they are considered as highly statistically significant. In Runs Test, it explains that actual number of runs or total number of runs should fall between the lower and upper limit it signifies that the market is efficient.

The market has several factors mainly classified as micro and macro factor both are contemporary at the domestic and international level. The economies are integrated worldwide with each other more than the before events. An occurrence of certain event has an immediate and adverse effect everywhere in the market. So, it initiates us to study the movement of the market according to the circumstances anticipated.

Finally, this study shows that there is an efficiency in the weak form hereby it explains that the investors cannot make use of technical analysis to predict the future prices. But investors can earn abnormal profit with the use of having access to the insider's information. We can also understand that the mutual fund institutions may be able to perform well in the field due to having the insider information by having a close link with the key members of the company. Therefore, weak form of efficiency expresses that investors cannot use technical analysis to determine the future movement of price and the volume traded in the market to earn the abnormal return.

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