

## **MARKET EFFICIENCY OF STATE BANK OF INDIA**

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### **Abstract**

Capital Markets facilitate trading of securities executing liquidity and pricing the securities. The capital market efficiency is the ability of the securities reflecting and incorporating all the relevant information instantaneously and unbiased. Three descriptions of capital market efficiency can be discerned basing on the information available. The weak form of efficiency is referred to as the random walk hypothesis. Prices could be greater than or less than the true value ie : there is an like chance that the share prices are either undervalued or overvalued at any given time and the variations and no correlation exists compared to any observable variable. In the present study, randomness of share price has been tested for State Bank of India. The share prices on every Fortnight Monday have been taken from internet between the dates 30<sup>th</sup> March 2017 to 2<sup>nd</sup> April 2019 from BSE index. The sample run test has been applied. It has been found the arrangement of change in share price was random.

**Key words:** capital market, capital market efficiency, random walk, share price, BSE index

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**Introduction:** Capital Markets facilitate trading of securities executing liquidity and pricing the securities. The three forms of capital market efficiency are a) weak form b) semi-strong and c) strong form. In the weak form of market efficiency, the security prices reflect all the past information about the price movements in the stock market and the investors can't predict changes in future security prices and also can't perform better than stock market index. Empirical studies show that there exists serial independence between the security prices over time that's why stock prices follow a random walk. When we don't have control over the collection of data then it would be difficult to decide whether our assumption of randomness holds good. The technique used in this article is based on the theory of runs. The runs test is a non parametric statistical tool used to test the randomness hypothesis for a data sequence consisting two elements which are arranged independently.

**Objectives:** 1. To check whether successive share price changes are independent during the period of study from 30<sup>th</sup> March 2017 to 2<sup>nd</sup> April 2019.

2. To find whether the arrangement of change in price was random.

**Methodology:** The present study is empirical in nature and the data on every Fortnight Monday has been collected on stock market quotations through internet (money control.com website). The study is on rise and fall of share prices between 30<sup>th</sup> March 2017 and 2<sup>nd</sup> April 2019 of State Bank of India selected on the basis of Judgmental sampling. 30<sup>th</sup> March 2017 has been taken as beginning because on 1<sup>st</sup> April 2017 five banks were merged into SBI. One sample run test has been applied to find whether the successive share price changes are independent during the period of study and whether the changes are random.

**Null Hypothesis:** The arrangement of + (rise) and – (fall) ie: change in equity share price was random and to check whether the share prices move independently of each other on the successive fortnights during the period of study.

**Table: Rise and Fall of Market Prices (BSE Sensex)**

Date	Share Price	Rise/Fall	Date	Share Price	Rise/Fall	Date	Share Price	Rise/Fall
30-03-17	290	+	27-11-17	335.25	+	13-08-18	294.8	+
03-04-17	293.15	+	11-12-17	318.2	-	27-08-18	308.25	+
17-04-17	289.65	-	26-12-17	316.85	-	10-09-18	285	-
02-05-17	288.25	-	08-01-18	305.65	-	24-09-18	264.55	-
15-05-17	300.45	+	22-01-18	306.25	+	08-10-18	266	+
29-05-17	284.4	-	12-02-18	288.5	-	22-10-18	259.95	-
12-06-17	285.05	+	26-02-18	274.75	-	12-11-18	277.75	+
26-06-17	279.4	-	12-03-18	252.85	-	26-11-18	285.7	+
10-07-17	285.55	+	26-03-18	246.35	-	10-12-18	273.4	-
24-07-17	294.45	+	09-04-18	260.55	+	24-12-18	292.8	+
14-08-17	278	-	23-04-18	242.7	-	14-01-19	300.5	+
28-08-17	279.3	+	14-05-18	253.35	+	28-01-18	281.6	-
11-09-17	270.85	-	28-05-18	272.25	+	11-02-18	279.8	-
25-09-17	258.65	-	11-06-18	273.65	+	25-02-18	270.2	-
09-10-17	256.5	-	25-06-18	268.3	-	11-03-18	286.8	+
23-10-17	245.75	-	09-07-18	261.35	-	25-03-18	293.8	+
13-11-17	331.2	+	23-07-18	266.4	+	02-03-18	328.55	+

**Source:** money control.com (internet)

No. of occurrences of positive signs  $n_1 = 25$ ; No. of occurrences of negative signs  $n_2 = 26$

Runs 'r' 14 + and 13 - (TOTAL 27)

Mean  $\mu_r = (2n_1 * n_2 / (n_1 + n_2)) + 1 = (2 * 25 * 26 / (25 + 26)) + 1 = 26.49$

Standard Deviation  $\sqrt{((2n_1 n_2) * (2n_1 n_2 - n_1 - n_2) / ((n_1 + n_2)^2 (n_1 + n_2 - 1)))}$

$$= \sqrt{(2 * 25 * 26)(2 * 25 * 26 - 25 - 26) / (25 + 26)^2 (25 + 26 - 1)} = 3.533$$

Level of significance 0.05 or 5%, appropriate  $z$  value for 0.475 of the area under the curve is 1.96. The limits of the acceptance region are

Upper limit =  $\mu_r + (1.96 * 2.83) = 26.49 + 5.547 = 32.037$

Lower limit =  $\mu_r - (1.96 * 2.83) = 26.49 - 5.547 = 20.943$

**Capital Loss basing on closing price on 30<sup>th</sup> March 2017 to 2<sup>nd</sup> April 2019**

(Rs.328.55 - Rs.290) Rs.38.55

**Conclusion:** Observed number of runs (27) lies within the acceptance region for the bank; hence null hypothesis is accepted means the arrangement of change in share price was random, and the share prices moved independently on the successive fortnights during the period of study.