

# Is the Indian Stock Prices is Predicted through Characteristic Line?

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## **Abstract**

Capital market plays a salient role in economic development of a country. Indian capital market is the backbone of the country's economy and plays an important role in empowering of all the areas. From the past trends we found that the Indian capital market is highly volatile. The investors look and identify the minimum risk and maximum return on their portfolio through portfolio analysis. Knowledge of risk involved in the investment, helps the investors to maximize return. In this study we are trying to understand the expected rate of the stock at different market levels from the previous behavior of the stocks and market through Characteristic Line. We use Wilcoxon Matched Pairs Test to analyze the calculated price and the actual price of stocks. Our result shows that there is a significant difference between the calculated price and actual price of stock at 5% level of significance. Thus, we reject the null hypothesis and conclude that the Indian stock prices are not predicted through Characteristic Line.

**Key Words:** Capital Market, Risk, Return, Characteristic Line, Wilcoxon Test.

**Contribution/Originality:** This study is one of the few studies that have examined the prices of Indian stock to knowing the availability of Characteristic Line. Compared to previous studies that addressed the risk and return of stocks, our study also examines the actual prices and predicted prices of stock.

## **1. Introduction**

In the recent years the Indian capital market has showed massive growth. The total market capitalization of the Indian capital market is approximately 3 trillion dollar which covers 2.7% share of the world market. This is due to the country policy to bring foreign investors in the country through giving relaxation in the norms related to foreign investment. Past data shows that the Indian capital market is one of the most sensitive avenues of investment in the world. To obtain the fair return from the most sensitive market the investor take an intelligent investment decision through various financial analysis. The financial analysis give benefits to the investors and influence the expected return and risk which is associated with the investment. The present business environment is rapidly growing and changing. Due to economic circumstances and risk

taking behavior of investors, capital market which represent the economy of the nation, also change accordingly. Stocks which gave maximum return with lower risk are in the main ideology of investors. Investors wants to invest in safe stocks which provides better output and for this they have consider many market factors like profit of company, goodwill of company, government policies and trend of a particular stock or portfolio. Competitiveness of Indian economy provides opportunities to investors and they diversify their funds in different sectors.

Before making an investment in the stock market, estimating the expected return on investment is a challenging job. Investors are using different techniques and market models for taking the suitable investment decision. The past behavior of stock price and market index plays a very crucial role in security analysis. Stock market consist various stocks, it is very difficult for an investor to choose the best stock from the large list. Investor wants to know the rate of a stock at which they should trade in a particular stock. Investors predict the rate of a stock from the market news, financial position of company and recent trends of the stock and the market. Many researchers has studied that the stock market and stock price has positive correlation which means that the stock price will increase when the market has going up or vice-versa. Before investment, investors are always in search of various financial analysis and statistical tools which can enhance the probability of higher return and lower risk. Total risk of a security is a combination of systematic rick and unsystematic risk. Systematic risk is undiversified in nature and due to movement in the general market or macro economic factors and common to all risky assets. However unsystematic risk is firm specific and can be diversified. Uncontrollable or systematic risk of a security is measured by Beta. In asset pricing, Beta is considered as a very important parameter. Beta is a regression coefficient which describes the unit change in stock price due to unit change in market price.

Without doubt we say that Harry Markowitz written the classic theory of portfolio in the year 1952 which was published in the Journal of Finance (1952). This theory was a milestone because for the first time the relationship between risk and return was included in a financial model. Other authors like Sharpe (1963) and Lintner (1964) starting from the Markowitz idea and develop the theories of portfolio. William Sharp introduced the single index model or commonly known as the market model in the year 1963 which is one of the three major theories in financial management. Sharpe reducing the complexities of Markowitz model in substantial manner and simplified the process.

The Sharp's index model fundamental is that co-movement between stocks is due to movement or change in the market index. Casual observation reveals that most of the stock prices move with the market index, when the index increased stock price also tend to increase or vice-versa. This relation indicates that some underlying factors affect the market index as well as the stock prices. This model is based on the assumption that stocks vary together because of stock market common movement and there are no effects beyond the market (i.e. any fundamental factor effect) that account the stock co-movement. Sharp's model or Characteristic Line measuring the relationship between the return of a security and the market return. The Characteristic Line is used to determine the theoretically return or stock price at a specific value of index.

Many authors have analyzed the risk and return of stocks using various tools and techniques. They mainly use Beta in their study for the analysis. Many studies have been done on the asset pricing using CAPM model. Many researchers have been done their study to construct an optimal portfolio using Sharp's Single Index Model. Some authors have also compared their optimal portfolio using Sharp's Single Index Model whereas some authors have used Characteristic Line in comparison of security prices between the companies. In this paper we use Characteristic Line for the pricing of the stock and compare the calculated prices and actual prices of stocks, which creates research gap. This paper gives an approach to an investor that they use Characteristic Line in the prediction of Indian stock prices.

## 2. Review of Literature

**Sushma K.S., Charithra C.M. and Bhavya Vikas (2019)** have examining the financial companies listed on NSE for a study on risk and return analysis. The primary objective of the study is to analyze eight NSE listed financial services companies to assess the risk and return. The secondary objective of the study is to compare individual stock volatility before and after the event of demonetization. Mean, Standard Deviation, Beta, Correlation, Co-Variance and T test were used to analyze the data of selected companies. The study is an attempt to evaluate the stock which had highest returns among the selected eight companies and the study also suggests that the volatility of all selected companies had no difference before and after the demonetization.

**Nirmala and Devendran (2017)** have conducted a study on the topic "The risk and return analysis of equity shares with special reference selected mutual fund companies". The study focus on three objectives: i) To study on the CAPM ii) By using CAPM, measure the risk and

return of selected mutual fund companies listed on NSE and iii) To analyze the performance of stock of selected companies using Jensen's Alpha. Time of study was taken from April 2011 to March 2016 and the samples were randomly selected from NSE 500 index. From the study, the author concluded that the investors choose ICICI and SBI to invest their funds because they are performing well on less cost of capital and risk.

**Poornima S. and Remesh A.P. (2016)** have conducted a study on the topic of "A study on optimal portfolio construction using Sharp's Single Index Model with special preference to selected sectors listed in NSE". The study is based on five financial year data from 2010 to 2015. The data is taken from 50 companies of various sectors i.e. banking, pharmacy, metal, power etc. In this study sector wise risk and return have calculated. In this study, banking and metal sector have identified as a high return with risk portfolios. The author concludes that the risk taker can invest in metal and mining sector which offers high return with high risk. While, the risk-averse investors can invest in banking, power and pharmaceutical sectors that gives high return at low risk.

**Sholehah N.A., Permadhy Y.T. and Yetty F. (2020)** have conducted a study on "The comparison of optimal portfolio formation analysis with single index model and capital asset pricing model in making investment decision". The aim of this study to find out the portfolio comparison that results from single index model and capital asset pricing model and also evaluation the portfolio performance through Sharpe Index, Treynor Index and Jensen Index. The study is conducted on the 17 stocks listed on the LQ45 index by taking the data from the year 2017 to 2019. The study result concludes that Single Index model method produces an efficient portfolio consisting of 6 shares where as the CAPM method produces an optimal portfolio consisted of 13 shares.

**Robiyanto R. (2018)** has conducted a study on "Performance evaluation of stock price indexes in the Indonesia stock exchange". In this study the author evaluates the performance of stock price indexes in the Indonesia stock exchange by using Sharpe index, Treynor ratio, Jensen Alpha, Adjusted Sharpe index, Adjusted Jensen index and Sartino ratio. Ten indexes of Indonesia capital market were taken on daily closing price bases and from the period of 3 January 2011 to 17 July 2017. Rate of Bank of Indonesia during the study period is taken as the risk free rate. The study results indicates that only three stock price indexes perform better than risk free rate and stock market instrument when calculated by using Sharpe index, Treynor ratio,

Jensen Alpha, Adjusted Sharpe index and Adjusted Jensen Alpha. While, when calculated by Sortino ratio the stock price index of miscellaneous industry sector has the best performance.

**Hussain S. and Islam K. (2017)** have conducted a study on the topic “Is the Capital Asset Pricing Model valid in the Indian context?”. In this study the researcher test the validity of CAPM in India on the stocks listed on the NSE by using Fama & McBeth (1973) two step procedure. Data of 63 sample companies of Nifty 100 index for the period from January 2003 to November 2015 was taken on monthly percentage return basis. Study results show absence of any significant relationship between Betas and risk premium. The author concludes that the CAPM is not a valid test in explaining the risk and return characteristic of stock listed on the NSE.

**Handa D., Garima and Gupta R. (2014)** conduct a study on the topic “Characteristic Line of components of S&P CNX Nifty & S&P BSE Sensex. Daily closing values of data from the period 3 January 2011 to 31 January 2014 was taken for the study purpose. The study result reveals that both the indices have very high correlation coefficient of 98.40% between them. The study further reveals that the association pattern of all the 50 components with both the indices. This association pattern is irrespective of the composition structure of the indices.

**Faisal S.M. and Al-Aboud O.A. (2017)** have examining the Sharp Index Model and its utility in portfolio optimization and allocation of funds in stock. The primary objective of the study is to explore investment options in the share market by creating an optimal portfolio from which maximum returns can be obtained by minimized risk. The result shows that how the stocks were chosen than can provide lowest possible risk with highest return and invest money in portfolio as per the rank given on the basis of excess return to Beta ratio.

**P. Subramanyam and Kalyan N.B. (2018)** have conducted a study on the topic ‘A study on risk and return analysis of selected securities in India.’ They analyzed the risk and return of the equity of ten different companies for a period of one month which was purchased from secondary market. For the analysis the author used various tools and techniques like beta, expected return and co-efficient of variation. This paper mainly focuses on the relationship between market fluctuation and price of scrips by using fundamental and technical analysis. The author concludes that one method is not sufficient to analyze and interpret the fluctuations and they suggest that the tools used in the study helps the investors to define the trends to some extent.

**Wang Z., Seng-Beng and Lin Z. (2018)** have conducted a study on the topic ‘Stock market prediction analysis by incorporating social and news opinion and sentiment’. This study examines the relationship between the stock price and the news sentiments for prediction of stock prices. For prediction of stock prices a novel enhanced learning based method is proposed that consider the effect of news sentiments. The result of this study indicates that the news sentiments which are relevant to stock market can be used to the performance improvement of stocks.

**Ding G. and Qin L. (2019)** has done the study on the prediction of stock prices based on the associated network model of LSTM. For this study the author proposed an associated deep recurrent neural network model with multiple inputs and outputs based on long short-term memory network. The associated network model can predict the stock opening price, lowest and highest price simultaneously. The study result shows that the prediction accuracy of associated model is over 95%.

**Minami S. (2018)** conducted a study on ‘Predicting equity price with corporate action events using LSTM-RNN’. In this study the author propose a sequential learning model for the prediction of future stock price of single stock with information of corporate action using LSTM-RNN method. The study result shows that in the prediction of single stock price with variables corporate action and corporate publishing, the proposed model to be a favorable method.

### **3. Objectives of the Study**

The objectives of the study are to:

- Understand the composition of BSE Sensex 100 Index.
- Know the Beta values of each stock of BSE Sensex 100 Index.
- Understand the concept of Characteristic Line.
- Find the Characteristic Line of each stock of BSE Sensex 100 Index.
- Find that the Characteristic Line predicts the correct value of stocks of BSE Sensex 100 Index.

### **4. Research Methodology**

National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) are the two famous stock exchanges in India. This study is based on BSE which is a well diversified 30 stock index representing different industries of the Indian economy. This study is based on secondary data

which is taken from the year 2013 to 2020 and were extracted from BSE database on yearly basis. The data is taken of 100 companies which constitutes the BSE 100 index. This study is analytical in nature and the aim of this study is to find the availability of Characteristic Line in the Indian stock market. The application of Characteristic Line has applied on the stock of BSE 100 index. As for Characteristic Line of stock prices studied here is calculated by the following formula:

$$R_i = \alpha_i + \beta_i R_m + \epsilon_i$$

Where,

$R_i$  = expected return on security i

$\alpha_i$  = intercept of the straight line or alpha co-efficient

$\beta_i$  = slope of straight line or Beta co-efficient

$R_m$  = the rate of return on market index

$\epsilon_i$  = error term

Alpha co-efficient  $\alpha_i$  is calculated from the following formula:

$$\alpha_i = R_s - ( \beta_i R_m )$$

Where,

$R_s$  = the rate of return of particular security

$\beta_i$  = slope of straight line or Beta co-efficient

$R_m$  = the rate of return on market index

For the calculation of stock price according to the characteristic line we use three different levels of BSE index which is the closing value of index which is the particular closing value of the months/day. These three different levels of index is 40129.05 which is the closing value of the month of October 2019, 44149.72 which is the closing value of the month of November 2020 and 49509.15 which is the closing value of the month of March 2021. From these three different levels of BSE index we calculate the three prices of each stock. We also get the actual prices of the stock at the same three different level of the BSE index. After that we compare the three

calculated price of each stock with the actual price of the stocks. For this comparison analysis we use the Wilcoxon Matched Pairs Test at 5% level of significance. From this test we test the study hypothesis and found the study results.

## 5. Research Hypothesis

We draft the following research hypothesis-

**H<sub>0</sub>:** There is no difference between the calculated price of the stocks which is calculated through characteristic line and the actual price of the stocks at three different levels of BSE Index.

$$\text{Calculated Price (CP}_1\text{/CP}_2\text{/CP}_3\text{)} = \text{Actual Price (AP}_1\text{/AP}_2\text{/AP}_3\text{)}$$

**H<sub>1</sub>:** There is significant difference between the calculated price of the stocks which is calculated through characteristic line and the actual price of the stocks at three different levels of BSE Index.

$$\text{Calculated Price (CP}_1\text{/CP}_2\text{/CP}_3\text{)} \neq \text{Actual Price (AP}_1\text{/AP}_2\text{/AP}_3\text{)}$$

## 6. Data Analysis

**Table Showing BSE 100 Index Stocks Calculated Price and Actual Price at Three Different Levels of Index**

S.N.	BSE Stock Code	Index Level 40129.05		Index Level 44149.72		Index Level 49509.15	
		Calculated Price (CP <sub>1</sub> )	Actual Price (AP <sub>1</sub> )	Calculated Price (CP <sub>2</sub> )	Actual Price (AP <sub>2</sub> )	Calculated Price (CP <sub>3</sub> )	Actual Price (AP <sub>3</sub> )
1	500410	1608.87	1568.80	1677.14	1703.25	1768.14	1902.55
2	541450	24.11	89.65	552.83	1120.80	1257.59	1104.30
3	532921	467.55	395.55	527.86	412.00	608.24	702.75
4	500425	247.91	202.25	258.77	261.00	273.24	308.75
5	508869	1881.10	1484.85	2151.29	2338.70	2511.44	2902.90
6	500477	98.49	76.70	104.12	92.10	111.62	113.45
7	500820	1900.89	1810.75	2249.48	2217.35	2714.14	2536.75
8	524804	814.25	469.76	817.06	868.05	820.81	881.55
9	540376	1923.82	1994.25	2362.48	2286.60	2947.19	2854.05
10	532215	626.62	736.00	668.84	602.10	725.11	697.50
11	532977	3262.58	3246.75	3484.52	3172.65	3780.36	3671.70
12	500034	4104.56	4024.90	4490.14	4903.30	5004.11	5148.90
13	532978	48879.58	8137.10	50415.08	8755.20	52461.84	9667.80
14	500490	2934.73	3666.15	3268.45	3064.05	3713.28	3292.35
15	541153	256.83	612.70	351.72	366.65	478.20	338.75
16	509480	530.38	526.65	619.64	648.40	738.62	764.65



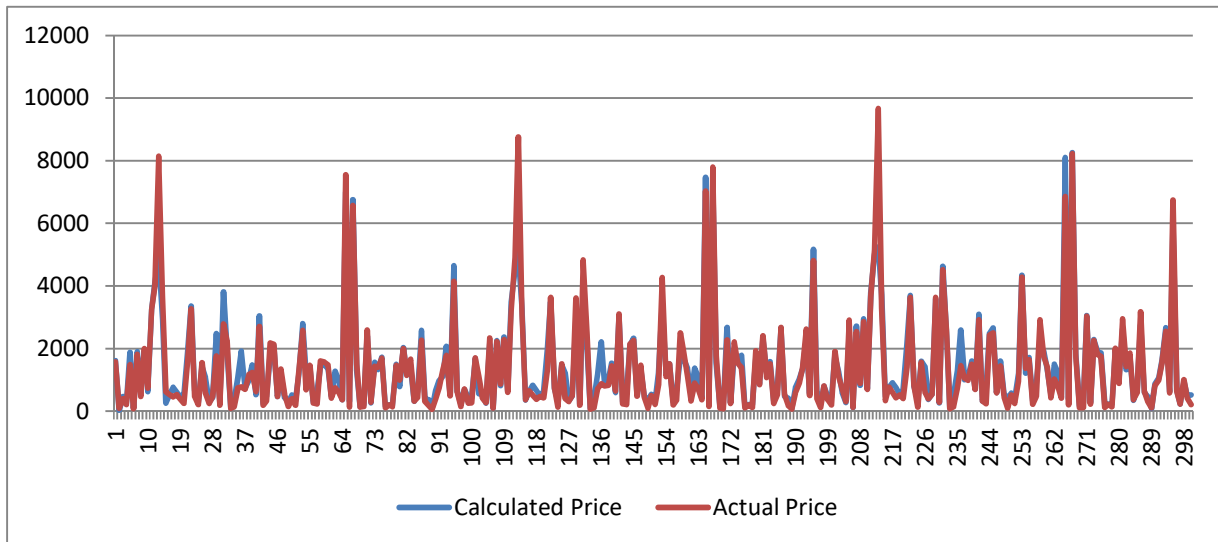
17	500493	764.33	453.85	824.24	508.30	904.10	596.15
18	500547	605.44	527.00	662.93	372.95	739.57	427.95
19	532454	449.04	374.40	481.60	463.30	525.01	517.30
20	532523	568.98	246.35	613.61	429.35	673.10	408.80
21	500530	18757.80	15283.60	19842.98	12771.00	21289.49	14080.50
22	500825	3347.94	3266.40	3495.90	3634.10	3693.13	3628.10
23	500087	683.38	467.15	720.37	744.65	769.67	815.25
24	533278	285.59	207.80	320.17	125.60	366.26	130.40
25	500830	1416.47	1548.40	1490.05	1508.90	1588.13	1559.60
26	531344	1072.14	589.20	1219.70	404.55	1416.39	597.25
27	539876	286.25	246.40	323.64	305.15	373.48	393.50
28	500096	437.34	462.50	487.60	499.60	554.59	540.70
29	532488	2471.38	1756.20	2946.62	3607.60	3580.11	3630.05
30	532868	214.33	183.50	237.65	187.10	268.73	287.05
31	500124	3809.30	2782.85	4161.51	4829.60	4631.00	4515.60
32	505200	1928.51	2254.54	2180.48	2536.70	25163.56	2603.75
33	500469	91.89	83.75	94.30	62.75	97.52	75.75
34	532155	368.38	137.40	425.07	102.50	500.63	135.55
35	532424	1072.52	740.75	1168.21	699.80	1295.77	728.75
36	500300	1914.55	769.20	2203.64	876.25	2588.98	1452.10
37	517354	723.19	692.00	845.01	802.00	1007.40	1049.90
38	532281	984.64	1163.35	1022.43	822.20	1072.81	983.45
39	500180	1474.72	1229.95	1528.59	1440.70	1600.41	1493.55
40	540777	519.79	625.90	599.00	647.65	704.58	695.75
41	500182	3039.79	2705.25	3061.10	3104.65	3089.51	2915.15
42	500440	249.12	188.05	280.89	225.65	323.23	326.85
43	500104	477.04	325.15	547.80	209.00	642.13	234.55
44	500696	1821.44	2176.75	2106.51	2137.20	2486.49	2430.80
45	500010	2085.73	2134.10	2331.39	2257.55	2658.85	2498.95
46	532174	460.60	462.85	517.29	472.80	592.85	581.25
47	540716	1162.35	1342.25	1348.50	1455.75	1596.65	1435.80
48	540133	427.15	510.20	474.20	441.95	539.90	445.25
49	530965	294.73	146.80	347.40	84.55	417.61	91.80
50	532514	513.75	391.45	537.87	496.25	570.03	510.80
51	534816	332.50	189.80	357.83	218.25	391.60	245.30
52	532187	1191.81	1311.50	1197.84	857.65	1205.88	954.00
53	532777	2797.30	2570.80	3458.30	4270.25	4339.39	4276.25
54	500209	1159.65	685.50	1181.37	1100.55	1210.31	1367.75
55	539448	1353.61	1456.45	1507.20	1514.50	1711.93	1634.95
56	500875	284.82	257.55	303.32	193.70	327.97	218.50
57	500228	569.84	227.85	681.21	350.50	829.66	467.85
58	533155	1450.47	1600.95	1727.90	2497.70	2097.70	2913.05
59	500247	1475.67	1573.15	1659.81	1901.65	1905.28	1754.00
60	500510	1358.41	1473.40	1362.84	1115.80	1368.73	1418.35
61	500253	489.61	412.45	506.90	330.00	529.94	428.10

62	500257	1271.24	745.65	1368.54	891.80	1498.24	1020.95
63	500520	1003.50	606.10	1096.38	720.05	1220.18	795.10
64	531642	369.94	366.05	399.69	364.95	439.35	411.50
65	532500	6995.01	7557.50	7468.84	7026.70	8099.11	6859.75
66	517334	303.33	122.90	335.50	147.85	378.37	201.55
67	500290	67566.09	65697.50	74012.43	77940.00	82605.21	82218.70
68	500790	13152.86	14961.40	15360.61	17657.60	18303.47	17170.30
69	532555	146.40	122.40	154.85	94.20	166.10	106.45
70	500312	208.73	141.55	236.88	78.50	274.39	102.15
71	532827	23996.78	25814.10	26795.17	22761.80	30525.33	30336.20
72	532522	261.03	286.70	266.25	249.40	273.22	224.90
73	523642	1563.49	1432.25	1873.48	2204.95	2286.69	2254.55
74	500331	1334.32	1401.70	1571.14	1528.70	1886.81	1809.95
75	500302	1721.00	1684.60	1778.90	1386.70	1856.07	1752.00
76	532810	167.45	109.10	184.34	108.30	206.85	113.65
77	532898	193.79	198.25	203.84	192.50	217.24	215.65
78	532955	188.39	139.80	204.47	120.75	225.91	131.25
79	500325	1494.02	1464.20	1676.16	1929.85	1918.94	2003.20
80	540719	778.82	990.70	868.88	846.30	988.93	880.50
81	500387	20308.84	19964.10	22849.50	24110.10	26236.12	29475.40
82	511218	1198.64	1139.30	1250.91	1071.10	1320.58	1421.90
83	500550	1452.92	1658.70	1584.40	1513.90	1759.65	1844.10
84	500112	312.19	312.25	325.86	244.30	344.08	364.35
85	524715	645.34	433.60	670.67	511.55	704.44	597.60
86	532540	2578.25	2270.20	2652.23	2679.15	2750.84	3177.60
87	500800	396.10	317.13	478.93	539.00	589.33	638.50
88	500570	369.70	177.70	410.71	180.25	465.38	301.85
89	500400	80.33	59.30	81.94	64.95	84.09	103.20
90	500470	655.14	380.50	744.40	577.85	863.38	811.95
91	532755	974.15	738.85	1005.92	876.15	1048.26	991.25
92	500114	1109.58	1332.35	1328.30	1357.85	1619.86	1557.40
93	500420	2063.60	1775.00	2319.71	2611.10	2661.11	2541.20
94	532343	521.05	484.40	562.46	499.35	617.67	585.10
95	532538	4642.31	4144.40	5165.40	4802.75	5862.66	6737.30
96	512070	619.50	596.60	643.62	417.50	675.78	642.20
97	500295	211.16	148.30	216.79	121.00	224.29	228.65
98	500575	683.79	708.30	794.76	806.20	942.68	1001.85
99	507685	439.86	259.20	458.75	350.50	483.94	414.20
100	505537	417.00	260.80	458.01	192.55	512.68	203.15

Prepared by the Author

After doing the various calculations the above table is prepared but from this long table we are unable to understand the pattern of the prices of stock at three different levels of market. For the

ease of understanding the relation between the above calculated prices and actual prices of stock we draw a line graph which is as follows-



Prepared by the author

The above line graph is prepared by taking the data of all stocks of BSE 100 index. We manage the three different level prices of stock in two rows, one in calculated price of stock and the other is actual price of stock. For getting the clear view of graph, the stocks whose price is more than 10000 is divided by 10. Through this we manage the stock price under the limit of 10000 and getting the clear view to understand the relation between the calculated price of stock and the actual price of the stock. So, the above graph shows the calculated price and actual price of 100 stocks at three different levels of market.

From this graph we found that mostly of the stocks have similar patterns, means the calculated price and the actual price of stock moves in same direction. We get the result that some stocks prices are moving in the opposite direction. We found uniformity in the pattern of stock prices, which means that the characteristic line rightly calculates the prices of stock. But at this point we are unable to say that the difference between the calculated price of stock and actual price of stock is significant or not. To get the answer of this situation we use the Wilcoxon Matched Pairs Test at 5% level of significance.

**Wilcoxon Signed Ranks Test  
Ranks**

		N	Mean Rank	Sum of Ranks
ActualPriceAP1 CalculatedPriceCP1	Negative Ranks	69 <sup>a</sup>	51.06	3523.00
	Positive Ranks	31 <sup>b</sup>	49.26	1527.00
	Ties	0 <sup>c</sup>		
	Total	100		
ActualPriceAP1 CalculatedPriceCP1	Negative Ranks	67 <sup>d</sup>	51.64	3460.00
	Positive Ranks	33 <sup>e</sup>	48.18	1590.00
	Ties	0 <sup>f</sup>		
	Total	100		
ActualPriceAP1 CalculatedPriceCP1	Negative Ranks	72 <sup>g</sup>	54.99	3959.00
	Positive Ranks	28 <sup>h</sup>	38.96	1091.00
	Ties	0 <sup>i</sup>		
	Total	100		

- a. ActualPriceAP1 < CalculatedPriceCP1  
b. ActualPriceAP1 > CalculatedPriceCP1  
c. ActualPriceAP1 = CalculatedPriceCP1  
d. ActualPriceAP2 < CalculatedPriceCP2  
e. ActualPriceAP2 > CalculatedPriceCP2  
f. ActualPriceAP2 = CalculatedPriceCP2  
g. ActualPriceAP3 < CalculatedPriceCP3  
h. ActualPriceAP3 > CalculatedPriceCP3  
i. ActualPriceAP3 = CalculatedPriceCP3

**Tests Statistics<sup>a</sup>**

	ActualPriceAP1- CalculatedPriceCP1	ActualPriceAP2- CalculatedPriceCP2	ActualPriceAP3- CalculatedPriceCP3
Z	-3.431 <sup>b</sup>	-3.215 <sup>b</sup>	-4.931 <sup>b</sup>
Asymp. Sig. (2-Tailed)	.001	.001	.000

- a. Wilcoxon Signed Ranks Test  
b. Based on positive ranks

We use the Wilcoxon Signed Ranks Test on the calculated stock prices and the actual stock prices which we get from the three different levels of BSE index. From the Ranks Table of the test we found that at the first level of BSE index (40129.05), 69 stocks have negative ranks which means that the actual price of stocks is higher than the calculated price of stocks in 69 cases and 31 stocks have positive ranks which means that the calculated price of stocks is higher

than the actual price of stocks in 31 case. From the second level of BSE index (44149.72) we found that 67 stocks have negative ranks and the 33 stocks have positive ranks. In the third case we found that at this level of BSE index (49509.15) the 72 stocks have negative ranks and the 28 stocks have positive ranks. From this rank table we found that in 70% of the cases the calculated price of stock is less than the actual price of the stock. We also found that, there is no case at every level of BSE index where the calculated price of stock is equal to the actual price of stock. From the Tests Statistics table we found that at 5% level of significance the significant values are .001, .001 and .000 for the three different level of BSE index. These significant values are less than the 0.05 in all the three cases. In Wilcoxon Signed Ranks Test, if the significant value is less than 0.05 then the null hypothesis is rejected. In all the three level of BSE index the calculated significant value is less than 0.05. So in all the three cases we reject the null hypothesis and accept the alternate hypothesis which means that, there is significant difference between the calculated price of the stocks which is calculated through characteristic line and the actual price of the stocks at all the three different levels of BSE Index. So, to estimate the expected stock price corresponding to the market, the use of characteristic line is not advisable.

## **7. Conclusion**

Most of the financial strategies are complex. Strategies related to stock market investment are one of them which rely on vast amount of data. Since the existence of market, investors want to improve their investment returns for which they have searched for knowledge about the companies listed in the market. In the recent time investors use their personal experience to identify market or stock patterns. But now this is not practicable due to the market size. For financial analyst, prediction of financial market has been a matter of worry. The main and important factor of prediction of the stock market is driving profit from the trading of stocks. Financial analyst use financial ratios to prove their stock recommendations, whereas technical analysts study the stock price for better investment decision or to make profit. Technical analysts use historical data for forecast stock prices. Some investors use company financial results and press release for predicting the future stock prices. If the financial result and press release is positive and correct then the investors judged the extent of expected future growth of the company. Prediction of future stock prices is not easy because stock prices are determined by market participants with various perspectives and ideas.

From a long period of time the researchers found the manner in which securities are priced in a capital market. From the past decades the theories of asset pricing have been a debatable topic. Many theories and models have been proposed and involved in mapping the relationship between risk and return. The price of a stock is depends on the number of factors of which some are internal to the company and other is external. In this study we test the validity of characteristic line on the stocks listed on the Bombay Stock Exchange (BSE) by using Sharpe's (1963) procedure.

The study result shows that characteristic line is not a valid test in explaining the similarity between the calculated price of stocks and the actual price of stocks listed on the BSE. Thus, it can be conclusively said that the characteristic line does not seems to be a valid asset pricing model in the Indian context. We use only Beta as a risk measure in the characteristic line. It is advised to the fundamentalists and the researchers that they should use the multifactor model which uses the other factors in addition to the Beta as a risk measure in asset pricing in Indian context.

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