

## A STUDY ON CAUSAL RELATIONSHIP BETWEEN COMPANY'S SHARE PRICE AND SENSEX IN THE POST DEMONETISATION PERIOD

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### ABSTRACT

This paper deals with the fundamental relationship between Company's share price and sensex in the post demonetisation period. Return on share price and sensex has been worked out for the purpose. Variance of share price return, sensex return and correlation coefficient of both returns have been found out to understand the degree of risk and also to study the degree of intensity of relationship between share price & sensex. Systematic risk (market risk) and unsystematic risk of the security have been calculated. Coefficient of determination has been used to found out the percentage of the variance of the company's returns explained by the changes in the Sensex returns. T-test of correlation efficient has been used to judge the significance of relationship between two variables. The author has come out with the conclusion that the company's share price and market price walks positively. The relation between two variables is significant.

**KEYWORDS:** Demonetisation, Sensex, Share Price, Rate of Return, Systematic risk, Unsystematic risk, Variance.

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### I. INTRODUCTION

The act of cancelling the legal tender status of a currency is called 'Demonetisation'. Black money of an economy which is directly concerned with the corruption is controlled by demonetisation by lowering the cash circulation in the country. The Government of India proclaimed the demonetisation of all 500 and 1000 banknotes on 8th November 2016. In consequence of that and cash shortages in the weeks created significant disruption and threat in country's economic activities which significantly influences the various sectors. The sectors like real estate, construction, etc which are ordinarily driven by black money are affected seriously by this initiative. But this shifting of government has also affected few sectors that are driven by cash and also purchasing power. A resultant impact on stock market was also well expected. Both systematic and unsystematic risk of share market was impacted. The Demonetisation enhances the systematic risk spread over the Indian stock market with all the shares. Performance of various sectors was reduced to that effects. Banking, Automobiles, Cement, FMCG, Pharmaceutical, Real estate and Agriculture sectors was highly affected by the blow of demonetisation. Market Indices dropped to 6 months low in the week following the announcement of demonetisation due to the effects of demonetisation and US presidential Election. In that week BSE and NIFTY both crashed around 1689 and 541 points respectively. Therefore it is a matter of concern to understand how much the demonetisation has impacted the Indian stock market.

Indian stock market is the oldest in the biggest continent of Asia. The first stock exchange of India was established in the year 1875 in Bombay, though trading in securities used to take place nearly 200 years ago. After that, stock exchanges of Ahmedabad, Calcutta, and Madras are established gradually. There were eight recognized stock exchanges in the country when the Securities Contracts (Regulation) Act, 1956 came in to force. The number increased to 22 in the decade of nineties. This figure reached to over 40 at the end of the 20th century. India has the second largest shareholding population near about 1.5 crore in the world. This figure is just below the USA which has about 5 crore shareholders. India has also a large number of debenture holders about 50 lakh, assumed that they are prospective shareholder as they hold convertible debentures. The number of listed companies in Indian stock exchanges is more than 9000, the figure is just below the USA (10,000). It is very exciting to remember that Bombay stock exchange deals on an average 45,000 a day, which is about to equal deals on the International Stock Exchange of London. Any individual or companies can become the members of Indian stock exchanges. Mainly 5 categories of members are operating in Indian stock exchanges viz. Brokers, Travaniwalas, Budliwalas, Arbitrageurs and odd-lot-dealers. Any one of the three forms – (a) A Public Limited company, (b) a company limited by guarantee, (c) a voluntary, non-profit making association, can be take by Indian stock exchanges. To

administer a stock exchange, a governing body is constituted. It acts like a board. The body has full power to interpretation of rules, bye-laws etc. The governing body has empowered to take decision relating to the conduct of stock exchange and its members. The management of the exchanges' assets and funds can fall under the function of the body.

Securities and Exchange Board of India (SEBI) was established on 12th April, 1988, on the line of Securities and Investment Board of U.K. SEBI gets legal status in the year 1992. The objective behind the establishment SEBI was to protect the interests of investors in securities and to promote a transparent and strong regulatory structure for the efficient functioning of the capital market. SEBI specified the responsibilities and obligations of the intermediaries towards investors. SEBI deals with all aspects of capital market, viz., entry to act as member / dealer, merchant banker, MF and venture stock markets. It is required to regulate and promote the securities market by

- Providing fair dealings,
- Ensuring a market place where funds can be raised at a relatively low cost,
- Securing a steady flow of savings in to the market,
- Developing a code of conduct and fair practices.

The present research work is an attempt to study the causal relationship between company's share price and sensex in the post demonetisation period.

## II. REVIEW OF LITERATURE

Early research works of Kendall (1953), Fama (1965a, b), Ganger & Morgenstern (1963), Godfry et al. (1964), Sharma & Mennedy (1977) and Cooper (1982) support the efficient market hypothesis for developed stock market. Lo & Mackinlay (1987), Poterba & Summers (1988) and Frennberg & Hansson (1993) found that stock returns are predictable from their mean-reverting behaviour in the long run. Contrary evidence is also found for the short-run horizons. A comprehensive survey conducted by Sullivan et al. (2001) suggests that security returns are not independent altogether. In his empirical study, Prof. Mallik (1994) argued that price change patterns do come in non-random grouping. Autoregressive conditional heteroscedasticity (ARCH) model of Engle (1982) and its subsequent generalization by Bollerslev (1986) posed yet another challenge to the stylized random walks of stock market returns. The studies of Laurence (1986), saw & Tan (1989), Mansor (1989), and Kok & Goh (1994a) support the random walk behaviour of stock prices in the context of Malaysian stock market. Verma & Verma (2005) come out with the conclusion that if portfolios are formed based on average co-movement, which assume symmetry, the performance of the investment may be worse than expected in down markets. Goh and Kok (2006) developed a simple model incorporating intraday seasonality can have lower forecast errors than a random walk.

Krishna Reddy, (2010) studied the movements in BSE Sensex in relation to FII investments and identified that FIIs are significant factor determining the liquidity and volatility in the stock market prices.

Ray Sarapriya, (2013) covered for a period, 1990-91 to 2010-11. The findings specified that there exists no significant causal relationship between industrial production and share price in India. The result of regression, of course, suggests that there may have been positive relation between stock price and real industrial production. The increase in production of industry can enhance stock price and vice versa.

In the present study the author intends to study the causal relationship between share price of a Limited Company and Sensex in the contest of Bombay Stock Exchange, India. The study to be conducted in the post demonetisation period.

## III. OBJECTIVE OF THE STUDY

The objectives of the study are:

1. To find out the relationship between Sensex and share price of a Limited company.
2. To find out the significance of the relationship.
3. To find out the percentage of the variance of the company's returns explained by the changes in the Sensex returns. The percentage of unsystematic risk of the company also to be found out.

### Hypothesis:

In order to realize the above objectives the following null hypotheses have been formulated:

Ho: There exists no significant relationship between Sensex and company's share prices.

Alternative Hypothesis:

Ha: There exists a significant relationship between Sensex and company's share prices.

## IV. LIMITATION

The study is confined to only one month duration starting from 15<sup>th</sup> March 2017 to 14<sup>th</sup> April 2017. Sample share prices and sensex (BSE) has been collected during the above mentioned period. This period is not very sufficient to reach a confirmed decision. The data used in this study are collected from website: [www.bseindia.com](http://www.bseindia.com).

## V. KEY CONCEPTS

### 1. Rate of Return:

Rate of return of share index and market index may be calculated by dividing the difference between share price in the beginning ( $P_t$ ) and share price at the end ( $P_{t-1}$ ) by share price at the end ( $P_{t-1}$ ).

Rate of return =  $(\text{Share price in the beginning} - \text{Share price at the end}) /$

Share price at the end.

Technically,  $R = (P_t - P_{t-1}) / P_{t-1}$ .

The returns of a security and market index may be measured on a weekly or monthly basis.

### 2. Sensex (B.S.E):

The Bombay Stock exchange (BSE) Sensitive Index or Sensex, which was created in January 1986 is the barometer of the country's stock markets. In creating this Index the year 1978 – 79 has been assumed as the base year. Thirty shares have been selected on the basis of their sensitivity. The movements of sensex are based on highs and lows in the weighted market capitalization ( $MC = \text{Outstanding equity shares} \times \text{Current market price}$ ) of that 30 shares. The index is calculated as the ratio of the aggregate market capitalization of the equity shares of all the sensex companies on the given day to the total market capitalization of the equity shares of the same companies during the base period, multiplied by 100. Hong Kong's Hang Seng, Dow Jones Industrial Average (DJIA), and S & P 500 followed the same method.

### 3. Systematic Risk:

The risk arises on account of the economy-wise uncertainties and the tendency of individual securities to move together with changes in the market is known as systematic risk or market risk. This type of risk cannot be controllable and avoidable. The diversification cannot reduce this type of risk. Investors are exposed to market risk even when they hold well-diversified portfolios of securities.

Example:

- Increase in corporate tax rate
- The interest rate policy is changed by the government
- Increase in inflation rate
- Massive deficit financing by the government
- Promulgation of restrictive credit policy by the Reserve Bank of India.

### 4. Unsystematic Risk:

The part of total risk, arises from the uncertainties which are unique to a firm or individual securities is known as

unsystematic risk. This type of risk is diversifiable if large number of securities are combined to form well-diversified portfolios. Though this part of total risk can not be totally reduced through diversification, a certain level of that risk can be controllable and avoidable. Unsystematic risk is the offshoot of business risk and financial risk unique to a firm.

Example:

- a) Workers' strike
- b) Entrance of formidable competitor in the market
- c) R & D Expert leave the organization
- d) Increase in custom duty by the government on the material used by the company

## VI. METHODOLOGY

### Selection of Sample:

The study has been conducted on State Bank of India, head office (H.O) at Mumbai, India. Data have been collected for this purpose in respect of Sensex (BSE) and share price of the SBI for the period of one months, from 15<sup>th</sup> March 2017 to 14<sup>th</sup> April 2017 from website [www.bseindia.com](http://www.bseindia.com). The sensex returns (independent variable) and company's share returns (dependent variable) have been worked out to study the relationship between both returns. Coefficient of correlation has been used to study the relationship between share price and market price. To study the significance of the relationship, 't-test' has been used at 5% significance level. Coefficient of determination has been used to find out the percentage of the variance of the company's returns explained by the changes in the Sensex returns. Bar Charts and Pie Charts have been prepared to represent the Sensex and share prices diagrammatically.

### Statistical Technique Used:

A number of statistical techniques have been used to realize the objectives of the present study. Arithmetic Mean (A.M), Standard Deviation (S.D), Coefficient of Correlation, coefficient of determination have been used to analysis and interpret the data. For testing hypothesizes, 't-test' of correlation coefficient has been used. Test has been conducted at 5% significance level. Diagrammatic representation of statistical data technique (Bar Chart, Line Chart) has been used to show the movement of Sensex and share price.

### Presentation of Data, Analysis and Findings:

In this phase we shall present the collected data diagrammatically and portray our findings of the study.



Fig-1

Figure I (Bar Chart)/Table I shows the variability of the company’s share returns. Most of the days (i.e., 11) of the studied period the figure shows the negative returns of the company’s shares. Only six days in the study period, the company has been able to earn positive returns on shares. A wide variation in the company’s returns on shares has been noticed within a small range.

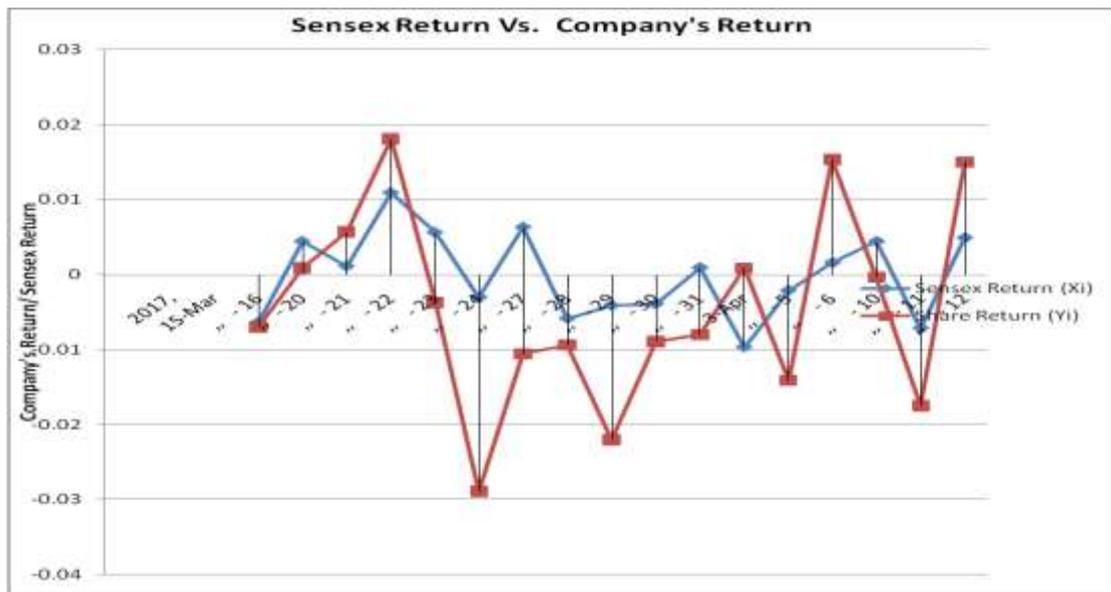


Fig-2

Figure II (Line Chart)/Table I shows a comparative picture of the company’s share returns and sensex / market returns. The figure shows a positive co-relational attitude of both the returns, from which it is very clear to reach a strong conclusion that Share prices are increases or decreases depending upon changes in Sensex except only few days. In other words it can be said that the figure shows a positive walking of company’s share returns and sensex returns.

Table I  
Calculation of Returns

Days	Sensex	Share Prices	Sensex Returns (Xi)	Share Returns (Yi)
2017, Mar- 15	29398.11	277.35		
„ - 16	29585.85	279.30	-0.006386	-0.006981
„ - 20	29518.74	273.90	0.004411	0.000912
„ - 21	29485.45	272.35	0.001129	0.005691
„ - 22	29167.68	267.50	0.010894	0.018130
„ - 23	29332.16	268.50	0.005607	-0.003724
„ - 24	29421.40	276.50	-0.003033	-0.028933
„ - 27	29237.15	279.45	0.006301	-0.010556
„ - 28	29409.52	282.10	-0.005861	-0.009393
„ - 29	29531.43	288.45	-0.004128	-0.022014
„ - 30	29647.42	291.05	-0.003912	-0.008933
„ - 31	29620.50	293.40	0.000908	-0.008009

Apr - 3	29910.22	293.15	-0.009686	0.000852
„ - 5	29974.24	297.35	-0.002135	-0.014124
„ - 6	29927.34	292.85	0.001567	0.015366
„ - 10	29575.74	289.35	0.004424	-0.000345
„ - 11	29788.35	294.50	-0.007137	-0.017487
„ - 12	29643.48	290.15	0.004887	0.014992

Source: Compiled by author

**Table II**

Results Relating to Risk-Return of SBI and Sensex

S. No.	Statistics	SBI	Sensex
1.	Average Return	-0.004	0.005
2.	Standard Deviation (S. D.)	0.013	0.006
3.	Correlation Coefficient	0.552	
4.	Coefficient of Determination	0.303	

Source: Compiled by author

**Table III**

Results of Statistical Tests

Variables	Tests	Calculated Value of 't' •	T.V. Of 't' at 5% Sig. level	Degrees of Freedom. (d.f.)	Hypo. Accpt. / Rejected (Ho/Ha)
1.Share Price Return Vs. Sensex Return	T – Test Of Correlation Coefficient	2.55	2.13	15	Ha

Source: Compiled by author

In Table III, the coefficient of correlation of two variables is 0.55. It indicates a moderate positive correlation between two sensex and share price. It means when the sensex goes up, share price also goes up. Again when the sensex goes down, share price also goes down. In Table III, the calculated value of 't' of both variables is 2.55. Tabulated value of 't' at 5% significance level of 15 d. f. is 2.13. Since the calculated value does exceed the tabulated value, it can also be concluded that there exists a significant relationship between sensex price and company's share price.

In Table II, Coefficient of determination i.e., 0.3025 (or 30.25%) indicates the percentage of the variance of the company's returns explained by the changes in the Sensex returns. Thus 30.25% of the company's variance of return (risk) is explained by the Sensex. This type risk is termed as market risk, which cannot be diversified or avoidable. The unexplained variance i.e., 69.75% (100% - 30.25%) is related to the company. This type of risk is called unsystematic risk, which can be diversified or avoidable. Studying the value of coefficient of correlation, it can be concluded that the company may diversify or control its major portion of the risk by taking different measures for risk reduction.

## VII. CONCLUSIONS

The study reveals that there exists a moderate positive relationship between Sensex and the company's share price. That means when the sensex goes up, share price also goes up. Again when the sensex goes down, share price also goes down. It also found that the relationship between sensex price and company's share price is significant.

## RECOMMENDATIONS

This study will be helpful to the investors, company's management and other stakeholders to understand the nature of the Sensex and company's share price.

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