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A STUDY ON ASSOCIATION AND EFFECT OF SELECTED SECTORS' INDICES IN BOMBAY STOCK EXCHANGE OF INDIA

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Abstract: The study aims to test whether there is an impact and relationship between the BSE Sensex and selected sectors. By placing the Sensex as a Dependent variable, this study has analyzed. Here the time series data has been applied to find the impact and relationship for study. In the contemporary economic expansion, interest rates are falling or fluctuating in the stock market which has forced the investors to think before making investments in the stock market or securities. Here, the study found the opportunities for investment decisions for framing an efficient portfolio. Investing in the stock market is risky in nature and investors have to face various issues after investing. These issues include risk, return, volatility of the financial securities, and liquidity, and also they are possible only when there is an impact and relationship between the selected sectors in Bombay Stock Exchange.

Keywords: *Impact and Relationship, Investment, Risk and Return, Stock Market.*

INTRODUCTION

The Indian capital market includes both the stock or the share market and the bonds market. Share or stock market is the market where equities are traded whereas the bond market is the market where debt securities are traded. The Capital Market is regulated by the Securities and Exchange Board of India (SEBI) or Securities and Exchange Commission (SEC) that supervise the market in their jurisdiction safeguarding that the investors are secure against fraud apart from other duties. The regulatory bodies lay down specific rules and regulations that must be adhered to safeguard the investor's interest.

The financial year of worries and beginnings is coming to an end. Many small businesses have raw due to their failure to meet working capital. On the other hand, some businesses have succeeded with business opportunities. As we end the last F&O expiry of financial year 2020-21, the bulls have come back aggressively. Out of the 12 expiries of the year 8 ended on a positive note while four in the negative. In other words, we have seen gains sixty six percentage of the time.

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STATEMENT OF PROBLEM

The Stock market is one of the essential indicators which indicate the performance of economic condition in a country. The business environment is facing more competition in this period. Different company stocks are traded in the stock market. The two major factors for investment are risk and return. There is no fixed risk and return in the stock market. So, trading in the stock market is risky for investors, if they are not aware of the stock market. It required proper analysis of risk and return. If the investors want to fulfill their financial obligation, they must know the economic development due to the stock market.

OBJECTIVE OF THE STUDY

- 1) To study the relationship between the S&P BSE Sensex index and selected sectoral indices of BSE of India.
- 2) To analyze the impact of selected sectoral indices returns on BSE SENSEX return.

RESEARCH METHODOLOGY**SOURCES OF DATA:**

This study represents on the portfolio of sectors. The data taken for the study is secondary in nature. The data used for analysis have been collected from monthly report of BSE sectors through Bombay Stock Exchange (BSE) official website, Money Control and also Journals.

PERIOD OF THE STUDY:

The study is conducted with the financial data for a period of ten years from 1st January 2011 to 31st December 2020.

SAMPLING TECHNIQUE:

Bombay Stock Exchange consists of many sectors and indices, among them only Top Six Sectors' index and the eminent Sensex index have been selected for study. According to market capitalization as on 21st January 2021, top ten sectors are chosen.

TOOLS USED:

For analysis the data, the researcher has used Regression and Correlation as tools.

HYPOTHESIS OF THE STUDY

Keeping the Objectives in view, the hypothesis are framed for the study is

H₀₁: There is no significant relationship between Sensex and Selected Sectoral indices of the Bombay Stock Exchange.

H₀₂: There is no significance impact of Selected Sectoral indices return on BSE Sensex return.

ANALYSIS AND INTERPRETATION

Correlation between Sensex and different sectors of the Bombay Stock Exchange

1. Correlation Analysis

Table-1 : Correlation of Sensex and Different Sectors Returns for the period of 2011

Correlation							
SENSEX	SENSEX	Bankex	Consumer Durable	Information Technology	Auto	Health Care	Capital Goods
	1						
Bankex	0.000	1					
Consumer Durable	0.001	0.000	1				
Information Technology	0.001	0.005	0.052	1			
Auto	0.000	0.000	0.002	0.014	1		
HealthCare	0.007	0.020	0.007	0.046	0.006	1	
Capital Goods	0.004	0.005	0.004	0.257	0.025	0.013	1

Table 1, it is observed that return of Sensex is positively correlated with all selected sectors of BSE return and Sensex return has listed lower most correlation with all sectors.

Table -2 : Correlation of Sensex and Different Sectors Returns for the period of 2012

Correlation							
	SENSEX	Bankex	Consumer Durable	Information Technology	Auto	Health Care	Capital Goods
SENSEX	1						
Bankex	0.000	1					
Consumer Durable	0.009	0.008	1				
Information Technology	0.176	0.476	0.198	1			
Auto	0.000	0.001	0.018	0.337	1		
HealthCare	0.087	0.104	0.431	0.983	0.117	1	
Capital Goods	0.000	.000	0.039	0.175	0.007	0.275	1

Table 2, it can be understood that return of Sensex is positively correlated with all selected sectors of BSE return and IT is identified as highly correlated.

Table -3 : Correlation of Sensex and Different Sectors Returns for the period of 2013

Correlation							
	SENSEX	Bankex	Consumer Durable	Information Technology	Auto	Health Care	Capital Goods
SENSEX	1						
Bankex	0.000	1					
Consumer Durable	0.006	0.027	1				
Information Technology	0.675	0.164	0.919	1			
Auto	0.003	0.001	0.025	0.082	1		
HealthCare	0.065	0.101	0.054	0.072	0.022	1	
Capital Goods	0.001	0.000	0.103	0.165	0.001	0.098	1

Table 3 demonstrates that return of Sensex is positively correlated with all selected sectors of BSE return and IT with Healthcare is highly correlated.

Table -4 : Correlation of Sensex and Different Sectors Returns for the period of 2014

Correlation							
	SENSEX	Bankex	Consumer Durable	Information Technology	Auto	Health Care	Capital Goods
SENSEX	1						
Bankex	0.001	1					
Consumer Durable	0.015	0.086	1				
Information Technology	0.746	0.049	0.810	1			
Auto	0.003	0.041	0.019	0.916	1		
HealthCare	0.601	0.055	0.778	0.000	0.660	1	
Capital Goods	0.000	0.000	0.005	0.273	0.020	0.181	1

Table 4, it is found that return of Sensex is positively correlated with all selected sectors of BSE return and IT and Healthcare is denoted as highly correlated.

Table -5 : Correlation of Sensex and Different Sectors Returns for the period of 2015

Correlation							
	SENSEX	Bankex	Consumer Durable	Information Technology	Auto	Health Care	Capital Goods
SENSEX	1						
Bankex	0.001	1					
Consumer Durable	0.065	0.071	1				
Information Technology	0.058	0.234	0.936	1			
Auto	0.001	0.003	0.002	0.194	1		
HealthCare	0.652	0.408	0.882	0.181	0.969	1	
Capital Goods	0.001	0.019	0.109	0.199	0.010	0.604	1

Table 5, it show return of Sensex is positively correlated with all selected sectors of BSE return and Healthcare is noted as highly correlated.

Table -6 : Correlation of Sensex and Different Sectors Returns for the period of 2016

Correlation							
	SENSEX	Bankex	Consumer Durable	Information Technology	Auto	Health Care	Capital Goods
SENSEX	1						
Bankex	0.000	1					
Consumer Durable	0.018	0.040	1				
Information Technology	0.013	0.033	0.188	1			
Auto	0.000	0.000	0.011	0.062	1		
HealthCare	0.071	0.045	0.015	0.976	0.054	1	
Capital Goods	0.000	0.000	0.085	0.046	0.000	0.084	1

Table 6, it show return of Sensex is positively correlated with all selected sectors of BSE return and Healthcare is correlated highly.

Table -7 : Correlation of Sensex and Different Sectors Returns for the period of 2017

Correlation							
	SENSEX	Bankex	Consumer Durable	Information Technology	Auto	Health Care	Capital Goods
SENSEX	1						
Bankex	0.000	1					
Consumer Durable	0.999	0.760	1				
Information Technology	0.068	0.330	0.991	1			
Auto	0.016	0.027	0.519	0.708	1		
HealthCare	0.481	0.886	0.834	0.721	0.900	1	
Capital Goods	0.019	0.007	0.564	0.843	0.036	0.286	1

Table 7, it show return of Sensex is positively correlated with all selected sectors of BSE return and Consumer durable is correlated highly.

Table -8 : Correlation of Sensex and Different Sectors Returns for the period of 2018

Correlation							
	SENSEX	Bankex	Consumer Durable	Information Technology	Auto	Health Care	Capital Goods
SENSEX	1						
Bankex	0.000	1					
Consumer Durable	0.080	0.057	1				
Information Technology	0.010	0.208	0.877	1			
Auto	0.001	0.016	0.006	0.132	1		
HealthCare	0.116	0.419	0.289	0.033	0.083	1	
Capital Goods	0.003	0.000	0.007	0.201	0.007	0.289	1

Table 8, it show return of Sensex is positively correlated with all selected sectors of BSE return and it identified highly correlated sector was Consumer durable.

Table -9 : Correlation of Sensex and Different Sectors Returns for the period of 2019

Correlation							
SENSEX	SENSEX	Bankex	Consumer Durable	Information Technology	Auto	Health Care	Capital Goods
	1						
Bankex	0.000	1					
Consumer Durable	0.008	0.086	1				
Information Technology	0.522	0.199	0.886	1			
Auto	0.061	0.394	0.049	0.301	1		
HealthCare	0.176	0.490	0.902	0.839	0.317	1	
Capital Goods	0.013	0.024	0.003	0.134	0.057	0.442	1

Table 9, it show return of Sensex is positively correlated with all selected sectors of BSE return and Healthcare is noted as highly correlated.

Table -10 : Correlation of Sensex and Different Sectors Returns for the period of 2020

Correlation							
SENSEX	SENSEX	Bankex	Consumer Durable	Information Technology	Auto	Health Care	Capital Goods
	1						
Bankex	0.000	1					
Consumer Durable	0.000	0.001	1				
Information Technology	0.005	0.101	0.012	1			
Auto	0.000	0.002	0.004	0.018	1		
HealthCare	0.005	0.120	0.046	0.006	0.001	1	
Capital Goods	0.000	0.000	0.000	0.060	0.000	0.040	1

Table 10, it show return of Sensex is positively correlated with all selected sectors of BSE return.

2. Regression Analysis

Table - 1 : Model Summary for the period of January 2011 to December 2020

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.977 ^a	.954	.952	1.11542	2.021

a. Predictors: (Constant), Capital Goods, Information Technology, Healthcare, Consumer Durable, Auto, Bankex

b. Dependent Variable: SENSEX

Source: Compiled and Calculated from Bombay Stock Exchange

The above Table 1 displays the model summary of the impact of selected sectors return on BSE SENSEX return. When the Sensex return is the dependent variable, R is 0.977 which means that there is a very strong impact. R-Square is .954 which indicates 95.4% of the impact is accounted. It shows the independent variable return is influenced by the dependent variable return. The adjusted R square value is .952, implying that the model has accounted for 95% of the variance in the dependent or criterion variable. The value of the Durbin-Watson statistic is 2.021 representing that the model is not suffering from auto-correlation. This says that stock price displaying negative autocorrelation would indicate that the price yesterday has a positive correlation on the price today.

H₀: There is no significance impact between Selected Sectoral indices return among BSE SENSEX return.

Table - 2: ANOVA for the period of January 2011 to December 2020

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	2948.619	6	491.437		
Residual	140.591	113	1.244	394.992	.000
Total	3089.210	119			

a. Dependent Variable: SENSEX

b. Predictors: (Constant), Capital Goods, Information Technology, Healthcare, Consumer Durable, Auto, Bankex

Source: Compiled and Calculated from Bombay Stock Exchange

Table 2 clarifies the ANOVA for Sensex and selected sectors for the research period of January 2011 to December 2020. ANOVA table shows the significant value of .000 which is less than 0.05 levels of significance. So, it can be concluded that BSE SENSEX return and selected sectors return is significant, and selected sectors return is influencing the SENSEX return in Bombay Stock Exchange in India. So, there is a significant between selected sectors' return among BSE Sensex return and it has the impact on the selected sectors among the BSE Sensex. Hence, the null hypothesis is rejected at a 5% level of significance for the selected sector's return among BSE Sensex returns in the study period.

H₀: There is no significance between Selected Sectoral indices return among BSE SENSEX return.

Table - 3 : Regression Analysis Coefficient for the period of January 2011 to December 2020

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-.100	.108		-.924	.358		
Bankex	.353	.026	.562	13.700	.000	.239	4.181
Consumer Durable	.007	.021	.009	.321	.749	.475	2.106
Information Technology	.215	.018	.266	11.906	.000	.806	1.240
Auto	.154	.026	.220	5.909	.000	.292	3.428
Healthcare	.072	.024	.076	2.989	.003	.624	1.602
Capital Goods	.067	.025	.109	2.655	.009	.238	4.208

Dependent Variable: SENSEX

Source: Compiled and Calculated from Bombay Stock Exchange

The above Table 3 displays the coefficient for impact of return of sectors on Sensex return performance for the study period January 2011 to December 2020. It implies that five sectors are significant at the 5% level and only one sector is insignificant that is more than a 5% level of significant value. The beta value shows a positive relationship with SENSEX return. The Multi-Collinearity analysis is showing is suitable for this study because the Variance Inflation Factors (VIF) value is below 5. It shows that the data is not suffering from a Multi-Collinearity problem for this study period. Hence, the null hypothesis is accepted for BSE Consumer Durable sector and the null hypothesis is rejected for BSE Bankex, BSE IT, BSE Auto, BSE Healthcare, and BSE Capital Goods sectors.

CONCLUSION

The study found that all sectors are positively correlated with Sensex. The average daily return of the selected sectors has performed and provided better over the study period. There also exists a significant relationship between Sensex and selected sectors in 2011 and 2020 and in the remaining period they are not significant. The market situation showed that there is an impact with these Sensex indexes. There will be fluctuations in economic development due to these sectors. It is concluded that the sectors' indices have an impact on BSE Sensex return.

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