

PERFORMANCE OF SECTORAL INDICES IN BOMBAY STOCK EXCHANGE

Dr.R.Kasi Raman ^[1] Indhuja M ^[2] Singalakshmi M ^[3] Oviya P ^[4]

^{[1][2][3][4]} Department of Management Studies, PSR Engineering College, Sivakasi, India.

ABSTRACT

The study entitled “Impact of Earnings Per Share, Dividend Per Share, Price Earnings Ratio on behavior of Market prices was conducted in Goodwill wealth management ltd., The study was undertaken to know whether the Earnings Per Share, Dividend Per Share and Price Earnings Ratio can be used as a significant explanatory variable for predicting share Market prices.

Through this study the impact of Earnings Per Share, Dividend Per Share, Price Earnings Ratio on share price of selected industries have been analyzed, the strength of association of variables have also been measured.

The study was conducted by collecting data from various websites and magazines. The selected companies were those companies which are listed and activity traded with high volumes in BSE. The data were collected from 25 companies of 5 sectors 15 companies from each sectors company 5 years (2016-2020) data were taken for the study.

The collected data were exploratory data's which was measured through simple Correlation analysis and Multiple regression analysis. The analysis shows that share price of various companies are not affected by the independent variables and only few industries are affected.

Keywords : Association, Websites

1.Introduction

Capital Market plays an important role in the economy of a country because it serves mainly two functions. First, Capital Market serves as an alternative for a company's capital resources. The capital gained from the public offering, could be used for the company's business development, expansion, and so on. Second, it serves as an alternative for public investment. The people could invest their hard earned money, according to their preferred returns and risk characteristics of each instrument (**Napitupulu, T.A and Wijaya, Y. B., 2013**).

Capital Market is the market system in which long term financial instruments, such as bonds, equities, mutual funds and derivative instruments, are traded. It serves as an alternative for a company's capital resources and public investment which could be used for infrastructures needed for the development of the firms in the long run. Over the past few decades, the infrastructure development has been playing an increasingly important role in promoting sustainable economic development. The development of capital markets has also been recognized as an important for sustaining the economic development (**Masahiro Kawai and Andrew Sheng, 2012**).

A Stock Exchange provides a platform to trade equity stocks and other securities. It also provides facilities for the issue and redemption of securities as well as other financial instruments. The securities traded on a stock exchange include shares issued by companies, indices, pooled investment products and bonds. There are 23 stock exchanges which include two primary entities, BSE and NSE and 21 other regional exchanges. The BSE and NSE are the most influential Stock Exchanges in India. The Bombay Stock Exchange Limited, often referred to as the BSE, was originally established in 1875. BSE is the Oldest Stock Market in the entire Asian Continent. The National Stock Exchange of India was originally established in the City of Mumbai in 1992.

2. Objectives of the Study

1. To measure the performances of Sectoral Indies of Bombay Stock Exchange.
2. To identify the share price movement of selected sectoral indices in BSE.
3. To analyse the share price variations by using suitable statistical methods.
4. To evaluate the overall progress of the share price movement of sectoral indices in BSE with reference to annual average movement.

3. Review of Literature

Kavitha.C (2015)¹ finds that there is a significant relationship between the investors' attitudes and stock market investments. The more positive attitude enhancement strategies are introduced, the more it is easy for local investors to invest in the stock market. Further, there is a significant relationship between the local investor's perception of stock market regulations and their Intention to participate at NSE. To have more local investors participating on the NSE, efforts should be directed towards stronger Regulation and creation of more awareness.

SakshiSaxena et al.(2016)² Herd behaviour may also cause abnormal market volatility as investors start following market consensus rather than believing on their own financial decisions. Such kind of behaviour disturbs market equilibrium. The present study provides estimates to the body of literature of a different time frame about presence of herd behaviour. Investigation of herd behaviour in Indian stock market will develop a new insight about the way investors make investment decisions and strategies. It also helps us in understanding the risk aptitude of Indian stock market as well as about the efficiency status. Lack of confidence among retail investors can lead to following the decisions of the market consensus, since they are unable to take their own decisions. Investors can also follow herd behaviour because of the optimism as they may feel that when market is in increasing state, following

Joseph Anbarasu D and Srinivasan S (2009)³ in their article entitled, "Price Volatility An Evaluation of the Indian stock Market During Global Financial Crisis", examined whether the Indian stock market during the time of financial crisis and the meltdown across the world, adjusted to the new information or not. The study found that there existed fatter tail and greater risk of extreme outcomes.

Selvam. M, et.al (2010)⁴ in their study entitled, "Analysis of Market Efficiency of BSE-PSU Index", Studied the market efficiency of the sample companies listed on the BSE Index. The study found that the PSU Index performed well during the study period and the investors of PSU companies earned maximum return through stock market operations.

Kasilingam Lingaraj et al. (2014)⁵ in their research article entitled, The Stock Market Efficiency of Emerging Markets: Evidence from Asian Region, investigated the efficiency of stock market and volatility behavior of eight Asian emerging market indices. The Econometric models (GARCH, Autocorrelation and Runs Test) were used to test the volatility and market efficiency of Asian emerging stock markets. Besides, the long run relationship was studied. This paper provided significant evidences for market efficiency and randomness distribution in these emerging Asian markets.

¹Kavitha.C (2015) "Investors Attitudes towards Stock Market Investment", International Journal of scientific research and management, Vol3(7),2015,pp3356-3362.

² SakshiSaxena, Harish Purohit and VibhaDuaSatija "Retail Investors" Herding Behaviour: Determinant of" SCMS Journal of Indian Management, Vol XIII (2)2016pp 56-71

³ Joseph Anbarasu.D.Srinivasan.S(2009). Price volatility: An Evaluation of the Indian Stock Market During Global Financial Crisis.

⁴ Selvam.M, Indhumathi.G, Rajesh Ramkumar.R(2010). Analysis of Market Efficiency of BSE-PSU Index.

Chin Wen Cheog (2016)⁶ investigated the Weak Form Market Efficiency using daily returns of nine sectoral indices in the Malaysian Stock Market. The study observed that the sectoral indices of Malaysian Stock Markets were inefficient of weak-form.

4. RESEARCH METHODOLOGY

Sample Selection

The present study tests the behavior of sectoral indices listed in BSE. As on 30st, March 2021, there were 19 index were indexed in BSE Sectoral and Industry Index. Based on its turnover value in the market, it is decided to consider top 5 indices from BSE Sectoral index. The details of sample indices and sample companies listed in those sample indices and value of Turnover.

Index adopted in the Study

- S&P BSE Finance
- S&P BSE Industrials
- S&P BSE BANKEX
- S&P BSE Consumer Discretionary GS
- S&P BSE AUTO

Sources of Data

The study was mainly based on secondary data i.e, daily returns of BSE sectoral indices. The details regarding sample indices were collected from BSE official website www.bseindia.com while the daily returns of sample indices. The other required data were collected from various websites, books and journals.

5. Findings

(a) Descriptive Statistics

Descriptive Statistics was used to identify the measure of average return and risk. Measures of central tendency include the mean while measures of variability include standard deviation, skewness and kurtosis. Descriptive Statistics provided a useful summary of security returns and the historical account of return behavior. Although past information is useful in any analysis, one should always consider the expectations of future events.

i) Mean

Mean is the average value of the series, obtained by adding up the series and dividing by the number of observations. It is the most common measure of central tendency.

The mean is calculated by using the following formula.

$$\text{Mean } (\bar{x}) = \frac{\sum xi}{n}$$

Where,

\bar{x} = represents the mean,

Σ = Symbol of Summation

X_i = Value of the i^{th} item x , $i= 1, 2, 3 \dots n$,

n = total number of items

ii) Standard Deviation

⁶ Chin Wen Cheog (2016). A Sectoral Efficiency Analysis of Malaysian Stock Exchange under Structural Bank

Standard Deviation is the square root of the mean of the squared deviation from the arithmetic mean. It measures the absolute dispersion, greater the standard deviation, greater will be the magnitude of the deviation of the values from their mean. A small standard deviation means a high degree of uniformity of the observation as well as homogeneity of a series. A large standard deviation means just the opposite. The standard deviation of a random variable X is defined as:

$$\begin{aligned} \sigma &= \sqrt{E((X - E(X))^2)} = \sqrt{E(X^2) - (E(X))^2} \\ &= \sqrt{Var(X)} \end{aligned}$$

Where,

$E(X)$ is the expected variable of X

$Var(X)$ is the variance of X .

iii) Skewness

Measures of skewness tell us the direction and the extent of skewness. Skewness is a measure of symmetry, or more precisely, the lack of symmetry. A distribution of data set is symmetric if it looks the same to the left and right of the centre point. The skewness for a normal distribution is zero and any symmetric data should have skewness near zero. Negative values for the skewness indicate that data are skewed left and positive values for the skewness indicate that data are skewed right. The skewness is calculated as follows.

$$\gamma_1 = \frac{\mu_3}{\sigma^3}$$

Where,

μ_3 is the third movement about the mean

σ is the standard deviation

iv) Kurtosis

Kurtosis measures the amount of peakedness of distribution. A flatter distribution than normal distribution is called Platykurtic. A more peaked distribution than the normal distribution is referred to as Leptokurtic. Between these two types of distribution, there is a distribution which is normal in shape, referred to as a mesokurtic Distribution. A negative kurtosis value implies a platykurtic distribution and a positive kurtosis value implies a leptokurtic distribution. The kurtosis is defined as.

$$\gamma_2 = \frac{\mu_4}{\sigma^4}$$

Where,

μ_4 is the fourth movement about the mean

σ is the standard deviation

Result of Descriptive Statistics for Sectoral Indices During The Period From 01st January 2020 To 30th December 2020

	S&P BSE AUTO	S&P BSE BANKEX	S&P BSE CONSUMER DISCRETIONARY GOODS&SERVICES	S&P BSE FINANCE	S&P BSE INDUSTRIALS
Mean	0.00047	-8.57E-05	0.000734	-8.57E-05	0.00065
Median	0.002584	0.001782	0.002651	0.001782	0.002489

Maximum	0.097632	0.101692	0.607656	0.101692	0.052469
Minimum	-0.143339	-0.184006	-0.136051	-0.184006	-0.146523
Std. Dev.	0.022708	0.027857	0.018653	0.027857	0.019773

shows the results of descriptive statistics for sample stock market indices during the study period from 01-01-2020 to 31-12-2020. Summary statistics, namely, mean, minimum, maximum, and standard deviation (SD) were used to analyse the sample indices return during the study period.

It is clear from the Table that during the study period, the index of nifty energy earned high mean value of 0.000734, S&P BSE INDUSTRIALS with a value of 0.00065. The mean returns of sample indices i.e. S&P AUTO (0.00047) and S&P BSE BANKEX (-8.57E-04), S&P BSE FINANCE (-8.07E-05), S&P BSE INDUSTRIALS (0.00065) during the study period. In terms of market unpredictability, as measured by the standard deviation of daily returns, S&P BSE BANKEX (0.012726), followed by S&P BSE AUTO (0.015022), S&P BSE FINANCE (0.012726), S&P BSE CONSUMER DISCRETIONARY GOODS & SERVICES (0.010345) and S&P BSE INDUSTRIALS (0.011964). This indicates the fact that high risk is useful for speculators but the investors may carefully study the market risk and carefully take investment decision of portfolio diversification.

Result of Normal distribution for Sectoral Indices During The Period From 01st January 2020 To 31st December 2020

	S&P BSE AUTO	S&P BSE BANKEX	S&P BSE CONSUMER DISCRETIONARY GOODS&SERVICES	S&P BSE FINANCE	S&P BSE INDUSTRIALS
Skewness	-1.032442	-2.015924	-2.015924	-1.333917	-2.462925
Kurtosis	11.79731	16.10834	16.10834	11.57142	16.88773
Jarque-Bera	857.3914	1974.887	1974.887	846.1599	2279.909
Probability	0	0	0	0	0
Sum	0.118546	0.185062	0.185062	-0.021585	0.16373
Sum Sq. Dev	0.129429	0.087331	0.0887331	0.194784	0.09813
Observation	252	252	252	252	252

shows the results of normal distribution for sample stock market indices during the study period from 01-01-2020 to 31-12-2020. Skewness, kurtosis and the Jarque- Bera were used to analyse the normal distribution of sample indices during the study period.

The analysis of skewness shows that values for all sample indices, except S&P BSE AUTO (-1.032442) and S&P BSE FINANCE (-1.333917). It is significant to note that the value of kurtosis all sample indices were large than three. Besides, the Jarque-Bera (JB) values of the sample indices implied that all the sample indices were normally distributed. Hence the Null Hypothesis (NH1), there is no normal distribution among the Indices of Emerging Asian Stock Markets, was rejected.

The Coefficient of Correlation (r)

$$r = \frac{n(\sum XY) - (\sum X)(\sum Y)}{\sqrt{n\sum X^2 - (\sum X)^2} \sqrt{n\sum Y^2 - (\sum Y)^2}}$$

**Result of Correlation for Sectoral Indices During The Period From
01st January 2020 To 31st December 2020**

	S&P BSE AUTO	S&P BSE BANKEK	S&P BSE CONSUMER DISCRETIONARY GOODS&SERVICES	S&P BSE FINANCE	S&P BSE INDUSTRIALS
S&P BSE AUTO	1	0.78989538338	0.958876867	0.789538338	0.853848988
S&P BSE BANKEK	0.789538338	1	0.832254114	1	0.827366309
S&P BSE CONSUMER DISCRETIONARY GOODS&SERVICES	0.958876867	0.832254114	1	0.832254114	0.902507062
S&P BSE FINANCE	0.789538338	1	0.832254114	1	0.827366309
S&P BSE INDUSTRIALS	0.853848988	0.827366309	0.902507062	0.827366309	1

Table 3.15 shows the results of correlation among the sample Sectoral indices in BSE . According to the results of the Table, the values of correlation ranged from 0.958876867 (S&P BSE CONSUMER DISCRETIONARY GOODS&SERVICES- S&P BSE AUTO) to 0.853848988 (S&P BSE AUTO- S&P BSE INDUSTRIALS) ,1(S&P BSE BANKEK- S&P BSE FINANCE), 0.789538338 (S&P BSE FINANCE- S&P BSE AUTO), 0.902507062 (S&P BSE INDUSTRIALS- S&P BSE CONSUMER DISCRETIONARY GOODS&SERVICES),0.853848988 (S&P BSE INDUSTRIALS- S&P BSE AUTO), 0.827366309 (S&P BSE FINANCE- S&P BSE INDUSTRIALS), 0.832254114 (S&P BSE CONSUMER DISCRETIONARY GOODS&SERVICES- S&P BSE FINANCE). Hence the Hypothesis (NH3), there is no relation between the sectoral Indices was rejected.

**Result of Chart for Sectoral Indices During The Period From
01st January 2020 To 31st December 2020**





Figure 5 shows the movements of sectoral indices (S&P BSE FINANCE, S&P BSE AUTO, S&P BSE BANKEX, S&P BSE CONSUMER DISCRETIONARY GOODS&SERVICES, S&P BSE INDUSTRIALS) during the study period from 01st January 2020 to 31st December 2020. It is clear from the Figure that selected indices were fluctuating highly during the above period.

6. Suggestions of the Study

It is important and useful for the investors to examine the performance of indices in stock market. The study found that among the selected sectoral indices S&P BSE Bankex and Finance were performed well during the study period from 1st January, 2016 to 31st December, 2020. It is suggested that the investors of the stock market need to analysis the performance of sectoral indices in stock market. This study found that there is relationships exist between the selected sectoral indices in BSE. Further, this study suggests to include the sectoral indices of BSE indices to the investment portfolio for better return. The improved policies may assist in deepening the financial market and further improving the market performance in future for helping the investors.

7. Conclusion

The growth of economy also depends on the development of financial markets. The performance of the sectoral indices exemplified about the increasing sector in the country. The regulators and policy makers should pay attention to the performance of sectoral indices in Indian stock market. It is support to identify the behavior and

return of the indices during the study period. It guides the investors to make better portfolio diversification for the betterment of their investment.

REFERENCES

• BOOK

- Avadhani V.A. (2001). Investment Management. Himalaya Publishing House, Mumbai
 Kevin S (2015). Security Analysis and Portfolio Management. PHI Learning, New Delhi.

• WEBSITE

- www.bseindia.com
www.nseindia.com

• JOURNAL

- Abdalla I S A and Murinde Victor (1997), "Exchange Rate and Stock Price Interactions in Emerging Financial Markets: Evidence on India, Korea, Pakistan and the Philippines", *Applied Financial Economics*, Vol. 7, No. 1, pp. 25-35.
- Abken A P (1980), "The Economics of Gold Price Movements", *Economic Review*, Vol. 66, pp. 3-13, Federal Reserve Bank of Richmond.
- Agrawal Gaurav and Srivastava Ankita (2011), "Stock Market Returns and Exchange Rates Volatility: A GARCH Application", *Research Journal of International Studies*, Vol. 20, pp. 12-23.
- Agrawalla R K and Tuteja S K (2007), "Causality Between Stock Market Development and Economic Growth: A Case Study of India", *Journal of Management Research*, Vol. 7, No. 3, pp. 158-168.
- Blitz, D., Pang, J., & Vliet, P. van. (2013). The volatility effect in emerging markets. *Emerging Markets Review*, 16, 31-45. <http://dx.doi.org/10.1016/j.ememar.2013.02.004>
- Choudhry, T. (1996). Stock Market Volatility and the Crash of 1987: Evidence from Six Emerging Markets. *Journal of International Money and Finance*, 15(6), 969-981.
- Cooray, A.V. (2007). The efficiency of emerging stock markets: Empirical evidence from the South Asian region. *Journal of Developing Areas*, 41(1), 171-183. Retrieved from <http://ro.uow.edu.au/commpapers/564>
- Dimitrakopoulos, D. N., Kavussanos, M. G., & Spyrou, S. I. (2010). Value at risk models for volatile emerging market equity portfolios. *The Quarterly Review of Economics and Finance*, 50, 515-526. <http://dx.doi.org/10.1016/j.qref.2010.06.006>
- Eizaguirre, J. C., Biscarri, J. G., & Hidalgo, F. P. de G. (2004). Structural changes in volatility and stock market development: Evidence for Spain. *Journal of Banking & Finance*, 28, 1745-1773. <http://dx.doi.org/10.1016/j.jbankfin.2003.06.004>
- Gil-Alana, L. A., Shittu, O. I. & Yaya, O. S. (2014). On the persistence and volatility in European, American and Asian stock bull and bear markets. *Journal of International Money and Finance*, 40, 149-162. <http://dx.doi.org/10.1016/j.jimonfin.2012.12.002>
- Jaleel, F. M., & Samarakoon, L. P. (2009). Stock market liberalization and return volatility: Evidence from the emerging market of Sri Lanka. *Journal of Multinational Financial Management*, 19, 409-423. <http://dx.doi.org/10.1016/j.mulfin.2009.07.006>
- Lagoarde-Segot, T., & Lucey, B. M. (2008). Efficiency in emerging markets-Evidence from the MENA region. *Journal of International Financial Markets, Institutions and Money*, 18, 94-105. <http://dx.doi.org/10.1016/j.intfin.2006.06.003>
- Lim, C. M., & Sek, S. K. (2013). Comparing the performances of GARCH-type models in capturing the stock market volatility in Malaysia. *Procedia Economics and Finance*, 5, 478-487. [http://dx.doi.org/10.1016/S2212-5671\(13\)00056-7](http://dx.doi.org/10.1016/S2212-5671(13)00056-7)

- Lingaraja, K., Selvam, M., & Vasanth. V. (2014). Co Movements and Inter-Linkages among Emerging and Developed Stock Markets in Asia with Reference to Singapore Stock Exchange. *International Research Journal of Finance and Economics*, 122, 102-120.
- Nartea, G. V., & Wu, J. (2013). Is there a volatility effect in the Hong Kong stock market? *Pacific-Basin Finance Journal*, 25, 119-135. <http://dx.doi.org/10.1016/j.pacfin.2013.07.004>
- Plesoianua, A., Todea, A., & Capusan, R. (2012). The informational efficiency of the Romanian stock market: evidence from fractal analysis. *Procedia Economics and Finance*, 3, 111-118. [http://dx.doi.org/10.1016/S2212-5671\(12\)00128-1](http://dx.doi.org/10.1016/S2212-5671(12)00128-1)
- Queensly Jeyanthi, B. J., Albert, M., & William, S. J. (2009). An Empirical Analysis of Dynamic Linkages: A Case of India, Japan, Singapore and USA Stock Markets. *SMART Journal of Business Management Studies*, 5(1), 58-64.
- Rejichi, I. Z., & Aloui, C. (2012). Hurst exponent behavior and assessment of the MENA stock market efficiency. *Research in International Business and Finance*, 26, 353-370. <http://dx.doi.org/10.1016/j.ribaf.2012.01.005>
- Selvam, M., Raja, M., & Yazh Mozli, P. (2007). Forecasting the Time Volatility of Emerging Asian Stock Market Index. *Asia-Pacific Business Review*, 8(2), 27-37. <http://dx.doi.org/10.1177/097324700700300205>
- Sharma, J. L., & Kennedy, R. E. (1977). A Comparative Analysis of Stock Price Behavior on the Bombay, London and New York Stock Exchanges. *Journal of Financial and Quantitative Analysis*, September, 183-190.
- Syed Aun R. R., Dewandaru, G., Bacha, O. I., & Masih, M. (2014). An analysis of stock market efficiency: Developed vs Islamic stock markets using MF-DFA. *Physica A*, 407, 86-99. <http://dx.doi.org/10.1016/j.physa.2014.03.091>
- Wang, P., & Theobald, M. (2008). Regime-switching volatility of six East Asian emerging markets. *Research in International Business and Finance*, 22, 267-283. <http://dx.doi.org/10.1016/j.ribaf.2007.07.001>