A Study of S&P CNX Nifty Fifty and Its Performance Comparison with Selected NSE Sectoral Indices

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Abstract – The benchmark index of national stock exchange S&P CNX NIFTY Fifty Index is an indicator to track the stock movement of the NSE. The study put forth is an attempt to describe the correlation of returns of NIFTY with the 9 selected sectorial indices. To analyze the correlation, returns (daily) of the various indices were calculated from 01/01/201/ to 31/12/2018. The results have shown that in a given year IT index have outperformed the considered benchmark index NIFTY. Financial services index has highest correlation with NSE Nifty at 0.887 fallows by Bank Index correlation with nifty is 0.869 and IT has least correlation with NSE Nifty index at 0.359.

Keywords – NSE(National Stock Exchange) Benchmark Index, S&P CNX NIFTY Fifty, Sectorial Indices and Correlation analysis.

- X -

1.   INTRODUCTION

Nifty 50 is sufficiently diversified benchmark index of national stock exchange of India. It covers all the important sectors of Indian economy and acts as a face of Indian economic performance. The broad market indices of national stock exchange covers the overall behavior of equity markets it is a group of 50 stocks that have representation of entire segment of the market. The index is designed in such a way that it represents about 65% of the total market capitalization although free float. The movement of indexes are seen as an indicator of the performance of the economy as a whole. The performances of the indices are the leading indicators of the economy. The S&P CNX Nifty the benchmark index of National Stock Exchange of India Ltd. (NSE). The index replicates the performance of the representative stocks of different sectors of the Indian economy. The following table shows the major sector representation of the S&P CNX.

Nifty Sector	Weight(%)
FINANCIAL SERVICES	37.78
ENERGY	15.29
IT	14.77
CONSUMER GOODS	10.85
AUTOMOBILE	6.46
METALS	3.89
CONSTRUCTION	3.74
PHARMA	2.45
TELECOM	1.51
CEMENT & CEMENT PRODUCTS	1.50
FERTILISERS & PESTICIDES	0.67
SERVICES	0.60
MEDIA & ENTERTAINMENT	0.49

1.1   Sectoral Indices

Name of the Indices	Market Representation
The Nifty Auto Index: It comprises 15 companies shares listed in NSE. Automobile sector includes all types of light and heavy vehicles and motorcycle, auto parts or ancillary manufacturing companies including tyres etc,	• It covers 91.1% of the whole automobiles sector of the NSE. As on March 31, 2016.
Bank Index of NSE comprises most liquid and large capitalized Indian	• It covers 93.3% of the whole banking

Banking stocks. It has 12 stocks from the Indian banking sector.	sector of the NSE. As on March 31, 2016.
Financial Services Index of NSE is considered to imitate the performance and behaviour of financial markets. It includes banks, financial institutions, housing finance, insurance companies and other financial services companies. It comprises 20 stocks.	• It covers 75.8% of the whole Finance sector universe as on March 31, 2016.
Index for FMCGs (Fast Moving Consumer Goods) comprises of maximum of 15 companies for this sector.	• It covers 80.4% of whole FMCG universe as on March 31, 2016.
Information Technology (IT) index is calculated with 10 companies and each companies have been given 25% weight-age in the Index.	It covers 91.9% of the whole IT sector as on March 31, 2016.
Media Index of NSE intended to generate the returns of the Media & Entertainment sector including printing and publishing.	• It covers the 72.8% of the whole Media & Entertainment universe of NSE as on March 31, 2016. •
Metal Index of NSE is intended to reflect the behavior and performance of the Mining and Metals sector of India. It comprises of maximum of 15 stocks that are listed on the National Stock Exchange.	• It covers 87.9% of the stocks forming part of the Metals universe of NSE as on March 31, 2016.
Pharma Index of NSE is intended to capture the performance and returns of the companies in this sector.	• It covers 79.9% of the Pharmaceutical sector universe of NSE as on March 31, 2016.
The Realty Index of NSE is to tap the rising opportunities of the sector as new investment avenues for investors.	It covers the 71.1% of the whole stocks forming part of the Realty sector universe as on March 31, 2016.

2. LITERATURE REVIEW

Philipp Fasnacht & Henri Loeberge (2007) they researched international stock market and analysed correlations among them. They found that sectoral correlation was apparent and they follow the benchmark index behavior.

Rakesh Gupta & Parikshit. K. Basu (2008) they used DCC GARCH estimates of correlation and found that correlations were changing with the time. They studied 10 industrial sectors.

Tarun Chordia, Amit Goyal & Qing Tong (2011) they studied with the help of regression analysis and arrived at a conclusion that the trading activity of small stocks are correlated by the low institutional holdings

Nagendra, M. (2018) He studied the monthly average returns and correlated with sectorial indices and found that some of the returns of the sectoral indexes are positively correlated and some of the negatively correlated.

Ali, I., & Talukdar, A. K. (2017). in their study they examined the volatility and the relationships between returns of the selected stocks of NSE india using GARCH and EGARCH model. They found the impact of news on the performances of the stocks and indices.

3. OBJECTIVES

On the basis of the above literature review following objectives being formed

► To study the correlation between NIFTY and Sectoral indices.

► To Study the correlation among the Sectoral Indices.

4. METHODOLOGY

Present study is a descriptive research type where correlation technique is applied to assess study the correlation among the different indexes. The indexes used to study are NIFTY the benchmark index of NSE and 9 other selected sectoral indexes. To analyse the correlation daily returns of the indexes are collected from the official website of national stock exchange of India during 01 January 2018 to 31 December 2018.

4.1 Statistical Tools Applied

Correlation Analysis has been applied to analyze the correlation among the selected indices. Correlation analysis is applied to study the potency of a relationship among variables in this study variables are the returns of the indices. Through the analysis we can prove the connections among the variables. In the present study with the help of XLSTAT correlation analysis was applied. The formula of the Correlation analysis is as follows

Dr. Robin Thomas[1]* Dr. Shailesh Singh Thakur[2]

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

4.2 Calculation of Returns of the selected indices

The following formula was applied to calculate the daily returns

$$\text{Daily returns} = \ln\frac{\text{Closing Point of an Index}}{\text{Opening point of an Index}}$$

Where "ln" means the Log

5. LIMITATIONS OF THE STUDY

The sample taken for the study is of daily returns of one year only which may not the true population of the universe. And market conditions are not same every day the dynamics of the markets may affect the returns on short period of time.

6. DATA ANALYSIS AND INTERPRETATION

The following chart shows the average annual returns of the various indices along with the broad market index. Where over the last year broad market index was able to secure only 1.67% but IT index outperformed the market and have given 9.060% followed by FMCG, Financial Services and Banking Index. The worst performance was of reality index followed by Media index, Auto index, Metal index and Pharma Index all were giving negative returns in the year 2018.

6.1 Chart 1 One Year Average Returns
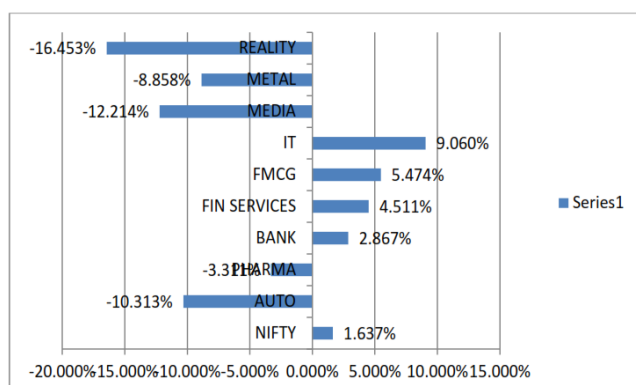
6.2 Correlation of the Selected Indices With NSE Nifty

The following table 1 shows that, financial services index has highest correlation with NSE Nifty at 0.887 fallows by Bank Index correlation with nifty is 0.869 and IT has least correlation with NSE Nifty index at 0.359. It has been found that, all the nine Indexes correlations with NSE Nifty is positively correlated, it

means that all the returns of the indexes are moving along with NSE Nifty index.

Table 1 One Year Returns Correlation Matrix

INDEICES	AUTO	PHARMA	BANK	FIN SERVICES	FMCG	IT	MEDIA	METAL	REALITY	NIFTY
AUTO	1	0.489	0.666	0.681	0.581	0.118	0.570	0.584	0.663	**0.789**
PHARMA	0.489	1	0.452	0.439	0.375	0.288	0.485	0.446	0.483	**0.563**
BANK	0.666	0.452	1	0.947	0.547	0.113	0.535	0.529	0.590	**0.869**
FIN SERVICES	0.681	0.439	0.947	1	0.543	0.115	0.569	0.518	0.592	**0.887**
FMCG	0.581	0.375	0.547	0.543	1	0.208	0.412	0.392	0.448	**0.703**
IT	0.118	0.288	0.113	0.115	0.208	1	0.157	0.066	0.084	**0.359**
MEDIA	0.570	0.485	0.535	0.569	0.412	0.157	1	0.510	0.565	**0.613**
METAL	0.584	0.446	0.529	0.518	0.392	0.066	0.510	1	0.613	**0.625**
REALITY	0.663	0.483	0.590	0.592	0.448	0.084	0.565	0.613	1	**0.630**
NIFTY	**0.789**	**0.563**	**0.869**	**0.887**	**0.703**	**0.359**	**0.613**	**0.625**	**0.630**	**1**

6.3 Correlation among the Selected Sectoral Indices

Table 2 Correlation Matrix in Percentages

INDICES	AUTO	PHARMA	BANK	FIN SERVICES	FMCG	IT	MEDIA	METAL	REALITY	NIFTY
AUTO	100%	49%	67%	68%	58%	12%	57%	58%	66%	79%
PHARMA	49%	100%	45%	44%	37%	29%	48%	45%	48%	56%
BANK	67%	45%	100%	95%	55%	11%	54%	53%	59%	87%
FIN SERVICES	68%	44%	95%	100%	54%	11%	57%	52%	59%	89%
FMCG	58%	37%	55%	54%	100%	21%	41%	39%	45%	70%
IT	12%	29%	11%	11%	21%	100%	16%	7%	8%	36%
MEDIA	57%	48%	54%	57%	41%	16%	100%	51%	57%	61%
METAL	58%	45%	53%	52%	39%	7%	51%	100%	61%	63%
REALITY	66%	48%	59%	59%	45%	8%	57%	61%	100%	63%
NIFTY	79%	56%	87%	89%	70%	36%	61%	63%	63%	100%

The above table no 2 also shows the correlation among the selected sectoral indices. After applying the Correlations among the sectoral indices, it was found that correlation between Financial Services and Bank correlation is highest at 0.947 and least at 0.066 between Metal and IT Indices. The correlation of Auto Index with other indices was approximately over 50 % except IT index with 12% and highest with Financial Services index with 68%. The correlation of Pharma Index with other indices was approximately over 40 % to 50% except FMCG and IT index with 37% and 29% and highest with Auto index with 49%. The correlation of Bank Index with other indices was approximately over 50 % except IT index with 11% and highest with Financial Services index with 95%. The correlation of Financial Services Index with other indices was approximately over 40 % except IT index with 11% and highest with Bank index with 95%. The correlation of FMCG Index with other indices was approximately over 35 % except IT index with 21% and highest with AUTO index with 58%. The correlation of IT Index with other indices was very weak the lowest correlation was metal 7% and the highest is with Pharma Index with 29%. The correlation of Media Index with other indices was approximately over 45 % except IT index with 16% and highest with Reality and Auto index with 57%. The correlation of Metal Index with other

Dr. Robin Thomas[1]* Dr. Shailesh Singh Thakur[2]

indices was approximately over 40 % except IT index with 7% and highest with reality index with 61%. The correlation of Reality Index with other indices was approximately over 45 % except IT index with 8% and highest with auto index with 66%.

7.   CONCLUSION

The above analysis was done by correlating NSE NIFTY monthly average returns with selected sectoral indexes daily average returns, the study found that all the indices performed in line with the with NSE Nifty. Some of the sectoral Index have performed better than NSE Nifty, from the above analysis, it can be concluded that the returns of the Nifty are positively correlated with other sectoral indices the correlation ranges between 7% on the lower side and up to 88% on the higher side. On the other hand sectoral indices returns are also positively correlate and ranges from7% to 95%.

8.   REFERENCES

1.   Ali, I., & Talukdar, A. K. (2017). Stock Market Volatility And Returns: A Study Of Six Sectorial Índices Of National Stock Exchange In India. International Journal Of Research In Management Social Science, 5(3), PP. 47-55.

2.   Nagendra, M. (2018). NSE NIFTY and Its Correlation With Sectorial Indexes.

3.   Philipp Fasnacht & Henri Loeberge (2007). International Stock Market Correlations: A Sectorial Approach, Finance International Meeting AFFI-EUROFIDAI, Paris, December' 2007 Paper.

4.   Rakesh Gupta & Parikshit. K. Basu (2008). Portfolio Optimization In The Indian Stock Market – Industry Sector Analysis, Delhi Business Review X Vol. 9, No. 1 (January - June 2008)

5.   Tarun Chordia, Amit Goyal & Qing Tong (2011). Asymmetric Correlations, Emory University Seminar 2011.

6.   www.nseindia.com

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