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A comparative study between nifty50 with financial services & pharmaceutical sector

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Abstract: *A stock market index is created by selecting a group of stocks that are representative of the whole market or a specified sector or segment of the market. Stock market indexes are meant to capture the overall behaviour of equity markets. The Nifty 50 is a well diversified 50 stock index, which covers all the vital sectors of Indian economy and works as a face of Indian economic performance. It is used for a variety of purposes such as benchmarking fund portfolios, index based derivatives and index funds. The objective of this paper is to examine the Nifty 50 associated with financial services & pharmaceutical sector. Ten years data (2008 to 2018) for Nifty 50, financial services and Pharmaceutical sector has been considered for the analysis. By using simple correlation and independent t- test, it has been observed that there was a strong positive correlation Nifty 50 has with financial services as well with pharmaceutical sector too.*

Key Words: *Nifty50, financial services, Pharmaceutical sector.*

1. INTRODUCTION:

Though Investors like return, but they have an aversion to the risk. While investing in capital market, investors are always concerned about the market movements or changes in the value of capital market index. The development of regulated and well structured market with latest technology attracts the institutional investors as well as the High Networth Individuals and retail investors too. Initially, only stock market index was formed to measure the market performance but later on the indices for various sectors were developed to measure the performance of each sector. These indices are providing authentic and comprehensive information to investing community and it gives an idea to take decision regarding their equity investments. During the later fraction of the last decade (2008 to 2010) the impact of global meltdown was very severe and most of the global indices were falling down and Indian equity market also followed the same trend. The effort taken by the monetary authorities of various countries started to yield the fruits on the early section of this decade. Global financial market is recovering in a fast pace after the economic meltdown which has influenced all the business sectors invariably. Most of the global indices are in a healthy trend and a few of them have touched the new life time high. India too is experiencing the same. The Indian stock market index Nifty had touched the new height during Dec 2013. But still, the investing community belongs to HNI and Retails are in a dilemma to make investment in equity market and they do fear that whether their investments will be safe or not. Even though the situation has stabilized well, there is an ambiguity among the investors about the performance of indices. In this background, an attempt is made to study the comparative performance of various sectoral indices of National Stock Exchange.

2. LITERATURE REVIEW:

In a study by Joseph (2003), it has been found that there is no impact on the Forex and changes in interest rate on the stock market returns' generations. However the variances in the sectoral indices were influencing in the future performance of themselves. Demirer and Lien (2005) have worked on identifying the correlation between the different sectoral related with market movement in either direction. The results concluded that the sectoral correlation is higher in the upside movement of market. Only the finance sector had the strong correlation in the downside market in the context of China market. In a study by Wang, Kutan & Yang (2005), they found that there was constant reflection on the prices of one sector depending on the information of other sector. Industrial sector is found to be the most integrated with the impact on each other due to the information flow and the finance sector could stay alone or indifferent to the sectors information. Kallberg & Pasquariello (2008) have done analysis on the 81 sectoral indices of the US market and they have found that there has been strong correlation between the excess movements in the sectoral indices and there was significance between each other in the movement in a single direction. In a study titled "Long run and Short run relationship between the main stock indexes: Evidence from Athens Stock Exchange" by Patra & Poshakwale (2008), found that there has been lower relation in the sectoral returns in the long run. However there was significant impact of the banking sector on the other sector indices return and variance. This research paper suggested that the changes and

information of the banking sector could be used in order to predict the returns of the other sectoral indices in short term. A study by Madhavi.M. & Radhika Ravi (2010) to understand the performance of sectoral indices with performance of Sensex, and it was found that there is a high range of positive correlation between the Sensex and the six selected sectoral indices of BSE. An attempt was made by Piyush Kumar Singh & Venkata Vijay Kumar (2011) to understand the movement of sectoral returns and their contributions towards the Sensex returns. The study could find that the Sensex returns could be explained with the help of selected sectoral index returns only and there is significant relationship between the different sectors' contribution to the final Sensex returns.

3. RESEARCH OBJECTIVE:

This research paper has objectives to:

- Analyze the risk and return of selected sectoral indices from NSE.
- Identify the performance of the two different sectors and
- A comparative analysis with financial service, and Pharmaceutical sector.

4. RESEARCH DESIGN:

An exploratory research design is used for the study.

4.1. SAMPLE DESIGN:

Population: Company listed on NSE India.
Sample: NSE, Pharmaceutical, Financial Services
Sampling Method: Purposive sampling
Sampling Period: 10 years (2008 to 2018)

4.2. DATA COLLECTION :

Data collection source was secondary from the site reference of www.nseindia.com, www.thehindubusinessline.com, www.capitaline.com

4.3. DATA ANALYSIS TOOLS:

Correlation
T- Test
Microsoft excel

5. DATA ANALYSIS AND INTERPRETATION :

5.1. Financial Service:

H_0 – there is no significant relationship between financial service indices and nifty 50 indexes.
H_1 - there is a significant relationship between financial service indices and nifty 50.

5.2. Nifty & Financial Services:

Table 1

Year	Financial Service	nifty50
2008	-0.2606	-0.2831
2009	0.2906	0.2471
2010	0.1104	0.0055
2011	-0.1269	-0.1612
2012	0.0939	0.025
2013	-0.1116	-0.0566
2014	0.073	0.0028
2015	-0.1458	-0.1379
2016	-0.6763	-0.0835
2017	-0.0085	-0.06
2018	-0.0183	-0.0782

Year	Financial Service			Nifty50 Sector (Y)			
	X (Return)	X-X^	(X-X^)2	Y(Return)	(Y-Y^)	(Y-Y)^2	(X-X)^*(Y-Y)^
2009	0.2906	0.8101	0.656262	0.2471	0.5441	0.29604481	0.44077541
2010	0.1104	0.6299	0.396774	0.0055	0.3025	0.09150625	0.19054475
2011	-0.1269	0.3926	0.154135	-0.1612	0.1358	0.01844164	0.05331508
2012	0.0939	0.6134	0.37626	0.025	0.322	0.103684	0.1975148
2013	-0.1116	0.4079	0.166382	-0.0566	0.2404	0.05779216	0.09805916
2014	0.073	0.5925	0.351056	0.0028	0.2998	0.08988004	0.1776315
2015	-0.1458	0.3737	0.139652	-0.1379	0.1591	0.02531281	0.05945567
2016	-0.6763	-0.1568	0.024586	-0.0835	0.2135	0.04558225	-0.0334768
2017	-0.0085	0.511	0.261121	-0.06	0.237	0.056169	0.121107
2018	-0.0183	0.5012	0.251201	-0.0782	0.2188	0.04787344	0.10966256
	-0.5195		2.777429	-0.297		0.8322864	1.41458913

Table 3: Descriptive statistics & coefficient of correlation

	Financial services	**Nifty50**
Variance	0.065711	0.013088
S.D	0.2563416	0.1144028
Covariance	0.141458913	
Correlation	**0.624496277**	
Beta	1.3992961	1

Table 1 is showing the data for the ten years of Nifty 50 and Financial services. Calculation (table-2) for the correlation derived the coefficient of the correlation (r) is 0.624 (table-3), which suggested strong positive correlation between Nifty 50 and Financial services.

5.3. Nifty & Pharmaceutical

Pharmaceutical sector:

H_0 – there is no significant relationship between Pharmaceutical indices and nifty 50 indexes.

H_1 - there is a significant relationship between Pharmaceutical indices and nifty 50.

Table 4

Year	Pharma	nifty50
2008	-0.1053	-0.2831
2009	0.2025	0.2471
2010	0.1249	0.0055
2011	-0.0744	-0.1612
2012	-0.0027	0.025
2013	-0.0169	-0.0566
2014	0.0116	0.0028
2015	-0.1627	-0.1379
2016	-0.2646	-0.0835
2017	-0.2323	-0.06
2018	-0.1576	-0.0782

Table 4 is showing the ten years data of Nifty 50 and Pharmaceutical sector. Calculation (table-5) for the correlation derived the coefficient of the correlation (r) is 0.755 (table-3), which suggested strong positive correlation between Nifty 50 and Pharmaceutical sector.

Table 5 correlation between Pharmaceutical sector and nifty 50							
Year	Pharma Sector			**Nifty50 Sector (Y)**			
	X (Return)	**X-X^**	**(X-X)^2**	**Y(Return)**	**(Y-Y^)**	**(Y-Y)^2**	**(X-X^)-(Y-Y^)**
2009	0.2025	0.7747	0.60016	0.2471	0.5441	0.2960448	0.42151427
2010	0.1249	0.6971	0.485948	0.0055	0.3025	0.0915063	0.21087275
2011	-0.0744	0.4978	0.247805	-0.1612	0.1358	0.0184416	0.06760124
2012	-0.0027	0.5695	0.32433	0.025	0.322	0.103684	0.183379
2013	-0.0169	0.5553	0.308358	-0.0566	0.2404	0.0577922	0.13349412
2014	0.0116	0.5838	0.340822	0.0028	0.2998	0.08988	0.17502324
2015	-0.1627	0.4095	0.16769	-0.1379	0.1591	0.0253128	0.06515145
2016	-0.2646	0.3076	0.094618	-0.0835	0.2135	0.0455823	0.0656726
2017	-0.2323	0.3399	0.115532	-0.06	0.237	0.056169	0.0805563
2018	-0.1576	0.4146	0.171893	-0.0782	0.2188	0.0478734	0.09071448
	-0.5722		2.857157	-0.297		0.8322864	1.49397945

Table 6: Descriptive statistics & coefficient of correlation		
	Pharma	**Nifty50**
Variance	0.02279	0.013088
S.D	0.1509636	0.114403
Covariance	0.149397945	
Correlation	**0.755528313**	
Beta	0.9969812	1

T-Test Nifty50 comparison with financial service

H_0:- There is no significant difference between financial service & Nifty50 return.

H_1:- There is a significant difference between financial service & Nifty50 return.

Table- 7: T-Test: Two-Sample Assuming Equal Variances

	Variable 1	***Variable 2***
Mean	-0.05195	-0.0297
Variance	0.065711	0.0130882
Observations	10	10
Pooled Variance	0.0393996	
Hypothesized Mean Difference	0	
Df	18	
t Stat	-0.250651	
P(T<=t) one-tail	0.4024614	
t Critical one-tail	1.7340636	
P(T<=t) two-tail	0.8049229	
t Critical two-tail	2.100922	

In the table -7, the tabulated t-value is 2.100 which is greater than the calculated value (0.250651) so the null hypothesis failed to reject. And found that there was no significant difference between financial service return & Nifty50 return.

T-Test Nifty50 comparison with pharmaceutical

H_0:- There is no significant difference between Pharmaceutical & Nifty50 return.

H_1:- There is a significant difference between pharmaceutical & Nifty50 return.

Table- 8: t-Test: Two-Sample Assuming Equal Variances				
	Variable 1	*Variable 2*		
Mean	-0.05722	-0.0297		
Variance	0.0227904	0.013088		
Observations	10	10		
Pooled Variance	0.0179393			
Hypothesized Mean Difference	0			
Df	18			
t Stat	-0.459442			
P(T<=t) one-tail	0.3257084			
t Critical one-tail	1.7340636			
P(T<=t) two-tail	0.6514168			
t Critical two-tail	2.100922			

Again when independent t-test has been done on Nifty 50 and Pharmaceutical sector, table-8 was showing that the tabulated value 2.100 is greater than the calculated value (0.4549442). Hence, the null hypothesis failed to reject and no significant difference has been observed between Nifty pharmaceutical & Nifty50 return.

6. CONCLUSION:

It has been concluded from the research that when it comes to the return, two sectors of financial services and pharmaceutical are performing well than the market return. Both the sectors are having higher returns. But when it comes to standard deviation (fluctuation), both the sectors are having a higher risk than the market risk. This suggests that the market is performing so well to minimize the risk. Further it has been concluded that financial services as well as pharmaceutical sector has strong positive correlation with Nifty 50, but pharmaceutical companies are little more correlated compared to the financial services. Test suggests that Nifty 50 may have more impact on pharmaceutical sector than financial services.

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