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A comparative study on performance analysis of Nifty Midcap 100 since inception

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Abstract

To compare the performance of various NSE indices with Nifty Midcap 100 and understanding how investing in an ETF or an index fund of Nifty Midcap 100, could have created wealth for the investors. The tools & techniques used for the study are correlation, Sharpe ratio. The returns are calculated using monthly rolling returns for 1 year, 3 year and 5-year period. Based on the study, it is proven that the performance of Nifty Midcap 100 is better than other Nifty indices like Nifty 50, Nifty Small cap 100. However, the performance of Nifty Next 50 is better than all other indices in the study.

Keywords-Sharpe Ratio, Correlation, Monthly Rolling Returns, Nifty Midcap 100, Nifty 50, Nifty Next 50, Nifty Small cap 100

1. Introduction

- Stocks markets have always been a favoured avenue for generating returns which beat inflation and create wealth in the long run. The returns in the stock markets have always been compared with the benchmark index like Nifty 50 or Sensex to check whether the investment has created alpha. Some indexes like Nifty Midcap 100 and Nifty Next 50 have outperformed the benchmark index Nifty 50 since their inception. Nifty Midcap 100 is an index which tracks 100 (NSE) National Stock Exchange midcap stocks based on the free float market capitalization. The launch date for Nifty Midcap 100 was 18th July, 2005. In this study we will study the performance of Nifty Midcap 100 since inception. In this study we have compared the performance of Nifty Midcap 100 with Nifty 50, Nifty Next 50, Nifty Smallcap 50. The Nifty Midcap 100 has given a price return of 16% p.a. as compared to Nifty 50 price return of 9.93% p.a. since inception. Free float market capitalization method is used to compute NIFTY Midcap 100 Index, wherein the level of the index reflects the total free float market value of all the stocks in the index relative to particular base market capitalization value. The base year for Nifty Midcap 100 is 2003 and the base value is 1000. All the constituents of Nifty Midcap 50 are included in Nifty Midcap 100 where

the remaining included if rank based on average daily turnover is among top 70 from constituents in NIFTY Midcap 150. Index is re-balanced on semi-annual basis i.e on 31st January and 31st July

1.1 Research Problem

Whether Nifty Midcap 100 performed better in comparison to other Nifty indices over different time intervals?

1.2 Research Objective

1. To study the performance of Nifty midcap 100 compared with other nifty indices.
2. To understand whether the performance differs over different time horizons.

1.3 Hypothesis

- Null hypothesis (Ho) – Nifty Midcap 100 has not outperformed other Nifty Indices.
- Alternate hypothesis (Ha)- Nifty Midcap 100 has outperformed other Nifty Indices.

2. LITERATURE REVIEW

In the past very few studies have been conducted on the performance of various Nifty Indices. This study focuses on the performance of Nifty Midcap 100 which is ignored as there is always a focus on benchmark indices like Nifty 50.

A literature survey had been conducted to gain a true insight and the existing studies are as follow. (Singh, 2018) explains that an index is one of the important parameters to capture the prevailing sentiments in the stock markets but a single index cannot capture all the sentiments of different investors, therefore we have various indices to know the various sentiments prevailing in the markets.

(Dr.M.Subramanian, 2020) tells us that there is no standard definition for the word 'good return' as the term good return differs from person to person but we can say that if an investment fulfils the expectation of the investor, it can be termed as 'good return'. (Gautam Shah, 2020) highlights in his article that the current market has become a market where you should trade in the large caps and you should buy and hold in the midcaps.

(Asthana, 2020) explains that Midcaps are companies which have high growth potential than the large caps but have a limited downside compared to the smallcaps. The study by (Guha, 2016) says that after the liberalization the flow of information has been one of the driving forces in carrying the stock market indices and Foreign Institutional Investors have been taking keen interest in the Indian markets since the last two decades which has led the growth of major indices.

(Mir, 2014) study tells us that NSE indices rise with an increase in inflow from FIIs which tells us that FIIs have a great influence on the NSE indices. (Shollapur, 2015) study tells us that prices of NSE and BSE indices does not factors in economic reforms in the short run (P.Varadharajan, 2011) study tell us that there is a significant impact of budget on the NSE indices.(Kumar, 2009) explains that expected return from an investment comprises of current yield and capital gains (Bishnoi, 2001) study tells us that mean reversion is the major cause of random walk of the NSE indices.

(Nagendra, 2014) study tells us that NSE has played a vital role in developing the Indian securities markets and that the persuading power of NSE Nifty 50 is very high on other Nifty indices. (Rakesh Shahani, 2017) study tell

us that the financial markets are so integrated that any significant news in any part of the world can results into reactions from all the corners of the financial markets.

(Hem Chandra Kothari, 2017) study tells us that the returns in Nifty Junior were found to be positive and statistically significant on Friday (Dr.Satish Kumar, 2015) tells us that abnormal returns are possible in the Nifty indices as stocks do not reflect all the past information of the stock which causes market inefficiencies. (C. V. R. S. Vijaya Kumar, 2011) study tells that the long memory in stock markets arise on any arrival of news and each participant in the market reacts differently. (D. Sumathi, 2017) study explains that in emerging markets returns are high, volatility is high, dependency on global markets is high, returns are more predictable.

(Tom, 2020) study tells us that there exists a relationship between Nifty 50 and macro-economic variables like Wholesale Price Index, call money rate, exchange rate and Index of Industrial Production. (Prabhu, 2018) study explains the relationship of risk and return with the help of Nifty 50 stocks that higher the risk higher is the return (Sen, 2013) talks about the Efficient Market Hypothesis that the expected return on a financial asset should be evenly distributed over different units of time. (Ameya Karve, 2018) Midcap- indices have fallen down from their peak in January 2018 and, because of the time and price correction, there's a good opportunity for buying in these stocks. (Debasish, 2011) study explains that futures trading in NSE indices leads to more complete markets. (V.Prabakaran, 2012) study tells us that in the bull market there is less volatility whereas in the bear market the volatility is high. (Hemlata Tiwari, 2017) study tells us all the NSE sectoral indices were affected due to demonetization which occurred on 8th November,2016. (Tamilarasu, 2015) study tells that the influence of FDI has increased on NSE indices over the years. (M.Babuand, 2014) tells us that macroeconomic indicators have a great impact on the NSE indices such as money supply, inflation and fiscal deficit. (Bhatia, 2011), study shows us that fall/rise in the share prices fluctuates due to many economic, political, social, national, international and even psychological factors. (Colaco, 2014) study tells us that the beta has not been same in any sector over the years i.e., the risk keeps changing over the years. Gangineni Dhanaiah, 2016) study tells us that NSE has transformed the Indian stock markets over the years in terms of technology, participants, products and various other aspect.

The literature shows that all previous studies highlighted the importance of midcap indices but they were unable to talk about the performance of the midcap indices to that of the major indices like Nifty 50. Hence this research will study the performance of Nifty Midcap 100 since inception.

3. Research Methodology

- The study is based on secondary data where the data for Nifty Midcap 100 and other indices is taken from the period August 2005 to June 2020 i.e., for the time period of 15 years from 2005-2020.
- Monthly rolling returns are calculated for all the indices for a period of 15 years with a time frame of 1 year, 3 years and 5 years.
- Karl Pearson correlation test is used to understand the significance of relation between the benchmark index Nifty 50 and other indices,
- Sharpe ratio is calculated to measure the risk adjusted performance of the indices.

4. Data Analysis

Monthly rolling returns have been calculated for all the four indices i.e Nifty Midcap 100, Nifty Small cap 100, Nifty Next 50 and Nifty 50.A comparison has been made between the monthly rolling returns of different time

intervals namely 1 year, 3 years and 5 years. Karl Pearson's Correlation has been established between the Nifty 50 and the other three indices as Nifty 50 is considered as a benchmark index and it gauges the sentiment in the market.

Table 1: Average of Monthly Rolling Returns

Average of Monthly Rolling Returns			
	1 year rolling returns	3 year rolling returns	5 year rolling returns
Nifty Midcap 100	14.87%	40.75%	81.59%
Nifty Small cap 100	12.86%	27.07%	56.58%
Nifty Next 50	17.18%	45.75%	94.13%
Nifty 50	12.58%	31.28%	60.24%

The data above clearly shows that only Nifty Next 50 has outperformed the Nifty Midcap 100 index. Nifty Small cap 100 has underperformed, compared to Nifty Midcap 100. Also, the benchmark index Nifty 50 has underperformed in comparison with Nifty Midcap 100 for all the periods. The performance of Nifty Midcap 100 is far better than the benchmark index in all the time intervals. These returns which have been calculated using last 15 years prices of the indices clearly tell the significance in differences in performance.

Table 2: Karl Pearson's Correlation Coefficient

Karl Pearson's Correlation Coefficient			
1 year rolling returns			
	Nifty Midcap 100	Nifty Small cap 100	Nifty Next 50
Nifty 50	0.992	0.916	0.926
3 year rolling returns			
	Nifty Midcap 100	Nifty Small cap 100	Nifty Next 50
Nifty 50	0.782	0.77	0.846
5 year rolling returns			
	Nifty Midcap 100	Nifty Small cap 100	Nifty Next 50
Nifty 50	0.884	0.841	0.905

There has been noted the highest correlation between Nifty Midcap 100 and Nifty 50 in 1 year rolling returns however the correlation between the benchmark index i.e. Nifty 50 and Nifty Next 50 is highest for the period of 3 years and 5 years. This tells us that the Nifty Midcap 100 is in tangency with Nifty 50 calculated on the short-term basis. However, both are not performing together if calculated on 3 years and 5 years period. There is a very significant correlation between Nifty Next 50 and Nifty 50 in the 3 year and 5 year rolling period. Thus, it clearly reflects the significance of relation between Nifty 50 and other Nifty indices.

Table 3: Sharpe ratio

Sharpe ratio			
	1 year rolling returns	3 year rolling returns	5 year rolling returns
Nifty Midcap 100	0.23	0.44	0.75
Nifty Small-cap 100	0.15	0.08	0.22
Nifty Next 50	0.28	0.57	0.94
Nifty 50	0.24	0.36	0.50

The Sharpe ratio helps us understand the risk adjusted return of the indices and bigger the ratio better is the risk adjusted performance. The Sharpe ratio of Nifty Next 50 is highest compared to other indices in all three-time intervals. Nifty Midcap 100 has lower Sharpe ratio compared to Nifty 50 in 1 year interval however in 3 year and 5 year rolling period Sharpe ratio of Nifty Midcap 100 is better which tells the better risk adjusted performance of Nifty Midcap 100 in long intervals. The Nifty Small cap 100 has the lowest Sharpe ratio in all the three intervals which explains the poor risk adjusted performance of Nifty Small cap 100.

5. Results And Discussion

5.1 Findings

The evidence provided by the correlation analysis tells us that there is high correlation among the returns of the indices during the past 15 years. Also, the Nifty Midcap 100 has outperformed the Nifty 50 and Nifty Small cap 100. However Nifty Next 50 was able to outperform Nifty Midcap 100 during the 15-year period. The correlation with the Nifty Midcap 100 and Nifty 50 is found to be highest in 1 year rolling interval. The Sharpe Ratio which gauges the risk adjusted performance also helped us understand the good performance of Nifty Midcap 100 compared to the other indices.

5.2 Conclusion

The study focuses on the different NSE indices and their returns over the period of 15 years and thus explains the performance of the various indices over the years. Therefore, it has been able to depict the differences in performance of the various indices over the period since the inception of Nifty Midcap 100. The study also establishes the significance of relation between the benchmark index Nifty 50 and other three Nifty indices. Thus, the study also establishes the good performance of Nifty Midcap 100 since inception.

5.3 Recommendations

The study has further scope for more comprehensive results as several new areas for research could be derived from the results of this work. First a further investigation can be done using the various other indices along with Nifty Midcap 100 and further correlation can be used to understand the extent of relation between those indices.

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