RISK AND RETURN ANALYSIS OF BSE SMALL, MEDIUM & LARGE CAPITALIZATION INDICES"

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ABSTRACT

In the current economic scenario interest rates are falling and fluctuation in the share market has put investors in confusion. One finds it difficulties to take decision on investment. This is primarily, because of investment are risky in nature and investors have to consider various factors before investing in investment avenues.

These factors include risk, return, volatility of shares and liquidity. The main objective of our research is risk and returns analysis of different indices of BSE(S&P) like large cap, midcap, and small cap and also to evaluation of best indices/stock for investment.

In our research we have taken historical data for last four year for finding out Risk & Return on monthly basis by comparing large cap to mid cap, large cap to Small cap and Midcap to Small cap

Most of the risk-averse investors allocate money in large cap funds to avoid huge volatility and uncertainty. This large cap stocks carries low risk as well as low return and compared to mid and small cap stocks. While the small and mid cap companies are highly volatile and risky but have potential for higher returns if invested in fundamentally good company.

KEYWORDS

Large cap, Mid Cap, Small Cap, Indices, Risk, Return, Risk-return relationship, Sensex.

1. Introduction

Any rational investor, before investing his or her invertible wealth in the stock, analyses the risk associated with particular stock. The actual return he receives from a stock may vary from his expected return and the risk is expressed in terms of variability of return. The downside risk may be caused by several factors, either common to all stock or specific to a particular stock. Investor in general would like to analyze the risk factors and a thorough knowledge of the risk help him to plan his portfolio in such a manner so as to minimize the risk associated with the investment. In this research paper we have tried to analyse risk

and return associated with large cap stock, mid cap stock and small cap stock, which gives idea to investors at the time of making investment.

2. LITERATURE REVIEW

2.1 A Study on Risk & Return analysis of Automobile industry in India (2004-2007): Dr P Vikkraman & P Varadharajan JOURNAL OF CONTEMPORARY RESEARCH IN MANAGEMENT January - March, 2009

The objective of maximizing return can be pursued only at the cost of incurring risk. While selecting the firm for investment, the investor has to consider both the return potential and the risk involved. The empirical evidence shows that generally there is a high correlation between risk and return over longer periods of time. This relationship is known as risk return trade-off.

2.2 The risk-return relationship in the South Africa stock market: Leroi Raputsoane (South African Reserve Bank-July 2009)

This study examined the inter temporal risk-return relationship in the South African stock market based on Merton's (1973) single factor ICAPM framework. The GARCM-M model by Engle, Lilien and Robins (1987) is used to estimate the risk-return trade-off of 50 daily excess returns of market and industry stock price indexes of the Johannesburg stock exchange listed companies. According to the empirical results, 95 percent of stock price indexes show a positive and a highly statistically significant coefficient of risk aversion, while 5 percent are not only statistically insignificant but also show negative coefficient of risk aversion. This suggests that, generally, the market and industry stock prices in the South African stock market conform to the Merton's (1973) ICAPM theoretical hypothesis of a positive relationship between excess market returns and the market risk premium.

2.3 A Study On The Performance Of Selected Large Cap And Small & Mid Cap Mutual Fund Schemes In India – The International Journal of Management - Vol 2 Issue 3 (July, 2013) (Dr. R. Karrupasamy, Professor V. Vanaja)

The objective of the study is to evaluate the performance of different mutual fund schemes (Large Cap, Small & Mid cap Equity Schemes) on the basis of returns and comparison with their bench marks and also to appraise the performance of different category of funds using risk adjusted measures as suggested by Sharpe, Treynor and Jensen. The study revealed the investors for investment below 2 years can choose large cap schemes and investment beyond 3 years can be made in Small & mid cap schemes.

RESEARCH OBJECTIVES

3.1   To find out CAGR of BSE large cap, BSE Mid cap and BSE Small cap index of last four year on monthly basis.
3.2   To find out risk (standard deviation) on monthly basis of return of BSE large cap, BSE Mid cap and BSE Large cap index of last four year.
3.3   To know the risk return relationship of BSE large cap, BSE Midcap and BSE Large cap index.

4. RESEARCH HYPOTHESIS

4.1 There is no significance difference in the CAGR return of the small, medium, and large cap indices of BSE.
4.2 There is no significance difference in the risk of the small, medium, and large cap indices of BSE.

5. METHODOLOGY

Research design for this research work is both descriptive as well as analytical.

This research work accomplished by using secondary data in form of closing price of sample of large, mid and small cap stock from BSE website.

Stock comprises of large cap index, mid cap index and small cap index of BSE has been taken as a sample stock from all three category and monthly closing prices of these indices have been collected of last four years for analysis purpose. Time period of data

collection is 1st January 2011 to 31st December 2014.

6. DATA ANALYSIS

Graph 1 – CAGR Return of Large Cap, Mid Cap and Small Cap index.
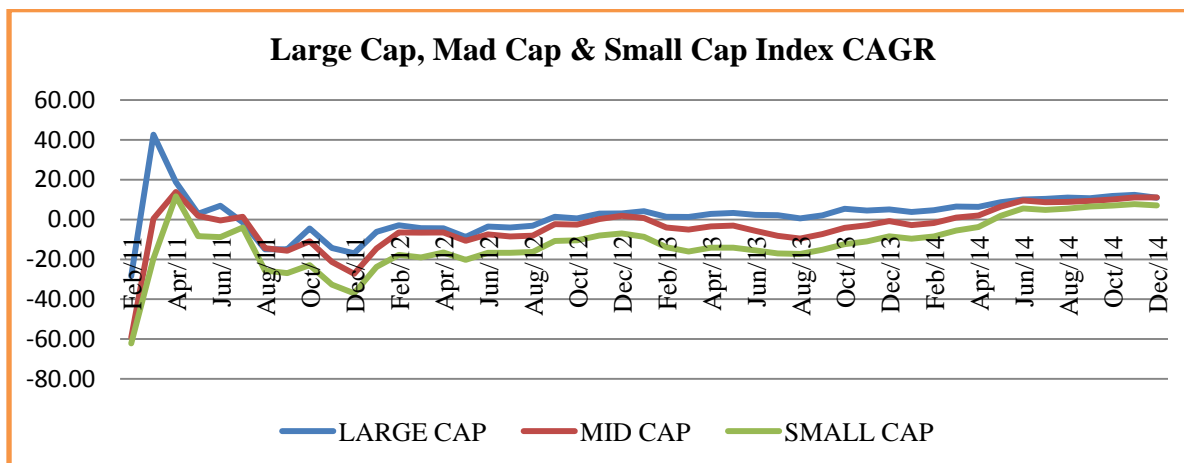
6.1 Analysis of CAGR (return) on monthly basis using T – Test for pair difference.

6.1.1 Large cap return V/S Mid cap return

STATISTICAL HYPOTHESIS

H_0 = Difference in pair of CAGR on monthly basis of Large Cap and Mid Cap is Zero (D = 0)

H_1 = Difference in pair of CAGR on monthly basis of Large Cap and Mid Cap is not Zero (D ≠ 0)

Table 1 - 6.1.1 Data Analysis

Index	Mean	Variance	Observation	DF	$\bar{d}$	SD of d	T - Stat	T - table
Large Cap	1.899	113.766	47	46	5.798	7.348	5.409	2.012
Mid Cap	-3.898	141.044	47					

Interpretation

T – test calculated value 5.409 is greater than T critical value 2.012 indicate that difference of pair of CAGR of Large cap and midcap is not zero.

Positive value of $\bar{d}$ (5.798) is indicate that large cap index has higher CAGR return compare to Mid cap CAGR return.

6.1.2 Large cap return V/S Small cap return

Statistical Hypothesis

H_0 = Difference in pair of CAGR on monthly basis of Large Cap and Small Cap is Zero (D = 0)

H_1 = Difference in pair of CAGR on monthly basis of Large Cap and Small Cap is not Zero (D ≠ 0)

Table 2 - 6.1.2 Data Analysis

Index	Mean	Variance	Observation	DF	$\bar{d}$	SD of d	T - Stat	T - table
Large Cap	1.899	113.766	47	46	13.911	9.146	10.427	2.012
Small Cap	-12.012	174.479	47					

Interpretation

T – test calculated value 10.427 is greater than T critical value 2.012 indicate that difference of pair of CAGR of Large cap and midcap is not zero.

Positive value of $\bar{d}$ (13.911) is indicating that large cap index has higher CAGR return compare to Small cap CAGR return.

Table 3 - 6.1.3 Data Analysis

Index	Mean	Variance	Observation	DF	$\bar{d}$	SD of d	T - Stat	T - table
Mid Cap	-3.89894	141.0444	47	46	8.113	3.324	16.732	2.012
Small Cap	-12.0121	174.479	47					

6.1.3 Interpretation

T – test calculated value 10.427 is greater than T critical value 2.012 indicate that difference of pair of CAGR of Large cap and midcap is not zero.

Positive value of $\bar{d}$ (8.113) is indicate that Mid cap index has higher CAGR return compare to Small cap CAGR return.

6.2 Analysis of CAGR (VARIANCE IN RETURN) on monthly basis using F – Test Two sample for variance.

Table 4 - 6.2.1 Data analysis

INDEX	Mean	Variance	Observation	DF	F Cal	F Critical
Large cap	1.899307	113.766	47	46	1.239	1.632
Mid cap	-3.8989419	141.044	47			

Interpretation

F – test calculated value (1.239) is less than F critical value (1.632) indicate that there is no significance difference in the variance of Mid cap and Large cap index of CAGR Return.

6.2.2 Large cap variance V/S Small cap variance
Table 5 - 6.2.2 Data analysis

6.1.3 Midcap returns V/S Small cap return

Statistical Hypothesis

H_0 = Difference in pair of CAGR on monthly basis of Mid Cap and Small Cap is Zero (D = 0)

H_1 = Difference in pair of CAGR on monthly basis of Mid Cap and Small Cap is not Zero (D ≠ 0)

6.2.1 Large cap variance V/S Mid cap variance

Statistical Hypothesis

H_0= There is no significance difference in the variance of Mid cap and Large cap index of CAGR Return ($\sigma_1^2 = \sigma_2^2$)

H_1= There is significance difference in the variance of Mid cap and Large cap index of CAGR Return ($\sigma_1^2 \neq \sigma_2^2$)

Statistical Hypothesis

H_0= There is no significance difference in the variance of Small cap and Large cap index of CAGR Return ($\sigma_1^2 = \sigma_2^2$)

H_1= There is significance difference in the variance of Small cap and Large cap index of CAGR Return ($\sigma_1^2 \neq \sigma_2^2$)

INDEX	Mean	Variance	Observation	DF	F Cal	F Critical
Large cap	1.899307	113.766	47	46	1.533	1.632
Small cap	-12.01206085	174.479	47			

Interpretation

F – test calculated value (1.533) is less than F critical value (1.632) indicate that there is no significance difference in the variance of Small cap and Large cap index of CAGR Return.

6.2.3 Mid cap return V/S Small cap return
Table 3 - 6.2.3 Data analysis

INDEX	Mean	Variance	Observation	DF	F Cal	F Critical
Mid cap	-3.89894	141.044	47	46	1.237	1.632
Small cap	-12.0121	174.479	47			

Interpretation

F – test calculated value (1.237) is less than F critical value (1.632) indicate that there is no significance difference in the variance of Mid cap and Large cap index of CAGR Return.

7. FINDINGS & RECOMMENDATIONS

Finding and suggestion on return (CAGR) analysis.

1.   T – test calculated value 5.409 is greater than T critical value 2.012 indicate that difference of pair of CAGR of Large cap and midcap which indicates that large cap index provide more return compare to midcap index.

2.   T – test calculated value 10.427 is greater than T critical value 2.012 indicate that difference of pair of CAGR of Large cap and Small cap is not zero which indicates that Large cap index provide more return compare to Small cap index.

3.   T – test calculated value 16.732 is greater than T critical value 2.012 indicate that difference of pair of CAGR of Mid cap and Small cap is not zero which indicates that Mid cap index provide more return compare to Small cap.

Statistical Hypothesis
Ho= There is no significance difference in the variance of Small cap and Large cap index of CAGR Return ($\sigma_1^2 = \sigma_2^2$)

H₁= There is significance difference in the variance of Small cap and Large cap index of CAGR Return ($\sigma_1^2 \neq \sigma_2^2$)

Finding and suggestion on risk (Variance) analysis

4.   F – test calculated value (1.239) is less than F critical value (1.632) indicate that there is no significance difference in the variance of Mid cap and Large cap index of CAGR Return.

5.   F – test calculated value (1.533) is less than F critical value (1.632) indicate that there is no significance difference in the variance of Small cap and Large cap index of CAGR Return.

6.   F – test calculated value (1.237) is less than F critical value (1.632) indicate that there is no significance difference in the variance of Mid cap and Large cap index of CAGR Return.

Finding and suggestion on return (CAGR) & risk (Variance) analysis

1.   If investor has long investment horizon than he or she should prefer large cap stock rather than midcap and small cap stock.

2.   Midcap and small cap stock may give good return in short term investment, but in long run large cap stock return bit midcap and small cap.

3. At the time of making investment in midcap and small cap investor should become stock specific as indexation will not be helpful to them in small cap and midcap stock.

8. CONCLUSION

Since last one year Indian stock market is moving like any thing and provides handsome return to investors, among them mid cap and small cap stock moves like anything.

Many mid cap and small cap mutual fund scheme have claimed more than 100% return, and more or large they are also right when we refer statistics of mutual fund companies of last one year.

This progressive figure motivates us to do research on risk and return analysis and relationship of large cap, mid cap and small cap.

In this research we come to know that large cap stock are more profitable compare to mid cap stock and small cap stock when we evaluate it by taking indices as a base.

So if investor wants to be more aggressive and wants to invest in small cap or mid cap stock than investor needs to be stock specific, which can helpful to them in terms of generating more return.

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