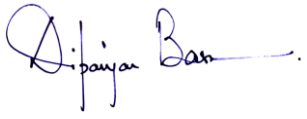
A Study of Performance and volatility of selected Indian Equity Mutual Funds

Abstract

Indian Mutual Funds have opened up a new dimension of investment opportunities leading to wealth creation for investors. Mutual funds have improved in their ability to mobilise and allocate resources since investing in equity shares is currently too risky and requires technical expertise. The first part of the study highlighted the growth trend of different categories of mutual funds in India during 2008-21. This virtuous growth trajectory has been a clear reflection of the depth and breadth of the Indian mutual fund market over the last one and a half decades. In the study we have analysed the performance and volatility of the Top 20 Open Ended Equity diversified mutual fund schemes, which are selected on the basis of monthly returns generated by the mutual fund schemes as of 1st January, 2008 from the website valueresearchonline.com. The performance of the mutual fund schemes is compared with the Benchmark indices (BSE Sensex and Nifty 50), which can also give an idea to an investor whether the scheme performing well or not against the market standards. In this study we have evaluated the selected schemes and compared them based on Risk – Return and Risk Adjusted performance ratios (Sharpe's measure, Treynor Ratio, and Jensen Alpha). Further, the monthly returns of the mutual fund schemes are compared with the monthly returns of the selected benchmarks indices. Benchmark indices serve as a reference point for comparing mutual fund schemes' returns to the wider market. Correlation analysis helps assess if a scheme is meeting its investment objectives and discloses details about the risk profile of the scheme. The volatility of selected mutual fund schemes has been analysed in the study with reference to fluctuation in prices of those mutual fund schemes over a certain period. Here, volatility has been compared with reference to the benchmark returns which have been measured through the closing value of the BSE Sensex. To measure volatility we have used OLS Regression to analyse the relationship between the monthly returns of Mutual fund schemes and BSE Sensex returns. Thereafter, the ARCH LM test of the residuals of the OLS has been undertaken to check the reliability and validity of the OLS model. Further, the ADF test has been conducted as the first measure of time series analysis to validate if the mutual fund scheme returns and BSE Sensex returns become stationary with respect to time. To check the distribution of the response variable and thereby, to identify the best model fit, the Jarque Bera normality test was conducted on monthly mutual fund scheme returns. Thereafter, GARCH (1,1) test has been conducted to



measure the effect of clustering and volatility over time periods. For normal distributions based on the results of the Jarque Bera tests, the Gaussian distribution has been adopted. In the case of, for non-normal distribution, the students t-test has been adopted. Further, the ADF test has been conducted upon the residuals of GARCH (1,1) or GARCH (2,1) as the case may be to validate if any volatility clustering occurs among the residuals. Finally, the ARCH LM test of GARCH residuals has been conducted to measure, the presence of any heteroskedasticity among the GARCH residuals. Thus, the sequence of time series tests validates the exogenous effect of ex-post mutual fund scheme returns on market volatility.

Through the study we found out that all the selected mutual fund schemes have outperformed the market indices in terms of monthly returns generated. Most of the selected mutual funds schemes are found to be have a higher level of risk compared to the overall market represented by the benchmark indices. All the schemes are found to have positive average Sharpe Ratio and Treynor ratio which indicates that the mutual fund schemes have delivered returns above what could be expected given the level of risk associated with it. All the selected mutual fund schemes have shown positive Jensen's alpha during the study period indicating the best stock selection skills of the fund manager. We have observed that all the mutual fund schemes are highly correlated with the market and is significant at 5 percent level of significance. This highly positive relationship illustrates how the mutual fund scheme's performance is significantly impacted by the performance of the benchmark indices. Through the study we have further observed that for most of the selected mutual fund schemes, the volatility clustering occurs due to 1-period lag (one month lag) which shows that the movement of the benchmark returns has an associated correlation with the mutual fund scheme returns which has a trickle-down effect for at least one time period and most of the mutual fund schemes are non volatile during the phase of integration of the lagged variable. So at times of upward returns of the market, most of the mutual fund schemes are volatile but during stabilization, it shows a stabilization pattern.

Keywords: mutual fund schemes, benchmark indices, growth, performance, volatility