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REVIEW ARTICLE

APPLICATIONS OF SHARPE'S AND TREYNOR'S MEASURE IN THE CONTEXT OF INDIAN MUTUAL FUND SCHEMES

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Applications of Sharpe's and Treynor's Measure in the Context of Indian Mutual Fund Schemes

Arti Bhola*

M.Com. UGC -NET (Commerce)

Abstract – Many of the financial instruments mutual fund is one of the most attractive financial investment instrument that plays a vital role in the economy of a country. The present paper investigates the performance of 15 open-ended, growth-oriented equity schemes for the period from April 2010 to March 2015 (five years) of transition economy. The study used the monthly NAV of different schemes to calculate the returns from the fund schemes. BSE-Sensex has been used for market portfolio. The historical performance of the selected schemes were evaluated on the basis of Sharpe's and Treynor's measures whose results will be useful for investors for taking better investment decisions. The study revealed that higher positive value of Sharpe measure was found in DSP-BR Micro Cap Funds (G) (0.214) which followed by Franklin Smaller Cos (G) (0.207) and L&T Midcap Fund (G) (0.206). In the study, the Sharpe ratio was positive for all schemes which showed that funds were providing returns greater than risk free rate. It also concluded that higher positive value of Treynor's measure was found in DSP-BR Micro Cap Funds (G) (0.0148) which followed by Franklin Smaller Cos (G) (0.0147) and L&T Midcap Fund (G) (0.0146). In the study, the Treynor's ratio was positive for all schemes.

Keywords: Mutual Funds, Performance Evaluation, Sharpe's Measure, Treynor's Measure

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INTRODUCTION

Many of the financial instruments mutual funds is one of the most attractive financial investment instrument that plays a vital role in the economy of a country. A mutual fund scheme provides new opportunities for investors. Mutual fund Industry was introduced in India 1963 with the formation of Unit Trust of India.

In India the origin of Mutual Funds industry can be traced since the enactment of UTI (Unit Trust of India) Act, 1963. Due to various historic reasons the unit trust of India has enjoyed the monopoly in the mutual funds industry and it still maintains its prominent position. Mutual fund industry in India has grown rapidly since its liberalization in 1993 (Goyal, 2015). During the last few years many extraordinary and rapid changes have been seen in the Mutual fund industry. Therefore, due to the changed environment it becomes important to investigate the mutual fund performance. The present paper investigates the performance of open-ended, growth-oriented equity schemes on the basis of performance models. Open-ended mutual fund schemes are those which don't have a fixed maturity and these schemes offer new units for sale and ready to buy securities at any time. The success of any scheme depends upon the competence of the management and its soundness.

LITERATURE REVIEW

A number of studies on evaluating the performance of Indian Mutual Fund Schemes on the basis of performance models have been conducted in India and foreign countries. Review of some of the studies is presented in the following discussion: -

Jayadev (1996) in their study examined the performance of two growth-oriented mutual funds namely Mastergain and Magnum express by using monthly returns. Jensen, Sharpe and Treynor measures have been applied in the study and pointed out that according to Jensen and Treynor measure Mastergain have performed better and the performance of Magnum was poor according to all three measures.

Afza and Rauf (2009) in their studied the performance of open ended Pakistani mutual funds with the help of using the quarterly data for the period of 1996-2006. The study measure the fund performance with the help of Sharpe ratio by using pooled time-series and cross sectional data and also focused on different attributes such as fund size, expenses, age, turnover and liquidity. The results of the study found significant impact on fund performance.

Kundu (2009) evaluated the stock picking performance of 31 growth-oriented equity schemes in India. The study used the period for three years i.e., from April 2005 to March 2008. The study concluded that the mutual fund schemes on an average had failed to outperform the market and 32.26 percent sample schemes showed a mix match of risk-return trade-off and It also concluded that Jensen measure found that 61.29 percent sample schemes have showed superior but statistically insignificant stock selection performance of their fund managers.

Ali, Naseem and Rehman (2010) examined the performance of 10 mutual funds in which 5 were conventional and 5 were Islamic for the period from 2006 to 2008 with the help of Sharpe and Treynor measures. The results found that the funds of Pakistan were able to add more value either conventional or Islamic. The study also found that some of the funds were underperformed, so these funds were facing diversification problems during the study period.

Sondhi and Jain (2010) evaluated the market risk and investment performance of equity mutual funds in India. The study used a sample of 36 equity fund for a period of 3 years. The study examined whether high beta of funds have actually produced high returns over the study period. The study also examined that open-ended or close ended categories, size of fund and the ownership pattern significantly affect risk-adjusted investment performance of equity fund. The results of the study confirmed with the empirical evidence produced by fama (1992) that high beta funds (market risks) may not necessarily produced high returns. The study revealed that the category, size and ownership have been significantly determinant of the performance of mutual funds during the study period.

Shanmugham and Zabiulla (2011) conducted the stock selection strategies of selected equity mutual fund managers using conditional and unconditional measures over the period of April 2006 to December 2009. The study revealed that the daily returns of all schemes were positive. From Jensen measure, it found that 22 schemes out of 35 were positive alpha, showed superior performance but only two schemes have positive and statistically significant alphas.

Goyal (2015) examined the performance of top ten mutual funds in India. The findings of the study showed that all the mutual funds scheme are provided higher average returns as compare to the market though the standard deviation is little higher. The study found that amongst all the top 10 mutual fund Franklin India opportunity fund was the best having lower coefficient of variation and higher sharp ratio, Treynor ratio and Jensen alpha.

OBJECTIVE OF THE STUDY

The present study is concerned with the following objective:

- To examine the performance of selected schemes by using the portfolio performance evaluation models namely Sharpe and Treynor.

RESEARCH METHODOLOGY

To examine the mutual fund schemes performance, 15 schemes were selected at random basis. Monthly NAV of different schemes have been used in this study for the period of five years i.e., April 2010 to March 2015 (five years). BSE-Sensex has been used for market portfolio. In the study the monthly yield on 91-day Treasury bills have been used as risk-free rate. The study was mainly secondary data based. Data regarding NAV were obtained from the web site of www.mutualfundindia.com and www.amfiindia.com for the period of April 2010 to March 2015. Data for monthly closing price for the benchmark index (BSE-Sensex) were collected from web site of Bombay Stock Exchange (www.bseindia.com). Data for 91 day Treasury bills rate were collected from the web site of RBI, India (www.rbi.org.in.com).

Sharpe measure: Positive Sharpe ratio indicates superior risk-adjusted performance of the scheme. It is calculated as:

$$\text{Sharpe} = \frac{R_p - R_f}{\sigma_p}$$

Where, R_p is the average return of scheme over the study period, R_f is average risk-free return over the study period, σ_p is standard deviation of the scheme

Treynor measure: This measure was developed by Jack Treynor in 1965 is based on systematic risk. The higher the Treynor measure, the better the portfolio. The formula for this measure is:

$$\text{Treynor} = \frac{R_p - R_f}{\beta_p}$$

Where, R_p is average return of scheme over the study period, R_f is average risk-free return over the study period, β_p is systematic risk of the scheme

RESULTS AND ANALYSIS

Sharpe and Treynor Measures

Table 1 represents the result of Sharpe measure. It is observed from the table 1 that higher positive value of Sharpe measure was found in DSP-BR Micro Cap Funds (G) (0.214) which followed by Franklin Smaller Cos (G) (0.207) and L&T Midcap Fund (G) (0.206). In the study, the Sharpe ratio was

positive for all schemes which showed that funds were providing returns greater than risk free rate.

Table 1

Results of Sharpe's measure

(April 2010 to March 2015)

Sr. No.	Name of the Schemes	Sharpe's measure
1	DSP-BR Micro Cap Funds (G)	0.214
2	Reliance Small Cap Fund (G)	0.189
3	Franklin Smaller Cos (G)	0.207
4	Mirae Emerging Blue Chip Fund (G)	0.178
5	UTI Transport & Logistic (G)	0.196
6	SBI Magnum Midcap Fund (G)	0.187
7	Can Robeco Emerg-Equities (G)	0.203
8	Principal Emerging Blue Chip (G)	0.195
9	L & T India Large Cap Fund (G)	0.201
10	Franklin India Prima Fund (G)	0.182
11	Birla SL Pure Value Fund (G)	0.177
12	UTI Mid Cap (G)	0.193
13	L&T Midcap Fund (G)	0.206
14	Sundaram SMILE Fund – IP (G)	0.201
15	Sundaram Select Midcap – IP (G)	0.191

Treynor's measure: Table 2 represents the result of Treynor's measure. It is observed from the table 2 that higher positive value of Treynor's measure was found in DSP-BR Micro Cap Funds (G) (0.0148) which followed by Franklin Smaller Cos (G) (0.0147) and L&T Midcap Fund (G) (0.0146). In the study, the Treynor's ratio was positive for all schemes

Table 2

Results of Treynor's measure

(April 2010 to March 2015)

Sr. No.	Name of the Schemes	Treynor's measure
1	DSP-BR Micro Cap Funds (G)	0.0148

2	Reliance Small Cap Fund (G)	0.0119
3	Franklin Smaller Cos (G)	0.0134
4	Mirae Emerging Blue Chip Fund (G)	0.0129
5	UTI Transport & Logistic (G)	0.0131
6	SBI Magnum Midcap Fund (G)	0.0137
7	Can Robeco Emerg-Equities (G)	0.0141
8	Principal Emerging Blue Chip (G)	0.0139
9	L & T India Large Cap Fund (G)	0.0142
10	Franklin India Prima Fund (G)	0.0147
11	Birla SL Pure Value Fund (G)	0.0145
12	UTI Mid Cap (G)	0.0132
13	L&T Midcap Fund (G)	0.0146
14	Sundaram SMILE Fund – IP (G)	0.0128
15	Sundaram Select Midcap – IP (G)	0.0136

CONCLUSIONS

The present paper investigates the performance of 15 open-ended, growth-oriented equity schemes for the period from April 2010 to March 2015 (five years) of transition economy. Monthly NAV of different schemes have been used to calculate the returns from the fund schemes. BSE-Sensex has been used for market portfolio. The historical performance of the selected schemes were evaluated on the basis of Sharpe's and Treynor's measures whose results will be useful for investors for taking better investment decisions. The study revealed that higher positive value of Sharpe measure was found in DSP-BR Micro Cap Funds (G) (0.214) which followed by Franklin Smaller Cos (G) (0.207) and L&T Midcap Fund (G) (0.206). In the study, the Sharpe ratio was positive for all schemes which showed that funds were providing returns greater than risk free rate. It also concluded that higher positive value of Treynor's measure was found in DSP-BR Micro Cap Funds (G) (0.0148) which followed by Franklin Smaller Cos (G) (0.0147) and L&T Midcap Fund (G) (0.0146). In the study, the Treynor's ratio was positive for all schemes.

There are more areas and lot of scope for the study that can further examined. The present study has its limitation in term of number of schemes and period of the study under studied. In the study only the open-ended schemes have been analyzed. Further research, may attempt to analyze and compare more

and more mutual fund schemes and large study period by using different benchmark and investigate the open-ended schemes with close-ended schemes.

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Corresponding Author

Arti Bhola*

M.Com. UGC -NET (Commerce)

E-Mail – arti.bhola0@gmail.com