Performance Evaluation of Mutual Funds in Bangladesh

Author’s Details:

(1) A. T. M. Jakaria Khan- Assistant Professor-Institute of Business Administration, University of Dhaka

(2) Nusrat Jahan- Graduate-Institute of Business Administration-University of Dhaka

Abstract:
Since its inception, mutual fund has been a preferred tool for portfolio diversification for general investors. This research has been focused to study whether the mutual funds in Bangladesh has been able to serve this purpose in the period 2013 to 2018. Performance of a sample of 29 closed-end mutual funds was studied using the methods suggested by Sharpe, Jenson, Treynor and Fama. The study found that most of the funds have shown superior performance than the market under all five measures. Therefore, investors looking for long-term superior returns maybe drawn to this industry in the coming future. This research may be used for further research exploring portfolio composition of the mutual funds and the background of fund managers and the asset management companies to see whether they have any impact on fund performance.

Keywords: M² Alpha, Mutual fund performance, Jensen’s Alpha, Selectivity, Sharpe ratio, Treynor ratio

1.0 INTRODUCTION
A Mutual fund is an investment fund created by collecting money from numerous investors in order to invest in stocks, bonds, and other assets in different industries. Mutual funds are managed by professional fund managers, who allocate the money with an objective of generating capital gain and dividend income for the fund's investors. The current net asset value (NAV) per share of the fund is used as the price at which mutual fund units are purchased or redeemed at. This NAV is calculated by dividing the total value of the fund i.e. the aggregate value of all the stocks in the portfolio by the total number of shares outstanding. Mutual funds have gained popularity over the years because of the cost effectiveness, diversification, professional expertise, and liquidity they provide.

The mutual fund industry of Bangladesh mainly consists of open-end and closed-end funds. As of February 2019, there are 37 closed-end mutual funds and 47 open-end funds. Currently, this sector ranks 13th of total market capitalization. As of February 2019, the market capitalization of the closed-end mutual funds stood around BDT 35262 million which is 0.98% of the total market capitalization (2019).

Bangladesh’s current Assets under management (AUM) to GDP ratio is a mere 0.48%, in contrast to 10.73% in India and 31.02% in Thailand with the global average being 32%. Going forward, as the GDP per capita increases and people become more financially literate, savers are most likely to look for alternative tools to park their savings (2019). Therefore, investment in mutual funds is likely to increase. This study provides some understandings on mutual fund performance that can help individual investors make rational investment decisions.

There are a substantial number of researches conducted in order to assess the performance of mutual funds in comparison with the market. This study focuses on the mutual fund sector of Bangladesh over the period of 2013 to 2018 to determine if mutual funds have outperformed the market during this period. The main objective of this research is to investigate the performance of mutual funds in Bangladesh from 2013 to 2018. The report looks at the individual performances of closed-end mutual funds in this regard.

The paper develops as follows. First, the literature review explores previous studies with a focus on different techniques used to measure performance of mutual funds and their findings. Next, the data collection and analysis method is described. The findings are then presented along with their interpretation. Finally, the paper concludes with a discussion of the results and their theoretical and practical implications.

http://www.ijmsbr.com
2.0 LITERATURE REVIEW

Evaluating the stand alone performance of a mutual fund is not very meaningful. According to Adam Hayes (2019), performance has to be viewed as a relative issue, compared with the performance of an appropriate benchmark. The earlier studies in this field were based only on comparing rate of returns to evaluate the performance of mutual funds ignoring the risk component despite its being an important variable in determining investment success. Later, in the early 60s, after the development of portfolio theory, CAPM model was used that related risk to the expected return (2001). Later, Treynor (1965) suggested a new method by using the systematic risk of a fund as measure of risk rather than total risk.

Studies conducted in the 1960s on the performance of mutual funds did not provide much hope for the fund managers. Studying 57 open-ended mutual funds for the period of 1953 – 1962, Treynor and Mazuy (1966) found that fund managers could not outguess the market. Using total risk as a proxy of risk, in the same year, Sharpe (1966) conducted a study on 34 open-end mutual funds during the period of 1954 - 1963 and found that 19 funds performed better than DJIA (Dow Jones Industrial Average) while 15 could not match the performance of the benchmark. However, after considering the costs associated with the operation of the funds, the returns obtained by the holder of mutual fund shares paled in comparison to the DJIA. The next year, Jensen (1967) studied 115 mutual funds over the period 1945-1964 to examine the fund managers’ ability to generate higher portfolio returns by successfully predicting future security prices and concluded that fund managers, on average, could not predict the prices of stock and other securities well enough to perform better than the market.

In recent years, some contradictory studies emerged. To evaluate the European mutual funds, Otten & Bams (2002) took a sample of 506 open-ended mutual funds from 5 different European countries over the period of 1991 to 1998. Using the Carhart 4-factor model, they came to the conclusion that European mutual funds in general, and especially funds with small capital, were able to outperform the market. On the contrary, using the same model, Otten and Białkowski (2010) studied 140 funds in Poland and found that mutual funds underperformed their benchmark. Supporting this result, Fama and French (2010) evaluated the mutual fund performance over the period 1984-2006 using the three-factor model of Fama and French and found that most of the mutual funds underperformed than the market.

In South Asia, studies on performance of mutual funds provided conflicting results. Sapar and Madava (2003) conducted a study on 58 open-ended mutual funds in India in a bear market through relative performance index, risk-return analysis, Treynor's ratio, Sharpe's ratio, Jensen's measure, and Fama's measure and concluded that most of mutual funds they studied were able to provide higher than the expected returns based on both premium for systematic risk and total risk. Shah & Hijaji (2005) evaluated 21 closed-end and 12 open-end funds over the period of 1997 to 2004 using Sharpe Measure, Treynor Measure, and Jensen’s differential Measure. Their study concluded that most of the funds performed better than the market. However, Sipra (2006) in her paper evaluated the performance of 33 Pakistani Mutual Funds over the period of 1995-2004 using Sharpe, Treynor, and Jensen’s measures of portfolio performance evaluation. The study found that only 30% of the mutual funds could outperform the market. Ali & Qudous (2012) studied fifteen mutual funds for the period of 2005 to 2009 and using Sharpe Measure and Treynor Measure, they found that none of the funds could outperform the market.

Although mutual funds have been a popular avenue for investment in Bangladesh, research reports on mutual fund performance in Bangladesh are not so abundant. Rahman, Qiang & Barua (2012) examined the performance of 16 mutual funds listed on the DSE by assessing monthly returns. Using Jenson, Treynor and Sharpe ratios, the study suggested that mutual funds could not outperform the market. Later, Qamruzzaman (2014) conducted a study on 32 mutual funds for the period of January, 2012 to June 2013. Their performance was monitored by measuring returns based on changes in monthly net asset values. The study used the DSEX
Using Sharpe ratio, Treynor ratio and Jensen’s alpha, he found that mutual funds could not perform better than the market. Moreover, Anwar & Arif (2016) conducted a study on the same field for the period of 2014 to 2015 and, using weekly NAV, found that most of the funds could not do well in relation to the market. The same year, using the same matrices on 25 mutual funds over the period of May, 2010 to April, 2016, Hasan and Ahsan (2016) reached to a similar conclusion. However, on the same year Das (2016) also conducted a study on the same field using the same matrices and looking at 18 mutual funds for the period of July, 2012 to June, 2015 the study found that in almost all cases, fund managers outperformed the market by ensuring abnormal positive returns comparing to market returns. The next year, Biplob (2017) conducted a study which looked at 15 closed-end mutual funds in Dhaka Stock Exchange (DSE) for the period of February 2013 to March 2017. The study found that most of the closed-end mutual funds could beat market.

3.0 METHODOLOGY

a) Data Collection:
This quantitative research was supported by secondary data collected from Dhaka Stock Exchange Bangladesh (DSEBD), Amar Stock website, and from the reports and financial statements published by individual mutual funds for the period of 2013 to 2018. DSEX index is used as benchmark for the study. The index did not exist before 2013, which limited the research period of the report (2013-2017). Among the 37 presently listed closed-end mutual funds, only 29 have been in existence for over 5 years, making these funds suitable for the purpose of the report.

b) Analysis Techniques:
For the purpose of satisfying the objective of the study, this paper has initially calculated monthly returns based on the monthly NAVs of the funds. The net asset values have been corrected to adjust payout of cash dividends. DSEX has been used as proxy of market portfolio. This study used five worldwide accepted models to evaluate the historical performance of the selected funds, namely (1) Sharpe Measure, (2) Treynor Measure, (3) Jensen’s Alpha, (4) M²Alpha, and (5) Fama’s Selectivity measure to conclude about the overall mutual funds market of Bangladesh.

Sharpe ratio: The Sharpe ratio, developed by William F. Sharpe, is a metric for comparing the return of an investment to its risk. It is the average return earned in excess of the risk-free rate for per unit of total risk. The greater the value of the Sharpe ratio, the more attractive the risk-adjusted return. The ratio helps an investor understand an investment's return compared to the risk taken. The Sharpe ratio is calculated as follows:

\[
\text{Sharpe ratio} = \frac{R_p - R_f}{\sigma_p}
\]

\[R_p = \text{Average fund return};\]
\[R_f = \text{Average risk free return};\]
\[\sigma_p = \text{Standard deviation of fund returns}\]

Treynor ratio: Named after its creator, Jack L Treynor, the Treynor ratio determines how much return is generated in excess of the risk-free rate for each unit of systematic risk taken on by a portfolio. The greater the value of the Treynor ratio, the more attractive the risk-adjusted return. The Treynor ratio uses beta, or systematic risk, to measure volatility instead of using standard deviation, or total risk, like the Sharpe ratio. In case of well diversified mutual funds, the element of unsystematic risk would be very negligible. Hence, Treynor ratio, which considers only the systematic risk, would be more useful here.

The Treynor ratio is calculated as follows:

\[
\text{Treynor ratio} = \frac{R_p - R_f}{\beta_p}
\]

\[R_p = \text{Average fund return};\]
$R_f$ = Average risk free return;  
$\beta_p$ = Coefficient as a measure of systematic risk

**Jensen’s Alpha:** The Jensen’s Alpha, developed by Michael C. Jensen’s, calculates the excess return that a portfolio generates over its expected return. The higher the ratio, the better the risk-adjusted returns. (Segal, 2017).

The Alpha is calculated as follows:

$$\text{Alpha (}\alpha\text{)} = R_p - \{R_f + \beta (R_m - R_f)\}$$

$\alpha$ = Parameter of the model;  
$R_p$ = Average fund return;  
$R_f$ = Average risk free return;  
$R_m$ = the return on the market index

Both the Sharpe ratio and the Treynor ratio require positive numerators to give meaningful results. In addition, the Treynor ratio does not work in case of negative beta assets. In both cases, the Jensen’s Alpha can be used.

**M^2:** Developed by Franco Modigliani and Leah Modigliani, $M^2$ measures the returns of the portfolio, adjusted for the risk of the portfolio relative to that of some benchmark (e.g., the market). Although it is derived from the Sharpe ratio, it has the significant advantage of being in units of percent return which makes it more intuitive to interpret.

The $M^2$ is calculated as follows:

$$M^2 = \text{Sharpe ratio} \times \sigma_m + R_f$$

Where  
$\sigma_m$ = Standard deviation of market returns;  
$R_f$ = Average risk free return

Though the Sharpe ratio can conclude about whether a fund has outperformed the market, it cannot provide any indication about the excess return. Hence, the $M^2$ Alpha is a better measure to know about the excess return generated by a particular fund.

**Selectivity:** Fama’s Selectivity Measure is an absolute measure of performance. It calculates the excess return obtained by a fund manager that could not have been obtained investing in the market portfolio. It compares the extra return obtained by the portfolio manager with the extra return that could have been obtained with the same amount of systematic risk. A positive value indicates that the fund has achieved superior return than the market.

It can be calculated with the help of Fama’s decomposition measure:

$$= (R_p - R_f) - \frac{\sigma_p}{\sigma_m (R_m - R_f)}$$

Where,  
$R_p$ = Average fund return;  
$R_f$ = Average risk free return;  
$R_m$ = the return on the market index  
$\sigma_p$ = Standard deviation of fund return
\[\sigma_m = \text{Standard deviation of market portfolio return}\]

### 4.0 RESULTS ANALYSIS AND FINDINGS

<table>
<thead>
<tr>
<th>Mutual Fund Trading Code</th>
<th>Sharpe Ratio</th>
<th>Treynor Ratio</th>
<th>Jensen's Alpha</th>
<th>M²</th>
<th>Selectivity (Fama)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IJANATAMF</td>
<td>-0.2352</td>
<td>-0.0762</td>
<td>-0.0177</td>
<td>0.0303</td>
<td>-56.8236</td>
</tr>
<tr>
<td>ISTRPRIMFMF</td>
<td>0.1002</td>
<td>0.0209</td>
<td>0.0007</td>
<td>0.0874</td>
<td>16.8019</td>
</tr>
<tr>
<td>ABB1STMF</td>
<td>-0.3838</td>
<td>-0.1105</td>
<td>-0.0266</td>
<td>0.0050</td>
<td>9.6217</td>
</tr>
<tr>
<td>AIBL1STMF</td>
<td>0.1839</td>
<td>0.0529</td>
<td>0.0127</td>
<td>0.1016</td>
<td>9.6304</td>
</tr>
<tr>
<td>DBH1STMF</td>
<td>0.0999</td>
<td>0.0228</td>
<td>0.0057</td>
<td>0.0873</td>
<td>9.2518</td>
</tr>
<tr>
<td>EBL1STMF</td>
<td>-0.0289</td>
<td>-0.0060</td>
<td>-0.0013</td>
<td>0.0654</td>
<td>11.7399</td>
</tr>
<tr>
<td>EBLNRBMF</td>
<td>-0.3199</td>
<td>-0.0865</td>
<td>-0.0216</td>
<td>0.0159</td>
<td>11.3141</td>
</tr>
<tr>
<td>EXIM1STMF</td>
<td>-0.4648</td>
<td>-0.1468</td>
<td>-0.0315</td>
<td>-0.0088</td>
<td>8.1806</td>
</tr>
<tr>
<td>FBFIF</td>
<td>-0.6622</td>
<td>-0.2128</td>
<td>-0.0456</td>
<td>-0.0424</td>
<td>8.2964</td>
</tr>
<tr>
<td>GRAMEENS2</td>
<td>-0.2219</td>
<td>-0.0739</td>
<td>-0.0167</td>
<td>0.0325</td>
<td>9.5230</td>
</tr>
<tr>
<td>GREENDELMF</td>
<td>0.1768</td>
<td>0.0380</td>
<td>0.0093</td>
<td>0.1004</td>
<td>7.5971</td>
</tr>
<tr>
<td>ICB2NDNRB</td>
<td>0.0989</td>
<td>0.0215</td>
<td>0.0021</td>
<td>0.0871</td>
<td>16.2228</td>
</tr>
<tr>
<td>ICB3RDNRB</td>
<td>0.0832</td>
<td>0.0171</td>
<td>0.0016</td>
<td>0.0845</td>
<td>15.3788</td>
</tr>
<tr>
<td>ICAMCL2ND</td>
<td>0.1576</td>
<td>0.0316</td>
<td>0.0015</td>
<td>0.0971</td>
<td>15.9599</td>
</tr>
<tr>
<td>ICBEPMF1S1</td>
<td>0.1887</td>
<td>0.0381</td>
<td>0.0015</td>
<td>0.1024</td>
<td>16.2144</td>
</tr>
<tr>
<td>ICBSONAL1</td>
<td>0.0481</td>
<td>0.0106</td>
<td>0.0023</td>
<td>0.0785</td>
<td>12.4844</td>
</tr>
<tr>
<td>IFIC1STMF</td>
<td>-0.3657</td>
<td>-0.0892</td>
<td>-0.0221</td>
<td>0.0080</td>
<td>11.0424</td>
</tr>
<tr>
<td>IFILISLMF1</td>
<td>0.3458</td>
<td>0.0797</td>
<td>0.0166</td>
<td>0.1292</td>
<td>13.6249</td>
</tr>
<tr>
<td>LRGLOBMF1</td>
<td>0.0063</td>
<td>0.0016</td>
<td>0.0004</td>
<td>0.0714</td>
<td>7.9346</td>
</tr>
<tr>
<td>MBL1STMF</td>
<td>0.1819</td>
<td>0.0411</td>
<td>0.0103</td>
<td>0.1013</td>
<td>9.2122</td>
</tr>
<tr>
<td>NCCBLMF1</td>
<td>0.0122</td>
<td>0.0030</td>
<td>0.0007</td>
<td>0.0724</td>
<td>9.2107</td>
</tr>
<tr>
<td>NLI1STMF</td>
<td>0.6930</td>
<td>0.2291</td>
<td>0.0525</td>
<td>0.1883</td>
<td>9.9193</td>
</tr>
<tr>
<td>PF1STMF</td>
<td>0.2355</td>
<td>0.0486</td>
<td>0.0058</td>
<td>0.1104</td>
<td>14.8913</td>
</tr>
<tr>
<td>PHPMF1</td>
<td>-0.2125</td>
<td>-0.0553</td>
<td>-0.0138</td>
<td>0.0341</td>
<td>10.3009</td>
</tr>
<tr>
<td>POPULAR1MF</td>
<td>-0.3505</td>
<td>-0.1010</td>
<td>-0.0244</td>
<td>0.0106</td>
<td>9.7902</td>
</tr>
<tr>
<td>PRIME1ICBA</td>
<td>0.1922</td>
<td>0.0392</td>
<td>0.0039</td>
<td>0.1030</td>
<td>15.2104</td>
</tr>
<tr>
<td>RELIANCE1</td>
<td>0.2050</td>
<td>0.0500</td>
<td>0.0123</td>
<td>0.1052</td>
<td>9.0405</td>
</tr>
<tr>
<td>SEBL1STMF</td>
<td>0.3628</td>
<td>0.2878</td>
<td>0.0698</td>
<td>0.1321</td>
<td>27.5794</td>
</tr>
<tr>
<td>TRUSTB1MF</td>
<td>-0.3729</td>
<td>-0.0913</td>
<td>-0.0224</td>
<td>0.0068</td>
<td>11.5524</td>
</tr>
</tbody>
</table>

Table 1: Results of the analysis

**Sharpe ratio:** Table 1 shows that 18 out of 29 funds have positive Sharpe ratio. This scenario indicates that most of the fund managers were efficient enough to give higher returns on funds than the market. The highest performing mutual fund is NLI1STMF (0.6930) followed by SEBL1STMF (0.3628), IFILISLMF1 (0.3458), PF1STMF (0.2355), RELIANCE1 (0.2050) based on monthly return from monthly NAV and the lowest performing mutual fund was FBFIF having a Sharpe ratio of (-0.6622). The results indicate that investors may invest in these 18 mutual funds having positive Sharpe ratios to receive a higher return than the market.

**Treynor ratio:** From the 29 closed-end mutual funds, 18 out of 29 funds could achieve positive Treynor ratio. This implies that based on Treynor ratios, investors may invest in any of these 18 mutual funds in order to gain a higher return than the market. The results also point out that most of the funds outperformed the market. The top performers remained mostly unchanged with a little shift in the order. The highest performing mutual fund is SEBL1STMF scoring a Treynor ratio 0.2878 followed by NLI1STMF (0.2291), IFILISLMF1 (0.0797), AIBL1STMF (0.0529), RELIANCE1 (0.0500) based on monthly return from monthly NAV. Like the result based on Sharpe ratio, lowest performing mutual fund was, again, FBFIF having a Treynor ratio of (-0.2128).

**Jensen’s Alpha:** A total of 18 out of 29 funds have been able to achieve positive Jensen’s alpha. The top 5 performers according to Jensen’s Alpha are the same funds found by the Treynor Ratio with SEBL1STMF.
securing 0.0698 followed by NL1ISTMF (0.0525), IFILISLMF1 (0.0166), AIBL1STIMF (0.0127), RELIANCE1 (0.0123). Again, FBFIF remained the lowest performer with an Alpha of (-0.0456). Finally, it can be concluded that considering Jensen’s Alpha only, investors may invest in any of these 18 mutual funds in order to get a better return than the market.

\[ \text{M}^2 \]: We can see that only 27 out of the 29 funds outperformed the market using the M\(^2\) Alpha measure. The top performing funds, again, remained mostly unchanged. The top performer was NL1ISTMF (0.1883) being followed by SEBL1STMF (0.1321), IFILISLMF1 (0.1292), PF1STMF (0.1104), and RELIANCE1 (0.1052). The two funds that could not beat the market were EXIM1STMF (0.0088) and FBFIF (0.0424). Therefore, it can be said that based on M\(^2\) Alpha only, investors may invest in any mutual fund, except EXIM1STMF and FBFIF, in order to get a greater return than the market.

**Selectivity:** Table 1 shows that out of 29 funds all funds, except FBFIF, have positive values indicating that funds have earned superior returns because of the selection ability of the fund managers. Hence, it is evident that based on Selectivity, investors may invest in any mutual fund, except FBFIF, to achieve a higher return than the market. The top five gainers were SEBL1STMF (27.5794), 1STPRIMFMF (16.8019), ICB2NDNRB (16.2228), ICBEPMF1S1 (16.2144), ICBAMCL2ND (15.9599).

Based on the results, NL1ISTMF, SEBL1STMF, IFILISLMF1, and RELIANCE1 were the top performers. Investors may invest in any mutual funds in order to get a greater return than the market. On the other hand, FBFIF, ABB1STMF, EXIM1STMF, EBL1STMF, PHPMF1, GRAMEENS2, 1JANATAMF, EBLNRBMF, POPULAR1MF, IFIC1STMF, TRUSTB1MF could not outperform the market according to any of these measures, except Selectivity.

**5.0 CONCLUSIONS**

The study analyzes the performance of 29 close-ended mutual funds for the period of 2013 to 2018. Monthly NAV of different funds has been used to calculate monthly returns from the funds which have been compared with market return. Finally, performance of the selected funds was evaluated on the basis of Sharpe ratio, Treynor ratio, Jensen’s Alpha, M\(^2\) Alpha, and Fama’s selectivity measure.

From the above analysis, it is seen that most of the funds have shown superior performance than the market under all five measures. Sharpe ratio, Treynor ratio, Jensen’s Alpha, and M\(^2\) Alpha provided similar results. Based on these four measures, NL1ISTMF, SEBL1STMF, IFILISLMF1, and RELIANCE1 were the top performers. On the other hand, FBFIF, ABB1STMF, EXIM1STMF, EBL1STMF, PHPMF1, GRAMEENS2, 1JANATAMF, EBLNRBMF, POPULAR1MF, IFIC1STMF, TRUSTB1MF could not outperform the market according to any of these measures. Fama’s selectivity measure provided a more positive result in favour of mutual fund managers. It showed that most of the fund managers were able to identify and select undervalued securities in order to earn higher returns. Overall, it can be said that, in most cases, investment in mutual fund has well compensated the investor for the additional risk taken by investing in mutual funds.

Since performance of mutual funds is depended on the performance of the fund managers, from the result of the analysis, it can be inferred that skilled fund managers can actively beat the market. Therefore, investors looking for long-term superior returns, in theory, should be drawn to this industry. Moreover, investors who lack proper market knowledge should consider it for its safety attribute. However, there still remain some challenges including lack of capital market development and investor awareness. Without increasing the depth of the capital market with quality issues, it would be difficult for the sector to flourish. Moreover, certain attributes, such as the declaration of RIUs and reluctance to redeem funds on the part of certain fund managers, have curtailed investor expectations and confidence. Therefore, more advanced and rigorous regulations are required for the development of the sector.
In this study, the lack of a large sample size and the short period of study are two major limitations. Also, only closed-end funds are considered for the study. Open-end funds may be studied to assess whether the results remain unchanged. Moreover, portfolio composition of the mutual funds and the background of fund managers and the asset management companies may be reviewed to see whether they have any impact on fund performance.

REFERENCES


