



Comparative Study on Performance Evaluation of Mutual Fund Schemes in Bangladesh: An Analysis of Monthly Returns

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Abstract

In this paper an attempt is made to evaluate the performance of 32 growth oriented mutual funds on the basis of monthly returns compared to benchmark returns. For this purpose, risk adjusted performance measures suggested by Jensen, Treynor and Sharpe are employed widely known as Treynor ratio, Sharpe ratio, and Jensen's alpha. This study found that, over the research period selected mutual funds shows positive monthly return and upward trend in comparison to market return. Different risk return measures shows similar performance indication with exception of few mutual funds scheme due to market return in inconsistent with return from mutual funds i.e., negative market return. It can be concluded that, the growth oriented mutual funds have not performed better than their respect to volatility most of the funds have not performed better. Growth oriented mutual funds are expected to offer the advantages of diversification, market timing and selectivity. For broadening the depth of the capital market, it is necessary to float more mutual funds since these are good instruments of mobilizing savings and providing investment opportunities to small savers.

Keywords: Risk-return Analysis, NAV, Beta CAPM, Sharpe ratio, Treynor ratio, Jensen ratio.

JEL Classifications: G10, G11, G12

Introduction

Over the past decade, mutual funds have become the investor's vehicle of choice for long-term investing. A Mutual Fund pools the savings of a number of investors who share a common financial goal. Mutual Fund is one of the most preferred investment alternatives for the risk averse investors as it offers chance to invest in a diversified, professionally handled portfolio at low cost. With emphasis on increase in domestic savings and increase in investment through capital markets, the need and scope for mutual fund operation has increased tremendously.

Growth and developments of various mutual funds products in the Bangladesh capital market has demonstrated to be one of the most important instruments in generating significant growth in the capital market. A mutual fund is a company that pools money from many investors and invests the money in stocks, bonds, short-term money-market instruments, other securities or assets, or some combination of these investments.¹Bangladesh has a very small market for mutual funds. Currently 42 mutual funds trade in the markets. Till now, 42 mutual funds together account for less than 5% of our total market capitalization with combined assets of more than Tk. 2,200 cores². However, this small market is not happy at all at this moment. In this context, evaluation of mutual funds has become essential. It becomes relevant to study the performance of mutual fund industry. The relation between risk-return determines the performance of a mutual fund scheme.

Literature Review

Poonam M Lohana (2013) studied on performance evaluation of selected mutual funds of india based on risk-return relationship models and measures: Treynor ratio, Sharpe ratio, Jensen's alpha. The study found that Returns of all funds are more than market index returns, but not high. Prajapati & Patel (2012) studied on performance evaluation of mutual fund schemes of Indian companies is carried out through relative performance index, risk-return analysis, Treynor's ratio, Sharp's ratio, Sharp's measure, Jensen's measure, and Fama's measure.. The study found that that most of the mutual fund have given positive return during 2007 to 2011. Selvam et.al (2011) studied the risk and return relationship of Indian mutual fund schemes. The study found out that out of thirty five sample schemes, eleven showed significant t-values and all other twenty four sample schemes did not prove significant relationship between the risk and return. According to t-alpha values, majority (thirty two) of the sample schemes' returns were not significantly different from their market returns and very few number of sample schemes' returns were significantly different from their market returns during the study period. Salim, Takibur & Sharmeen (2010) investigate performance equity based mutual fund schemes in Bangladesh considering 16 mutual funds based on risk return relationship model and measures. This study found that different measures produce different outcome which is not consistent due to time horizon. Sushilkumar (2010) analyze the performance of mutual fund schemes of SBI and UTI and found out that SBI schemes have performed better than the UTI in the year 2007-2008. Deepak (2009) studied the empirically testing on the basis of fund manager performance and analyzing data at the fund-manager and fund-investor levels. The study revealed that the performance is affected by the saving and investment habits of the people and at the second side the confidence and loyalty of the fund Manager and rewards- affects the performance of the MF industry in India. Rao D. N (2006) studied the financial performance of select open-ended equity mutual fund schemes for the period 1st April 2005 - 31st March 2006 pertaining to the two dominant investment styles and tested the hypothesis whether the differences in performance are statistically significant. The analysis indicated that growth plans have generated higher returns than that of dividend plans but at a higher risk studied classified the 419 open-ended equity mutual fund schemes into six distinct investment styles. Agrawal Deepak & Patidar Sagar & Narayan(2003) examines the performance of Indian mutual funds in a bear market through relative performance index, risk-return analysis, Treynor's ratio, Sharp's ratio, Sharp's measure,

¹ U.S. Securities and Exchange Commission Office of Investor Education and Advocacy

² Securities and Exchange Commission, "Public issue of Securities: Mutual Funds"

Jensen's measure, and Fama's measure with a sample of 269 open ended schemes (out of total schemes of 433). The results of performance measures suggest that most of the mutual fund schemes in the sample of 58 were able to satisfy investor's expectations by giving excess returns over expected returns based on both premium for systematic risk and total risk. Kshama Fernandes (2003) evaluated index fund implementation in India. In this paper, tracking error of index funds in India is measured. The consistency and level of tracking errors obtained by some well-run index fund suggests that it is possible to attain low levels of tracking error under Indian conditions. At the same time, there do seem to be periods where certain index funds appear to depart from the discipline of indexation. Mishra, et al., (2002) measured mutual fund performance using lower partial moment. In this paper, measures of evaluating portfolio performance based on lower partial moment are developed. Risk from the lower partial moment is measured by taking into account only those states in which return is below a pre-specified "target rate" like risk-free rate. As indicated by Statman (2000), the e SDAR of a fund portfolio is the excess return of the portfolio over the return of the benchmark index, where the portfolio is leveraged to have the benchmark index's standard deviation. S.Narayan Rao, et. al., evaluated performance of Indian mutual funds in a bear market through relative performance index, risk-return analysis, Treynor's ratio, Sharpe's ratio, Sharpe's measure, Jensen's measure, and Fama's measure. The study used 269 open-ended schemes (out of total schemes of 433) for computing relative performance index. Then after excluding funds whose returns are less than risk-free returns, 58 schemes are finally used for further analysis. The results of performance measures suggest that most of mutual fund schemes in the sample of 58 were able to satisfy investor's expectations by giving excess returns over expected returns based on both premium for systematic risk and total risk. Sharpe, William F. (1966) suggested a measure for the evaluation of portfolio performance. Drawing on results obtained in the field of portfolio analysis, economist Jack L. Treynor has suggested a new predictor of mutual fund performance, one that differs from virtually all those used previously by incorporating the volatility of a fund's return in a simple yet meaningful manner. Michael C. Jensen (1967) derived a risk-adjusted measure of portfolio performance (Jensen's alpha) that estimates how much a manager's forecasting ability contributes to fund's returns.

Objective of the study

- i) To measure the growth oriented Mutual Fund are earning higher returns than market Portfolio..
- ii) To find out those mutual fund schemes offering the advantages of diversification.
- iii) To analyze the excess return per unit of risk evidenced by mutual fund of public sector and private sector.

Scope of the study

The scope of the study is limited to growth schemes in Bangladesh for the period **January '12 to June '13 and use 32 mutual funds for the study out of 42 currently traded in the market.**

Secondary Data: The study has been carried out entirely on the basis secondary source. The major sources of secondary data are as given below:

Net Asset Values (NAVs) on the opening and closing day of each of the 12 months of the study period (**January '12 to June '13.**) of the 32 growth oriented funds are collected from the websites of the Dhaka stock exchange.

Daily General index obtained from Dhaka Stock exchange the proxy for the market return in the study.

Research Methodology

This study has been designed on the following ways:

Research approach: Exploratory research methods apply in this connection and interpret the research outcome accordingly.

Sampling technique: in case of selecting sample for research purpose, here random sampling technique follow which means mutual funds schemes select on random basis considering one criterion such that schemes should traded before January 01, 2012. For market return calculation DES all shares index consider as market representative and return uses as benchmark for comparison

Time horizon: The studies consider those mutual funds which are traded about last 18 months in the market. Research period started from 1st January, 2012 to 30th June, 2013

Sources of data: Both primary and secondary data has been collected in this regard. Mostly data collected from secondary sources. Primary data has been collected from direct interview of different market experts and investors.

Procedure of data analysis: Different statistical tools and financial models are used to evaluate the performance of mutual funds. Specially mean return, covariance, coefficient of correlation, beta coefficient, Sharpe index, Treynor index and Jensen alpha

Measuring risk and return of mutual funds

NAV

NAV or Net Asset Value of the fund is the cumulative market value of the assets of the fund net of its liabilities. NAV per unit is simply the net value of assets divided by the number of units outstanding. Buying and selling into funds is done on the basis of NAV-related prices.

NAV is calculated as follows:

NAV= Market value of the fund's investments + Receivables + Accrued Income- Liabilities- Accrued Expenses / Number of Outstanding units

Risk-free rate of return: There are two basic criteria, one the security should be highly liquid and another is that it should be capable of generating a return, with negligible variation from expected returns. 91 days treasury bills falls within this yardstick. Return on 91 days T-bills has been taken as surrogate measure of risk-free return for the period from **January '12 to June '13** have been collected from the website of government securities.

Return

For each mutual fund scheme under study, the monthly returns are computed as:

$$R_i = \frac{p_1 - p_0}{p_0}$$

Where,

R_i = Return of fund during period over 12 months

p_1 = Value of the Fund at the end of period 1

p_0 = Value of the Fund at the start of period

The market returns are computed on similar lines with General as benchmark. The return on the market portfolio is computed as:

$$R_m = \frac{\text{Market Index}_1 - \text{Market Index}_0}{\text{Market Index}}$$

Where, R_m is return on market.

Return Relative:

The concept of return relative is used in cumulative wealth index or geometric mean as in such calculations negative returns cannot be used. It is defined as, Relative return = 1+Total return in decimals.

The geometric mean R_j is the total return for period and n is the number of time periods. It is computed to obtain mean monthly market return. The returns thus obtained are absolute returns and are retained throughout the study. The expression shown below has been used to compute monthly compounded rate of return, R, for fund 'j'.

$$r = (R1 \times R2 \times R3 \dots \dots \dots RN)^{1/N}$$

Where,

r = Compounded monthly rate of return on fund 'j'

R1 = Monthly rate of return on fund 'j' for nth month

n = Number of months

Risk

Standard deviation is measure of total risk. The square root of the variance is called the standard deviation $\sigma = \text{Var} (r)$. The standard deviation and the variance are equally acceptable and equivalent quantitative measures of an asset's total risk. The variance and standard deviation are computed from average monthly returns.

Beta is measure of Systematic Risk or non-diversifiable risk. It measures the sensitivity of the stock with reference to a broad based market index.

$$\beta = \frac{\text{Covariance}_{im}}{\text{Variance}_m}$$

Coefficient of Variation (CV): It means risk per unit of return i.e. standard deviation/mean. It measured the degree of variation relative to mean as a percentage.

Co-efficient of Determination (R2): i.e., the extent to which the movement in the fund can be explained by corresponding benchmark index (

Measuring performance of mutual funds

For further evaluating the performance of mutual funds, the risk-return relation models given by Sharpe (1966), Treynor (1965) and Jensen (1968) have been applied

Jack **Treynor** (1965) conceived an index of portfolio performance measure called as reward to volatility ratio, based on systematic risk. He assumes that the investor can eliminate unsystematic risk by holding a diversified portfolio. Hence his performance measure denoted as T is the excess return over the risk free rate per unit of systematic risk, in other words it indicates risk premium per unit of systematic risk.

$$\text{Treynor's index} = \frac{R_J - R_f}{\beta_{pj}}$$

Where,

R_J = Portfolio returns over a period j

R_f = Risk-free return over a period f

β = Market-risk, beta coefficient p

If TP of the mutual fund scheme is greater than $(R_m - R_f)$ then the scheme has out performed the market. The major limitation of the Treynor Index is that it can be applied to the schemes with positive betas during the bull phase of the market. The results will mislead if applied during bear phase of the market to the schemes with negative betas. The second limitation is it ignores the reward for unsystematic or unique risk.

Sharpe's Ratio

Sharpe (1966) devised an index of portfolio performance measure, referred to as reward to variability ratio denoted by S He assumes that small investor invests fully in the mutual fund and does not hold any portfolio to eliminate unsystematic risk and hence demands a premium for the total risk.

$$\text{Sharpe ratio} = \frac{R_J - R_f}{\sigma_{pj}}$$

R_J = Portfolio returns over a period j

R_f = Risk-free return over a period

σ = Total risk, standard deviation of portfolio return j

If S_j of the mutual fund scheme is greater than that of the market portfolio, the fund has outperformed the market. The superiority of the Sharpe ratio over the Treynor ratio is, it considers the point whether investors are reasonably rewarded for the total risk in comparison to the market. A mutual fund scheme with a relatively large unique risk may outperform the market in Treynor's index and may underperform the market in Sharpe ratio. A mutual fund scheme with large Treynor ratio and low Sharpe ratio can be concluded to have relatively larger unique risk. Thus the two indices rank the funds differently

Jensen's Measure

Jensen (1968) has given different dimension and confined his attention to the problem of evaluating a fund manager's ability of providing higher returns to the investors. He measures the performance as the excess return provided by the portfolio over the expected (CAPM) returns. The performance measure, denoted by JP. He assumes that the investor expects at least CAPM returns.

$$(R_p) = R_f + \beta_j \times [(R_m) - R_f]$$

Where,

(R_p) = Expected portfolio return during a particular period j

R_f = Risk free interest rate

R_m = return on market/benchmark portfolio

β_j = Volatility of portfolio return against that of market Portfolio return or portfolio's market risk.

β_j , is a measure of systematic risk of the portfolio and is calculated using following equation A positive value of J would indicate that the scheme has provided a higher return over the CAPM return and lies above Security Market Line (SML) and a negative value would indicate it has provided a lower than expected returns and lies below SML. The Jensen model assumes that the portfolio is fully invested and is subjected to the limitations of CAPM.

Data Analysis and Findings

The following table exhibits the Average monthly return of different mutual funds scheme in Bangladesh. From **Table 01**, it is obvious that maximum return earned by 5th ICB MUTUAL FUND (107.56%) and having lowers return earned by FIRST JANATA BANK MUTUAL FUND (-14.40%) respectively.

Table 01: Return Earned by Different Mutual funds

name of the scheme	Average Return	Rank according to return	Below market return	Above market return
Reliance One	27.46%	8		√
AB Bank 1st Mutual Fund	0.33%	21		√
AIBL 1st Islamic Mutual Fund	-0.20%	23		√
AIMS FIRST MUTUAL FUND.	50.33%	4		√
DBH First Mutual Fund	-3.83%	27		√
EBL FIRST MUTUAL FUND	-1.69%	25		√
EBL NRB Mutual Fund	29.41%	7		√
8TH ICB MUTUAL FUND	47.76%	5		√
5th ICB MUTUAL FUND.	107.56%	1		√
1st ICB MUTUAL FUND.	-1.57%	24		√
First Janata Bank Mutual Fund	-14.40%	32	√	
4th ICB mutual fund	12.24%	15		√
Grameen phone 1st mutual fund	50.57%	3		√
GRAMEEN ONE:SCHEME TWO	43.10%	6		√
Green Delta Mutual Fund	0.09%	22		√
ICB AMCL ISLAMIC	11.96%	16		√
ICB AMCL 1st MUTUAL FUND	24.89%	10		√
ICB AMCL FIRST NRB MUTUAL FUND	5.12%	19		√
ICB AMCL 2nd Mutual Fund	-12.42%	31	√	
ICB AMCL 3rd NRB Mutual Fund	-10.27%	29		√

IFIC Bank 1st Mutual Fund	16.73%	13		√
IFIL Islamic Mutual Fund-1	5.01%	20		√
LR Global Bangladesh Mutual Fund One	-5.27%	28		√
MBL 1st Mutual Fund	-11.63%	30		√
Phoenix Finance 1st Mutual Fund	5.28%	18		√
PHP First Mutual Fund	14.68%	14		√
Popular Life First Mutual Fund	20.02%	12		√
Prime Bank 1st ICB AMCL Mutual Fund	-3.31%	26		√
PRIME FINANCE FIRST MUTUAL FUND	11.85%	17		√
SIXTH ICB MUTUAL FUND.	51.04%	2		√
Southeast Bank 1st Mutual Fund	23.41%	11		√
TRUST BANK 1ST MUTUAL FUNDS.	26.43%	9		√
Market Return	-12.21%			
Percentage %			6.25%	93.75%

Source: Authors calculation by using SPSS-20

Market return for the period is -12.21%³, considering market return is benchmark it is apparent from the above that is about 6.25% of total mutual funds earning lower than market against 93.75% of total mutual funds shows higher return than actually market portfolio shows. The fact to be noted here that 10 mutual funds shows negative return from investment and market return also negative only 22 mutual funds shows positive return. If monthly return to be treated as decision making factors in that case 22 mutual funds can be consider as investment option regardless rate of return form the investment. Approximate positive return range from .09% to 107.53%.

³ Market return is calculated by considering Dhaka Stock Exchange General Index for the period of 1st January,2012 to 30th June,2013as representative of market also use as Standardized return for comparison as well in the study

Table 02: Coefficient Correlation, and Correlation of Determination of mutual funds

Name of the scheme	Coefficient Correlation	Correlation of Determination (R^2) ⁴
Reliance One	0.01010527	0.000102116
AB Bank 1st Mutual Fund	0.047903735	0.002294768
AIBL 1st Islamic Mutual Fund	0.038650012	0.001493823
AIMS FIRST MUTUAL FUND.	0.416358855	0.173354696
DBH First Mutual Fund	0.498877819	0.248879078
EBL FIRST MUTUAL FUND	0.326400719	0.106537429
EBL NRB Mutual Fund	-0.002516751	0.000006334
8TH ICB MUTUAL FUND	0.03106408	0.000964977
5th ICB MUTUAL FUND.	-0.041470451	0.001719798
1st ICB MUTUAL FUND.	-0.001055662	0.000001114
First Janata Bank Mutual Fund	0.468761174	0.219737038
4th ICB mutual fund	-0.001125889	0.000001268
Grameen phone 1st mutual fund	0.412455957	0.170119917
GRAMEEN ONE:SCHEME TWO	0.353001159	0.124609819
Green Delta Mutual Fund	0.495774576	0.24579243
ICB AMCL ISLAMIC	0.242243182	0.058681759
ICB AMCL 1st MUTUAL FUND	0.002778125	.0000077179
ICB AMCL FIRST NRB MUTUAL FUND	0.003717149	.0000138172
ICB AMCL 2nd Mutual Fund	0.338091279	0.114305713
ICB AMCL 3rd NRB Mutual Fund	0.489366312	0.239479387
IFIC Bank 1st Mutual Fund	0.411884243	0.169648629
IFIL Islamic Mutual Fund-1	0.44608941	0.198995762
LR Global Bangladesh Mutual Fund One	-0.082470373	0.006801362
MBL 1st Mutual Fund	0.061592205	0.0037936

⁴Shows higher diversification of the schemes portfolio that can easily contain market variability

Phoenix Finance 1st Mutual Fund	0.325435365	0.105908177
PHP First Mutual Fund	0.50302981	0.25303899
Popular Life First Mutual Fund	0.518082246	0.268409214
Prime Bank 1st ICB AMCL Mutual Fund	0.315717417	0.099677488
PRIME FINANCE FIRST MUTUAL FUND	0.14054339	0.019752444
SIXTH ICB MUTUAL FUND.	0.27445814	0.07532727
Southeast Bank 1st Mutual Fund	0.163823584	0.026838167
TRUST BANK 1ST MUTUAL FUNDS.	0.340956964	0.116251651

Source: Authors calculation by using SPSS-20

Table 02: Reveals the relationship among different mutual funds schemes with market indicating movement of respective mutual funds return with market return. Value of positive correlation indicates same way changes with market changes, which means changing return with market with proportion to degree of correlation and negative correlation indicates opposite directions movement against market return. From **(Table 02)** it is manifested that POPULAR LIFE FIRST MUTUAL FUND shows strong correlation (**0.5180**) with market among all mutual funds and having shows least relations with market of LR GLOBAL BANGLADESH MUTUAL FUND ONE (**-0.0824**). Out of 32 mutual funds 6 mutual funds represent negative relations with market and rest shows positive relations. Value of correlation of determination shows variability of return with market return. Having higher (R^2) means higher diversification of the schemes of portfolio that can easily contain market variability. It is shown from **(Table 02)** that is **DBH First Mutual Fund** having higher degree of diversification (0.25) followed by **Green Delta Mutual Fund (0.24)**, **ICB AMCL 3rd NRB Mutual Fund (0.23)** negative value represent inadequate scope of diversification in the portfolio

Table 03: Beta⁵, Variance and Standard Deviation⁶ and Coefficient of Variation⁷

name of the scheme	Beta	Standard Deviation	Variance	Coefficient of Variation
Reliance One	0.0101	0.6637	0.4404	2.4172
AB Bank 1st Mutual Fund	0.0479	0.6075	0.3690	182.5281
AIBL 1st Islamic Mutual Fund	0.0387	0.5185	0.2689	-255.9638
AIMS FIRST MUTUAL FUND.	0.4164	0.6071	0.3686	1.2061
DBH First Mutual Fund	0.4989	0.5791	0.3353	-15.1286
EBL FIRST MUTUAL FUND	0.3264	0.5038	0.2539	-29.8803
EBL NRB Mutual Fund	-0.0025	0.5191	0.2695	1.7649
8TH ICB MUTUAL FUND	0.0311	0.6758	0.4568	1.4152
5th ICB MUTUAL FUND.	-0.0415	0.7270	0.5285	0.6759
1st ICB MUTUAL FUND.	-0.0011	0.3940	0.1553	-25.0630
First Janata Bank Mutual Fund	0.4688	0.4867	0.2369	-3.3795
4th ICB mutual fund	-0.0011	0.7049	0.4969	5.7570
Grameen phone 1st mutual fund	0.4125	0.6799	0.4622	1.3444
GRAMEEN ONE:SCHEME TWO	0.3530	0.6139	0.3768	1.4242
Green Delta Mutual Fund	0.4958	0.5162	0.2665	578.5445
ICB AMCL ISLAMIC	0.2422	0.6088	0.3707	5.0919
ICB AMCL 1st MUTUAL FUND	0.0028	0.6346	0.4027	2.5495
ICB AMCL FIRST NRB MUTUAL FUND	0.0037	0.6404	0.4101	12.5150
ICB AMCL 2nd Mutual Fund	0.3381	0.5485	0.3008	-4.4148
ICB AMCL 3rd NRB Mutual Fund	0.4894	0.5103	0.2604	-4.9705
IFIC Bank 1st Mutual Fund	0.4119	0.4999	0.2499	2.9880
IFIL Islamic Mutual Fund-1	0.4461	0.5481	0.3005	10.9486
LR Global Bangladesh Mutual Fund	-0.0825	0.5290	0.2798	-10.0377

⁵ Beta signifies the sensitivity of the return on the mutual funds schemes in comparison to the movement of the stock market index

⁶ Variance and Standard deviation measure the risk of a security in absolute term

⁷ Coefficient of variation represents the riskiness in term of per units of return.

One				
MBL 1st Mutual Fund	0.0616	0.6159	0.3794	-5.2948
Phoenix Finance 1st Mutual Fund	0.3254	0.6366	0.4053	12.0678
PHP First Mutual Fund	0.5030	0.5470	0.2992	3.7269
Popular Life First Mutual Fund	0.5181	0.5068	0.2568	2.5315
Prime Bank 1st ICB AMCL Mutual Fund	0.3157	0.5609	0.3146	-16.9643
PRIME FINANCE FIRST MUTUAL FUND	0.1405	0.7750	0.6007	6.5397
SIXTH ICB MUTUAL FUND.	0.2745	0.5516	0.3043	1.0808
Southeast Bank 1st Mutual Fund	0.1638	0.4477	0.2004	1.9126
TRUST BANK 1ST MUTUAL FUNDS	0.3410	0.5191	0.2695	1.9640

Source: Authors calculation by using SPSS-20

Table 03 reveals risk in absolute term i.e., standard deviation and variance and return sensitivity i.e., beta in relation to market return movement. Higher standard deviation represent higher risk, from **Table-03** it is obvious that **Popular Life First Mutual Fund** having highest market sensitivity i.e., beta (**0.5118**) followed by **PHP First Mutual Fund (0.5030)**, **DBH First Mutual Fund (0.4958)** and **ICB AMCL 3rd NRB Mutual Fund (0.4894)** lowest sensitivity shown by **ICB AMCL FIRST NRB MUTUAL FUND(0.003)**. It is also manifest that there are some mutual fund schemes having negative beta although it being unusual in real world. While considering absolute risk measurement i.e., standard deviation, higher standard deviation indicates higher level of risk. Form **Table-03** it is apparent that **PRIME FINANCE FIRST MUTUAL FUND** having higher standard deviation (**77.50%**) followed by **5th ICB MUTUAL FUND (72.70%)**, **4th ICB mutual fund (70.49%)** and having lowest standard deviation shown by **1st ICB MUTUAL FUND (39.40%)**. **Table 03** reveals that Coefficient of variation range from -255.96 to 0.6759. Considering value of coefficient of variation only one mutual funds having less per unit risk in relation to return earned **5th ICB MUTUAL FUND (67.59%)** as favorable investment option among 32 mutual funds

Table 04: Calculation of Risk Free rate of Return

Months	91 days T-bill rates
January'12	10.50
February'12	11.00
March'12	11.00
April'12	11.26
May'12	11.34
June'12	11.37
July '12	11.36
August'12	11.3
September'12	11.20
October'12	10.18
November'12	9.59
December'12	9.21
January'13	10.06
February'13	9.91
March'13	9.16
April'13	8.38
May'13	8.34
June'13	8.37
Average	10.20%

Source: official website of Bangladesh Bank

Risk free return represents unsystematic risk tends to be zero i.e., no default risk in connection to return from investment. According to CAPM⁸ expected return of security depends on risk free return and portfolio premium.

⁸ CAPM defined risk in terms of volatility, as measured by the investment's beta coefficient. The formula is:

$$K_c = R_f + \text{beta} \times (K_m - R_f)$$

where

K_c is the risk-adjusted discount rate (also known as the Cost of Capital);

R_f is the rate of a "risk-free" investment, i.e. cash;

K_m is the return rate of a market benchmark

Table 05: Calculation of Expected Rate of Return Using CAPM

Scheme Name	Risk Free Rate	Market Risk Premium	Beta Factor	Expected Rate of Return	Rank
Reliance One	0.102072028	-22.41%	0.01010	9.98%	7
AB Bank 1st Mutual Fund	0.102072028	-22.41%	0.04790	9.13%	10
AIBL 1st Islamic Mutual Fund	0.102072028	-22.41%	0.03865	9.34%	9
AIMS FIRST MUTUAL FUND	0.102072028	-22.41%	0.41635	0.87%	24
DBH First Mutual Fund	0.102072028	-22.41%	0.49887	-0.98%	29
EBL FIRST MUTUAL FUND	0.102072028	-22.41%	0.32640	2.89%	18
EBL NRB Mutual Fund	0.102072028	-22.41%	-0.00251	10.26%	3
8TH ICB MUTUAL FUND	0.102072028	-22.41%	0.03106	9.51%	8
5th ICB MUTUAL FUND.	0.102072028	-22.41%	-0.04147	11.14%	2
1st ICB MUTUAL FUND.	0.102072028	-22.41%	-0.00105	10.23%	4
First Janata Bank Mutual Fund	0.102072028	-22.41%	0.46876	-0.30%	26
4th ICB mutual fund	0.102072028	-22.41%	-0.00112	10.23%	4
Grameen phone 1st mutual fund	0.102072028	-22.41%	0.41245	0.96%	23
GRAMEEN ONE:SCHEME TWO	0.102072028	-22.41%	0.35300	2.29%	21
Green Delta Mutual Fund	0.102072028	-22.41%	0.49577	-0.91%	28
ICB AMCL ISLAMIC	0.102072028	-22.41%	0.24224	4.78%	14
ICB AMCL 1st MUTUAL FUND	0.102072028	-22.41%	0.00277	10.14%	5
ICB AMCL FIRST NRB MUTUAL FUND	0.102072028	-22.41%	0.00371	10.12%	6
ICB AMCL 2nd Mutual Fund	0.102072028	-22.41%	0.33809	2.63%	19
ICB AMCL 3rd NRB Mutual Fund	0.102072028	-22.41%	0.48936	-0.76%	27
IFIC Bank 1st Mutual Fund	0.102072028	-22.41%	0.41188	0.97%	22
IFIL Islamic Mutual Fund-1	0.102072028	-22.41%	0.44608	0.21%	25
LR Global Bangladesh Mutual Fund One	0.102072028	-22.41%	-0.08247	12.06%	1
MBL 1st Mutual Fund	0.102072028	-22.41%	0.06159	8.83%	11
Phoenix Finance 1st Mutual Fund	0.102072028	-22.41%	0.32543	2.91%	17

PHP First Mutual Fund	0.102072028	-22.41%	0.50302	-1.07%	30
Popular Life First Mutual Fund	0.102072028	-22.41%	0.51808	-1.41%	31
Prime Bank 1st ICB AMCL Mutual Fund	0.102072028	-22.41%	0.31571	3.13%	16
PRIME FINANCE FIRST MUTUAL FUND	0.102072028	-22.41%	0.14054	7.06%	12
SIXTH ICB MUTUAL FUND.	0.102072028	-22.41%	0.27445	4.06%	15
Southeast Bank 1st Mutual Fund	0.102072028	-22.41%	0.16382	6.54%	13
TRUST BANK 1ST MUTUAL FUND	0.102072028	-22.41%	0.34095	2.56%	20

Source: Authors calculation by using SPSS-20

Table 05 exhibits expected return according to **CAPM** of mutual fund schemes range from **12.06% to -1.41%**. Higher return showed by LR Global Bangladesh Mutual Fund One (12.06%) with negative beta value. It is found that risk premium is negative due to negative market return estimated over the time i.e., having higher positive beta(0.5181) of Popular Life First Mutual Fund showed lowest expected return(-1.41%). All mutual funds schemes represent higher return in comparison with market return. Only 04 mutual funds schemes out of 32 selected mutual funds schemes show higher rate of return in comparison with risk free return (**10.20%**) it is truly unexpected situation for current invests and potential investor as well because of industry as a whole being under performed.

Table 06: Sharpe Ratio⁹, Treynor Ratio¹⁰ and Jensen Alpha¹¹

⁹ A way of measuring the historical risk-adjusted return on an investment. It is the average previous return minus the risk-free return, divided by the standard deviation (a measure of risk that looks at the diversion of actual returns from expected returns)

¹⁰ The Treynor measure, also known as the reward to volatility ratio, can be easily defined as:

$$\text{(Portfolio Return – Risk-Free Rate) / Beta}$$

The numerator identifies the risk premium and the denominator corresponds with the risk of the portfolio. The resulting value represents the portfolio's return per unit risk. The higher the Treynor measure, the better the portfolio.

¹¹ Jensen's Alpha, or just "Alpha", is used to measure the risk-adjusted performance of a security or portfolio in relation to the expected market return (which is based on the capital asset pricing model (CAPM)). The higher the alpha, the more a portfolio has earned above the level predicted.

NAME OF SCHEME	Sharpe ratio	Treynor Ratio	Jensen Alpha
Reliance One	0.2599	17.07	0.1747
AB Bank 1st Mutual Fund	-0.1625	-2.06	-0.0880
AIBL 1st Islamic Mutual Fund	-0.2007	-2.69	-0.0954
AIMS FIRST MUTUAL FUND.	0.6610	0.96	0.4946
DBH First Mutual Fund	-0.2424	-0.28	-0.0285
EBL FIRST MUTUAL FUND	-0.2361	-0.36	-0.0458
EBL NRB Mutual Fund	0.3700	-76.31	0.1915
8TH ICB MUTUAL FUND	0.5556	12.09	0.3825
5th ICB MUTUAL FUND.	1.3392	-23.48	0.9643
1st ICB MUTUAL FUND.	-0.2989	111.58	-0.1180
First Janata Bank Mutual Fund	-0.5056	-0.52	-0.1410
4th ICB mutual fund	0.0289	-18.10	0.0201
Grameen phone 1st mutual fund	0.5937	0.98	0.4961
GRAMEEN ONE:SCHEME TWO	0.5359	0.93	0.4081
Green Delta Mutual Fund	-0.1960	-0.20	0.0099
ICB AMCL ISLAMIC	0.0287	0.07	0.0718
ICB AMCL 1st MUTUAL FUND	0.2314	52.85	0.1474
ICB AMCL FIRST NRB MUTUAL FUND	-0.0795	-13.69	-0.0501
ICB AMCL 2nd Mutual Fund	-0.4126	-0.67	-0.1505
ICB AMCL 3rd NRB Mutual Fund	-0.4012	-0.42	-0.0951
IFIC Bank 1st Mutual Fund	0.1305	0.16	0.1576
IFIL Islamic Mutual Fund-1	-0.0949	-0.12	0.0480
LR Global Bangladesh Mutual Fund One	-0.2926	1.88	-0.1733
MBL 1st Mutual Fund	-0.3546	-3.55	-0.2046
Phoenix Finance 1st Mutual Fund	-0.0775	-0.15	0.0236
PHP First Mutual Fund	0.0817	0.09	0.1575
Popular Life First Mutual Fund	0.1936	0.19	0.2142
Prime Bank 1st ICB AMCL Mutual	-0.2409	-0.43	-0.0644

Fund			
PRIME FINANCE FIRST MUTUAL FUND	0.0212	0.12	0.0479
SIXTH ICB MUTUAL FUND.	0.7402	1.49	0.4699
Southeast Bank 1st Mutual Fund	0.2949	0.81	0.1687
TRUST BANK 1ST MUTUAL FUNDS.	0.3125	0.48	0.2387
Source: Authors calculation by using SPSS-20			

Sharpe ratio indicates reward to variability ratio. It is an excess returns over risk free return per unit of risk i.e., per unit of standard deviation. Positive values of Sharpe ratio designate better performance. It is obvious from **Table 06** SIXTH ICB MUTUAL FUND having higher Sharpe ratio(**0.7402**) followed by AIMS FIRST MUTUAL FUND(**0.6610**), Grameen phone 1st mutual fund (**0.5937**) and GRAMEEN ONE:SCHEME TWO (**0.5359**). There is number of mutual fund schemes which have negative Sharpe ratio indicating bad performance and lesser return from the investment. Positive value indicating all schemes are favorable option for investment for current and potential investors. Treynor index indicates risk adjusted return i.e., excess return over risk free rate per unit of systematic risk means beta. In above Table 06 second column shows Treynor index of different mutual fund schemes. Higher Treynor index shown by 1st ICB MUTUAL FUND (111.58) followed by ICB AMCL 1st MUTUAL FUND (52.85) even though it is exception to Sharpe ratio because higher Sharpe ratio indicating scheme should show higher Treynor ratio. According to Sharpe ratio better performance represent by having higher positive value of Treynor index. Jensen's alpha measures differential return of securities. It is the regression of excess return of the scheme (the dependent variable) with excess return of the market (the independent variable). Higher Jensen's alpha indicates better performance. Higher alpha value found in 5th ICB MUTUAL FUND (.9643), AIMS FIRST MUTUAL FUND (0.4946), SIXTH ICB MUTUAL FUND)0.4699) indicating better performer among the selected mutual fund schemes.

Conclusion

Mutual funds have emerged as the best in terms of variety, flexibility, diversification, liquidity as well as tax benefits. Besides, through mutual funds investors can gain access to

investment opportunities that would otherwise be unavailable to them due to limited knowledge and resources. Mutual funds have the capability to provide solutions to most investors' needs, however, the key is to do proper selection and have a process for monitoring and controlling. In Bangladesh, the mutual fund industry is at a growing stage and it is incorporating a higher number of new funds each year. From the above analysis, it can be noted that the growth oriented mutual funds have not performed better than their respect to volatility most of the funds have not performed better. . Growth oriented mutual funds are expected to offer the advantages of Diversification, market timing and selectivity. In the sample, funds are not highly diversified unless few mutual funds and because of their high diversification they have reduced total risk of portfolio. Whereas, other mutual funds have low diversified portfolio and have more risk. Further, the fund managers of the mutual funds are found to be poor in terms of their ability of market timing and selectivity. For broadening the depth of the capital market, it is necessary to float more mutual funds since these are good instruments of mobilizing savings and providing investment opportunities to small savers. Although still small in size, mutual funds have contributed toward broadening the base of the country's capital market and helped the investors to gain high and relatively secure returns. Despite bright prospects of mobilizing savings and providing investment opportunities to small savers and the ability to meet different risk profiles through providing a wide range of products, one major factor as to why the mutual funds have not emerged as a preferred saving mode is the lack of availability of quality shares and the underdeveloped state of the capital market.

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