Mutual Fund Performance: An Analysis of Monthly Returns of an Emerging Market

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Abstract

Mutual funds dwell in a small market in Bangladesh. Around 25 mutual funds listed in the Dhaka Stock Exchange (DSE) trade at an average of 2.7 times of their net asset value (NAV). This paper focused on evaluating the performance of more than 15 growth oriented mutual funds of DSE on the basis of monthly returns compared to benchmark returns. Risk adjusted performance measures suggested by Jenson, Treynor, Sharpe and statistical models are employed. It is found that, most of the mutual funds have performed better according to Jenson and Treynor measures but not up to the benchmark on the basis of Sharpe ratio. However, very few mutual funds are well diversified and have reduced its unique risk. The growth oriented funds have not performed better in terms of total risk and the funds are not offering advantages of diversification and professionalism to the investors. So, mutual funds cannot perform always better with their expertise and cannot beat the market.

Keywords: Mutual Fund, Dhaka Stock Exchange, Diversification, Net Asset Value, Selectivity, Volatility, Market Timing.

1.0: Introduction

A mutual fund is a professionally managed type of collective investment scheme that pools money from many investors and invests it in stocks, bonds, short-term money market instruments or other securities. Most open-end mutual funds stand ready to redeem its shares at their current net asset value, which depends on the total market value of the fund's investment portfolio at the time of redemption.

To measure the mutual fund performance, some numerical indexes have been devised in literature and these are widely used to in practice. The well-known measure like reward to volatility ratio (Sharpe, 1966) and reward to variability ratio (Treynor, 1965) are indicates the expected return of mutual funds and the risk of the funds. The portfolio evaluation model developed incorporates these risk aspects explicitly by utilizing and extending recent theoretical results by Sharpe (1964) and Lintner (1965) on the pricing of capital assets under uncertainty. A measure of portfolio performance is defined as the difference between the actual returns on a portfolio in any particular holding period and the expected returns on that portfolio conditional on the riskless rate, its level of systematic risk, and the actual returns on the market portfolio (Jensen, Michael C 1969). Jensen (1972) and Grinblatt and Titman (1989), (1995) blame security market analysis to overestimate the beta of a market timing fund, and therefore to underestimate its performance. Admati and Ross (1985) and Dybvig and Ross (1985) show that this can occur even if the fund manager chooses a trading strategy which is efficient with respect to her superior information. That research on mutual fund performance based on security market line analysis is unbiased, regardless of whether funds are market timers or not (Alexander and Kreuzberg 2003).also, Fletcher and Forbes (2004) investigated the performance of mutual funds between January 1982 and December 1996 in the United Kingdom. They applied the stochastic discount factor approach across a wide class of models like CAPM, Campbell's linear factor model, arbitrage pricing theory and Carhart four-factor model. Fikriyah, Taufiq, and Shamsher (2007) examined 65 mutual funds, including Islamic mutual funds in Malaysia from January 1992 to December 2001. Treynor index, adjusted Sharpe index, Jensen index, and adjusted Jensen index were used to measure the funds' performances. The evidence from Poland (Jędrzej Białkowski, Roger Otten 2011) states that "winning" funds are able to significantly beat the market, based on their significantly positive alphas. Studying an emerging market provides an excellent opportunity to test whether

the consensus on the inability of mutual funds in developed and highly efficient markets to beat the market. Most open-end Mutual funds continuously offer new shares to investors. Mutual fund is a suitable investment for the common man as it offers an opportunity to invest in a diversified, professionally managed basket of securities at a relatively low cost.

1.1: Objective of the Study

The main objective of this report is to evaluate the performance of growth oriented mutual funds and along with that to present an extensive analysis about the factors which directly or indirectly impact the price and the overall performance of the mutual funds as a whole.

The considerations underlying the performance evaluation of mutual funds is a matter of concern to the fund managers, investors and researchers alike. The present paper attempts to answer two questions relating to mutual fund performance;

- Whether the growth oriented Mutual Fund are earning higher returns than the benchmark returns (or market Portfolio/Index returns) in terms of risk.
- Whether the growth oriented mutual funds are offering the advantages of Diversification, Market timing and Selectivity of Securities to their investors.

This paper attempts to answer the questions raised, by initially describing some basic concepts and later by employing a methodology which was used by Jenson (1968), Treynor (1965), and Sharpe (1966) and finally drawing appropriate conclusions. More than 15 growth oriented mutual funds are selected for the purpose of this study. The study period is the total period of those mutual funds life period. In this study, the period is selected more than 30 months and some are 12 months or less those are new in market. The data source is weekly Net Asset Values (NAVs) published in 'The DSE website." Then, the weekly NAVs data is converted in to monthly NAVs value for our data consideration and uses in further calculation.

2.0: Research & Methodology

As the topic is related with the performance of mutual funds, I needed different types of information to better evaluate their performance. I have used some information based on price, trade value, turnover of the mutual funds concerned and data related to the market index.

2.1: Methodology

2.1.1: The two questions raised in the beginning are answered with the following Methodology.

In order to answer the first question the following measures are adopted. These measures are introduced and tested by Jenson (1968). Treynor (1965) and sharpe (1966). Basically, these measures are developed on the assumptions of 'The Capital Asset Pricing Model' (CAPM) propounded by Sharpe, Lintner and others. The CAPM specifies that in equilibrium the return and risk are in linear relationship called as Security Market Line (SML).

$$r_p = r_f + \quad (r_m - r_f)$$

where,

$_p$ is expected return on security portfolio P

r_m is expected market return

r_f is risk free return

β is the measure of systematic risk of the security or portfolio.

For a well-diversified portfolio, the above relationship can be specified in terms of the total risk (rp) of portfolio

return, called as Capital Market Line (CML).

$$\text{where,} \qquad r_p = r_f + \ \overline{\sigma}_p \ (r_m - r_f)/ \ \overline{\sigma}_m$$

σm is the total risk of Market Index

Though, SML and CML are for the purpose of security return, every security of the portfolio must be plotted on SML

and CML. However, well diversified portfolios plot on both the CML and SML, undiversified portfolios plot only on

the SML.

The following first two measures are based on the SML, whereas the third one is based on the CML.

a. *Jensen Measure*

According to Jensen (1968), equilibrium average return on a portfolio would be a benchmark. Equilibrium average
return is the return of the portfolio by the market with respect to systematic risk (volatility) of the portfolio. This is a
return the portfolio should earn with the given systematic risk.

$$EAR_p = AR_f + (AR_m - AR_f) \ B_p$$

Where, EARp is Equilibrium average return.

Difference between equilibrium average return and average return of the portfolio indicates superior performance of

the fund. This is called as alpha (α) $\qquad \alpha_p = AR_p - EAR_p$

If the alpha is positive, the portfolio has performed better and if alpha is negative it has not shown performance up to
the bench mark, i.e., the market index.

b. *Reward to Volatility Ratio*

This is introduced by Treynor (1965) and similar to the above discussed Jensen measure. Here, additional returns of
the portfolio over the risk free return is expressed in relation to portfolio's systematic risk;

$$RVOL_p = \frac{AR^p - AR^f}{B_p}$$
$$\text{where,}$$

$RVOL_p$ is reward to volatility of the portfolio.

Here, an additional return of market over risk free return (ARm - ARf) is the benchmark. Greater value of the

portfolio over the market indicates a superior performance of the fund.

The analysis on the basis of above two measures may lead to the same conclusion. This is so because both the
measures are based on only systematic risk and exclude unique risk of the portfolio. Hence, it is necessary to

evaluate the performance of the fund in terms of its total risk. The following measure is used for the purpose.

c. *Reward to Variability*

It was developed by William F. Sharpe (1966). Here, additional portfolio return over risk free return is related with the total risk of the portfolio.

$$RVAR_p = \frac{AR_p - AR_f}{\overline{\sigma}_p}$$

The bench mark is additional return of market over risk free return related with market portfolio's total risk.

$$RVAR_m = \frac{AR_m - AR_f}{\overline{\sigma}_m}$$

A fund which performed better according to first two measures namely Jensen and Treynor (1965) measures and not according to the third measures indicates the direction in which fund manager has to change the portfolio structure.

2.1.2 The second question of the paper can be answered with the help of three measures which indicate Diversification, Market timing and Selectivity.

a. *Diversification*

One of the important advantages of mutual funds is that a small investor can also enjoy benefits of diversification of portfolio. Further, well diversified portfolio reduces the risk of the portfolio. Diversification can be measured with the help of coefficient of determination (R^2). This can be obtained by regressing the portfolio's additional return (rp - rf) against the market additional returns (rm - rf). A high value indicates greater diversification of fund and vice-versa.

b. *Market Timing*

It is a form of active fund management. A fund manager who would like to prefer market timing, structures the portfolio to have a relatively high beta during a market rise and relatively low beta during market decline. Because of this investors will benefit out of both the market rise and market fall situations.

A scatter diagram is to be presented to know whether the fund returns and market returns are linear. If it is found that, they are not linear; a parabolic relationship can be anticipated and measured with the help of quadratic regression equation (Treynor 1966).

$$r_{pt} - r_{ft} = a + b\ (r_{mt} - r_{ft}) + c\ (r_{mt} - r_{ft})^2 + E_{pt}$$

If the estimated value of 'C' is positive, the curve would become less steep and moves to the left. This would indicate successful market timing of fund manager.

c. *Selectivity*

It is the ability (Professional acumen) of the fund manager to select undervalued securities (priced lower than their true value at a point of time) in order to earn higher returns. It can be known with the help of Fama's (1972) decomposition measure.

$$(AR_p - AR_f) - \overline{O_p}/\overline{O_m} \ (AR_m - AR_f)$$

A positive high value indicates that the fund has achieved superior returns and investors are benefited out of the selectivity exercised by the Fund Manager.

2.2: Research Design

The performance of mutual funds have been analyzed using various ratios such as Jension measure, Sharpe, and Treynor- a very much effective ratios calculated in order to derive an unbiased analysis. Along with that, statistical models such as average, correlation and standard deviation have been developed to make the study of mutual funds even more realistic. I have put some light on the diversification and selectivity pattern of mutual funds and even compared against the benchmark. The analysis and comparison have been conducted to show more evenly how the mutual funds are actually performing. The alpha and volatility pattern have been analyzed and was the compared against their annualized return. In short, technical and fundamental analyses have been conducted for an in-depth study about the performance of mutual funds. The performance of the more than 15 mutual funds will be unfolded as the reader proceeds.

2.3: Data Analysis

As per the project, to analysis the mutual funds data with Jenson measure along with other model, the monthly NAVs and general index data are converted in to the annualized data. Then, I use the different financial model as per the methodology like CAPM model, regression model and so on. Here, the risk free rate is taken as per Treasury bill rate and calculating the return on basis rate. In this report, to show the actual condition of mutual funds, use Sharpe and Treynor Index. In interpreting the strength of relationships between variables, the guidelines suggested by Rowntree (1981) were followed.

In the core of the fund analysis activity lie the twin pursuits of judging return and risk. Stripped of a lot of the complexity, this task involves determining a fund's average performance over a period of time. Standard deviation gives a quality rating of an average. A high Standard Deviation may be a measure of volatility, but it does not necessarily mean that such a fund is worse than one with a low standard deviation.

3 .0: Analysis of Results

3.1: Performance Evaluation against Benchmarks

Table 01: Presents return and risk of the 16 mutual funds along with market return and risk. From the table, it is evident that, most of the funds are earning on average 0.0463 percent monthly returns, which is moderate to comparing among the mutual funds. But if it is comparing with the market return, it is not good monthly return of those mutual funds which is lower than the market return. 1ST BSRS mutual fund has earned an average return of 0.05 percent as against the market return 0.22 percent. 1ST ICB and 1st PRIMEMF have earned an average return of 0.04 percent as against the market return of 0.203 and 0.43 percent respectively.

AIMS 1st Mutual Fund and 2nd ICB have also earned portfolio return lower than market return, but DBH 1st mutual fund enjoys the portfolio return more than the market return because of new portfolio in the market. Later, DBH 1st mutual fund might be recorded his return at normal trend. Grameen 1 and Grameen 2 have earned similar average monthly portfolio return, 0.027 and 0.028 percent respectively as against the market return of 0.22 and 0.32 percent respectively. So, both of the mutual funds are performing under the market return. ICB 1st NRB and ICB 2nd NRB, both are performing below the market return. Their portfolio return is 0.403 and 0.032 percent. ICB AMCL1^{st} and ICB AMCL 2nd mutual fund also does not beat the market return. Those two mutual funds have earned low average

monthly portfolio return than market return which is 0.0398 percent and 0.0379 percent, respectively. ICB EPMF1S1 mutual fund has 0.023 percent portfolio return as against of 20% market return. PRIME1 ICBA and TRUSTB1 mutual funds are new in capital market, that's why they have not fully repetitive data. Though, with vary limited performance data, they are performed under the average market return.

However, moderate volatility and risk of mutual funds indicates that investors might have benefited because low risk on portfolio of monthly return against the market return. Further, some mutual funds like 2nd ICB and DBH 1st mutual fund are more risk bearing fund than the market risk and volatility.

3.2: Risk Adjusted Performance Measure

Table 02 presents risk adjusted performance measures. These measures are calculated on the basis of rules discussed in the methodology section.

Here, our major analysis concern is the alpha value of the funds which indicates the Jensen measures of mutual funds. Most of the mutual funds have positive alpha value that means the better performance in the market except 3 mutual funds out of 16 observations. The negative alpha indicating three mutual funds, TRUSTB 1MF, ICB EPMF1S1 and GRAMEEN1 are new in market. So, it is not represents the market performance, we take the positive alpha for overall the market. Further, reward to volatility ratio is higher than the market benchmark for the most of the funds and three mutual funds are representing the negative value. So, most of the mutual funds like 1st BSRS, EBL 1[St] MF, 2nd ICB and 1st PRIMEFMF are performing better over the benchmark.

Here, most of the mutual funds are not taking more risk than market risk. Some mutual funds are showing the greater risk value because of the new entrants in market. Moreover, fund reward to variability is lower than the market index to variability. So, investors are compressed to take additional risk to invest in some mutual funds. The lower variability ratio indicates the inferior performance. Form the analysis, fund managers have to diversify the portfolio and can reduce the unique risk for most of the mutual funds.

3.3: Diversification, Market Timing and Selectivity

The low R^2 value of mutual fund represents the less diversification of the portfolio and the high R^2 value indicates the well diversified portfolio. Here, (Table 03) most of the funds indicate the low R^2 value like 1st BSRS (0.00109), 2nd ICB (0.00828), ICB 1st NRB (0.00015) and ICB 2nd NRB (0.00006) mutual fund. As the portfolio is less diversified its unique risk and is high unsystematic risk is low but the total risk is very high. Here, 1st BSRS (0.00598), 2nd ICB (0.01997), ICB 1st NRB (0.00657) and ICB 2nd NRB (0.00059) mutual fund indicates low unsystematic risk as per against the high total risk of those mutual funds.

On the other, 1st ICB mutual fund shows the high R^2 value 0.323 and indicates low total risk and systematic risk because of well diversified portfolio. Also ICB AMCL 1st mutual fund represents the well diversified portfolio indicating the high R^2 value (0.4753) and low total risk (0.075). Furthermore, some of mutual funds are new entrants in the market and they have not sufficient data to represent the R^2 value, but they indicate low total risk and unsystematic risk.

Scatter diagrams of the funds indicate the relationship between fund excess return (rp-rf) and the market excess return (Rm-rf). These are liner for the funds in most cases. This may suggest that, the portfolio consisted of low beta securities during periods when the market return was high and low beta securities when the market return was low.

Table 04: Presents breakup of the portfolio return with the help of Fama's decomposition measures. Most of the mutual funds have not any superior monthly returns because of the lack of selectivity on the part of the fund manager. Thus it indicates that the funds have not offered the advantages of professionalism.

3.4: Ratios and Regression

The entrants in the market gives abnormal return i.e. it indicated that such funds have not yet saturated in the market. It will take around 5 years or more to give normal return.

In addition, Sharpe ratio and Treynor Index is calculated in order to evaluate the performance of the 16 mutual funds. Sharpe ratio is the returns generated over the risk free rate, per unit of risk. Risk in this is taken to be the fund's

standard deviation.   Most of the mutual funds SHARPE ratio and TREYNOR Index are positive except two or three mutual funds. DBH1st, TRUSTB1st MF, ICB EPMF1S1 indicate the negative sharpe ratio and treynor index, that means the inferior performance against the market return. On the other cases of mutual funds like 1st BSRS, 1STICB, 2NDICB, ICB2NDNRB; EBL1STMF mutual funds indicate the high value. This high value represents the superior performance in the market.

Furthermore, I have found positive and significant correlations between new funds closing price and market index (DGEN). The (Table 04) displays some of the calculation depicting further the performance of the mutual fund.

3.5: Mutual Funds Overall Status in Bangladesh

The mutual funds were first introduced by the state-owned investment agency Investment Corporation of Bangladesh (ICB) in 1980. It launched some 8 close-end and one unit fund till 2002, when it had to create 3 subsidiaries under an Asian Development Bank prescription, including the asset management company, which was entrusted with the responsibility to launch mutual funds under the SEC rules. This company has launched 3 close-end and 2 open-end mutual funds since 2003. Meanwhile, another state-owned lending agency, Bangladesh Shilpa Rin Sangstha (BSRS) launched its solitary mutual fund in 1997, which is run under its own statute.

In Bangladesh, the number of mutual funds is small having low issued capital. At present, there are more than 21 mutual funds of which nine are managed by the Investment Corporation of Bangladesh (ICB), six by ICB Asset Management Co. Ltd. (a subsidiary of ICB), one by Bangladesh Shilpo Rin Shangstha (BSRS) and the remaining three are managed by the private sector (AIMS and Grameen-One and Grameen-One: Scheme Two). Among these, two are open ended of which one is managed by ICB and the other by ICB Asset Management Co. Ltd. Of these, 17 are listed in the Dhaka Stock Exchange (DSE).

The ICB is the major institutional player in the mutual fund market and its activities are considered very crucial in bringing transparency and stability in the market. Apart from ICB AMCL 1st Mutual Fund, the newly entered privately managed mutual funds are performing relatively well in the capital market mainly due to the provision for reserve of 10 percent quota of each IPO for mutual funds. The market price of all mutual funds remains much higher than their face values reflecting the investors' confidence and their expectations of future price hikes.

From the data under study, the market price of all listed mutual funds declined substantially during July-December 2008 mainly due to two factors: First, measures taken by the (SEC) to dampen the excessive price hike of mutual funds especially during January-June 2008; and Second, increase in the supply of mutual funds through listing of two mutual funds (ICB AMCL 2nd NRB MF Grameen One: Scheme Two) with issued capital of Tk. 1.2 billion. The price-earnings ratios are high as compared to June-December 2008 for all listed mutual funds ranging from 19.68 to 127.02 mainly due to high price of mutual funds since Jan-Aug 2009. The price-earnings ratio of the overall market and investment sector is about 19.87 and 43.78. The ratio of market price to net asset value (NAV) of all mutual funds also increased in August 2009 as compared to December 2008. The basic ratios have been calculated such as NAV per share, P/E ratio, Liquidity etc to interpret how the mutual funds are performing as compared to the benchmark (DGEN) and overall market conditions.

It has been observed that the demand for mutual funds fell during July-December 2008 resulting in sharp decline in prices. The situation improved in the year 2009 as the demand for mutual funds increased.

Conclusion & Recommendation

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 benchmark indicators. Some of the funds have performed better than the benchmark of its systematic risk but with

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.

The market is small comprised of close-end funds. But the recent reluctance attitude of the SEC on the issuance of the right or bonus share by the close-end mutual funds to increase their capital base has led to the sufferings of innocent investors. Open-end funds have the opportunity to increase their capital base by issuing new share whenever they want. On the other hand, the close-end funds do not enjoy this opportunity as they can only increase their capital base by issuing bonus or right shares.

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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Table 1 : Return and Risk on Portfolios
** (Figures in Percentage)

Sl. No.	Name of Mutual Funds	Average Monthly Return on Fund (ARp)	Average Monthly Risk Free Return (ARf)	Average Monthly Market Return (ARm)	Risk (Ōp)	Risk of Market Portfolio (Ōm)	Volatility(β)
1	1ST BSRS	0.05016	0.02550	0.22029	0.09204	0.52812	0.00598
2	1ST ICB	0.04089	0.0255	0.20242	0.08468	0.53599	0.08043
3	1ST PRIMFMF	0.04432	0.02550	0.43861	0.06656	0.60861	0.01696
4	2ND ICB	0.05141	0.02550	0.20242	0.12819	0.53599	0.01997
5	AIMS 1STMF	0.02711	0.02550	0.22029	0.07107	0.52812	0.02866
6	DBH 1STMF	0.22171	0.02550	0.19912	0.02550	0.17848	0.24198
7	EBL 1STMF	0.04103	0.02550	0.59341	0.03998	0.73708	0.00822
8	GRAMEEN1	0.02835	0.02550	0.22029	0.07672	0.52812	0.05263
9	GRAMEENS2	0.02870	0.02550	0.32365	0.05565	0.62643	0.01040
10	ICB 1ST NRB	0.04032	0.02550	0.22000	0.07678	0.53657	0.00657
11	ICB 2ND NRB	0.03248	0.02550	0.28730	0.06308	0.61526	0.00059
12	ICB AMCL1ST	0.03984	0.02550	0.22039	0.07591	0.52817	0.09097
13	ICBAMCL2ND	0.03704	0.02550	0.59341	0.03866	0.73708	-0.00929
14	ICB EPMF1S1	0.02307	0.02550	0.20662	0.04392	0.17848	0.05951
15	TRUSTB 1MF	0.01088	0.02550	0.33339	0.00949	0.42259	0.02747
16	PRIME1 ICBA	0.02275	0.02550	0.41780	0.00949	0.40163	-0.12578

Sl. No.	Name of Mutual Funds	Total Risk (Ō)	Systematic Risk (β)	Diversification (R²)
1	1ST BSRS	0.09204	0.00598	0.00109
2	1ST ICB	0.08468	0.08043	0.32290
3	1ST PRIMFMF	0.06656	0.01696	N/A
4	2ND ICB	0.12819	0.01997	0.00828
5	AIMS 1STMF	0.07107	0.02866	0.03934
6	DBH 1STMF	0.02550	0.24198	N/A
7	EBL 1STMF	0.03998	0.00822	N/A
8	GRAMEEN1	0.07672	0.05263	0.08814
9	GRAMEENS2	0.05565	0.01040	0.00870
10	ICB 1ST NRB	0.07678	0.00657	0.00015
11	ICB 2ND NRB	0.06308	0.00059	0.00006
12	ICB AMCL1ST	0.07591	0.09097	0.47489
13	ICB AMCL2ND	0.03866	-0.00929	N/A
14	ICB EPMF1S1	0.04392	0.05951	N/A
15	TRUSTB 1MF	0.00949	0.02747	N/A
16	PRIME1 ICBA	0.00949	-0.12578	N/A

Table 2: Risk Adjusted Performance Measure

Sl. No.	Name of Mutual Funds	Equilibrium Average Monthly Return on Fund(bench mark)	Average Monthly Return on Fund	Excess of Avearge Return of Fund over Equilibrium Return (2-1) (%) (Aplha α)	Market Index Reward to Volatility (Benchmark)	Fund Reward to Volatility	Market Index Reward to Variability	Fund Reward to Variability
1	**1ST BSRS**	0.02667	0.05016	0.0235	0.19479	4.12310	0.3688	0.2680
2	**1ST ICB**	0.03973	0.04089	0.0012	0.17692	0.19133	0.3301	0.1817
3	**1ST PRIMFMF**	0.03251	0.04432	0.0118	0.41311	1.10918	0.6788	0.2827
4	**2ND ICB**	0.02903	0.05141	0.0224	0.17692	1.29721	0.3301	0.2021
5	**AIMS 1STMF**	0.03108	0.02711	-0.0040	0.19479	0.05623	0.4683	0.0227
6	**DBH 1STMF**	0.06751	0.22171	0.1542	0.17362	-0.02910	0.9728	-0.2762
7	**EBL 1STMF**	0.03017	0.04103	0.0109	0.56791	1.88859	0.7705	0.3885
8	**GRAMEEN1**	0.03575	0.02835	-0.0074	0.19479	0.05417	0.5038	0.0372
9	**GRAMEENS2**	0.02860	0.02870	0.0001	0.29815	0.30812	0.5362	0.0576
10	**ICB 1ST NRB**	0.02678	0.04032	0.0135	0.19450	2.25437	0.3625	0.1930
11	**ICB 2ND NRB**	0.02565	0.03248	0.0068	0.26180	11.86847	0.6024	0.1106
12	**ICB AMCL1ST**	0.04323	0.03984	-0.0034	0.19489	0.15758	0.6464	0.1888
13	**ICB AMCL2ND**	0.02022	0.03704	0.0168	0.56791	-1.24116	0.5588	0.2984
14	**ICB EPMF1S1**	0.03628	0.02307	-0.0132	0.18112	-0.04086	1.0148	0.5588
15	**TRUSTB 1MF**	0.03396	0.01088	-0.0231	0.30789	-0.53222	0.7286	-1.5399
16	**PRIME1 ICBA**	-0.02384	0.02275	0.0466	0.39230	0.02183	0.9768	-0.0502

Table 3: Risk and Diversification
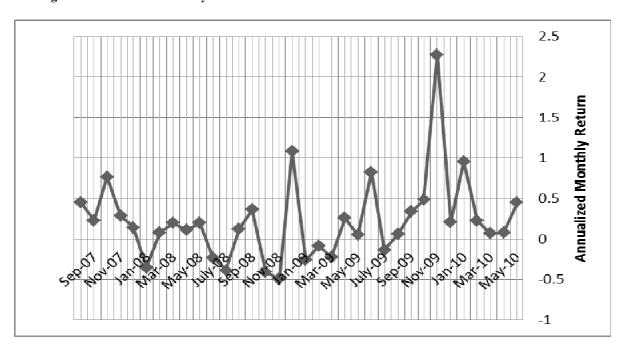
Table 4: Break Up of Portfolio Returns

						(Figures in Percentage)

Sl. No.	Name of Mutual Funds	Risk Free Return (Arf)	Impact of Systematic Risk (βp ARm - Arf)	Impact of Imperfect Diversification	Net Superior Returns due to Selectivity	Portfolio Return (%) Monthly
1	1ST BSRS	0.02550	0.00117	0.01602	-0.00928	0.05016
2	1ST ICB	0.02550	0.01423	0.01297	-0.01256	0.04089
3	1ST PRIMFMF	0.02550	0.00701	0.01768	-0.02637	0.04432
4	2ND ICB	0.02550	0.00353	0.01963	-0.01640	0.05141
5	AIMS 1STMF	0.02550	0.00558	0.01237	-0.02460	0.02711
6	DBH 1STMF	0.02550	0.04201	0.02038	0.17141	0.22171
7	EBL 1STMF	0.02550	0.00467	0.00810	-0.01527	0.04103
8	GRAMEEN1	0.02550	0.01025	0.01335	-0.02544	0.02835
9	GRAMEENS2	0.02550	0.00310	0.00989	-0.02328	0.02870
10	ICB 1ST NRB	0.02550	0.00128	0.01290	-0.01301	0.04032
11	ICB 2ND NRB	0.02550	0.00015	0.01033	-0.01986	0.03248
12	ICB AMCL1ST	0.02550	0.01773	0.01322	-0.01367	0.03984
13	ICB AMCL2ND	0.02550	-0.00528	0.00783	-0.01825	0.03704
14	ICB EPMF1S1	0.02550	0.01078	0.03662	-0.04701	0.02307
15	TRUSTB 1MF	0.02550	0.00846	0.00399	-0.02154	0.01088
16	PRIME1 ICBA	0.02550	-0.04934	0.00555	-0.01202	0.02275

Table 5: Ratios and Regression

Sl. No.	Name of Mutual Funds	SHARPE Ratio	TREYNOR Index	Standard Deviation
1	1ST BSRS	0.26798	4.12310	0.09204
2	1ST ICB	0.18173	0.19133	0.08468
3	1ST PRIMFMF	0.28267	1.10918	0.06656
4	2ND ICB	0.20213	1.29721	0.12819
5	AIMS 1STMF	0.02268	0.05623	0.07107
6	DBH 1STMF	-0.27623	-0.02910	0.02550
7	EBL 1STMF	0.38848	1.88859	0.03998
8	GRAMEEN1	0.03717	0.05417	0.07672
9	GRAMEENS2	0.05758	0.30812	0.05565
10	ICB 1ST NRB	0.19304	2.25437	0.07678
11	ICB 2ND NRB	0.11062	11.86847	0.06308
12	ICB AMCL1ST	0.18884	0.15758	0.07591
13	ICB AMCL2ND	0.29842	-1.24116	0.03866
14	ICB EPMF1S1	-0.05536	-0.04086	0.04392
15	TRUSTB 1MF	-1.53994	-0.53222	0.00949
16	PRIME1 ICBA	-0.05025	0.02183	0.05463

Figure 1: Annualized Monthly Return of DSE General Index

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