Performance Evaluation and Fund Selection Criteria for Mutual Funds over the Period 2000-2011

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Abstract

This article examines the performance of 1374 actively managed mutual funds over the period 2000-2011 in order to identify trading strategies which may be used by financial planners and investors in selecting the right type of mutual funds to achieve specific investment goals. Each mutual fund's performance is measured in excess returns. The key characteristics that are compared for each fund include: small-cap, mid-cap, large-cap funds, the funds' total net asset value, expense ratio, fund manager's tenure, each fund's total percentage investment in the top ten percent of its holdings, and the percentage of each fund's investment in cash.

The characteristics of the top performing funds (winners) and the lowest performing funds (losers) are identified in order to assist financial planners and investors in their investment decisions.

Keywords: Mutual funds, Excess return, Winner & Loser Portfolios

1. Introduction

Actively managed mutual funds have grown tremendously over the last 50 years. According to the Investment Company Institute (ICI), at the end of year 2011 approximately 52.3 million U.S. households and roughly 90.4 million individuals have some sort of investment in mutual funds. During the first decade of the twenty-first century, $11.6 trillion worth of assets were managed by roughly 8,684 actively managed funds combined. On average, total assets under management increased by 6.08% per year over the period of this research.

These figures indicate the trust and/or dependence of investors on actively managed mutual funds. Investment in mutual funds is an easy path to diversification. Also, more investors may be relying on actively managed mutual funds because in recent years equity markets across the globe have experienced volatility that has not been seen since the end of the Great Depression. The recent decade has observed an era when macroeconomic factors overshadowed the fundamentals or the earnings potential of firms. Though there have been a number of studies on the performance evaluation of actively managed mutual funds, the sheer size and growth of actively managed mutual funds, recent global volatility in the equity markets, and dependence of investors on active management warrants a closer look at the characteristics of activity managed funds based upon the performance of these funds.

Another alternative available to financial planners (and fund investors) is to invest in index funds. However, there are funds and fund managers who have consistently beat their passive benchmarks and thus confirm the value of active management. The goal of this research is to add value by identifying certain characteristics of actively managed funds that generally beat the market regardless of economic conditions.

Investment in mutual funds is generally viewed by investors as a long term investment for a variety of reasons. As a result, it is important to pick the optimal types of mutual funds in the beginning. In this article, we evaluate the performance of activity managed mutual funds, identify key characteristics of winners and losers, and offer trading strategies to financial planners and fund investors in picking the right type of mutual funds.

Research Study

In this research, we examined the performance of 1,374 actively managed mutual U.S. funds across nine categories over the period 2000-2011. The time period of this study has been one of the most eventful periods in the modern history of portfolio management. This period experienced the worst recession since the great depression and during

which the fear factor played a big role in the equity markets across the globe. For the first time in history, the credit rating of the U.S. dropped from AAA to AA+ followed by roughly a 600 points drop in the DJIA the very next trading day. This was the first time when a number of European nations were on the edge of defaulting on their sovereign debt and the first time in many years that some market participants started feeling the end of the Euro era.

In this research, we attempt to dissect actively managed mutual funds into "winner" and "loser" funds to offer financial planners and investors some more insight about the attributes of those funds that have a potential to earn higher returns regardless of the market conditions.

2. Literature Review

The literature on mutual funds performance includes studies that have documented superior performance by active fund managers (e.g. Moskowitz, 2000; Edwards and Caglayan, 2001; Kosowski, 2006). For example, Moskowitz (2000) shows that active management is able to beat passive indexes by as much as 6 percent during recessionary periods. Similar results were found by Kosowski (2006). However, there are a number of studies that have shown poor performance by active funds during market downturns (e.g. Souza and Lynch, 2012; Pfeiffer and Evensky, 2012).In a recent article published by Vanguard Investment and Counseling Research, the author finds very little evidence of superior active management performance during market downturns and further states that "in fact, active managers have not consistently delivered superior performance relative to a benchmark during such periods". In another article published by the same firm in 2009, the authors find that since 1970, active fund managers failed to outperform broader stock market 4 out of 7 bear markets. These mixed findings strongly suggest that while there is some evidence that fund managers may demonstrate superior stock picking skills during bear markets, but it is not the case with every bear market or every fund manager. The classic research by Jensen (1968) shows that on average, funds do not outperform the passive benchmarks and any over-performance is mainly due to luck. Several other research articles (e.g. Malkiel, 1995; Gruber, 1996; Carhart, 1997) supported Jensen's findings. On the other hand, a few studies did find over-performance by actively managed mutual funds. For example, using the quarterly portfolio holdings data, Grinblatt and Titman (1989) documented a positive abnormal performance by their sample funds especially by growth and aggressive growth funds. Later studies (e.g. Grinblatt and Titman, 1993; Grinblatt, Titman, and Wermers, 1995; Wermers, 1997) also suggested superior performance by actively managed mutual funds. However, most of these findings also showed that positive alpha is exhibited when gross return of funds was used as the excess return and positive alpha dissipated when gross return was replaced by net return (net of expenses) as the dependent variable.

Some of the recent studies used flow of funds as the reason behind underperformance of actively managed mutual funds. Berk and Green (2004) suggested that performance deteriorates for those funds that attract higher inflow of funds in the previous period while performance improves for those that experienced higher outflow of funds in the previous period. The suggestions of Berk and Green (2004) find support from the popular mean reverting theory of finance. In a related study, Pollet and Wilson (2008) also suggested that flow of funds causes funds to underperform. Their arguments rest on the assumption that managers' best ideas are limited and more money causes them to purchase the same stocks at a higher price which deteriorates performance of those funds in the following period. Sapp and Yan (2008) analyzed performance of focused funds. Their selection of sample was based on the number of holdings of a diversified fund. Their findings show that focused funds (funds with relatively less number of holdings) underperform both on gross return as well as net return basis. In a similar study, Shawky and Smith (2005) suggested a quadratic relation between the number of holdings and risk-adjusted return for actively managed mutual funds. Their findings suggest an optimal number of holdings beyond which the diversification benefits start to fade away. Their findings enjoy support from several other corporate finance research studies that suggest diversification (or over diversification) destroys value (e.g. Lang and Stulz, 1994; Berger and Ofek, 1995; and Whited, 2001) and from the famous investment guru, Warren Buffett, who once said "Wide diversification is only required when investors do not understand what they are doing". While studies have offered arguments ranging from time period to sample selection to diversification as explaining their empirical findings, the majority of these findings do suggest the way to estimate excess returns as the dependent variable behind those mixed findings.

3. Data and Descriptive Statistics

The data are taken from the Morningstar Direct database. Since we are interested in evaluating performance of domestic equity funds, any fund that is classified as an equity fund under the Morningstar Category and invests at least 90 percent in domestic equity is selected as a sample fund. Because this research is focused on actively managed funds, any fund that is classified by Morningstar as either an index or institutional or fund of funds is screened out from the sample selection process. Finally, the oldest share class of a fund is selected if that fund has

multiple share classes. Appropriate selection of a benchmark is very important in evaluating the excess return of sample funds. Morningstar's analysts closely examine the objectives of different mutual funds and suggest benchmarks that are most appropriate for each individual mutual fund. In this research, we use the benchmarks suggested by Morningstar to estimate excess return of the sample funds. Table 1 Panel B reports the description of those benchmarks.

The monthly returns of funds is used to evaluate their average abnormal performance, however, some of the fund specific attributes such as expense ratio and turnover ratio are reported only on annual basis; therefore, consistent with the existing literature, the annual figures are divided by 12 to estimate their monthly equivalents. Table 1 shows that the highest number of funds (315) belong to large-cap growth category whereas the smallest number of funds (61) is from the small-cap value category. On average, 153 funds existed per year across nine different categories over the period 2000-2011. On average, $962 million worth of assets are managed annually by each fund. The highest assets under management ($1,824 million) are managed by large-cap value funds whereas the lowest amount ($278 million) is managed by small-cap value funds. The average expense ratio is 1.30 percent per year which is slightly higher than the average expense ratio of 0.91 percent over the same period reported by the ICI factbook. This indicates that, on average, sample funds charged higher expenses from the funds investors. The investment in cash is essentially constant across different categories. On average, the turnover ratio is 83.11 percent per year. Only two categories (small-cap growth and mid-cap growth) show more than 100 percent turnover ratio over the 2000-2011 period. Initial inspection also suggests that large-cap growth funds follow a more conservative investment style (the average investment in their top 10 percent holdings is 34.59 percent) compared to small-cap value funds that, on average, invest only 21.45 percent in their top 10 percent holdings. Percentages of both investment in cash and average managerial tenure are very consistent across all nine categories.

Table 1 Panel A. Descriptive Statistics Over the period 1/2000 – 12/2011

	Small Cap Core	Small Cap Growth	Small Cap Value	Mid Cap Core	Mid Cap Growth	Mid Cap Value	Large Cap Core	Large Cap Growth	Large Cap Value	Avg.
N	114	152	61	84	147	72	238	315	191	153
TNA (million $)	433.42	362.66	278.93	953.75	788.00	693.45	1,579.95	1,744.48	1,824.53	962.13
Expense Ratio (%)	1.35	1.50	1.36	1.33	1.33	1.31	1.15	1.23	1.11	1.30
Turnover Ratio (%)	84.91	104.32	62.99	81.99	112.92	74.53	72.36	94.35	59.59	83.11
Manager Tenure (years)	6.72	6.53	7.57	7.71	6.63	6.60	6.96	6.81	6.94	6.94
TTOP (%)	23.67	22.90	21.45	26.62	26.94	25.08	31.99	34.59	31.80	27.23
Cash (%)	3.92	3.74	4.04	3.56	3.77	3.88	3.10	3.20	2.90	3.57

Table 1 Panel A shows the mean value per year of a few key variables of the sample funds. *N* is the number of unique funds per year. Finally, the average value of annual mean values across twenty years is shown for each variable. *N* is the number of funds in each category,*TNA* is the average annual net assets under management, *Expense Ratio* is the average expense ratio charged by the fund, *Turnover ratio* is the minimum of aggregated sales or aggregated purchases of securities divided by the average 12-month total net assets of the fund, *Cash* is the average percentage of investment held as cash, *Manager Tenure* is the average manager tenure of the fund manager, and *TTOP* is the fund's percentage of investment in top 10 percent holdings. {Some of these same descriptions are used in Table 4.}

Table 1 Panel B. Comparative Benchmarks

N	Category	Comparative Benchmarks
191	Large Cap Value	Russell 1000 Value
238	Large Core	Russell 1000 TR
315	Large Growth	Russell 1000 Growth
72	Mid Cap Value	Russell Mid Cap Value
84	Mid Cap Core	S&P 400 TR
147	Mid Cap Growth	Russell Mid Cap Growth TR
61	Small Cap Value	Russell 2000 Value
114	Small Cap Core	Russell 2000 TR
152	Small Cap Growth	Russell 2000 Growth TR

The above table displays different categories in which funds are divided and their comparative benchmarks. This study uses the benchmarks recommended by Morningstar analysts. Morningstar analysts look at various attributes of the categories and prospectus of each fund to recommend best possible index for comparison.

4. Methodology

A majority of the academic studies use alpha (Note 1) as the main performance indicator, but we believe excess return is more relevant to financial planners when they advise their retail investors to invest in mutual funds. Normally, alpha is the measure of excess return of a fund above and beyond the return explained by the market excess return before expenses. Mathematically, excess return can be computed by using the following equation:

ER = Return – Benchmark Return–Expenses (Note 2)

$$ER_{it} = R_{it} – RM_t - EXP_{it} \quad (1)$$

Where ER_{it} is the excess return of fund i at time t, R_{it} is the monthly return earned by fund i at time t, RM_t is the benchmark's monthly return at time t, and EXP_{it} is the is the expenses paid to the fund i's management at time t. Since the main objective of this study is to compare returns of the sample funds against passive benchmarks and not against index funds or ETFs; therefore, we are not subtracting the expense ratio charged by index funds or ETFs.

Since the objectives of this research are 1) to estimate the performance and 2) to offer trading strategies to investors, we follow a two-step process. In the first step, we estimate the average monthly excess return of sample funds across each of selected nine categories. In the second step, we divide the entire sample into "winner" and "loser" funds. Winner funds are those funds that generate average positive excess return over their lives and loser funds are those funds that generate average negative excess return over their lives. Once winner funds are identified, we estimate the fund specific characteristics of those funds across all nine categories. The second step is valuable because it gives investors (and their financial planners) a good opportunity to identify characteristics of funds that have a potential to outperform the passive indexes, net of expenses.

5. Empirical Results

The results are summarized in Table 2. Over the time period of this study (2000-2011), small-cap funds outperform both large-cap and mid-cap funds. The panel A of table 2 shows that on average, small-cap value funds earned 9.90 percent return per year compared to 7.53 percent and 4.58 percent by mid-cap value and large-cap value funds, respectively. Similar results are observed for core and growth categories. The panel B of Table 2 documents the same results net of expenses. These two panels tell an identical story but with a small difference. The difference of returns between small-cap and mid-cap (and large-cap) funds shrinks in the panel B which shows higher expenses charged by small-cap funds relative to mid-cap and large-cap funds. The excess returns are presented in panel C.

Table 2. Return Diagram of Different Categories Over The Period 2000-2011

Panel A. The following table shows average annual raw return earned by sample funds across nine different categories

	Value	Core	Growth
Large	4.58%	3.28%	2.16%
Mid	7.53%	7.48%	5.36%
Small	9.90%	8.59%	6.24%

Panel B. The panel shows average annual net return (net of expenses) earned by sample funds across nine different categories

	Value	Core	Growth
Large	3.47%	2.13%	0.94%
Mid	6.23%	6.15%	4.03%
Small	8.54%	7.24%	4.74%

Panel C. The panel shows average annual excess return (ER = Return – Expenses – Market return) earned by sample funds across nine different categories

	Value	Core	Growth
Large	-1.07%	-0.94%	-0.26%
Mid	-2.14%	-2.40%	-1.03%
Small	-0.26%	-0.10%	-0.64%

In order to more closely examine the performance of these funds, we divided the sample funds into two sub-categories—"winner" and "loser" funds. Interesting results emerged from the division of the entire sample into winner and loser funds. More funds generated negative excess return across each category and the difference in excess return between winner and loser funds is significant. Table 3 shows the number of winner funds and loser funds in each of the nine categories. As can be seen in Table 3, out of 238 funds in the large-cap core category, only 81 funds generated positive excess return whereas 157 funds turned out to be loser funds. The average excess return difference between winner and loser funds is 4.26 percent per year. Loser funds generated -2.39% average annual excess return whereas it was 1.87% for winner funds. This difference has important economic implications. The results show that investors are able to earn a positive 1.87% over the passive benchmark and also covering the expenses paid to the fund management if they pick the right large-cap core fund. On the other hand, they may end up losing 2.87% per year if they pick the wrong fund within the same category. Similar results are obtained for all other eight categories. The highest difference in average annual excess return of 5.27 percent per year is observed for mid-cap core category. Results show a sharp difference in performance between extreme groups. This finding is critical as this difference can be used by otherwise uninformed retail investors to pick the higher performing types of mutual funds and bolster their excess abnormal return on invested capital.

Table 3. The Number and Performance of Winner and Loser Funds

Panel A. The following table shows number of winner and loser funds

	Winner	Loser
Large Cap Value	51	140
Large Cap Core	81	157
Large Cap Growth	140	175
Mid Cap Value	11	61
Mid Cap Core	15	69
Mid Cap Growth	47	100
Small Cap Value	24	37
Small Cap Core	57	57
Small Cap Growth	63	89

Panel B. The following table shows excess return of winner and loser funds

	Winner	Loser
Large Cap Value	1.33%	-1.95%
Large Cap Core	1.87%	-2.39%
Large Cap Growth	2.25%	-2.28%
Mid Cap Value	1.03%	-2.71%
Mid Cap Core	1.93%	-3.34%
Mid Cap Growth	2.52%	-2.70%
Small Cap Value	1.73%	-1.55%
Small Cap Core	2.43%	-2.62%
Small Cap Growth	2.42%	-2.80%

Next, we estimate fund specific attributes across winner and loser portfolios. Results summarized in Table 4 show startling differences between "winner" and "loser" portfolios across all nine categories. Results also suggest that a positive or negative return on invested capital is by far based on selectivity skills. Retail investors can either earn decent profits or lose a significant amount of wealth based on their choice of mutual funds. Results in Table 4 suggest trading strategies to otherwise uninformed retail investors. Moreover, results are based on fund specific attributes which are easily available or can easily be obtained and which do not require a great degree of sophistication by retail investors. Results in the Table 4 panel A show that an investor targeting large-cap value funds has a potential to earn superior returns from a fund that, on average, charges 0.96 percent annual expense ratio, manages roughly $3,500 million worth of assets, invests approximately 33 percent in its top 10 percent holdings with a turnover ratio of 45 percent, and retains managers for over 10 years. On the other hand, results in panel B show that a large-cap value fund that charges, on average, 1.17 percent expense ratio, manages only $1,250 million portfolio with a turnover ratio of 65 percent, and retains managers for little over 5 years can significantly erode excess return. These two contradictory results for the same category of funds show that "winner" portfolios are those which are less expensive, have longer managerial tenure, and manage relatively large size portfolios.

Similar results are obtained for other categories as well. For example, investors looking for small-cap value funds should select funds that manage roughly $392 million assets, restrict 25 percent investment in their top 10 percent holdings, and retain managers for a longer time period (9 years). "Loser" funds (panel B), by contrast, tend to have higher expenses (1.40 percent), smaller size ($240 million), less investment in its best stocks (19.86 percent), and relative shorter managerial tenure (6.93 years) compared to their counterparts.

Table 4. Cross-sectional Attributes of Winner and Loser Funds

Panel A. Winner Funds

	Expense ratio (%)	Turnover ratio (%)	TNA (in millions $)	TTOP (%)	Managerial Tenure (years)
Large Cap Value	0.96	45.44	3,483.62	32.77	10.20
Large Cap Core	1.14	58.75	2,679.03	32.65	8.50
Large Cap Growth	1.14	90.79	2,403.67	35.46	8.31
Mid Cap Value	1.13	56.45	960.97	27.43	7.89
Mid Cap Core	1.18	76.28	2,911.74	32.35	6.65
Mid Cap Growth	1.21	97.05	1,476.61	27.90	7.92
Small Cap Value	1.30	60.13	348.92	24.72	8.69
Small Cap Core	1.33	70.54	686.33	23.52	8.37
Small Cap Growth	1.40	89.31	575.00	23.86	7.62

Panel B. Loser Funds

	Expense ratio (%)	Turnover ratio (%)	TNA (in millions $)	TTOP (%)	Managerial Tenure (years)
Large Cap Value	1.17	64.56	1,232.13	31.47	5.79
Large Cap Core	1.16	80.08	969.09	31.65	6.10
Large Cap Growth	1.31	97.61	1,127.90	33.81	5.45
Mid Cap Value	1.34	77.69	646.26	24.67	6.36
Mid Cap Core	1.36	83.24	520.91	25.55	7.94
Mid Cap Growth	1.39	120.84	456.66	26.55	6.00
Small Cap Value	1.40	64.62	239.17	19.86	6.93
Small Cap Core	1.38	102.72	138.11	23.82	4.81
Small Cap Growth	1.57	116.71	198.25	22.18	5.67

5. Conclusion

Investment in actively managed mutual funds has grown significantly over the last 50 years. Over 90 million Americans have some sort of investment in these funds. This enormous growth suggests that in order to create diversification at lower costs and also to obtain expert management, retail investors generally rely on actively managed mutual funds. Thousands of such mutual funds are available in the market and each has its own investment objectives. It can be hard for financial planners to screen through all those funds and pick the one that has a potential to maximize his or her return on invested capital.

When the characteristics of winner and loser funds are compared, in general, winner portfolios have lower expense ratios, lower investment asset turnover, and longer fund managerial tenure. These are important characteristics that financial planners should always consider when selecting a fund for a client. The results also indicate that, on average, small-cap funds have the highest potential to generate excess returns and also indicate that, on average, charge higher expense ratios and fees. The results also show a big difference in returns between winner and loser funds. The highest difference in average annual excess return between winner and loser portfolios of 5.27 percent per year is observed for mid-cap core category. The results also suggest that an investor targeting large-cap value funds has a potential to earn superior returns from a fund that, on average, charges 0.96 percent annual expense ratio, manages roughly $3,500 million worth of assets, invests approximately 33 percent in its top 10 percent holdings with a turnover ratio of 45 percent, and retains managers for over 10 years.

References

Berger, P.G., & E. Ofek. (1995). Diversification's effect on firm value. *Journal of Financial Economics* 37: 39–66. http://dx.doi.org/10.1016/0304-405X(94)00798-6

Berk, J. & R.Green. (2004). Mutual fund flows and performance in rational markets. *Journal of Political Economy* 112: 1269-1295. http://dx.doi.org/10.1086/424739

Carhart, M. M. (1997). On persistence in mutual fund performance.*Journal of Finance* 52: 57–82. http://dx.doi.org/10.1111/j.1540-6261.1997.tb03808.x

Edwards, F. R. & M. O. Caglayan.(2001). Hedge fund and commodity fund investments in bull and bear markets. *Journal of Portfolio Management* 27: 97-108. http://dx.doi.org/10.3905/jpm.2001.319817

Gruber, M. (1996). Another Puzzle: The growth in actively managed mutual funds.*Journal of Finance* 52: 783-810. http://dx.doi.org/10.1111/j.1540-6261.1996.tb02707.x

Grinblatt, M., & S. Titman. (1989). Mutual fund performance: An analysis of quarterly portfolio holdings. *Journal of Business* 62: 393-416. http://dx.doi.org/10.1086/296468

Grinblatt M., & S. Titman. (1993). Performance measurement without benchmarks: an examination of mutual fund returns. *Journal of Business* 60: 97-112. http://dx.doi.org/10.1086/296387

Grinblatt M, S. Titman, & R. Wermers. (1995). Momentum strategies, portfolio performance and herding: A study of mutual fund behavior. *American Economic Review* 85: 1088-1105.

Gruber, M. (1996). Another Puzzle: The growth in actively managed mutual funds.*Journal of Finance* 52: 783-810. http://dx.doi.org/10.1111/j.1540-6261.1996.tb02707.x

Investment Company Institute (www.ici.org).

Jensen M. C. (1968). The performance of mutual funds in the period 1945 -1964. *Journal of Finance* 23: 389-416. http://dx.doi.org/10.1111/j.1540-6261.1968.tb00815.x

Kosowski, R..(2006). Do mutual funds perform when it matters most to investors? U.S. mutual fund performance and risk in recessions and expansions.*Working Paper*.

Lang, L. H.P., & R. M. Stulz. (1994) Tobin's *q*, corporate diversification, and firm performance. *Journal of Political Economy* 102: 1248–1280. http://dx.doi.org/10.1086/261970

Malkiel B. (1995). Returns from investing in equity mutual Funds 1971 to 1991.*Journal of Finance* 50: 549-72. http://dx.doi.org/10.1111/j.1540-6261.1995.tb04795.x

Moskowitz, J. T. (2000). Mutual fund performance: An empirical decomposition into stock-picking talent, style, transactions costs, and expenses: Discussion. *Journal of Finance*,55: 1695-1703. http://dx.doi.org/10.1111/0022-1082.00264

Pfeiffer, A. S. & H. R. Evensky. (2012). Modern fool's gold. *The Journal of Investing* 21: 60-68.

Pollet, J. &M. Wilson. (2008). How does size affect mutual fund behavior? *Journal of Finance* 63:2941–2969. http://dx.doi.org/10.1111/j.1540-6261.2008.01417.x

Sapp, T. & X. Yan. (2008). Security concentration and active fund management: Do focused funds offer superior performance? *The Financial Review* 43: 27-49. http://dx.doi.org/10.1111/j.1540-6288.2007.00185.x

Shawky, H., & D. Smith. (2005). Optimal number of stock holdings in mutual fund portfolios based on market performance.*The Financial Review* 40: 481-495. http://dx.doi.org/10.1111/j.1540-6288.2005.00120.x

Souza, A.D. & A. Lynch. (2012). Does mutual fund performance vary over the business cycle? *Working Paper*.

Wermers, R. (1997). Momentum investment strategies of mutual funds, performance persistence, and survivorship bias.*Working paper.*

Whited, T. (2001). Is it inefficient investment that causes the diversification discount? *Journal of Finance* 58: 1667-1691.

Notes

Note 1. In academic literature, alpha is defined as a fund's abnormal performance. To estimate alpha of a portfolio, excess returns of a portfolio are regressed on excess market returns and the intercept coefficient is known as the portfolio's abnormal performance net of market effect (for more details please refer to Saap and Yan, 2008; Carhart, 1997, among others).

Note 2. A number of studies subtracted expenses and risk free return from funds' returns to estimate excess returns of funds and regressed them on the market's excess returns (market returns – risk free return). However, in this study we used a new approach where we subtracted expenses, and benchmark's return to estimate the excess return of each fund. This is more suitable for this research because this research is focused on uninformed retail investors and we believe that the concept of net excess returns (as opposed to alpha) is easier for them to understand and apply in their investment strategies.