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Measuring Skill in Mutual Fund Industry and Selected Mutual Funds Rankings in the Iranian Capital Market

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Abstract: *This study aimed to investigate the skill of mutual funds managers in the Iranian capial market in the field of portfolio management. In this research, in order to confirm the existence of skill, unlike the return-based Jensen's measure, a value-added criterion based on the value of Rial has been used, which is considered a more acceptable measure for skill assessment. In this research, the theory of research was measured based on three methods. In the first method, one-sample t-test was performed on the set of the three-month value added of funds, and in the second method, after creating decile of the funds based on their value added, one-sample t-test was performed on the average of the value added of the first a three-month tenth decile; in the third method, in every three months from the beginning of the study by counting the number of times that the tenth decile was ranked higher than first decile, and also the number of times was ranked in the upper half of ranking, the research hypothesis was evaluated. The results of these three methods showed that there is skill among Iranian mutual funds managers. At the end, ranking of the funds in the statistical sample is presented that is based on the created value added by their managers.*

Keywords: *Skill, Mutual Funds, Value-Added, One-Sample T-Test.*

INTRODUCTION

Nowadays, by increasing the accessablity to Internet, evaluating the performance of investment managers is become easier than before. Survival of a mutual fund is influenced by accumulating and maintaining a cash for investors. To this end, the fund in comparison with a valid basis of measurement, must have an acceptable performance. The index funds were created to provide investment opportunity for risk averse investors and also to provide a valid basis for measuring the performance of investment managers. The purpose of an investment manager is to make higher returns than the return of the stock exchange market index, regarding to this fact that continuity in this higher return is an indicator of the manager's skill, with continuity of achieving an acceptable return than the return of an index fund, the investors's trust can be attracted. Many prior studies have used "alpha" to measure skills, but if skill is in short supply, alpha indicates the competition between investors, and not managers skills (Burke and Green, 2004).

Research Objectives

The main purpose of this research is to evaluate the existence of skill among managers of mutual funds in Iran. In this regard, the existence of skill is evaluated in three methods and based on the created value added by manager. Then, we try to evaluate the performance and ranking of mutual funds in the statistical sample based on the amount of value-added.

Research Hypothesis

Managers of mutual funds in the Iranian capital market have the necessary skills in the field of portfolio management.

Research Method

This research is an applied research in terms of results and considered analytical in terms of goal. Secondary data in the research has been extracted from the websites of mutual funds and Financial Information Processing of Iran. In addition, this study is a historical documentary research and is based on the analysis of time series-cross section data (panel data).

All the mutual funds in Tehran stock exchange are the statistical population. Considering that the higher stock percentage in the portfolio demands more skills in the portfolio management to achieve acceptable performance, then, in this research, a certain percentage of the stock in the composition of funds assets were considered as a condition of selecting fund samples. To select the statistical sample, non-probablity sampling and criterion sampling 7/1 are used. The research data has been collected with the method of studying historical documents (library documents). These data are collected from the Iranian Financial Analysis website and related sites to each of mutual funds.

Background of Research

Islami Bidgoli et al. (2005) examined the relationship between the performance of investment companies with their size (market value) and liquidity rating. They indicated that the size of investment companies and rating of liquidity do not affect on their performance.

Safarpour and Sheikh (2997) investigated the performance of investment companies based on the monthly stock portfolio returns. The results showed that the study companies using the cash and price return index had weaker performance than the stock; also, according to the index of fifty active company, the investment companies had the same performance as the stock.

Abdeh Tabrizi and Sharifian (2008) examined the effect of downside risk on the adjusted performance based on the risk of accepted investment companies in Tehran stock exchange; they concluded that there is a relationship beween these two factors, and this relationship is due to the existence of negative skewness in the distribution of returns. Therefore, using a more favorable potential ratio has been identifed more valid and acceptable.

Haeri and Hosseini (2011) evaluated the performance of investment companies and stock mutual funds in comparison with the market index and compared their performance with each other. The results showed that with regard to the performance of Treyner's measure, in average, there is no significant difference between the performance of investment companies and stock mutual funds with the market performance, and there is no significant difference between the performance of investment companies and stock mututal funds.

Fama (1965 and 1970) in papers that introduced the efficient market hypothesis, pointed out that investors of mutual funds achieve a lower performance than the stock market.

Jensen (1968) in the early days of modern financial economy argued that the active managers of mutual funds do not have the skills.

Fama and French (2010) found evidences of skill in the superior managers. In addition, based on their estimates of skill (gross alpha), they concluded that this skill is economically small.

Carhart (1997), Zheng (1999), and Boolen and Boss (2001) indicated that performance is largely unpredictable and concluded that obtaining a better performance than the stock is due to the chance, not the talent.

Cremers and Petajisto (2009) showed that the amount of deviation of a fund performance from the standard performance is related to the better performance and this performance is more durable.

Cohen, Polk and Silli (2010) and Jiang, Verbick and Wang (2011) indicated that better performance than the standard performance is the result of more weights of stocks in portfolio funds, which has a better

performance than other stocks.

Research Findings

In this table, the value-added variable is considered as the dependent variable, as well as the return of mutual fund, the return of Tehran stock exchange index while the managed assests are considered as an independent variable. Descriptive statistics of the variables are presented in Table 1.

Table 1. The Results of Descriptive Statistics

Variable / Statistical index	Funds return	Stock index return	Net asset value(NAV)	Three-month vaue-added
Mean	0.0412	0.0124	1.8395×10^{11}	1719652379
Median	0.0133	-0.0036	5.8873×10^{10}	111062666.7
Variance	0.033	0.0070	4.127×10^{23}	2.867×10^{20}
Standard deviation	0.18186	0.0877	6.42417×10^{11}	6.42417×10^{10}
Minimum	-0.81	-0.1094	2.29×10^{8}	-2.70×10^{10}
Maximum	1.43	0.24222	1.08×10^{13}	2.94×10^{11}
Range	2.23	0.3516	1.08×10^{13}	3.21×10^{11}
Skewness	2.714	1.8173	13.529	15.307
Kurtosis	16.991	5.223	218.108	263.097

As it is obvious, a mutual fund with a performance at the average level of funds in the research coommunity, generates a value of 1719652379 in three months, and also makes a return of 4% for investors.

Research Hypothesis Testing

First Method

To test the research hypothesis, one-sample t-test was used. In this study, the mean of three-month value added of the statistical sample has been tested with the zero. Thus, by performing one-tailed test, the hypothesis that its average of three-month value added of funds is zore, is tested by comparing t-test and critical value of t in one-tailed test.

The statistical hypothesis of this method is as follows:

$$\begin{cases} H_0: \beta \leq 0 \\ H_1: \beta > 0 \end{cases} ; \beta = \text{Three-month value added of funds}$$

Table 2. The Result of One-sample T-test on the Three-month Value-added of Statistical Sample Funds

0. Test value					
Difference of confidence interval of 95%		Two-tailed significance	Degrees of freedom	T	
upper	lower	0.062	340	1.876	Three-month value added of funds
3523067803	-83763045.1				

The two-taild critical t value for the error level of 5% and the degree of freedom of 340 is 1.655. If the one-tailed critical t value is smaller than the t-test statistic, the null hypothesis can be rejected.

Second Method

In this part, first, the research statistical sample funds based on their average value-added in the duration of research, respectively, were created decile from the tenth decile with the highest average to the first decile with the lowest average. Then, after each season, we averaged again and changed the order of deciles based on the magnitude of new averages. Then, by performing one-sample t-test on the three-month value-added of the tenth decile, the null hypothsis was measured based on the fact that these averages are zero.

The statistical hypothesis of this method is as follows:

$\begin{cases} H_{\circ}: \beta \leq \circ \\ H_1: \beta > \circ \end{cases}$; β = Three-month value added average of tenth decile

Table 3. The Result of One-sample T-test on the Three-month Value added Average of Tenth Decile

1. Test value					
Difference of confidence interval of 95%		Two-tailed significance	Degrees of freedom	T	
Upper	lower	0.001	10	4.545	Three-month value-added of tenth decile
57525483550.8	19678556570.8				

The one-tailed critical t value for the 5% error level and 10% degree of freedom is 1.812. With the smaller amount of one-tailed critical value than t-test statistic, the null hypothesis will be rejected

Third Method

In this part, after the second method, we counted the number of times that the tenth decile in the ranking was higher than the first deciles, and also the number of the times that the tenth decile was ranked in the upper half of decile ranking.

1. The number of the times that tenth decile was higher than the first decile=11
2. The number of the times that the tenth decile was placed in the upper half of deciles rankings=11

Conclusion

in the first method, by presenting the results of one-sample t-test on the set of three-month value-added of the study funds, and with regard to this fact that one-tailed critical t value (1.655) is less than the t-test statistic (1.876), it can be concluded that the null hypothesis which is "the three-month value-added of statistical sample funds is equal to zero", that is equivalent to "lack of skill", is rejected and the research hypothesis is verified and confirmed. In addition, if an investor make an investment with the value of 100,000,000 Rials in 31 statistical sample funds, according to the average of three-month returns of the funds and the stock exchange index in the duration of research, 22 funds had a better performance than the index fund, and performance of 9 funds was lower than the index fund.

In the second method, after creating deciles of funds and displacing them at the three-month periods based on the averages of three-month value added, it was determined that the tenth decile of the total eleven times of averaging based on the eleven period of three-month research duration obtained the total average of 16348178868, and since the one-taile critical t value (1.812) is less than the t-test statistic (4.545), it is concluded that the null hypothesis is rejected due to this fact that the average of three-month value added of tenth decile is equall to zero, which means the lack of skill; therefore, the research hypothesis is verified.

In the third method, after the initial decile- making and their displacements at the end of three-month periods based on the three-month value added averages, it was determined that the tenth decile of 11 times of comparing the deciles based on the eleven three-month period of reseach, had better performance than the first decile for about eleven times; also, the tenth decile was placed in the upper half of decile ranking for eleven times, which indicates the existence of skill in some of managers of these funds, especially among managers of tenth decile funds; therefore, the research hypothesis is confirmed.

In fact, the results of this study are in consistent with the results of Fama and French (2010), which found evidences of the skill's evidence in the superior managers, and also are in consistent with the results of study by Cremose and Petajistu (2009), Cohen, Polk and Silli (2010) and Jiang, Verbike and Wang (2011), while are not in consistent with the results of Fama (1965, 1970), Jensen (1968) and Gruber (1996), Zheng (1999), and Boolen and Boss (2001).

Fund Ranking Table

In the next step, ranking Table of funds in the duration of research is presented.

Table 4. Result of Fund Ranking

Rank	Fund's name	Fund value added in duration of research
1	Bazar Gardani Sepeher Saderat	436,638,834,514
2	Bazar Gardani Hekmat Iranian Yekom	81,253,852,151
3	Kargozari Bank Melli of Iran	21,597,177,575
4	Tose Andukhteh Ayandeh	11,648,031,387
5	Ghabele Moameleh of Aseman	10,484,661,559
6	Tabbirgaran Farda	9,752,587,768
7	Bank Day	7,457,779,596
8	Kargozari Bank Tejarat	7,438,640,977
9	Arman	7,105,341,36,814,312,154
10	Arzesh Kavan Ayandeh	6.814,312,154
11	Yekom Saman	5,304,225,710
12	Eftekhar Hafez	5,146,723,760
13	Tose's Momtaz	5,786,527,885
14	Navid Ansar	4,472,895,511
15	Boorsiran	4,420,000,000
16	Karafarinan Bartar Ayandeh	4,058,801,449
17	Amin Tadbirgaran Farda	3,719,456,551
18	Khavarmianeh	3,451,613,783
19	Alborz	3,438,249,050
20	Zobe Ahan	3,,220,993,245
21	Razavi	1,279,209,533
22	Novin Paidar	1,233,629,503
23	Kharazmi	1,152,920,377
24	Faam	846,136,481.4
25	Naghshe Jahan	686,319,024.2
26	Saba	590,235,353.7
27	Ganjeneh Refah	-2,600,071,612
28	Tose's Ta'avon Bank	-3,096,296,695
29	Dama Sanj	-4,301,643,259
30	Yekom Oksir Farabi	-23,191,392,781
31	Ghabeleh Moameleh Sepehr Andisheh Novin	-29,459,527,945

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