Archive of SID

Iran. Econ. Rev. Vol. 24, No. 2, 2020. pp. 471-487

Portfolio Diversification and Net Selectivity Performance of Mutual Funds in Iran by Using Fama Decomposition Model

Samira Sadeghi Goghari*[1], Ali Souri[2],
Hosein Abbasinejad[3], Mohsen Mehrara[4]

Received: 2018, July 30 Accepted: 2018, December 12

Abstract

The main purpose of this paper is to analyze the performance of mutual funds in Iran by using Fama decomposition model (1972). Thus, daily data of 55 mutual funds during a four-year period from 21/3/2014 to 21/3/2018 were investigated. To achieve this goal, firstly, the performance of mutual funds was broken down into Fama components, and it was shown that the diversification performance and risk performance of mutual funds were negative, but net selectivity performance was positive. Finally, the panel method was used to investigate the effect of Fama's components on the performance of mutual funds. The results indicated that the effect of Fama's components on the performance of mutual funds is positive, and the effects of the net selectivity and risk are more than diversification.

Keywords: Fama Decomposition Model, Mutual Funds, Net Selectivity, Diversification, Risk.
JEL Classification: G11, G23.

1. Introduction

The mutual funds, as one of the new financial institutions entrusted to the Iranian capital market, have played an indelible role in directing microfinance in Iran. The special structure of mutual funds and their benefits has encouraged investors to invest in funds (Mehrabanpour et al., 2018). On the other hand, investors tend to consider the results of their investments and compare their returns with other investment

1. Department of Economics, Kish International Campus, University of Tehran, Kish, Iran (Corresponding Author: alisouri@ut.ac.ir).
2. Faculty of Economics, University of Tehran, Tehran, Iran.
3. Faculty of Economics, University of Tehran, Tehran, Iran (habasi@ut.ac.ir).
4. Faculty of Economics, University of Tehran, Tehran, Iran (mmehrara@ut.ac.ir).

www.SID.ir

Archive of SID

opportunities. Therefore, performance evaluation of mutual funds is importance for this group of investors. Performance evaluation of mutual funds has been discussed repeatedly in financial literature and financial researchers have used various scientific methods to evaluate them (Nikomaram and Farahani, 2018). Most of these studies have evaluated the performance of mutual funds by using modern and Post-Modern Portfolio Theory. A number of Iranian research has also ranked the funds, and some researchers have examined the skills of managers. In this paper, we follow the paper by Kumaraswamy and Al Ezee (2018), using the Fama method (1972) to decompose the performance of mutual funds. Also, to investigate the effect of Fama's components on performance, the panel method for 55 mutual funds is used from 21/3/2014 to 21/3/2018. In Therefore, the present research attempts to decompose the mutual funds into three components: risk and diversification and net selectivity. A further attempt to identify the discrete contribution of each performance measure that greatly influences the fund returns using regression model is also made.

So the article is organized in six sections. In sections two and three theoretical foundations and Literature Review are presented. Section four introduces the variables and methodology of research. In Section five, the model is estimated. Finally, this paper concludes in the sixth part.

2. Theoretical Foundations

The performance evaluation of mutual funds has been widely discussed in the financial discussions. Risk adjusted performance measures discussed earlier primarily judge the overall performance of a fund. However it is useful to breakdown the performance into the different components of performance. Fama (1972) allows us to go further in our analysis. This model can be applied to a portfolio or a class of assets. It splits portfolio performance into two terms: selectivity and risk. It relies on the CAPM theory since it involves comparing the result of the managed portfolio with that of two theoretical reference portfolios located on the market line.

The procedure is as follow: we take P, the portfolio to be studied. The total risk of this portfolio is denoted by σ_p and its systematic risk by $\boldsymbol{\beta_p}$. This portfolio is not, a priori, located on the market line. The

www.SID.ir

Archive of SID

principle is to compare its performance with that of two portfolios located on the market line. The first portfolio, $\boldsymbol{\beta_1}$, is defined with a beta equal to the beta of portfolio P, or:

$$\beta_{p_1} = \beta_p \quad (1)$$

Since this portfolio is located on the market line, its expected return is written as follows:

$$E(R_p) - E(R_{\boldsymbol{p_1}}) = \left(E(R_p) - E(R_{\boldsymbol{p_2}})\right) + \left(E(R_{\boldsymbol{p_2}}) - E(R_{\boldsymbol{p_1}})\right) \quad (2)$$

By replacing $E(R_{\boldsymbol{p_1}})$ and $E(R_{\boldsymbol{p_2}})$ with their expressions in each of the two term, in line with the characteristics of portfolio P, we obtain the two decomposition terms for the selectivity:

1. The Net selectivity Given by:

$$E(R_p) - E(R_{p^2}) = (E(R_p) - E(R_f)) + \partial_p(E(R_m) - E(R_f)) \quad (3)$$

2. The Diversification Given by:

$$E(R_{p^2}) - E(R_{p^1}) = (\partial_p - \beta_p)(E(R_m) - E(R_f)) \quad (4)$$

These two terms are perfectly defined since we know how to calculate the β_p and ∂_p parameters of portfolio P. the net selectivity measures the performance differential compared with a portfolio with the same total risk, but located on the market line. The diversification measures the additional return that comes from taking a greater market risk (Amenc and Sourd, 2003)

a: Net selectivity b: Risk c: Diversification

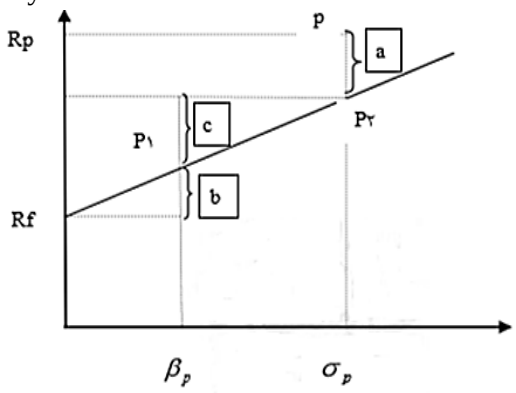

Figure 1: Fama's Performance Decomposition

www.SID.ir

Archive of SID

Decomposing the Risk:

The decomposition of the risk term is then written as follows:

$$E(R_{p_1}) - E(R_f) = (E(R_{p_1}) - E(R_{p_0})) + (E(R_{p_0}) - E(R_f)) \quad (5)$$

The overall performance of the fund in terms of superior or inferior stock selection and the normal return, associated with a given level of risk can be assessed with this framework.

Overall performance: The overall performance is the total return above the risk free return of a portfolio. The overall performance is contributed by fund managers' ability to pick the best securities at a given level of risk (selectivity). The remaining of the overall performance is due to fund managers' decision to take on a positive amount of risk. The overall performance in terms of selectivity and the return from assuming risk as follows:

$$overall\ performance\ (R_P - R_F) = Selectivity + Risk \quad (6)$$

Risk: It measures the required return for exposing the portfolios to a higher or lower risk level. This includes the return that should have been received for accepting the portfolio risk (Beta).

$$(R_m - R_f) \quad (7)$$

Selectivity**:** The return due to selectivity can be measured as follows:

$$Selectivity = Net\ Selectivity + Diversification \quad (8)$$

Diversification**:** The diversification term indicates the required return for not being completely diversified (i.e., having total risk above systematic risk). If a fund's total risk is equal to its systematic risk, then the ratio of its total risk to the market's total risk will equal its beta and the diversification term would equal zero. If this is not the case, then the ratio of the fund's total risk for the fund relative to the market will be greater than its beta, which implies an added return

www.SID.ir

Archive of SID

required because of incomplete diversification. Therefore, the diversification measure indicates the added return required to justify any loss of diversification in the portfolio. The term emphasizes that diversification is the elimination of all unsystematic variability. The return due to Diversification can be measured as follows:

$$Diversification = (R_m - R_f)\left(\left(\frac{\partial_p}{\partial_m}\right) - \beta\right) \quad (9)$$

Net Selectivity: 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. Net Selectivity can be measured as follows:

$$\begin{aligned}\text{Net selectivity} = {} & Portfolio\ Return - Risk\ free\ return - \\ & Returns\ due\ to\ all\ risks \\ = {} & R_p - R_f - \beta(R_m - R_f) - (R_m - R_f)\left(\left(\frac{\sigma_p}{\sigma_m}\right) - \beta\right) \\ = {} & (R_p - R_f) - \left(\frac{\sigma_p}{\sigma_m}\right)(R_m - R_f) \quad (10)\end{aligned}$$

3. Literature Review

With the growing popularity of mutual funds, performance evaluation of fund managers has become a fundamental issue for both practitioners and academicians. Many Studies have been conducted world over to examine the mutual performance of managed portfolio. From an academic perspective, the goal of identifying superior fund managers is interesting because it challenges the efficient market hypothesis. A numbers of these studies have been conducted on skills of fund managers. A study performed by Treynor and Mazuy (1966) found no statistical evidence that investment manager of any 57 funds were not able to guess the market movements in advance. This study suggests that an investor in mutual funds was totally dependent on fluctuations in the general market. The study revealed that the improvement in rate of return was due to the fund managers' ability to identify underpriced shares in the market. Jensen (1968) evaluated the ability of the fund managers in selecting the undervalued securities.

www.SID.ir

Archive of SID

He concludes that for the sample 115 mutual funds, the fund managers were not able to forecast security prices well enough to recover research expenses and fees. Fama (1972) developed a methodology for evaluating mutual performance of managed portfolios. He suggested that the overall performance of managed portfolios could be broken down into several components: Net selectivity, Diversification, Risk.

The following studies have been conducted on skills of fund managers:

Nikoomaram and Farahani (2018) examined the selection abilities and market timing abilities of Fund Managers in Iran by evaluating the performance of 5 mutual funds ranging in the period from the beginning of 2010 until the end of 2014. The models used to judge stock selection skills are Jensen (Single Factor) and Carhart (4 Factor). Market timing ability was evaluated using the Augmented Treynor-Mazuy Model. The results showed that among research topic funds, according to the single factor model (Jensen's measure), only in one fund it also at a confidence level of 90%, security selection to be seen as significant, and in confidence level of 95%, security selection not significant in any case. According to the 4-factor Carhart model, only in one fund it also at a confidence level of 93%, security selection to be seen as significant, and in confidence level of 95%, security selection not significant in any case. Market timing in 4 of 5 samples was found to significantly that unfortunately every 4 cases were negative.

Pandow (2017) in a study entitled " Persistent Performance of Fund Managers: An analysis of selection and timing skills" examined the performance analysis of funds in India. He analyzed the persistence in both stock selection and timing performance of mutual fund managers in India through Henriksson and Morton; Jenson, and Fama's model over a period of five years. The results of his research showed that the sample fund do possess the persistence in selectivity skills while checking for both Jensen and Fama model. While as the same funds failed to keep the consistency in terms of the timing skills for the duration of the study into consideration. So it is comprehended that the fund managers possessing selectivity skills consistently, need necessarily not possess the timing skills and vice versa.

www.SID.ir

Archive of SID

Sherman et al. (2017) examined the market-timing performance of Chinese equity securities investment funds during the period from May 2003 to May 2014 using the parametric tests of Treynor–Mazuy and Henriksson–Merton as well as the Jiang non-parametric test. The results showed that only one fund among the sample of 419 funds possessed statistically significant market-timing skill, while 9% of the funds were statistically significant negative market timers.

Biplob (2017) evaluated the performance of 15 close-ends Bangladeshi mutual funds. In this paper, diversification, market timing and selectivity skill of fund managers was tested with help of coefficient of determination, quadratic regression of Treynor and Mazuy and Fama decomposition model respectively. The paper found that 9 out of 15 funds are well diversified and have reduced its unique risk. Finally this paper was revealed no statistically significant timing skill but moderate level of selectivity in mutual fund market of Bangladesh.

After studying Fama, researchers' attention was drawn to further analysis and evaluation of the components of the performance. The following studies have been carried out using the Fama decomposition model:

Kumaraswamy and Al Ezee (2018) evaluated the performance of mutual funds in Saudi Arabia by using Fama model. In this study, after analyzing the returns of mutual funds by Fama method, to evaluate the effect of each of the Fama components on the performance, a regression equation was estimated. Finally the regression model were used to study the relationship between independent variables and performance. The results of this research indicate a positive effect of Fama's components on mutual fund performance. Also according to the decomposition of variance, the shocks of the Fama components significantly affect performance.

Sherma (2016) used Fama decomposition model to evaluate net selectivity performance of 30 companies for the study period i.e. April 2010 to March 2015. The results of the Fama Decomposition model showed that majority of selected companies have reported positive net selectivity indicating superior stock selection. The study confirmed that diversification and net selectivity has significant role in providing additional value in the investment within the study period.

www.SID.ir

Archive of SID

Seddeke and Mahbubur (2016) have investigated the performance of Bangladesh's Mutual Funds. This study has endeavored to address this issue by measuring the performance of mutual funds managed through Treynor Index, Sharpe Index, Jensen Alpha, and Fama Decomposition. From this study, it can be observed that all the mutual funds had negative Net Selectivity. From this finding, it can be inferred that the portfolio managers fail to diversify away the unsystematic risk properly through their portfolio selection ability.

Naz et al. (2015) evaluated the performance of mutual funds in Pakistan from 2010 to 2013. The analysis has been made on the basis of mean return, beta risk, total risk, Sharpe ratio, Treynor ratio, Jensen Alpha and Fama decomposition measure. The results of his research indicated underperformance of most of schemes during selected span of study. These can be mainly attributed to the lack of professional management skills in security analysis and consequent poor stock selection, inadequate diversification.

Rekha (2014), in a study entitled "Diversification and selection of mutual funds", examined the performance analysis of these funds. In this study, Fama decomposition model was applied and found out that, during the study period 67 % sample funds fund managers have superior stock selection ability and 33 % were in lack of selection skills.

Khursheed and Pandow (2013) used an analysis of the performance of mutual funds to examine the performance of mutual funds by using the Jansen alpha and Fama decomposition model. The results of his research showed that the fund managers are inadequate and their selection skills are weak, and this amount of skillfulness is not acceptable in order to attract investors' public confidence.

Sarita (2012) evaluated the performance of 25 diversified funds using Jansen's Alpha and Fama decomposition model in a study titled "Mutual Fund Investment Decisions by Using Fama Decomposition Models". In this study performance of mutual funds decomposed to risk performance, diversification performance and net selectivity performance. The results indicated that 24 out of 25 had positive net selectivity.

Kundu (2009) has investigated the performance of the selection of mutual fund managers by using the Fama and Jensens alpha

www.SID.ir

Archive of SID

performance analysis, concluded that funds played a good role in diversification, but little evidence has been proven in the good performance of managers in the selection.

Lakshmi et al. (2008) showed poor performance of the projects based on Sharp, Treynor, and Jensen, and then examined the mutual funds from the point of view of Fama decomposition model. The results of his research indicated a positive net selectivity of 6 funds and a negative net selectivity of 1 Fund.

4. Research Model and Estimation Method

Following are the statistical tools and techniques used in evaluation of performance of the mutual funds:

Return: The average return of mutual funds has been worked out using the daily return series by the following.

$$R_p = \frac{(NAV_t - NAV_{t-1})}{NAV_{t-1}} \times 100 \quad (11)$$

Similarly, the daily returns for the benchmark index have been computed. For the benchmark index, the return of market is calculated as:

$$R_m = \frac{(Index_t - Index_{t-1})}{Index_{t-1}} \times 100 \quad (12)$$

Risk: The total risk is measured by the standard deviation of the daily returns which was calculated using the following formula:

$$\boldsymbol{\sigma_p} = \sqrt{\left(\sum_1^n \boldsymbol{R_t} - \bar{\boldsymbol{R}}\right)^2 \Big/ \boldsymbol{n-1}} \quad (13)$$

where,

σ = Standard Deviation, n= number of daily returns

$\boldsymbol{R_t}$= daily returns of funds $\bar{\boldsymbol{R}}$ = mean return of the stock.

Systematic Risk: A risk that is not controlled by the investor and the fund does not play a significant role in controlling it:

$$\boldsymbol{\beta} = \boldsymbol{cov}(\boldsymbol{R_p}, \boldsymbol{R_m}) \Big/ \boldsymbol{var}(\boldsymbol{R_m}) \quad (14)$$

Risk-free return ($\boldsymbol{R_f}$): average interest rate on long term bank deposits was considered during the years 2014-2018.

www.SID.ir

Archive of SID

The Fama model components for performance evaluation are:

$\boldsymbol{R_f}$: Risk-free return

$\mathbf{B}\boldsymbol{(R_m - R_f)}$: Risk compensation

$(\boldsymbol{R_m - R_f})(\boldsymbol{\left(\frac{\sigma_p}{\sigma_m}\right) - \beta})$: Diversification

$\boldsymbol{\left(R_p - R_f\right) - \left(\frac{\sigma_p}{\sigma_m}\right)\left(R_m - R_f\right)}$: Net selectivity

A positive value for net selectivity indicates that the fund earned returns higher than expected returns and a negative value indicates that the fund earned return less than expected returns (Sherma, 2016).

4.1 Panel Model for Mutual Funds Performance Evaluation

As an extension of further analysis on the outcomes of Fama decomposition, a regression model is developed with mutual fund performance as dependent variable for the fund performance categories during the sample period. Mutual fund performance in general is calculated as a ratio of current fund returns. This model is carried out to identify the discrete contribution of each component of Fama that greatly influences the fund returns using the statistical software E-views.

$$R = \alpha + \gamma_1 divsification + \gamma_2\, net\ selectivity + \gamma_3\, risk + e \quad (15)$$

In this model, the three components of Fama model, Compensation for diversification, Compensation for systematic risk and Net selectivity, are regressed separately with return of funds, e is Error term , γ_1 , γ_2 , γ_3 represents regression coefficient models .

4.2 Data

The required data were collected from various Websites like the Securities and Exchange Organization website and the Financial Information Processing Center website. Considering that in this study, funds have been considered that have been active for at least 4 years and given that the period for this study is 21/3/2014 to 21/3 /2018 Therefore, the statistical society is limited to the funds that are active within this time. For this purpose, daily data collection of mutual funds has been used for analysis. In order to achieve the Fama

www.SID.ir

Archive of SID

performance components after calculating the funds return and market return, for each mutual fund, risk and beta, and for the market index, the risk is calculated and for the mutual funds we substitute return and risk and beta in the components of Fama and eventually obtain risk performance, diversification performance, and net selectivity performance.

5. Experimental Results

In the first section, after calculating returns, systematic risk, and total risk for funds and market, we decompose performance of mutual funds and report it in Table 1:

Table 1: Results of Fama Decomposition Model

Fama component				Fund
R_f	$\beta(R_m - R_f)$	$(R_m - R_f)\left(\left(\frac{\partial_p}{\partial_m}\right) - \beta\right)$	$(R_p - R_f) - \left(\frac{\partial_p}{\partial_m}\right)(R_m - R_f)$	
0.000500	-0.000220	-0.000154	0.000157	Arman Sepehr Ayandegan
0.000500	-0.000003	-0.000013	0.000078	Arzesh Afarinan Dey
0.000500	-0.00043	-0.00001	-0.00002	Sepehr Aval
0.000500	-0.000018	-0.000516	0.000369	Parsian
0.000500	-0.00031	-0.00002	-0.00004	Pouya
0.000500	0.000005	-0.000155	0.000207	Atie Novin
0.000500	-0.00046	-0.00013	0.00040	Arzesh Kavan Ayande
0.000500	-0.000404	-0.000079	0.000111	Arman
0.000500	-0.00003	-0.00002	0.00011	Armaghan Iranian
0.000500	-0.00032	-0.00007	0.00002	Keshvarzi
0.000500	-0.000004	-0.000041	0.000081	Iran Zamin
0.000500	-0.000008	-0.0000200	0.000117	Gardeshgari
0.000500	-0.000161	-0.000147	0.000281	Tajrobe Iranian
0.000500	-0.000368	0.000005	-0.000043	Kar Afarin
0.000500	-0.000010	-0.000020	0.000086	Yekom Keshavarzi
0.000500	-0.0003	0.000637	0.000040	Agah
0.000500	-0.000006	-0.000049	0.000048	Andukhte Paydar Sepehr
0.000500	-0.000012	-0.000035	0.000031	Andishe Farda
0.000500	-0.000019	-0.000063	0.000144	Piruzan

www.SID.ir

Archive of SID

Fama component				Fund
R_f	$\beta(R_m - R_f)$	$(R_m - R_f)\left(\left(\frac{\partial_p}{\partial_m}\right) - \beta\right)$	$(R_p - R_f) - \left(\frac{\partial_p}{\partial_m}\right)(R_m - R_f)$	
0.000500	-0.000710	-0.000112	0.000450	Tose Daderat
0.000500	-0.000428	-0.000024	0.000189	Kharazmi
0.000500	-0.00027	-0.000068	0.000249	Roshd Saman
0.000500	-0.000003	-0.000025	0.000153	Sepehr Tadbirgaran
0.000500	-0.000114	-0.000288	0.000013	Aghigh
0.000500	-0.000266	-0.000026	0.000099	Tejarat
0.000500	-0.000446	-0.000089	0.000253	Bank Melli
0.000500	-0.000076	-0.000327	-0.000075	Karizma
0.000500	-0.00041	-0.000098	0.000102	Yekom Saman
0.000500	-0.000237	-0.000162	0.000613	Khavarmiane
0.000500	-0.000001	-0.000042	0.000148	Amin Ashna Iranian
0.000500	-0.000295	-0.000227	0.000305	Tose Andukhte Ayande
0.000500	-0.00004	-0.00014	0.00017	Armaghan Yekom Melal
0.000500	-0.0000007	-0.000029	0.000053	Amin Saman
0.000500	-0.000019	-0.000445	0.000294	Hekmat Ashna Iranian
0.000500	-0.000088	-0.000098	0.000048	Sina
0.000500	-0.000043	-0.000143	0.000156	Atie Mellat
0.000500	-0.000069	-0.000203	0.000104	Arman Shahr
0.000500	-0.00001	-0.000127	0.000204	Andukhte Mellat
0.000500	-0.000449	-0.000051	0.000158	Tadbirgaran Farda
0.000500	-0.000018	-0.000035	0.000109	Gostaresh Farad Iranian
0.000500	-0.0000022	-0.000032	0.000087	Ganjine Zarin Shahr
0.000500	0.00000023	-0.000013	0.000090	Lutus Parian
0.000500	-0.000138	-0.000322	0.000257	Alborz
0.000500	-0.000004	-0.000033	0.000104	Faraz Andish Novin
0.000500	-0.00000014	-0.000027	0.000091	Nahal Sarmaye Iran
0.000500	-0.00000010	-0.000017	0.000101	Yekom Iranian
0.000500	-0.0003	-0.000291	0.000478	Ganjine Mehr
0.000500	-0.000003	-0.000058	0.000138	Amin Mellat
0.000500	-0.000573	-0.000119	-0.000136	Saham Gostareshan Shargh
0.000500	-0.000003	-0.000025	0.000153	Sepehr Tadbirgaran
0.000500	-0.000185	-0.000052	0.000028	Tose Momtaz

www.SID.ir

Archive of SID

Fama component				Fund
R_f	$\beta(R_m - R_f)$	$(R_m - R_f)((\frac{\partial_p}{\partial_m}) - \beta)$	$(R_p - R_f) - (\frac{\partial_p}{\partial_m})(R_m - R_f)$	
0.000500	-0.000166	-0.000137	0.000281	Firuze Movafaghiat
0.000500	-0.00037	-0.000103	0.000093	Ganjine Refah
0.000500	-0.00034	-0.000229	0.000453	Isatis puyaye yazd
0.000500	-0.000278	-0.000248	0.000167	Eghtesad Novin
0.00500	-0.000172	-0.000098	0.000152	Average
0	0.0001851	0.000151	0.000144	Standard Deviation
0.00500	0.000005	0.000637	0.000613	Max
0.00500	-0.00071	-0.000516	-0.000136	Min

Now, the components of the Fama decomposition model are discussed below:

- Risk Performance:
As you can see, only Lotos Parsian and Atieh Novin Funds are reporting the positive performance of the risk, and for the rest of these funds, the risk performance is negative. Meanwhile, the Atieh novin mutual Fund with the highest value of 0.000005 shows the highest positive performance risk and the Tosea Saderat Fund with a value of -0.00071 showing the lowest level of risk performance.

- Diversification Performance:
Compensation for diversification is the difference the return corresponding to the beta implied by the total risk of the portfolio and the return corresponding to its actual beta, i.e., systematic risk (Strong, 2008). As shown in Table 1, only 2 funds have a positive diversification performance, and the Aghah fund has the highest diversification of 0.000637, and the Parsian Fund with a value of -0,000516 has the lowest diversification performance.

- Net selectivity Performance:
Net selectivity estimates the portion of the return for security selection in excess of the returns imparted by the diversification component (Strong, 2008). A positive value of net selectivity indicates superior performance. Table 1 shows that 90% of mutual funds (50 funds) have

www.SID.ir

Archive of SID

positive net selectivity performance and 10% of funds (5 funds) have a negative net selectivity performance. The highest value of the net selectivity performance of 0.000613 belongs to Khavarmiane mutual Fund and its lowest value is -0.000136 belonging to saham Gostareshan Shargh fund.

-Result of Panel Model:

After reassurance the stationary and cointegration of model's variables, regression was estimated and the results of the model are presented below: (panel model was fixed effect)

$$R = \underset{(0.00)}{15.66} + \underset{(0.02)}{4.9}\, divsification + \underset{(0.00)}{76.9}\, net\ selectivity + \underset{(0.00)}{78.0}\, risk$$

R^2=0.735

As the above results show, the estimated regression coefficients are individually and statistically highly significant because the p-value of the computed is extremely low. The most significant findings of the above model is that all signs of the model parameters as expected, are positive indicating that incorporation of related risk to the model will bring better results on the fund returns, which reflect the theory and the reality of the analysis. Partially, the crucial variable among the individual variables of the model is the Compensation for systematic risk, where it has the highest influence on the relative return of the equity funds. A one percent point change in this variable will enhance the relative change of the dependent variable. The results of the model shows that the Compensation for systematic risk will play an important influence on the future return. As stated earlier, as the sample funds as a whole lack compensation for systematic risk, a change in the risk inheritance might bring attractive fund returns in the future net selectivity also has a vital effect on the return on funds. Of course, net selectivity also had a huge impact on performance but diversification has less impact than two other component.

6. Conclusion

The primary focus of this study is to decompose the performance of mutual funds in Iran using Fama decomposition model. For analyzing

www.SID.ir

Archive of SID

the performance of funds, the Return, risk, beta and then risk performance, diversification and net selectivity of 55 sample mutual funds for a 4-year period from 21/3/2014 to 21/3/2018 were calculated and it was shown that 90% of mutual fund had positive net selectivity and only 10% of fund managers have failed to perform well. Then in order to investigate the effect of Fama's components on the performance of mutual funds(R), a regression model was estimated by panel model. Result showed that the estimated regression coefficients are individually and statistically highly significant and all three components have positive effect. Our results confirm study of Kumaraswamy and Al Ezee (2018).

Reference

Amenc, N., & Sourd, V. (2003). *Portfolio Theory and Performance Analysis*. Chichester: John Wiley and Sons Ltd.

Biplob, N. (2017). Performance Evaluation of Bangladeshi Mutual Fund: An Analysis of Monthly Return Based on Net Asset Value. *International Journal of Economics & Management Sciences*, Retrieved from https://www.omicsonline.org/pdfdownload.php?download=open-access/performance-evaluation-of-bangladeshi-mutual-fund-an-analysis-of-monthly-return-based-on-net-asset-value-2162-6359-1000428.pdf&aid=89658.

Fama, E. (1972). Components of Investment Performance. *Journal of Finance*, *27*, 551-567.

Jensen, M. C. (1968). The Performance of Mutual Funds in the Period 1945–1964. *Journal of Finance*, *23*(2), 389-416.

Kumaraswamy, S., & Al Ezee, I. (2018). Performance Evaluation of Saudi Equity Mutual Funds: Fama Decomposition Model. *Investment Management and Financial Innovations, 15*(4), 158-168.

www.SID.ir

Archive of SID

Kundu, A. (2009). Stock Selection Performance of Mutual Fund Managers in India: an Empirical Study. *Journal of Business and Economic Issues, 1*(1), 59-73.

Khursheed, B., & Pandow, B. A. (2013). An Analysis into the Stock Selectivity Skill of Indian Fund Managers. *Munich Personal RePEc Archive,* Retrieved from https://mpra.ub.uni-muenchen.de/83500/1/MPRA_paper_83500.pdf

Lakshmi, N., Deo, M., & Murugesan, B. (2008). Performance of the Indian Mutual Funds: A Study with Special Reference to Growth Schemes. *Asia-Pacific Business Review, 4*(3), 75-81.

Mehraban Pour, M. R., Safaei, M., Samimi Nejad, R., & Noohi, R. (2017). Ranking of Mutual Funds in Iran. *Journal Management System, 6*(24), 215-230.

Naz, Sh., Atta, M., Mukhtar, A., & Nawaz, S. (2015). Risk Adjusted Performance Evaluation of Balanced Mutual Fund Schemes in Pakistan. *European Journal of Business and Management, 7*(1), 179-187.

Nikoomaram, H., & Farahani, A. (2018). Evaluating the Security Selection Skill and Market Timing Ability of Iranian Mutual Fund Managers. *Journal of Management System, 7*(25), 61-82.

Pandow, B. (2017). Persistent Performance of Fund Managers: An analysis of selection and timing skills. *International Journal of Commerce and Finance, 3*(2), 11-24.

Rekha, U. (2014). Portfolio Diversification and Selectivity Performance of Fund Managers in India - A Study of Select Equity Funds Research. *Journal of Finance and Accounting,* Retrieved from https://www.iiste.org/Journals/index.php/RJFA/article/download/13042/13429.

www.SID.ir

Archive of SID

Saritha, B. (2012). Mutual Fund Investment Decisions by Using Fama Decomposition Models. *ZENITH International Journal of Business Economics & Management Research, 2*(2), 189-199.

Sherma, D. (2016). Fama Decomposition Analysis of Selected Companies of Bombay Stock Exchange in India. *Journal of Finance and Investment Analysis*, *5*(3), 1-13.

Sherman, M., O'Sullivan, N., & Gao, J. (2017). The Market-Timing Ability of Chinese Equity Securities Investment Funds. *International Journal of Financial Studies*, Retrieved from https://www.mdpi.com/2227-7072/5/4/22/pdf.

Strong, R. (2008). *Portfolio Construction, Management and Protection* (5th Ed.). Boston, MA: South Western Cengage Learning.

Seddeke, A., & Mahbubur, R. (2016). Evaluation of Portfolio Performance of the Investment Corporation of Bangladesh's Mutual Funds. *Global Journal of Management and Business Research: C Finance,* Retrieved from https://journalofbusiness.org/index.php/GJMBR/article/download/2036/1938/

Treynor, L., & Mazuy, K. (1966). Can Mutual Funds Outguess the Market? *Harvard Business Review*, *44*, 131-136.

www.SID.ir