

Assessing the behavior of mutual fund investors about their fund purchases and redemptions

Mahmmod Razin^{1*}, Mogtaba afsordeh² and Bahman asefi¹

1- Accounting department, payame nour University of Ilam, Iran

2- M.A in Accounting, Azad university of shahroud, iran

Corresponding author: Mahmmod Razin

ABSTRACT: In this paper, we investigate the behavior of mutual fund investors by separately analyzing their fund purchase and sale decisions base on the past performance of mutual funds. Purchase and redemptions show the flows that into and out of equity mutual funds. In this research relationship between variables is analyzed through regression model during 2010-2014. using panel data extracted from mutual funds information which are working in TSE. The result show that investors make investment decisions (purchases and redemptions) based on past fund performance. Moreover we found that mutual fund investors decisions respond asymmetrically to past Performance, such asymmetric relation imply that the market rewards high-performance funds but does not discipline poor performers as much.

Keywords: Mutual fund, Performance of mutual funds, Fund purchase, Fund sale.

INTRODUCTION

Economic growth and increase the household wealth cause breakdown of financial markets and these two factors have led to an increase in investment opportunities. When the level of society members' wealth and income increases, equally the share of funds as an investment option for investors will be increased. In the meantime, the interest rates have not much risen compared with an increase in investors' willingness to use the funds. In other words, interest rates (deposits) are lagged in fundraising through investment funds. Low interest rates for bank deposits lead investors towards using the new investments tools including mutual funds. This causes the growth of fund and creates competition among them to develop new opportunities for investors and attract resources (Plenin et al., 2011).

One of the problems at Iran stock exchange that most listed companies in general and investment companies in particular faced is the shortage of liquidity. Along with the lack of liquidity, Stranded capital is the other problem in market especially in recent years. Open nature of capital in mutual funds, as an appropriate ground, can solve the problems, of investors and shareholders in investment companies, caused by complications of raising capital.

Understanding the reasons for investors to choose the fund and proceed to invest and vice versa, cancellation and bring out the capital of it, raise the ability of new investors and fund managers to take the right and better decisions. Potentially, factors such as fund age, volatility, the fund's past performance, dependence to other funds and fund cost, can be effective in the process of issuing or cancellation of the share. The present study, the investors' behavior regarding the issuance or cancellation of shares to be checked focusing the past performance of funds.

Theoretical Foundations

Investors when investing in funds are always looking for the best option. By exploring the amount of input and output cash flows and the relationship between these flows and investors' orientation to preserve or maintain their capital in funds, the investors' tendencies can be studied (Frazini and Lamont, 2008). Previous research on the relationship between inflow and fund performance, proved the existence of a strong and effective relationship between them. Of course, many researchers discussed about the asymmetric relationship between mutual fund flows and their past performance. Funds with strong past performance, eccentrically take advantage of the high number of new inflows, while funds with low performance, to a lesser extent, not as much encountered the outflows.

In addition, other properties of funds, such as the age of the fund, volatility, the Fund's past performance, dependence on other valid and integrated funds and marketing costs, could affect the funds flow and sensitivity (Bourne and Reader, 2010). According to Choaliro Ellison (1997), Siri and Toofano (1998), Gotzman and pels (1997), Boveth (2001) and the Del goriko and Tek (2002), it was found that the relationship is often asymmetric, because funds with low performance do not incur losses to the extent that funds with high-performance rewarded. Because of this mismatch between inflows and returns, the weak funds are willing to risk, because they are not afraid of increase in outflows (Johnson and Otten, 2008).

Daily Funds experience input and output cash flows through the purchase of new shares by new investors and redemption of fund shares; the difference between these two indicates the net cash flow. The new capital will be invested in securities or different suitable situations or will be saved in the balance sheet for the appropriate situation. When investors proceed to redeem, the fund temporarily use the saved money to pay for them, or forced to sell some securities to meet liquidity needs. But most of the time, funds prefer to reserve some money considering the possibility of redemption or in order that not being forced to sell securities. Dabofski (2010) and Chordia (1996), believes that fund managers should keep a lot of cash for unexpected redemption by investors to avoid selling securities invested in the market. According to Alexander (2007), when funds are faced with redemption by investors, if they have weak liquidity, they have to sell securities and stock investments for providing it, at the end of the period, they will face declining performance and efficiency; this leads to the next redemptions and repeating this trend cause the fund failure. Therefore, a large number of mutual funds hold large amounts of free and unlimited cash for those who want to redeem their own shares (Green and Hoodjes, 2002).

Funds investors use different criteria to decide on the purchase or redemption of their shares. Investors usually use historical and past data to decide on the purchase, because they believe that past performance can reveal the future of the Fund. So they are always trying to review the past performance of funds; this can be observed through net cash flows affected high performance, which is the result of a strong desire to invest. But, however, an important question will remain for investors: Is it sufficient continuity in management to promote a well-functioning, or the observed results have been short-term? Thus, investors cannot be fully confidence about the fund future. But a lot of researches have shown a moderate and sometimes short-term policy to maintain the continuity in the proper functioning that it would be questionable for investors when investing (Barber et al., 2000).

Investors proceed to underwrite or withdraw of funds in different conditions and according to Nazarboolen (2007) this is at least for three reasons. First, changes in expectations of future performance of funds that can encourage investor to find a more suitable place to investment. Second, the investors' need for cash or earning a considerable amount of cash at a time and certain conditions causes underwriting or redemption. Third, according to Masa (2003), the underwriting or investment outflows from a special fund suggest change in consumption pattern or changes in expectations from risk or return.

Research background

Siri and Toofano (1998) using annual data concluded that the capital funds will shift to the funds that have good performance over the recent years; however, the outflow from poor performance funds is slow.

Adlen (1999) examined the relationship between investment flows and performance for 166 funds during the 1990-1985. According to his observations, input and output streams to fund have a direct relation with the funds' excess return. The net inflows of funds depend on fund performance and returns of the tested funds.

Barber et al. (2000) have studied the behavior of fund investors. In their opinion, the investors' willingness to purchase from the fund is closely affected by the past performance of the fund. But in this respect, there is a dual behavior of investors; they act with a direct relationship when investment; this means that they select the high-performance funds, and in return, act reversely when take a decision about redemption of fund shares; they sell high-performance funds but hold low-yield funds for a long-term. As a result, this relationship was affected by an asymmetric behavior.

Adlen and Warner (2001) examined the relationship between funds daily flows. According to their findings, there is a direct relationship between the two. When the return is negative, the flow is also negative and when the return is positive, the flow is also positive.

Barber et al (2003) examined the behavior of exchange for six years in 30,000 funds. They showed that the investors act according to an asymmetric behavior based on past performance of a fund to predict about and purchase from that fund. In other words when they sell, it is against the Fund's high performance, while they decide to keep the lost funds (asymmetric impact). In addition, investors often refrain to buy funds with high transaction fees and this is despite the fact that they tend to ignore fee rates on redemption.

Onel (2004) believes that the funds with strong and positive past performance always are encouraged by increasing the purchase flow and additional entries. But those funds that have poor past performance are not equally punished by redemptions and it is probably the reason for the continuation of poor funds.

Schrader (2009) in an article, analyzed information and funds data for examining how the Fund's performance affects investors' behavior and investment flows. The results of his study suggest that the decisions affecting the funds inflows and outflows depend on market conditions. In deciding whether to buy, performance and the adjustment risk related to them, especially the market value are very important.

In a study by Tostovis Banner (2009), the relationship between funds flow and fund character was evaluated in terms of stability from three perspectives. First, stability in the event of a tax incentive, namely investor do not tend to leave valued funds, however they are more inclined to leave lost funds. The second factor is the capital cost. In redemption and decisions like that, investors pay special attention to the fee rates and accountability of fund managers. The third item is about the sensitivity of the funds input and output streams to fund performance; the sensitivity is created in different ways, i.e. in case of inflows, only performance is considered and they attract to the best performing funds; however, while outputs are related to performance, The strength of this relationship is not as much as the impact of inflows.

Borni and Reader (2010) examined the investors' behavior and fund's streams. Their findings show that sometimes, changes in investment flows (entry and exit) is in line with the fund flows in last years. In addition, these flows are also separately affected by changes in fund returns.

Research Hypotheses and Methodology

The aim of this study is to investigate the relationship between issuance and cancellation of shares and being affected by fund past performance; to this end, funds daily data are collected and to achieve a better, they turned into the monthly average and The results of any period is compared with the past period (last month); the purpose of the past performance is the performance of a months ago. The statistical data used to test the hypothesis, are among a statistical community consists of 14 mutual funds listed on the Tehran Stock Exchange during 2010-2014. The following hypotheses have been developed to achieve research objectives:

First hypothesis: There is a significant relationship between the issuance of shares and fund performance.

The second hypothesis: There is a significant relationship between the cancellation of share and fund performance.

To test the hypotheses, we used regression model as follows:

The first hypothesis model:

$$inflow_{i,t} = \beta_0 + \beta_1 Perf_{i,t-1} + \beta_2 AcctSize_{i,t} + \beta_3 Std_{i,t} + \varepsilon_{i,t}$$

The second hypothesis model:

$$outflow_{i,t} = \beta_0 + \beta_1 Perf_{i,t-1} + \beta_2 AcctSize_{i,t} + \beta_3 Std_{i,t} + \varepsilon_{i,t}$$

In the models, "inflow" represents the amounts of shares issuance, "outflow" represents the cancellation of shares (as dependent variables); "perf" represents performance level, Std; returns standard deviation for each fund, and "Acctsize" as average investment (as independent variables) both of them are described below:

Performance (Perf)

Based on the request of the investor, funds proceed to issuance and cancellation of investment units. Higher return encourages investors to invest more and less return encourages them to cancel the investment units. Accordingly, it seems that it is possible to use this variable as an influential variable. The performance level for each fund is indicative of the ability to maintain returns. In this study, Jensen's alpha index (adjusted return) is used to estimate this ability. Jensen's alpha index provides the ability to absolutely measure performance.

The main basis of this model, I derived from CAPM model; in fact, the assumptions of this model are compatible with CAPM model assumptions. The underlying assumption which is emphasized by Jensen model is the possibility of borrowing and lending without limitation, with the same risk-free return rate.

Jensen alpha index is obtained from the following relationship:

$$R_p - R_f = \alpha + \beta(R_p - R_f) + \varepsilon_{pt}$$

Where: R_p is average total return of portfolios over a period of time, R_f is risk-free return, R_m is the market return, β is the systematic risk and ε_{pt} is error coefficient. If α is positive, represent the desirable performance and if it is negative, indicates the poor performance.

Returns Standard deviation of each fund (Std)

The concept of risk in financial markets plays a key role. There are two distinct views about risk. One considers risk as any possible fluctuations in the future financial returns. Another view, believes that although each fluctuation, both positive and negative, is considered to be a risk, but people emphasize the future negative fluctuation in their decision to invest. Moreover, in the calculation of abnormal returns, Non-normal distribution of returns is assumed which is closer to reality. The Risk of mutual funds consisting of systematic risk and unsystematic can be calculated in various ways. Standard deviation is a statistical concept that is widely used in measuring investments risk. The higher the value of standard deviation for the fund returns, the greater the return dispersion and as a results, the risk of firms is also higher (Kordbacheh et al., 2012).

The average investment (Acctsize)

It is calculated by dividing the total assets of each fund by the number of investment units taken by the investors:

$$Acctsize = \frac{TNA}{N} = \frac{total\ net\ asset}{number\ of\ per\ account}$$

Research population:

The study population consisted of all funds listed in the Tehran Stock Exchange. The method of multi-stage sampling is used in order to select a sample; for this purpose, the companies that meet the following conditions have been chosen for the study:

1. The companies which are established before the date 3/21/2010.
2. From the above date to 3/20/2014 are among the active funds in Tehran Stock Exchange.
3. Information required on the funds is available to the above date.
4. Investment funds with open capital in Tehran Stock Exchange.

Accordingly, and taking into account the above restrictions, 14 mutual funds were selected as sample whose names are presented in the table below.

Assets total	Fund name	num
37000896718	Eghtesade novin	1
311634889891	agah	2
34339597135	Saderat bank	3
126414270460	Melli bank	4
990241918367	borsiran	5
85128701027	pouya	6
11794785311	hafez	7
113111802447	farabi	8
840867116131	iranian	9
16971146776	karafarin	10
18411087938	razavi	11
28951582364	Maskan bank	12
47509755605	Tejarat bank	13
45512802624	novin	14

Descriptive Statistics

The reliable econometric indicators were used in this study to better understand the research population and learn more about describing variables. Evaluation of these indicators is the first step to identify the dominant pattern on the dependent variable behavior and explaining the relationships between variables that are used in research.

The Results of descriptive statistics of variables used in this study, during the period 2010-2014 are presented in the table below:

Descriptive Statistics Table

Min	Max	Std.deviation	Median	Mean	
0	1/15	1/21	1/18	4/14	Input flow
0	1/12	3/19	6/19	4/29	Output flow
0	-0/2	0/12	0	0/01	Performance size
-0/29	0/81	0/32	0/65	0/76	Return std. deviation
1123	9143	1328	2432	2657	Investment average

Reference: the research findings

The variables of descriptive statistical analysis include mean, median, standard deviation, maximum and minimum. Checking the quantitative results of descriptive statistics variables shows that the mean and standard deviation of the dependent variable are the inflows 4.14 and 1.21. The averages obtained for outflow and performance level variables are 4.29 and 0.01 respectively.

Analyzing the hypothetical results

Since the data structure is consolidated, to study integration ability, the fixed and random effects test should be done to select the model. In this regard, firstly the fixed effects test (Chow) and then Hausman test were conducted to evaluate the random effects; the results are presented.

The first hypothesis test result

In this hypothesis, the relationship between inflow (issuance) and past performance of the fund was evaluated. Before testing the hypotheses, to determine the model used, diagnostic tests were that its results are presented in the table below:

First model diagnostic tests table

method	propability	F	test
Panel data	0/000	12/43	Chow
Panel data	0/00	19/54	Hausman

According to the obtained result, the panel data model with fixed effect is approved for the first hypothesis. The results of testing this hypothesis are presented in the table below:

Result

$inflow_{i,t} = \beta_0 + \beta_1 Perf_{i,t-1} + \beta_2 AcctSize_{i,t} + \beta_3 Std_{i,t} + \varepsilon_{i,t}$			
sig	Coefficient	Symbol	Variable name
0/000	1/32	$Perf_{i,t-1}$	Performance size
0/000	4/27	$AcctSize$	Return std. deviation
0/000	3/14	Std	Investment average
17/65	F	0/26	R^2
0/000	sig F	1/87	Watson dorbin

As the results show, the variable coefficient of performance level is positive and significant (1.32) at the 95 % confidence level. These results suggest that there is a direct and significant relationship between the inflow and fund performance. That's mean inflows or the issuance of shares in funds is directly affected by the fund's past performance. As a result, the first research hypothesis is confirmed. This result indicates that investors consider fund past performance as a criterion for their purchase decision from the fund when improving the Fund performance.

The second hypothesis test result

In this hypothesis, the relationship between the outflows (cancellation) and fund past performance was evaluated. Diagnostic tests are performed before estimating hypotheses to determine the utilized model; the obtained results are presented in the table below:

The second model diagnostic tests table

method	propability	F	test
Panel data	0/000	68/13	Chow
Panel data	0/000	31/214	Hausman

According to the result for the second hypothesis, the panel data model with fixed effect is confirmed. The results of testing this hypothesis are presented in the table below:

Result

$$outflow_{i,t} = \beta_0 + \beta_1 Perf_{i,t-1} + \beta_2 AcctSize_{i,t} + \beta_3 Std_{i,t} + \varepsilon_{i,t}$$

sig	Coefficient	Symbol	Variable name
0/000	-8/14	$Perf_{i,t-1}$	Performance size
0/065	7/34	$AcctSize$	Return std. deviation
0/014	7/29	Std	Investment average
67/19	F	0/42	R^2
0/000	sig F	1/82	Watson drbin

As the results show, due to the negative coefficient of performance level variable (-8.14), the relationship between outflows and performance is reverse and significant. The outflows or the cancellation of shares in funds is reversely affected by the fund past performance. This result suggests that the investors consider the fund's past performance as a criterion for their redemption decision when declining the fund performance.

Conclusion

In this study, the impact of fund performance, as one of the criteria for making investment decisions on issuance and cancellation of shares in mutual funds, was investigated. As the results showed, there is a direct and significant relationship between the inflows and fund performance. On the other hand, the relationship is reverse between the outflows and fund performance. Inflows or the issuance of shares in the funds is affected by the past performance. This means that the investors consider the fund's past performance as the criteria for their decisions about purchase from fund; while they do not care the fund performance in redemption or cancellation decisions. Basically, self-reliant investors proceed to invest based on predicting the future performance of a fund and considering factors such as past performance in their decision Fund; but according to the obtained results, it can be concluded that no comparison is done at the time of redemption or it is in the lowest possible amount a the final decision is taken based on the experiences and the level of achieving the expectations in the investment period. In other words, the factors other than the performance are involved and influential in decisions related to the redemption. The results of the present study, similar to those obtained by Choalir and Ellison (1997), Siri and Toofano (1998), Gotzman and Pels (1997), Booth (2001) and Del gooriko and Tek (2002), suggests the existence of a asymmetric relationship; that's mean to the extent that performance improvment can affect investment decisions to buy, Performance degradation is not a measure of redemption.

Research Limitations

For all researches that take place, the limitations are an integral part of the research; because, these limitations provide the groundwork for future and new research. The present study is also no exception. The limitations of this study were as follows:

- applying some selection criteria in choosing funds under study and short time of the funds presence in Iran market, has led to a shortage of subjects in conducting research.
- The absence of previous studies on the subject of this research about investment funds in Iran.
- Lack of information about the costs and information about the managers of investment fund in Iran.

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