



# Investigating the relationship between funds flow and fund performance growth in Iran

Ali Tabakh<sup>1\*</sup>, Ali Asghar lotfi<sup>2</sup>, Roghaye Talebi<sup>3</sup>

1 M.A Student, Department of accounting, college of human science, Saveh Branch, Islamic Azad University, Saveh IRAN.

2 Assistant professor, Department of accounting and management, Islam shahr branch, Islamic Azad university, Islam shahr, IRAN.

3. Department of Accounting, Saveh Branch, Islamic Azad University, Saveh, IRAN.

**Abstract:** Free cash flow is important in that it allows managers to search for opportunities that can increase shareholder value. Without having cash, development of new products, business achievements, paying cash dividends to shareholders and debt reduction are not possible. Accordingly, this article aims to investigate the relationship between funds flow and investment funds performance growth in Iran. To this end, 25 active investment funds in Iran were selected as the studied sample. To examine the relationships, panel data method of econometric models has been used. The results of this research indicate that there is a significant relationship between funds flow and fund performance growth. Also, correlation of funds flow with fund performance growth in funds with high cash asset is stronger than other funds.

**Keywords:** Funds flow, fund, performance, firm size

## Introduction

Investment funds or common investment funds are financial intermediaries which sell investment units to the public and invest the obtained funds in a diversified portfolio of securities. Each investment unit (share) that is sold in investment funds is a relatively appropriate representative of securities portfolio which the investment fund manage on behalf of its shareholders (Roshangarzadeh & Ahmadi, 2011). Since the aim of most investors in funds is to provide sufficient funds for children's education in the future or retirement pension, fund performance will have a significant impact on the welfare of citizens. So, the quality of decisions on investment in funds is of great importance for the whole economy as well as the investors. Considering the importance of this issue, studying the behavior of investors in investment funds has provided an important area for financial research.

Given that the investment funds should keep a portion of their assets in kind to achieve an appropriate return, confronting cash flows (outgoing and incoming) and proper maintenance and management of funds to refund the investment units or the estimate and management of cash flows earned from investments in funds are of crucial importance (Galagedera & Silvapulle, 2002). Fund performance is measured through fund returns and net asset value of the fund. With poor fund performance, investors attempt to refund investment units and the fund faces high cash flow output, which in case of non-anticipation of this output flow by the fund and the decision to sell part of the portfolio in a short time, the fund incurs costs. Considering this issue, the main objective of this research is to investigate the relationship between cash flow and fund performance. Accordingly, in what follows, after proposing the research hypotheses, literature review is discussed. Then, the research methodology will be explained and after that, econometric model will be estimated. Finally, the obtained results will be described and conclusion and suggestions are presented.

### **Research hypotheses**

There is a significant relationship between funds flow and fund performance growth.

Correlation of funds flow with fund performance growth in funds with high cash asset is stronger than other funds.

### **Research literature review**

Saeidi and Saeidi (2010) conducted a study entitled "Factors affecting investment funds return in Tehran Stock Exchange", in which the relationship between the ten variables of the number of industries in the investment basket of the fund, the growth rate of Fund value, issuance value, the value of the cash held by the Fund, the percentage of ownership of real shareholder, redemption value, market returns, risk (the absolute value of deviation from the mean) and investment activity ratio and prior period return with investment funds return was analyzed. The results of this study show that there is a significant linear correlation between the six variables of market returns, the growth rate of Fund value, the absolute value of deviation from the mean of the Fund returns, issuance value of investment units, investment activity ratio and redemption value of investment units with investment funds return.

In a research, Soleimani and Abed (2013) studied the investment funds performance in Iran based on the standards of modern portfolio theory, including Sharpe index, Modigliani index, standard deviation, traditional beta, Treynor and Jensen ratio and also standards of postmodern portfolio theory, including Sortino index, Upside Potential, adverse risk and negative betas. The relationship between the rankings of funds on different bases was compared. The review period is from 2008 (the beginning of Funds' activity in Iran) up to the end of the first quarter of 2012. Ratios were calculated for various investment funds and their performance was evaluated. They found a significant relationship between ratings of funds based on the standards of modern and postmodern portfolio theories. On the other hand, given the non-normal distribution of funds returns, it was concluded that using the criteria of postmodern portfolio theory in assessing the performance of mutual funds is preferable to the standards of modern portfolio theory (cited in Demeter & Matyusz, 2011).

Fang and Jung (2010) investigated the relationship between capital flow and performance of mutual funds among 181 Funds in Taiwan using monthly periods since 2001 to 2007 and revealed that there is a significant relationship between capital flow and funds performance. Also, they found that capital flow of the fund has a relationship with fund rank in the family of that fund. This relationship is also related to fund liquidity and fund assets. They believe that investors prefer the funds with high performance to other funds in a group (cited in Basu & Wang, 2011).

Chen et al. (2007) presented a new criterion for measuring fund performance under the title of "efficiency ratio". This ratio uses global minimum standard deviation of the basket as a basis for comparison. Efficiency ratio is used for modifying the instability existing in Israelsen adjusted information ratio.

Habner (2007) provides some empirical evidence regarding the evaluation of performance criteria. The results of his study confirm the superiority of generalized Treynor ratio as an optimum criterion to Sharpe (1964) and Lintner (1965) ratios in assessing the funds performance.

Arogaslan et al. (2007) examined the adjusted performance in terms of risk- common investment fund in the United States during the years 2000-2004. In this research, Modigliani risk-adjusted performance measure has been applied for assessing these types of mutual funds. The results suggest that mutual funds with high returns may lose their attractiveness at a time when risk level is linked to analysis. Conversely, some investment funds may look attractive when their low risk is linked to their performance.

Swinkels and Rozingzak (2009) empirically evaluated the performance of mutual funds operating in the market of Poland. Their research embraces three classes of investment funds including equity funds, balanced funds and bonds funds. The results indicate that for each of these three classes, there is a positive but meaningless relationship between selectivity of managers 1 and scheduling skills.

In a study conducted by Javid et al. (2008), effectiveness of risk (beta and standard deviation) in funds performance was confirmed. In other words, the higher the risk, the greater the fund return. Another influencing factor is the size of the fund. The researcher argued that larger funds can bring more diversity and this affects the fund performance. In this research, management background 1 which is the same as the background of basket manager and his academic discipline has been effective in fund performance. But fund background had no impact on its performance (cited in Saeidi et al., 2010).

Talat Afza (2009) in a study investigated the relationship between fund size and fund return and concluded that there is no relationship between them. Another result of the study was to corroborate the effectiveness of fund age, fund cost and transaction activity ratio in fund return. Thus, long-established funds have higher returns and operate more efficiently. Regarding the incentive programs, it was concluded that they have a positive impact on fund return and further use of such programs for investment manager leads to the increase of fund return. In this study, the effect of prior period return on fund return has been also evaluated and confirmed. The amount of cash held by the fund has a positive impact on fund return. In fact, greater amount of fund cash leads to increased willingness of investors to invest since they see themselves more freely for investment in a better situation and with less liquidity risk (cited in Boyer & Zheng, 2009).

Jenkinson et al. (2013) addressed a fair assessment of the private equity funds and stated that the final performance is that investment funds should be active in the field of buying and selling stock and ultimately, the amount of capital is returned to shareholders. This typically takes more than a decade and in the meantime, fund performance becomes very important. This article deals with the analysis of fund performance and investigates whether it is managed conservatively or aggressively. In this way, it predicts the future of the fund. Our results indicate that investors should cautiously use investment decisions base in returns.

### Research methodology and statistical data

For data collection, Rahavard Novin software and Tehran Stock Exchange databases were applied. To this end, audited and classified financial data related to the companies listed in Tehran Stock Exchange for a period of 6 years from 2008 to 2013 was used.

After collecting the data, the following econometric model was employed to study the research hypotheses:

$$\Delta RNAV_{i,t} = \beta_0 + \beta_1 FF_{i,t} + \beta_2 DCash_{i,t} + \beta_3 FF * DCash_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEV_{i,t} + \varepsilon_{i,t}$$

In which:

$\Delta RNAV$ : performance growth as the dependent variable

$FF$ : funds flow as the independent variable

$DCash$ : it is a dummy variable whose amount is 1 if the cash of investment fund in a given year is higher than the average of the cash of the entire investment funds; otherwise, it is zero (intervening variable).

$SIZE$ : firm size (size is calculated based on net sales revenue in terms of million Rials)

$LEV$ : financial leverage degree (ratio of total liabilities to total assets)

To estimate the above model, Panel data and Eviews software were applied.

### Definition of variables

#### Funds flow (capital) of the investment funds

As the dependent variable, it includes net issuance value and redemption value, which is called net cash. In this research, following the studies conducted in other countries, funds flow has been calculated by the following formula. For each fund, new money was determined by the discount rate of Total Net Assets of the fund. The average of new money which has been adjusted to the Total Net Assets of the end of the month and whose difference has been adjusted to the Total Net Assets of the beginning of the month considering the fund return is calculated and shows increase or decrease in funds flow.

$$TNA_{it} - TNA_{it-1} \times (1 + RNAV_{it})$$

$$Flows_{it} =$$

$$TNA_{it-1}$$

$TNA_{it}$ : Total net assets of the fund  $i$  in month  $t$

$RNAV_{it}$ : Monthly return of the fund  $i$  in month  $t$

According to the rules of the Securities and Exchange Organization of Iran and funds statute in which preferred shares of each Fund is not voidable, in the present article, Rial value of preferred shares in each period was deducted from denominator of the above fraction and the capital flow is calculated as follows:

$$TNA_{it} - TNA_{it-1} \times (1 + RNAV_{it})$$

$$Flows_{it} =$$

$$TNA_{it-1} - (n_{it-1} * NAV_{it-1})$$

$n_{it-1}$ : Number of preferred shares of fund  $i$  at time  $t-1$

$NAV_{it-1}$ : Statistical value of preferred shares of fund  $i$  at time  $t-1$

**Fund return**

Investment fund return as the dependent variable has been calculated from the following equation:

$$RNAV_{it} = \frac{NAV_{it} - NAV_{it-1}}{NAV_{it-1}}$$

RNAV<sub>it</sub>: Return of fund i in period t

NAV<sub>it</sub>: Net asset value of the fund i at the end of period t

NAV<sub>it-1</sub>: Net asset value of the fund i at the end of period t-1

(Given the presentation of funds return in their site and investors use of this return for decision-making, it seems that it is better to use the provided return / performance at the site.)

To calculate the performance growth, changes in return during the period have been applied.

Therefore, performance growth is calculated as follows:

$$\Delta RNNAV_{it} = \frac{RNAV_{it} - RNNAV_{it-1}}{RNAV_{it-1}}$$

**Amount of cash**

The amount of liquidity held by the investment fund represents the amount of cash. It is argued that the greater the amount of fund cash, the higher the cost of the lost opportunity and this has a negative impact on returns (Arugaslan, et al., 2007). In this study, logarithm of the Rial value of the cash held in the Fund has been used.

**Model estimation**

Before the estimation of the econometric model, it is necessary to adequately examine sustainability, co-linearity between variables and type of panel data model, which are stated in what follows:

**Sustainability and unit root tests**

Phillips-Perron unit root test results for the variables of the model under study have been listed below.

Table 1. Results of sustainability tests

Phillips-Perron test			
Variable	Statistic	Significance level	Result
Capital flow	113.77	0.000	Sustainable
Performance growth	123.76	0.000	Sustainable
Leverage ratio	143.49	0.000	Sustainable
Fund size	96.88	0.000	Sustainable

The null hypothesis in Phillips-Perron test is based on non-sustainability of the studied variables. Since the significance level of all the variables is less than 0.05, their sustainability is confirmed and thus, the model can be estimated.

**Correlation between the model variables**

As seen in Table 2, amount of correlation is very low and is less than 10 percent in most cases. According to the results of the correlation table, co-linearity problem will not occur in the model.

**Chow test**

Chow or F Limer test is applied to determine whether the use of panel data model is appropriate or not. The null hypothesis of this test is based on the grounds that using panel data method is not suitable. Table 3 shows the result of this test:

**Hausman test**

The null hypothesis of Hausman test states that using random effects is not appropriate. Table 4 shows the result of Hausman test.

Table 2. Correlation between the model variables

Correlation Probability	SIZE	LEV	FF	DRNAV
SIZE	1.000000 ----			
LEV	-0.028233 0.7804	1.000000 ----		
FF	-0.013647 0.8928	-0.057199 0.5719	1.000000 ----	
DRNAV	-0.063441 0.5306	0.050008 0.6212	0.003954 0.9689	1.000000 ----

Table 3. Chow (F Limer) test for the studied equation

Obtained statistic	Degrees of freedom	Significance level	Result
2.95	(24,70)	0.000	Rejection of null hypothesis

Given the above table, it is observed that there is enough evidence to reject the null hypothesis; so panel data method can be used. Now, Hausman test should be done in order to determine whether to use fixed or random effects.

Table 4. Hausman test for the first equation

Obtained statistic	Degrees of freedom	Significance level	Result
0.000	5	1.000	Acceptance of null hypothesis

Based on the above table, it is observed that there is not enough evidence to reject the null hypothesis; so fixed effects method can be used.

**Estimation of panel data model**

The results of the following regression model estimation using panel data are shown in Table 5:

$$\Delta RNAV_{i,t} = \beta_0 + \beta_1 FF_{i,t} + \beta_2 DCash_{i,t} + \beta_3 FF * DCash_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEV_{i,t} + \epsilon_{i,t}$$

Table 5. Estimation results for studying the research hypotheses (dependent variable: earnings management)

Variable	Coefficient	T statistic	P-value	Total regression model	
				DW	R <sub>2</sub>
Intercept	7519.53	4.73	0.000	2.59	0.35
FF	-4.82	-4.67	0.000		
DCASH	30.96	3.67	0.000		
FF*DCASH	4.26	1.90	0.06		
SIZE	2.19	4.57	0.000		
LEV	-99.89	-7.19	0.000		

According to Table 5, it is observed that all the variables except FF \* DCASH variable are significant at a confidence level of 95% and the above variable is significant at a confidence level of 94%. Accordingly, both research hypotheses are confirmed, which have been summarized in Table 6.

Table 6. Examination of hypotheses

No.	Hypothesis	Result
1	There is a significant relationship between fund cash flow and fund performance growth.	Confirmed
2	Correlation of funds flow with fund performance growth in funds with high cash asset is stronger than other funds	Confirmed

## Conclusion

As we have seen, correlation of funds flow with fund performance growth in funds with high cash asset is stronger than other funds. But the average of funds flow in funds with high cash asset was not much different compared to the average of funds flow in funds with low cash asset. Achieving these results may be due to the short period under study.

With the passage of time and developing the activity of funds, we can repeat this study with more funds and in a broader timeframe and compare the results. It should be noted that during investigations, it was found that investors of the funds in Iran are mainly from among their founders and managers. In other words, investment in funds has not still become pervasive among the general public. Nevertheless, it is expected that with starting the activity of tradable investment funds, the public will further welcome such investments.

## Suggestions

Since there is a linear relationship between fund performance growth and relative growth of fund flows in investment funds and in fact, investors make their investment decisions based on the past performance, it is recommended that managers of investment funds further attempt in line with improving the performance of the funds under their management in order to enjoy better growth in the future.

In this study, we came to this logical conclusion that correlation of funds flow with fund performance growth in funds with high cash asset is stronger than other funds. High liquidity always leads to risk reduction. Also, it was concluded in this research that high cash asset causes an increase in the correlation between funds flow and performance growth. It is suggested that managers of investment funds carefully examine the ways to increase the cash asset of their fund so that through finding the ways to increase the number of investors, they can increase the amount of cash asset. In this way, they can promote the fund performance growth.

In the present study, it was concluded that the average of funds flow in the funds with high cash asset has no significant difference compared to the average of funds flow in the funds with low cash asset. It is suggested that when choosing the right fund for investment, the investors should pay special attention to instances such as liquidity level in the provided financial statements of the funds.

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