

Investigating the relationship between financial distress and investment efficiency of companies listed on the Tehran Stock Exchange

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ABSTRACT

The present study is aimed at investigating the relationship between financial distress and investment efficiency of companies listed in the Tehran Stock Exchange (with emphasis on the role of ownership type). To calculate investment efficiency, the Richardson's model (2006) [Richardson, S. (2006). Over-investment of free cash flow. *Review of Accounting Studies*, 11(2-3), 159-189.] was employed. The aim of the present study is applied and its method is correlational- ex post facto. Using the exclusion sampling method and by applying the conditions of selecting the sample, 94 companies were selected from 2008 to 2013. To test the research hypotheses, multiple regression was used. Findings of the research indicate that there was a correlation between financial distress and investment efficiency in companies listed in the Tehran Stock Exchange, and institutional ownership had positive effects on the relationship between financial distress and investment efficiency of companies listed in the Tehran Stock Exchange. Furthermore, management ownership had no effect on the relationship between financial distress and investment efficiency in companies listed in the Tehran Stock Exchange.

1. Introduction

Investment in different affairs by companies have always been considered as one of the important ways of developing companies and preventing recession and retardation. In this arena, limitations in resources have caused that in addition to investment development, increase in investment efficiency seems necessary. In general, investment efficiency means accepting projects with a positive net present value and by investment insufficiency, it means the selection of project with a negative net present value (excessive investment) or the lack of selecting investment opportunities (conservative investment). In determining investment efficiency, there are, at least, two theoretical criteria: the first one states that for financing investment opportunities, the collection of resources is needed. In an efficient market, all projects with positive net present values should be financed. Although a large number of existing researches on financial areas indicate that financial limitations can limit managers' abilities to finance (Hubbard, 1998). One of the cases which can be inferred is that companies facing

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with financial limitations may reject the conduction of projects with positive net present values due to high costs of financing. This issue results in low investment. The second criteria states that if a company decides to finance, there is no guarantee that investment will be appropriately conducted. For example, managers may conduct inefficient investment by selecting inappropriate project in line with their own benefits or even misuse of resources. Most existing articles in this field predict that the selection of weak projects results in investment.

Each company, in addition to having the will of business project, buys assets which requires for performing this project. Financing is conducted for preparing these assets via different methods such as common stock or different ways of borrowing. After the beginning of operations or project, the business project is conducted successfully which in this state, repayment of principal and interest debts is timely conducted and shareholders obtain the expected returns from this investment, or the business project fails and output cash flows exceeds the input cash inflows. If a company faces the second state and cannot supply sufficient cash for financing its own continuous needs, it will face financial distress. At the time of distress, companies encounter two problems: shortage of cash in the part of assets of the balance sheet and the existence of abundant commitments in the part of liabilities of the balance sheet. In other words, at the time of distress, cash flows do not sufficiently provide coverage for realizing commitments and the company encounters temporary disability to pay debts. In this case, companies tend to sell assets (investment cash flows) and getting loans (financing cash flow). Therefore, it results in the reduction in capacity and productive efficiency as well as the increase in the leverage. As a result, predicting financial distress of companies is a necessary issue and provides the possibility of presenting possible solutions before the occurrence of each kind of crisis (Mansourfar et al., 2013).

Financial distress and bankruptcy of companies result in wasting their resources and not utilizing investment opportunities. Predicting financial distress with designing appropriate indices and models can make companies aware of the occurrence of financial distress and bankruptcy in order to adopt appropriate policies with regard to these warnings. Furthermore, participants of capital market and money market require knowledge of financial states of existing companies and their efficiencies. One of the methods by which the appropriate utilization of investment opportunities and better allocation of resources is to predict financial distress or bankruptcy of companies in such a way that first by offering the necessary warnings, companies can be aware of the occurrence of financial distress in order to conduct necessary measures and second, investors and creditors can distinguish appropriate investment opportunities from inappropriate ones and invest their resources in appropriate investment opportunities (Bahramfar & Mehrani, 2004). Therefore, predicting financial distress and bankruptcy of companies has always been one of the issues considered by investors, creditors, and governments. Timely identification of companies at the threshold of financial distress is highly favorable because it prevents investment in inappropriate and inefficient cases for participants of markets. In the financial literature, different definitions has been presented for financial distress. Gordon (1971) in one of the first scientific studies on the theory of financial distress, introduces it as the reduction in the power of profitability which increases the probability of inability to repay interest on debt and original debts. Whitaker (1999) considers financial distress as a state in which companies' cash flows are lower than the total costs of the interest related to long-term debts. Economically, financial distress can be interpreted as unprofitability of companies. In this state, companies encounter failure. In fact, in this state, companies' rate of return is lower than the rate of cost of capital. Another state of financial distress occurs when a company does not succeed to observe one or more clauses related to debt contracts such as keeping the current ratio and equity ratio to the whole assets according to the contract. This state is called technical default. Other states of financial distress refer a case when companies' cash flows are not sufficient for repaying interest on debts and the original debts and when the value of equity ratio of the company gets negative (Weston et al. 1992).

In the present study, the role of ownership type is considered as the moderator variable in order that it can be identified whether ownership type has effects on the relationship between financial crisis and investment efficiency and whether it causes improving or weakening this relationship or it has no effect

on this relationship. One of the most important issues is the contradiction between interests of shareholders and those of management which has been considered by researchers during recent decades. The existence of contradiction of interests among groups and how companies encounter these contradictions are generally presented under the title of the Representation Theory. In the representation relations, owners' aim is to maximize wealth and therefore, and to achieve this aim, they supervise managers' activities and evaluate their efficiency. The contradiction between the two mentioned groups occur when management prefers its interests to shareholders' viewpoints and interests. Therefore, the present study is to investigate the effect of ownership type (institutional and management ownership) on the relationship between financial distress and investment efficiency. Therefore, with regard to the mentioned issues, the main problem of the present study is the investigation of the relationship of financial distress and investment efficiency of companies listed in the Tehran Stock Exchange (with emphasis on ownership type).

2. Review of literature

Financial distress is defined as a company with insufficient cash which is unable to repay its own heavy debts. The occurrence of global financial distress and the necessity of coping with its negative consequences as well as the use of opportunities resulting from it are necessities which economic officials pay attention to. The beginning of financial distress from the US economy and its rapid expansion to other economies of the world have resulted in the formation of the most important event and financial crisis in the world at the beginning of the third millennium with regard to economic integration and intertwinedness of the world during recent decades. This trend continued as far as the occurrence of the first consequences of economic recession in a part of global economy in a short period of time covered the all over community of global economy and stopped wheels of economy. The fall of financial markets, stopping and reducing production, increasing unemployment, reducing demands for goods and services markets, increase in the distrust in the financial markets and monetary and bankruptcy of banks and financial and monetary institutions were among the most important consequences of this financial crisis. On the other hand, it can be said that investment refers to the conversion of funds to one or more other types of assets which will be preserved for a time in the future with the aim of earning profits. In other words, by investment, it means neglecting spending money or other financial resources at the present time and along with taking certain or uncertain risks for earning profits in the future. Since investment requires financing and financial distress is the shortage of financial resources for investment, Liao and Liu (2014) conducted a research in China about local financial distress and investment efficiency to investigate the relationship between local financial distress and investment efficiency from 2002 to 2010. The results indicated that the expansion of investment results in the increase in paying taxes. Governments which have motivation of the increase in financial income and encounters financial distress increase investment. de la Cruz et al. (2014) investigated the effect of corporate governance on the accuracy of models of predicting financial crisis in Spain for the financial period from 2007 to 2012. The results of the research indicated that some of the mechanisms of corporate governance improve the power of predicting models of financial distress. Miglani et al. (2015) investigated the effect of the structure of corporate governance and financial crisis in Australia. The population included 106 companies which were investigated over a five year period. The results indicated that the structure of corporate governance results in lower levels of financial distress. Hu and Zheng (2015) investigated the effect of the structure of ownership on the degree of financial crisis in China on 387 companies for a financial period from 2000 to 2008. The results of the research indicated that the concentration of ownership has negative effects on the degree of financial crisis in companies. Kordestani et al. (2011) investigated the efficacy of ratios based on the Cash and Accrual Method in predicting financial distress of companies listed in the Tehran Stock Market. The study used the logit regression model and discriminant analysis model, and tested the number of 27 bankrupt companies and 27 non-bankrupt companies and found out that efficacy of financial ratios based on balance sheet and profit and loss were higher than financial ratios based on the cash flow statement. Khajavi et al. (2012) in a research titled as "comparative investigation of the quality of financial reporting of distressed and non-distressed companies listed in the Tehran Stock Exchange" concluded

that the quality of financial reporting in the non-distressed companies listed in the Tehran Stock Exchange enjoy less sustainability than distressed companies do. Rahimian and Tavakolnia (2013) conducted research entitled as “financial leverage and its relationship with financial distress as well as growth opportunities in companies listed in the Tehran Stock Exchange (curve and linear relations)”. The sample size of the research included 110 companies listed in The Tehran Stock Exchange from 2007 to 2011. To test research hypotheses, regression was used. The results of the research indicated no effect of financial distress on financial leverage. In addition, the results indicated the relationship between growth opportunities and financial leverage of those companies. Kordestani et al. (2014) in a research titled as “assessment of the predicting power of Altman adjusted model of stages of Newton financial distress and bankruptcy of companies” indicated that Altman unadjusted model introduces more than 50% of the distressed companies which are in years before bankruptcy and 18% of healthy companies as bankrupt. This is while that Altman adjusted model predicts bankruptcy of companies in the bankruptcy year with 95% accuracy and in general, it predicts financial distress in one, two, or three years before bankruptcy as 63, 91, and 96%.

3. Research hypotheses

Main research hypotheses

1. There is a significant correlation between financial distress and investment efficiency in companies listed in the Tehran Stock Exchange.
2. The ownership type is effective on the relationship between financial distress and investment efficiency of companies listed in the Tehran Stock Exchange.

Secondary research hypotheses

1. Institutional ownership is effective on the relationship between financial distress and investment efficiency of companies listed in the Tehran Stock Exchange.
2. Management ownership is effective on the relationship between financial distress and investment efficiency of companies listed in the Tehran Stock Exchange.

4. Research variables

4.1 Independent variables

To measure financial distress, Altman model was used. In Altman model, to predict the occurrence of bankruptcy, financial ratios analysis was used and performed in the form of a function in which financial ratios are considered as independent variables. This model constructed from five financial ratios is as follows:

$$Z = 0.717X_1 + 0.847X_2 + 3.107X_3 + 0.420X_4 + 0.998X_5$$

X_1 is working capital to total assets,

X_2 is retained earnings to total assets,

X_3 is earnings before interest and taxes to total assets,

X_4 is the book value of equity to book value of debt.

X_5 is sales to total assets.

In this model, the lower z-scores, the higher the degree of financial crisis so that companies with z-scores higher than 2.9 are put in the class of healthy companies, and those with z-scores lower than 1.23 are classified as bankrupt companies. Z-scores between 1.23 and 2.9 are considered as the doubt areas.

4.2 Dependent variables

In the present study, Richardson's model (2006) was used for calculating investment inefficiency (too high and low investment) for companies listed in the Tehran Stock Exchange. Evaluation of Richardson model (2006) is as follows, (Liao & Chen, 2007; Liao & Liu, 2014)

$$Invest_{i,t} = \beta_0 + \beta_1 Grow_{i,t-1} + \beta_2 Lev_{i,t-1} + \beta_3 Cash_{i,t-1} + \beta_4 Aeg_{i,t-1} + \beta_5 Size_{i,t-1} + \beta_6 Ret_{i,t-1} + v_{i,t} \quad (1)$$

where $Invest_{i,t}$ is the ratio of change in the total of net fixed assets, long-term investment and intangible assets to total assets of the company i in year t .

$Grow_{i,t-1}$ is the annual revenue growth rate in year $t-1$

$Lev_{i,t-1}$ (financial leverage of the company) is the ratio of total liabilities to total assets at year $t-1$

$Cash_{i,t-1}$ (Cash ratio) is the ratio of cash and short-term investment to average assets of the company i in year $t-1$

$Aeg_{i,t-1}$ (Age) is the ratio of company's life to the logarithm of assets of the company at year $t-1$

$Size_{i,t-1}$ is the natural logarithm of assets of company i at year $t-1$

$Ret_{i,t-1}$ Annual stock return of company i at year $t-1$

Annual return is calculated as follows,

$$R_t = [p_t(1 + \alpha + \beta) - (p_{t-1} + C_a) + DPS] / (p_{t-1} + C_a) \quad (2)$$

where R_t is Annual stock returns, P_t denotes Company's share price in period t , P_{t-1} represents Company's share price in period $t-1$, α states percentage of raising equity capital from cash and receivables, β represents the percentage of the increase in capital reserves and dividends, C_a states the amount of stock subscription (usually 1,000 Rials) and finally, DPS is cash dividend per each share.

According to Richardson (2006), the variable of sales is applied for evaluating and estimating investment opportunities. According to this approach, investment is a function of growth opportunities as well as control variables affecting it. Therefore, deviation of actual investment of the company from the expected investment based on the fitted equation indicates over- and under- investment of the company. The value of this deviation shows an inverse indicator of investment efficiency (the investment inefficiency). Ownership type is based on the type and nature of main shareholders who have the highest percentage of companies' ownership. Accordingly, the studied companies can be divided into the following groups:

- a. Institutional ownership: is the percentage of stock held by public and private corporations from the total capital stock. These corporations include insurance companies, financial institutions, banks, and state-owned companies.
- b. Management ownership: is the percentage of stock held by boards of directors.

4.3 Control variables

Selecting control variables was based on the previous studies of researchers such as Richardson (2006), Biddle et al. (2009), Das and Pandit (2010), Chen et al. (2011), and Cheng et al. (2013). These control variables include potential triggers of investment levels as follows:

Size=natural logarithm of all assets

ROA= the ratio of net income to total assets

Leverage: the ratio of total debt to total assets

The ratio of the market value of total assets to value: (MBV) the ratio of market value to book value of total assets

The population of the study includes all companies listed in the Tehran Stock Exchange from 2008 to 2013 and the sampling method is systematic elimination. Selected companies should have the following conditions:

1. The company should have been listed in the Tehran Stock Exchange from 2007.
2. In terms of comparability, their financial period should be at the end of March.
3. During the mentioned years, the company should not have had changes in activities or their fiscal years.
4. Information needed for calculating research variables in investigated years, i.e. 2008 to 2013 should be available and financial statements and the explanatory notes relating to them should be absolutely available.
5. It should not be among banks and financial institutes (investment companies, financial intermediation, holding companies, banks and leasing).
6. During each year of the research period, it should not have trading interruptions for more than three months.

With regard to the imposition of mentioned restrictions on all companies listed in the Tehran Stock Exchange, 94 companies were selected. Research method can be investigated from different dimensions of research objective, data collection, etc. Here, after collecting data and doing related calculations, the results obtained from the sample size can be generalized into the research population (the whole Tehran Stock Exchange) (movement from part to whole). Therefore, the research method is a posteriori. In terms of temporal dimension, the research is posteriori because it investigates the data of previous years (from 2008 to 2013). In terms of objective, the research is applied. In addition, the research is correlation in terms of data analysis. Finally, the research is descriptive in terms of research method. In descriptive analysis, it has been tried that by providing information and using instruments of descriptive statistics such as central and dispersion parameters, the research data can be described. Descriptive statistics of quantitative variables are provided in Table 1.

Table 1
Descriptive analysis of the research qualitative data

Variable	Sign	N	Mean	SD	Minimum	Maximum
Financial distress	Z	564	2.183	1.466	0.037	8.964
Size of companies	Size	564	1.818	1.281	11.363	18.577
Return on Assets	ROA	564	0.128	0.115	0.000	0.938
Leverage	Lev	564	0.608	0.173	0.013	0.991
Growth opportunity	M/B	564	2.183	1.721	0.126	9.782
Investment efficiency	IE	564	0.017	0.272	-1.965	2.196

The first stage for starting the process of testing hypotheses is to investigate the normality of data. To investigate the normality of data, some hypotheses are configured as follows:

H_0 : Data distribution is normal

H_1 : Data distribution is not normal

To test the above hypothesis, the Kolmogorov–Smirnov test was used summarized in Table 2. As indicated from the results of Table 2, the significance level in all variables are lower than 0.05. Therefore, with 95% confidence it can be claimed that these variables are not normally distributed. But according to Stevenson's theory (2002), when the sample size is high, this issue solves the problems of non-normality of research variables. Stevenson believes that according to the Central Limit Theorem, even those populations which are not normally distributed, when samples with big size are selected,

their sampling distribution will be normal. As a result, parametric tests can be used for analyzing all hypotheses of the present study.

Table 2

The results of the Kolmogorov – Smirnov test

Variable	Sign	Z-score	P-Value
Financial distress	Z	3.157	0.000
Size of companies	Size	1.730	0.005
Return on Assets	ROA	3.176	0.000
Leverage	Lev	1.178	0.125
Growth opportunity	M/B	3.874	0.000
Investment efficiency	IE	2.807	0.000
Management ownership	MO	2.232	0.000
Institutional ownership	IO	11.241	0.000

5. Results of testing hypotheses

5.1 Results of testing the first hypothesis

First hypothesis: Institutional ownership is effective on the relationship between financial distress and investment efficiency of companies listed in the Tehran Stock Exchange. To test the first hypothesis, the following model was used:

$$IE_{i,t} = \alpha + \beta_1(Z_{i,t}) + \beta_2(Size_{i,t}) + \beta_3(ROA_{i,t}) + \beta_4(Lev_{i,t}) + \beta_5(M / B_{i,t}) + V_{i,t}$$

Table 4

The results of testing the first hypothesis

Variable name	Symbol	Beta coefficient	t-score	P-Value
Fixed value	α		2.452	0.015
Beta 1 (financial distress)	$\beta_1(Z)$	-0.188	-3.897	0.000
Beta 2 (size of companies)	$\beta_2(Size)$	-0.025	-0.568	0.570
Beta 3 (Return on Assets)	$\beta_3(ROA)$	0.162	-3.232	0.001
Beta 4 (financial leverage)	$\beta_4(Lev)$	-0.149	-2.923	0.004
Beta 4 (companies' growth)	$\beta_4(M/B)$	-0.074	-1.789	0.074
Total regression model	F-Value	P-Value		
	8.372	0.000	AdjR ² = 0.061	

Regarding the results of testing the first hypothesis indicated in Table 4, the significance level of F-score is 0.000 which is smaller than the acceptable level of error (5%) and the total regression model was significant which indicates the acceptable goodness of fit of the model. Regarding the lower p-value of the t-score than the acceptable level of error for β_1 , the results of the test indicate that financial distress had a significant correlation with investment efficiency. Therefore, the first research hypothesis can be confirmed at the significance level 95%. With regard to this issue that β_1 coefficient is negative, financial distress has a negative relationship with investment efficiency. Furthermore, the results indicate that from among control variables entered the model, ROA and Leverage had negative and significant correlation with investment efficiency. Coefficient of determination and adjusted coefficient of determination indicate that independent variables entered the regression model could explain 7% to 6.1% of variations of the dependent variable.

5.2 The results of testing the second research hypothesis

Second hypothesis: institutional ownership is effective on the relationship between financial distress and investment efficiency of companies listed in the Tehran Stock Exchange. To test the second hypothesis, the following model was used:

$$IE_{i,t} = \alpha + \beta_1(IO * Z_{i,t}) + \beta_2(Size_{i,t}) + \beta_3(ROA_{i,t}) + \beta_4(Lev_{i,t}) + \beta_5(M / B_{i,t}) + V_{i,t}$$

Table 5

The results of testing the second hypothesis

Variable name	Symbol	Beta coefficient	t-score	P-Value
Fixed value	α		2.534	0.012
Beta 1 (financial distress)	z	0.209	-4.283	0.000
Beta 2 (financial distress)*	$\beta_1(Z*IO)$	0.102	2.467	0.014
Beta 2 (size of companies)	$\beta_2(\text{Size})$	-0.030	-0.685	0.493
Beta 3 (return of assets)	$\beta_3(\text{ROA})$	0.170	3.403	0.001
Beta 4 (financial leverage)	$\beta_4(\text{Lev})$	-0.145	-2.851	0.005
Beta 4 (growth of companies)	$\beta_4(\text{M/B})$	-0.076	-1.860	0.063
Total regression model	F-score	P-Value		
	8.054	0.000	$R^2=0.08, \text{Adj}R^2 = 0.07$	

Regarding the results of testing the second hypothesis indicated in Table 5, the significance level of F-score is 0.000 which is smaller than the acceptable level of error (5%) and the total regression model was significant which indicates the acceptable goodness of fit of the model. Regarding the lower P-value of the t-score than the acceptable level of error for β_2 , the results of the test indicate that financial distress \times institutional ownership had a significant correlation with investment efficiency. With regard to this issue that β_1 coefficient is positive, therefore, the first research hypothesis can be confirmed at the significance level 95%. Furthermore, the results indicate that from among control variables entered the model, Leverage has a negative and significant correlation with investment efficiency. Coefficient of determination and adjusted coefficient of determination indicate that independent variables entered the regression model could explain 8% to 7% of variations of the dependent variable.

5.3 Results of testing the third hypothesis

Third hypothesis: management ownership is effective on the relationship between financial distress and investment efficiency of companies listed in the Tehran Stock Exchange. To test the third hypothesis, the following model was used:

$$IE_{i,t} = \alpha + \beta_1(MO * Z_{i,t}) + \beta_2(Size_{i,t}) + \beta_3(ROA_{i,t}) + \beta_4(Lev_{i,t}) + \beta_5(M / B_{i,t}) + V_{i,t}$$

Regarding the results of testing the third hypothesis indicated in table 6, the significance level of F-score is 0.000 which is smaller than the acceptable level of error (5%) and the total regression model was significant which indicates the acceptable goodness of fit of the model. Regarding the lower p-value of the t-score than the acceptable level of error for β_2 , the results of the test indicate that financial distress \times management ownership has no significant correlation with investment efficiency. Therefore, the first research hypothesis cannot be confirmed at the significance level 95%. Furthermore, the results indicate that from among control variables entered the model, Leverage has a negative and significant correlation with investment efficiency. Coefficient of determination and adjusted coefficient of determination indicate that independent variables entered the regression model could explain 7% to 6% of variations of the dependent variable.

Table 6

The results of testing the second hypothesis

Variable name	Symbol	Beta coefficient	t-score	P-Value
Fixed value	α		2.449	0.015
Beta 1 (financial distress)	z	-0.181	-2.550	0.011
Beta 2 (financial distress)*	$\beta_1(Z*MO)$	-0.010	-0.141	0.888
Beta 2 (size of companies)	$\beta_2(\text{Size})$	-0.025	-0.577	0.564
Beta 3 (return of assets)	$\beta_3(\text{ROA})$	0.161	3.216	0.001
Beta 4 (financial leverage)	$\beta_4(\text{Lev})$	-0.150	-2.918	0.004
Beta 4 (growth of companies)	$\beta_4(\text{M/B})$	-0.073	-1.779	0.076
Total regression model	F-score	P-Value		
	6.968	0.000	$R^2=0.07, \text{Adj}R^2 = 0.06$	

6. Discussion and conclusion

Financial distress and bankruptcy of companies have always been one of the issues considered by investors, creditors, and governments. Timely identification of companies which are on the verge of financial distress can be effective on the investment decision of shareholders. Therefore, regarding the mentioned issues, it can be inferred that in case of financial distress, two possibilities can occur; first is that the company which faces with financial distress, avoids doing investment in projects with positive NPV, or in spite of the existence of distress conditions, starts financing and investing. The present study investigated this probability and the company which faces financial distress, encounters lack of liquidity and may make different decisions for supplying liquidity. The first possibility is that it should prevent to do investment in projects with positive NPV and start to sell existing investments or get a loan. In addition, the role of ownership is significant in adopting this decision. The present study investigates the relationship of financial distress with investment efficiency. The results indicate that financial distress had a negative relationship with investment efficiency. It means that when the company suffers from financial distress, investment efficiency is lower. In other words, at the time of financial distress, the company inevitably neglects investment in project with positive NPV. These results are inconsistent with those of Biddle et al. (2009) and Das and Pandit (2010). In addition, institutional ownership had positive effects on financial distress and investment efficacy. Furthermore, what decisions these companies make at the time of financial distress is influenced by institutional ownership. Moreover, the results indicate that from among control variables entered the model, leverage has a negative correlation with investment efficiency. It means that companies with a lot of debts avoid investment in projects with positive NPV. Management ownership had no effect on the relationship of financial distress and investment efficiency, and these companies are not influenced by management ownership in relation with what decisions they make for investment projects at the time of financial distress.

6 Suggestions for further research

1. Regarding the results of the present study stating that financial distress has a negative correlation with investment efficiency, therefore, shareholders and investors should consider this issue that they should investigate the time of investment distress of the company. In addition, among control variables, leverage has a significant and negative effect on investment efficiency. Therefore, since financial leverage of companies are effective on the investment of shareholders and investors, they should pay attention to this issue.
2. Since institutional ownership has a positive effect on the relationship of financial distress and investment efficiency; therefore, creditors are advised that they should pay attention to the degree of institutional ownership of companies at the time of crediting.

7 Suggestions for further research

1. Studying the effects of financial distress on investment performance throughout the life cycle,
2. Investigating the effect of corporate governance mechanisms in financial distress associated with investment efficiency,
3. Investigating the relationship between capital structure and ownership of the investment efficiency.

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