



Investigating the Relationship between Mass Behavior, Risk Priority, and Inefficient Investment: The Moderating Role of Managerial Overconfidence

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ABSTRACT

Different irrational mentalities interact and influence each other in investment decision-making processes. The rational use of these irrational mentalities can effectively deter and reduce the inefficient investment of the organization. Finally, OVERCONFIDENCE on managers is pervasive. Often, with the consideration of the bounded rationality theory, psychological bias of managers leads to the inefficient investment. The purpose of this study is to introduce a model for the assessment of overconfidence, risk priority, aggregate behavior and inefficient investment of managers. To achieve this goal, data are provided based on statistical data and questionnaire. Questionnaire's taken over 320 of individuals, are gathered and the hypothesis is analyzed using PLS method. The results show that overconfidence of managers impacts on the relation between aggregate behavior and inefficient investment. Also, overconfidence of managers affects on the relation between risk priority and inefficient investment. The findings of this study reveal that understanding illogical behaviors of managers is important in investing decision of organizations.

Keywords:

overconfidence , risk priority , aggregate behavior and inefficient investment



1. Introduction

Nowadays, mass behavior which is one of the most important behavior methods among investment enterprises plays a crucial role in risking, stock return and portfolio. Risking is one of the key concepts in decision making of investors and managers of investment enterprises. In experimental studies, risking is measured either by yield standard deviation or degree of mass behavior method. In papers, high degree of mass behavior is interpreted as a low risking (doustdar et al, 1396).

In the literature of finance behavior, mass behavior is mainly used for the description of relationship in trades which is due to the interactions between investors. This behavior is mainly observed in low experienced investors who try to imitate from successful investors (khen et al.,2011).

2. Theoretical bases and a review on the study

Finance behavior theory believes that irrational behavior of managers results into an inefficient investment. This means that managers do not choose investment projects which should be based on to achieve a maximum value for the shareholder but, their goal is to increase their own benefit. They invest on negative present value (NPV) and do not on positive present value projects which are called maximum and minimum investment respectively.

Irrational behavior leads to the low efficiency of investment allotment and high loss of social resources. Considering specific social-economic environment and cultural background, irrational behavior of managers such as overconfidence, risk priority and blind mass behavior in stock markets are absolutely common and impact on output and efficiency of enterprises (yang yi et al,2019).

Although, the effect of irrational behavior on the efficiency of investment has been mainly discussed, in several studies has also been concentrated on inefficient investment. Though, in practice, managers in the moments of decision making, show some different irrational behaviors. For example, overconfident managers usually have a high tendency toward risking for the reason of self-scrutiny. And managers who possess mass behavior often are not overconfident.

Regarding the amount of the accessibility of required information, decisions are made in situations including: absolute confidence, risk, lack of confidence and uncertainty. Among these aforementioned factors in the procedure of decision making of the managers of investment enterprises, the amount of risking with regard to the considered yield is an important factor. Quality and how a decision is made are effective in successfulness and achieving the goals of an organization. In other words, the fate of an organization depends on how decisions are made and the outcomes as well. With the technologies going to become more and more advanced, globalization of the trading and economy and also intensity of environmental changes and increase of uncertainty in the process of these changes have caused that the risk and lack of confidence to be considered as unsegregatable elements in the process of decision making. In conclusion the management of the organizations to be more complicated.

Overconfidence of the managers is a psychological feature which in that the managers overestimate their ability in decision making and, underestimate their chance of failure. In other words, this issue is due to perception existing in managers who overestimate the oncoming function of the enterprise and the risks going to be faced in the future are not considered so much. Present issues have shown that overconfidence of the managers, income and cost, will change the cash flow of the enterprises in which it will result into the deviation from the investment behavior. In specific, managers will overestimate the investment profit and undervalue risks and costs which can lead to a high amount of investment.

Because of cognitive tendency originated from self-scrutiny, managers are overconfident about their ability in the issue of investment opportunities. Therefore due to creating roughly lower decreasing ratio, they overestimate investment yield and underestimate investment risks. This issue will result into the projects with subzero NPV which will thus be considered as an appropriate project.

It is very likely that a manager that is overconfident to extend his investment scale. In addition, as the overconfident managers overestimate the likelihood of good function, they overvalue the real market of the enterprise and believe that people of the outside market, underestimate the intrinsic value of their enterprise.

Mass behavior of managers means that a manager instead of tendencies resulted from his own information, makes investment decisions based on the information obtained from other peer managers.

This is a kind of blind behavior in making decisions in investments. The managers tend to take a seeming appropriate action against other member of the group in order to prevent losing good reputation caused by failure in making a right decision and also decrease chance of missing opportunities.

Although, mass behavior can decrease the costs and risks in making a decision and it to be appropriate in keeping professional reputation, but, this kind of behavior will lead to an inefficient investment like the minimum investment made due to conservatism or will end to an overinvestment because of a blind imitation.

Managers, under specific environmental conditions, in order to obtain reputation, wages and other personal benefits, tend to imitate from the investment decisions of other managers. A manager with an mass mentality tends to imitate more, compared to other peer managers in that industry.

However, the route and investment scale gained from other enterprises is not necessarily suitable for their own real enterprise situation. Thus, blind imitation of decisions, taken by other enterprises, usually, will lead to a lower efficiency of investment.

On the other hand, risk priority of managers, mentions to the mindset of managers to the risks, because of considering lots of uncertain factors.

Different managers, often show different behavior in different aspects of risk priority including risk solving, risking and being indifferent to the risk. Different cases of risk priority have different impact on investment behavior and have different efficiency consequences.

In general, irrational behavior of managers, including overconfidence, mass behavior and risk avoiding priority, has a positive correlation with inefficient investment of enterprises. These psychological biases of managers will result in excessive or insufficient investment in enterprises.

However, managers with the mentality of mass behavior will imitate from the investment behavior of other managers. The reasons for this issue is different which includes lack of confidence, considering having lower chance of success in investment projects and having fear of failure or losing reputation.

If the managers that possess mass behavior become more confident about their abilities, make investment decision by their own, reassess the effect of a successful project on their reputation and carefully and scheduled estimate the costs and risks of investment projects; some overinvestment arisen from blind imitation would be avoidable. In other words, overconfidence of the managers would possess a positive role and decrease the inefficient investment resulted from mass behavior of the managers.

Regarding to the cases aforementioned above, in this study we survey the relation between mass behavior, risk behavior and inefficient investment and adjusting role of overconfidence in the managers.

Shams-o-dini et al. (1397) in a study, with the title of "investigating the effect of behavior of investors and management on stock return"; analyzed the impact of behavioral variables of overconfidence in management, mass behavior and emotional tendency of investors on stock return. They used the data obtained from 75 enterprises accepted in Tehran stock exchange in a seven year time interval 1388-1394 and calculated the index of overconfidence in management, mass behavior of investors and emotional tendency of investors and their effect on stock return. Data used in the study was of the panel kind and multi linear regression model is used to analyze data. Empirical evidences showed that behavioral variables, investigated in the study, have an inverse and meaningful effect on the stock return of the enterprises i.e. with the increase of the amount of manager's overconfidence, mass behavior of investors and emotional attitude, stock return decreases.

Doustar et al, 1396 in a paper with the title of "investigating mass behavior impact on risk appetite in investment enterprise managers of Tehran stock exchange" stated that: nowadays, mass behavior, which is one of the most important behavior methods among investment enterprises, managers and investors; plays a very important role in risk appetite, stock return and portfolio. The goal of this study is to investigate the effect of mass behavior of investment enterprise managers on their risk appetite. Statistical population of this research includes all the managing directors and other managers who are in accountant to the investment in enterprises accepted in Tehran stock exchange. Sample volume was 716 using Kookran formula. Structural equation modeling, with the approach of partial least square (PLS) used to analyze

introduced hypothesizes in the format of conceptual pattern of the study. The result of the analysis verifies the main hypothesis and its contributing four subsidiaries. The results showed that there is an inverse relationship between risk appetite and mass behavior of investment enterprise managers.

Yang yi et al, 2019 in a paper with the title of “overconfidence, risk priority, mass behavior and inefficient investment of managers” expressed that: according to the bounded rationality, psychological distraction of managers mostly leads to the inefficient investment. This paper studies the effect of overconfidence, risk priority and mass behavior on the inefficient investment using Chinese A shares stock enterprises data. This research, found that: 1- in Chinese stock enterprises, managers’ overconfidence and mass behavior results into a more inefficient investment and 2- risk priority of managers, partly, limits the increase of inefficient investment. In addition, the effect of psychological distraction on real investment decision is a complicated process and can have an impact beyond the psychological tendencies. 3- We also found that managers’ overconfidence is an interactive expression in the effects of mass behavior and risk priority on inefficient investment. I.e. managers’ overconfidence can meaningfully decrease the positive effect of mass behavior and inhibitive risk priority effect on inefficient investment. These findings show that understanding irrational behavior of the managers is of great importance in investment enterprises decisions.

Kariola et al, (2018) studied on investment efficiency and searched on determining and effective factors. According to the research, results showed that potential profit discrepancy among managers, shareholders and creditors is effective on the asset, enterprise ruling activities and investment policies and causes inefficiency in managerial decisions and undesired investment and also is a reason for oversize and undersize investment problems which have the negative effect on financial turnover of the enterprises.

3. Hypothesis

According to the discussed cases, the hypotheses are introduced as it follows:

Hypothesis 1: managers’ overconfidence moderates the relationship between mass behavior and inefficient investment.

Hypothesis 2: managers’ overconfidence moderates the relationship between risk priority and inefficient investment.

4. Methodology of research

Research method is descriptive in which, using regression, the relationship between dependent and independent variables are measured. This research is of applied kind and can be generalized to the future and also is considered as retrospective study.

In this research, data gathered from 120 enterprises in the period of 1387-1396 is used as statistical population and analyzed. Raw data obtained from statistical population is analyzed by using suitable statistical population techniques and software Smart PLS 2.

5. Research model and its variables

Inefficient investment

We measured inefficient investment, according to the former research done by Richardson (2006), as expected investment diversions using a model in which investment is predicted as a function of the growth opportunities, lever, cash level, and established date of the enterprise, enterprise size, properties’ yield and previous level of the enterprise’s investment.

Here, $I_{new,t}$ is the new investment of the enterprise; α constant value; β regression coefficient for each variable; the remainder; i enterprise index; t time index; $Growth_{t-1}$ growth of investment opportunities measured through main ratio of business income growth in year $t-1$; Lev_{t-1} debt to property ratio; $Cash_{t-1}$ monetary capital share; Age_{t-1} years accepted in the stock market; $Size_{t-1}$; natural logarithm of total properties; $StockReturn_{t-1}$ stock return and $I_{new,t-1}$ new investment in the year $t-1$. The year and the industry are shown with artificial variables.

Following Richardson (2006) we applied fixed effects regression to estimate the models above. Remaining amount of the model is expected regression of deviations from investment level and can be used as verifying variables in inefficient investment. Positive and negative remaining values measure overinvestment and underinvestment respectively. in inefficient investment, our variables are absolute value of remaining amounts and higher values mean higher inefficient investment.

Overconfidence in managers

In this study, we used financial profit prediction to measure MOC. This method has been recently used in financial studies. Overconfidence happens when the ratio of net profit growth prediction is higher than the real growth ratio. vice versa, underconfidence occur when the ratio of net growth prediction is lower than real growth ratio.

Mass behavior in managers

To gather information, questionnaire is used. It contains 33 questions which, is designed in the format of Likert scale. To have a standard questionnaire, will be modeled from the Menkhof et al 2006 study on the managers of the Germany investment funds and lotje 2009 as well. And mass behavior will contain these dimensions:

Following the Shams et al 2011 procedure

Managers with a mass behavior, in their usual investment decision makings, follow from the procedure and decisions of most other investors and do not care to their views.

Amount of working time (lodge 2008)

Managers with mass behavior, have lower attempt, activity and working hours. They usually, do not try to be superior to other managers and colleagues and to avoid getting out of the procedure, make effort at the same level with their colleagues. While, the managers lacking mass behavior, are more ambitious in being superior to other managers and try more to achieve higher levels and more rewards.

Information resources (lodge 2009)

Managers with mass behavior, take their decisions based on technical analysis, investment decisions of other market contributors, discussion with their coworkers and opinions of that industry pioneers and the market in which they work and do not pay much to the fundamental analysis.

Prediction time horizon (lodge 2009)

Managers with mass behavior, for different reasons including emphasizing on the use of technical analysis, usually have a short term time horizon in their investment predictions. This behavior pattern is a combination of having high sensitivity to the failure and successfulness in the whiles of turnover evaluation.

Decision making strategies (greenbelt et al 1995)

Managers with mass behavior, in their investment decisions, exploit more from the momentum strategy than using other ones such as inverse, buy and hold strategies

Tonoment effect (lodge,2004)

In a financial market, mass behavior arises for the reasons of lack of information transparency, underdevelopment of financial expert foundations, cultural pattern of a society and the shallowness of the stock market. Other reasons include moving away of financial markets from rational behavior and taking place of reactionary behavior of investors in these markets. One of the important hypothesizes in capital market is that investors rationally react to the new information. There are lots of evidences that the investors overreact to the new information and decide based on it. In stock markets lots of exceptions are observed. Exceptions such as high volume interactions, strong fluctuations in capital market, stock profit minus premium and predictability lead to the introduction of a new paradigm in financial field which called behavioral finance thereafter. This paradigm was based on two important foundations first one to the market and the other one was related to the economic agents that first were the limit in the arbitrage and the second was economic agents' decision making mistakes. In the behavioral finance field, Kahneman and Tversky proposed the prospect theory.

According to this theory, they criticized the Expected Utility Theory (EUD) and proposed reference point, value function, risking and loss aversion. On this basis, when the investors are in the situation of loss, to exit from this condition, they shift from the risk aversion toward the risking. In 1992, these scientists developed this theory. Then, Gout et al, by doing some experiments, investigated the effect of fairness of other ones decisions, on the decisions of individuals ending to the proposal of ultimatum game theory. This theory states that in situations which individuals' decision is dependent on each other; they think about the fairness of each other decisions and are likely to put aside rational behavior.

Managers' risk priority

To measure managers' risk priority we used a common index, so called, "risky properties to total

properties ratio". The bases of this index are that the risk priority has a relationship with personal income combination. This income includes a wage and contingent reward which are roughly safe and risky respectively. Managers prefer more risking when the ratio of contingent reward has a higher proportion in total income. Therefore, MRP is calculated as follows:

Here, $MRP_{i,t}$, is risk properties ratio; i enterprise index; t time index; $(Vp_{i,t} - Vp_{i,t-1})$ contingent reward; $Vp_{i,t}$ share value of the enterprise in year t being under control of the managers; $Vp_{i,t-1}$ share value of the enterprise in year $t-1$ being under control of the managers and $S_{i,t}$ is the salary income in year t . when this index increases, the risk priority amount of managers is increased and inverse condition also comes to existence.

6. Research findings

In this part of present research, variables used in the study are classified in software EXCELL and the software SPSS is used for descriptive statistics and normality Kolmogrov-Smirnov test. In the following to verify the hypothesis, software SMART-PLS is used for route analysis and structural equation modelings.

Descriptive statistics

Kolmogrov-Smirnov normality test

At first, to test research hypothesizes, is paid to see if the variables have a normal distribution. So at the beginning, this condition is investigated.

Given that test meaningfulness level for the variables of this study is lower than 0.05, it can be concluded that the distribution of the variables have a meaningful difference with the normal distribution.

Model fitting

Goodness of Fit (GoF) is defined as the geometric average of R2 and the average of communality.

In this formula, the variance defined as R2 and quality of measurement model of communality is given in the table below. It is required to explain that here, defined variance index is used to investigate the endogenous structures of the model and it shows the dependent variable's capability in predicting or explaining the dependent variable.

Goodness of Fit (GoF) table

Having a positive value for the goodness of fitting with the amount of 0.934 shows general fitting of the model because this value is higher than 0.35, therefore, it can be concluded that it is desirable .thus, fitting of the model is generally acceptable.

Table of Kolmogrov-Smirnov test

	Inefficient investment	overconfidence	Risk priority	Mass behavior of managers
Test statistic	.092	.102	.237	.266
Meaningfulness level	.000 ^c	.000 ^c	.000 ^c	.000 ^c

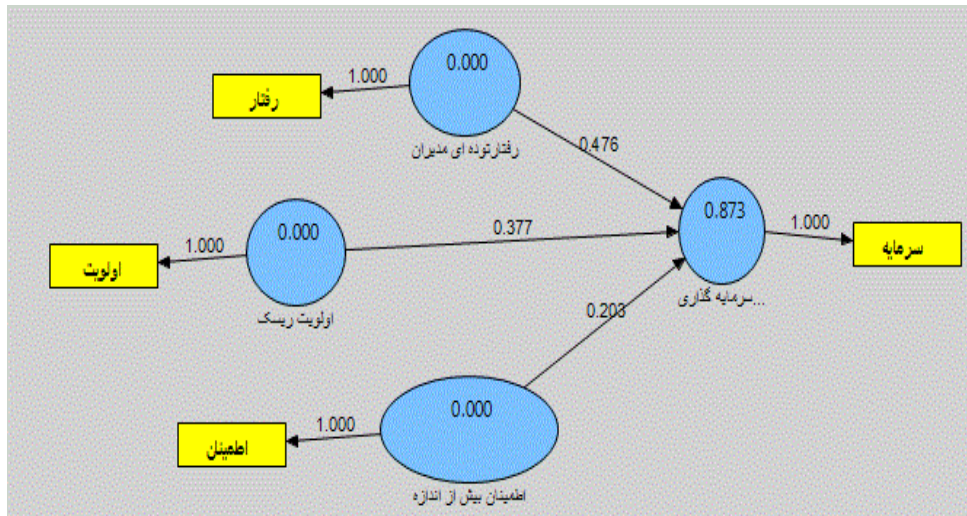
GOF	COMMUNALITY	R2		
0.934	1.000000	---	Inefficient investment	١
	1.000000	---	overconfidence	٢
	1.000000	---	Risk priority	٣
	1.000000	0.883426	Mass behavior of managers	٤
	١	0.873	MEAN	

Hypothesis tests:

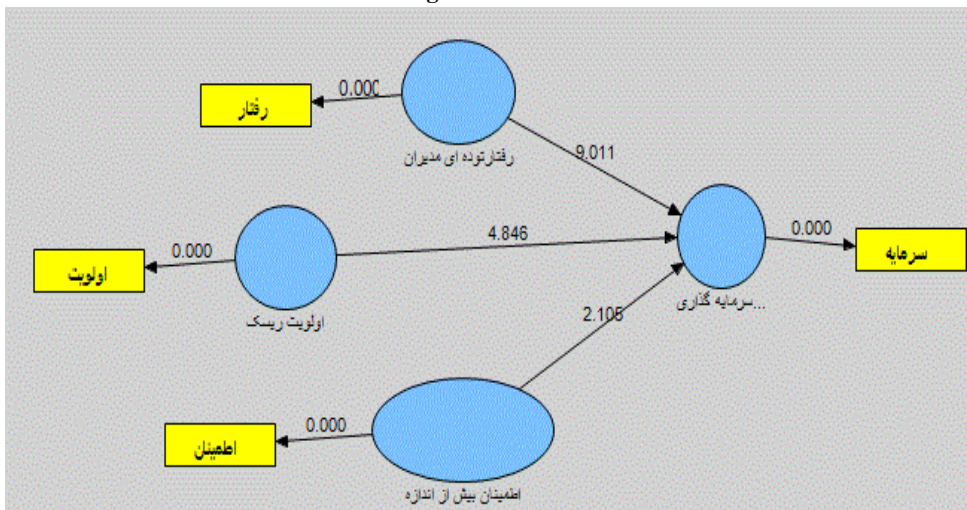
First hypothesis: overconfidence of the managers has a moderating effect on the relationship between mass behavior and inefficient investment.

Standard coefficients:

As it can be seen in the graphs above, the moderating effect of the confidence on the relationship between mass behavior and inefficient investment with route coefficient of 0.486 has a good level of 2.314. Because is higher than 1.96. In this condition the hypothesis is verified.



significant level:



second hypothesis

overconfidence among managers moderates the relationship between aggregate behavior and inefficient investment .

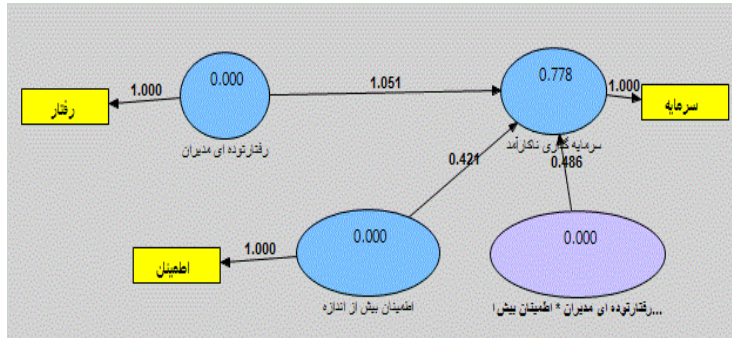
Standard coefficients:

As it can be seen in the graphs above, the overconfidence among managers moderates the relationship between aggregate behavior and inefficient investment of 0.486 has a good level of 2.314. Because is higher than 1.96. In this condition the hypothesis is verified.

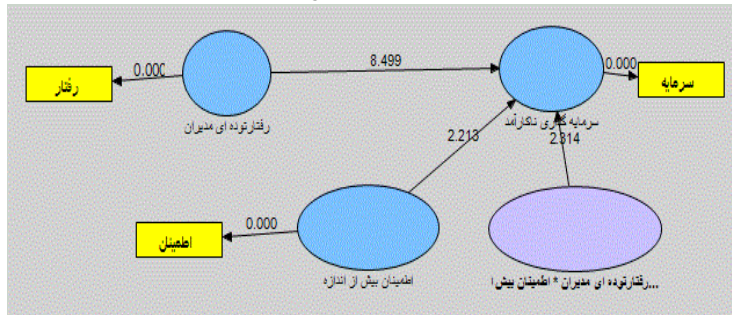
third hypothesis : moderate the relationship between risk priority and inefficient investment .

Standard coefficients:

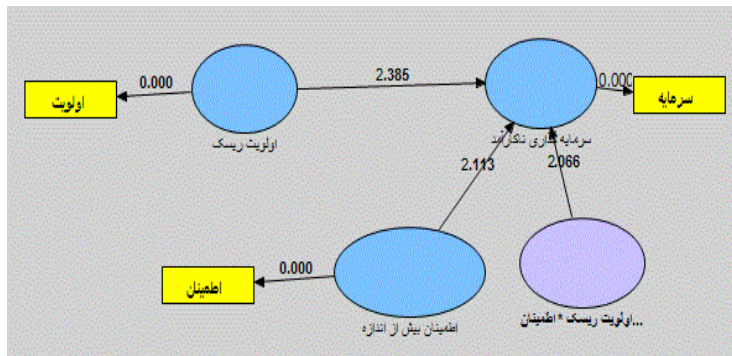
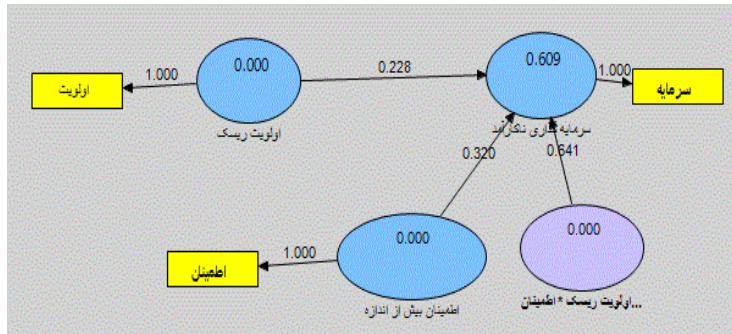
As it can be seen in the graphs above, the moderate the relationship between risk priority and inefficient investment .coefficient of 0.641 has a good level of 2.066. Because is higher than 1.96. In this condition the hypothesis is verified.



significant level:



significant level:



7. Discussion, conclusion and suggestions

The result of this study shows that the overconfidence of the managers can considerably decrease the positive effect of mass behavior on insufficient behavior and noticeably can also decrease the prohibitive effect of risk priority on inefficient investment.

Different irrational mentalities in the investment decision making processes impact on each other.

Rational usage of these irrational mentalities can be effectively inhibitive and decrease the inefficient investment of enterprises. Finally it should be said these being overconfidence is pervasive among the managers.

In this study, overconfidence in managers, to see whether or not, has a moderating impact on the effects of risk priority of the managers, is determined as a variable. The results show that managerial overconfidence has a positive correlation on the positive correlation between mass behavior and inefficient investment and positively moderates the negative correlation between risk priority and inefficient investment. It needs to be said managerial overconfidence can decrease the decline of mass behavior in investment and also increase the negative effect of risk priority on inefficient investment. As a result, managerial overconfidence as an irrational behavior decreases the investment efficiency of enterprises but has a positive role in the moderation of investment efficiency of the enterprise.

Therefore, managers with a mass mentality should raise self confidence in correctly in themselves. They should believe that their independent investment can give a higher profit compared to imitating from others' investment decisions that helps to the classification of the projects which are not in the direction of enterprise strategies.

Moreover, managers with higher level of risk priority should control their overconfidence and rightly evaluate the abilities and estimate risks and project costs reasonably, control overinvestment tendencies and motivations and finally make a right decision in lowering possible overinvestment. In addition, managers with a higher level of risk aversion, in order to avoid inefficient investment, should truly raise self confidence in themselves.

In summary, in order to promote investment efficiency, it is suggested that enterprises train essential psychological issues to their managers. Managers learn to

analyze special problems, courageously to be responsible and avoid blind behavior and regardless of the goal and being suspended avoid from mass behavior. Managers, should be compatible based on the real situation of their enterprise and to the new normal situation reduce innovation and investment scientifically and rationally in order to reduce lack of investment efficiency and increase of enterprise value.

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