

Research on the Impact of Management Stock Ownership of Listed Companies on Investment Efficiency

Xuan Li, Jingyi Liu*

School of Economics, Hubei Business College, Wuhan, Hubei, 430079, China

ljyfswy@163.com

**Corresponding author*

Keywords: Management Shareholding, Underinvestment, Overinvestment

Abstract: The effectiveness of investment behavior is directly related to the operation and development of enterprises, and affects the realization of the goal of maximizing enterprise profits. In reality, the investment decisions of many companies often go against the maximization of value, which makes the actual investment expenditure deviate from the optimal investment scale to varying degrees, resulting in insufficient investment or excessive investment and other low-efficiency investment behaviors. These low-efficiency investment behaviors are largely caused by the agency costs generated by entrusted agency. The management shareholding system is considered to be effective in reducing the agency costs between shareholders and managers and mitigating agency conflicts. This paper starts from the perspective of management shareholding, divides the investment efficiency problem into insufficient investment and excessive investment, selects the data of Shanghai and Shenzhen A-shares, establishes a multiple linear regression model, takes whether the management holds shares and the proportion of management holding shares as explanatory variables, introduces the asset-liability ratio, company size, whether the two positions are held concurrently and the largest shareholder holding shares as control variables, and empirically studies the impact of management shareholding on investment efficiency of listed companies in China, finally puts forward targeted policies and suggestions.

1. Introduction

The "troika" of economic growth is investment, consumption and export, among which the role of investment for national economic growth and its structural adjustment should not be underestimated, and the investment issue has also attracted the attention of the majority of scholars. China, the world's second largest economy, ranked 16th in terms of investment efficiency in the New Year data analysis from 2009 to 2014, and 15th in 2014. In 2016, the Chinese government began to pay attention to "irrational" overseas investment activities, which made the investment efficiency of enterprises become a hot topic of research.

The investment behavior of enterprises constitutes a crucial aspect of operational decision-making. Both the initial stage development and the stability in the mature stage necessitate realization through strategic investments. Therefore, the level of investment efficiency is very important for enterprises, and investment efficiency will affect the profitability, risk management

ability and sustainable development ability of enterprises. However, in reality, the inefficiency of capital investment of Chinese enterprises still exists because of problems such as principal-agent and information asymmetry.

With the separation of ownership and management between shareholders and management, agency conflicts arise and give rise to inefficient investment, making the investment efficiency of enterprises greatly reduced, therefore, in order to further optimize the investment behavior of enterprises, it is necessary to find ways to mitigate the mechanism of the agency problem. It is generally believed that management shareholding makes the interests of managers and shareholders converge, which can alleviate the principal-agent problem of the company to a certain extent and improve the efficiency of enterprise investment. The management shareholding system has been widely used in mature capital markets in Europe and the United States, and has played a positive role in promoting economic growth and improving corporate performance. In order to regulate the equity incentive behavior of listed companies, China Securities Regulatory Commission issued the Measures for the Management of Equity Incentive of Listed Companies on July 13, 2016. More and more enterprises have begun to try the shareholding plan of management equity incentive, and the breadth and depth of management shareholding have been improved. As a new and effective incentive system applied to corporate governance, management shareholding can fully stimulate the enthusiasm of management to work hard for the enterprise.

In 1932, Berle and Means [1] began to study the impact of management shareholding on enterprise investment, and they found that there was a greater conflict of interest between managers and dispersed shareholders in enterprises that did not implement management shareholding system. Jensen and Meckling [2] believe that the difference in personal value between shareholders and managers and their different perceptions of risk lead to potential conflicts of interest between them. The study further points out that management's ownership of shares will have an incentive effect, which will further affect management's investment behavior. Sok-Hyon Kang [3] made empirical analysis on 9,379 samples of American listed companies from 1992 to 2000, and concluded that the higher the proportion of management ownership, the higher the level of capital expenditure. Domestic scholar Hu Guoliu et al. [4] also draws the same conclusion to empirical research on listed companies in China: Managers' shareholding is significantly positively correlated with the level of enterprise investment expenditure. Khuong [5] conducted least squares and generalized moments (GMM) tests on the data of listed companies from 2015 to 2019, and the results showed that when equity was more concentrated, the mediating effect of agency cost could enhance the positive impact of management ownership on corporate performance.

The residual measure model was established by Richardson in his study of overinvestment in free cash flow. Since this model can not only identify whether a company has underinvestment or overinvestment, but also effectively measure the level of investment efficiency, it has been widely used by scholars at home and abroad. Zhong Haiyan, Ran Maosheng and Wen Shouxun [6] studied the data of all listed companies in China from 1999 to 2005 and found that management shareholding can alleviate agency conflicts between management and shareholders. However, due to the low shareholding ratio of listed companies in China, management shareholding has little governance effect. The research of Qiangguo Ling [7] confirmed the governance effect of management shareholding on over-investment, and pointed out the optimization effect of China's non-structure share reform on management shareholding mechanism. Li Wei'an, Zhou Tingting and Han Zhongxue [8] believe that stock trading by the management and its related parties in the secondary market cannot inhibit over-investment, but aggravate over-investment behavior. However, stock ownership by the management through equity incentive can significantly inhibit over-investment. Yang Huihui and Yan Yukun [9] found that the relationship between equity incentive and investment efficiency varies with the environment of controlling shareholders. Jin

Chuhan [10] found that the inefficient investment caused by the agency problem can be alleviated by implementing equity incentives. Tian Lina and Zhang Xuejiao [11] believe that equity incentives affect investment efficiency by acting on internal control. Equity incentives can improve investment efficiency in enterprises, but their effect on improving underinvestment is relatively small. Liu Chuangjiang [12] research found that implementing equity incentives is significantly negatively correlated with overinvestment, and significantly positively correlated with underinvestment.

2. Research Hypotheses and Research Design

2.1. Research Hypothesis

Principal-agent theory is the logical starting point of modern corporate governance, which is based on the separation of two rights, that is, ownership and management. The management shareholding system converges the interests of the management and the shareholders by the way that the management holds the shares of the company. They are not only the managers of the company, but also the owners of the company to some extent. As a kind of incentive mechanism, management shareholding enables managers to have the nature of enterprise owners and enjoy stock rights. At the same time, they also face risks such as business failure and stock price decline. Management shareholding can effectively alleviate the conflict of interest between shareholders and management, thus reducing the principal-agent cost caused by the separation of the two rights, restraining the management's operation and investment behavior, and making management more cautious in investment, focusing on investment efficiency, and enhancing enterprise value. Moreover, some studies have proved that enterprise investment efficiency is not only affected by factors such as enterprise size and governance structure, but also closely related to management shareholding. Morck [13] believed that management shareholding expanded the scope of interest coordination between management and shareholders and reduced the excessive investment behavior of management. Jensen [14] found that the implementation of equity incentive measures could effectively enhance the interest correlation between management and investors, which not only constrained the management behavior, but also encouraged the management, effectively reduced the principal-agent cost, and enabled the management to work diligently to create value for the enterprise. Qiangguo Ling [7] believes that as a means of corporate governance, the implementation of the management stock incentive system has exerted governance effect and inhibited the excessive investment behavior of the company. Therefore, as one of the effective and easy to operate incentive means, management shareholding can effectively alleviate agency conflicts, reduce agency costs and improve enterprise investment efficiency. Based on this, hypothesis H1 is proposed:

H1: The implementation of management shareholding system can effectively improve the investment efficiency of listed companies.

So how does the effect of the percentage of management shareholding on investment efficiency manifest itself in listed companies that implement management shareholding? According to the incentive effect, incentivizing the company's management will make managers make decisions that are more conducive to the long-term development of the enterprise, and the greater the degree of incentive, the greater the incentive for the incentivized to promote the increase of share price through the enhancement of investment efficiency, because the increase in share price will bring about an increase in management's earnings. The study by Liu Qi and Xie Xiaochen [15] concluded that the higher the number of management shareholdings, the more obvious the inhibiting effect on underinvestment and overinvestment. For this reason, research hypothesis H2 is proposed:

H2: The effect of management shareholding on the investment efficiency of the company shows a significant positive relationship.

2.2. Research Design

2.2.1. Explained variables

In this paper, the data of listed companies in Shanghai and Shenzhen A-shares from 2016 to 2018 are selected as the research sample, and because the explanatory variables in the residual measure model need to be lagged by one period, the residual measure model selects the data from 2015 to 2018 for the research. In order to ensure the validity of the data, avoid the interference of outliers on the research conclusions, and scientifically compare between groups, this paper excludes some data. After the above screening, 7096 samples of listed companies were finally obtained.

In terms of model selection, **FHP** model can't judge the overinvestment problem of enterprises, and **Vogt** model can judge whether enterprises are underinvestment or overinvestment, but it can't detect the degree of deviation of the enterprise's investment problem. **Richardson** model can not only divide the underinvestment and overinvestment samples with the positive and negative residual values, but also can measure the investment efficiency with the help of the size of residual values. Therefore, this paper adopts Richardson residual measure model to measure investment efficiency:

$$I_{i,t} = \alpha_0 + \alpha_1 Growth_{i,t-1} + \alpha_2 Lev_{i,t-1} + \alpha_3 Cash_{i,t-1} + \alpha_4 Age_{i,t-1} + \alpha_5 Size_{i,t-1} + \alpha_6 Ret_{i,t-1} + \alpha_7 I_{i,t-1} + \sum Industry + \sum Year + \varepsilon_{i,t} \quad (1)$$

Table 1: Variable Names and Definitions of Residual Measures Model

Variable Names	variable symbols	Variable Definitions
Actual investments	$I_{i,t}$	Actual investment in year t = (Cash paid to construct fixed assets, intangible assets and other long-term assets - Cash disposed of fixed assets, intangible assets and other long-term assets Cash recovered)/Total assets
Growth Opportunities	$Growth_{i,t-1}$	TobinQ for year t-1 = (price per share * number of shares outstanding + net assets per share* Number of shares outstanding + Book value of liabilities)/Total assets
Gearing Ratio	$Lev_{i,t-1}$	Gearing ratio at the end of year t-1
Cash holdings	$Cash_{i,t-1}$	Money fund holdings/total assets at the end of year t-1
Years of Listing	$Age_{i,t-1}$	Age at listing at the end of year t-1
Company Size	$Size_{i,t-1}$	Natural logarithm of total assets at the end of year t-1
Return on equity investment	$Ret_{i,t-1}$	Equity return at year t-1
Prior Period Actual Investment	$I_{i,t-1}$	Real investment in the previous year relative to the corresponding
Industry Variables	$Industry$	Industry Dummy Variables
Yearly Variables	$Year$	Year dummy variable
Anticipated investment expenditures	$\varepsilon_{i,t}$	Residuals, $\varepsilon_{i,t} < 0$, indicates underinvestment; $\varepsilon_{i,t} > 0$, indicates overinvestment

Table 1 gives the names and definitions of the variables in Model 1.

In order to avoid the effect of endogeneity, the explanatory variables in the residual measure model are lagged by one period. In addition, considering different years and industries, the year and industry control variables are added to the model to improve the credibility of the regression model due to the macroeconomic situation and policy differences that may have an impact on the company's investment behavior and investment efficiency.

$\varepsilon_{i,t}$ denotes the residuals obtained from Richardson's model, i.e., the portion of actual investment that deviates from moderate investment, and is the basis for judging the efficiency of investment. Negative residuals represent underinvestment by the sample firms; positive residuals represent overinvestment. The residual value is also an explanatory variable in the later regression model, which is used to measure the enterprise's investment efficiency. The closer the residual value of the model is to zero, the higher the company's investment efficiency, and the more the residual value of the model deviates from zero, the greater the company's underinvestment or overinvestment.

2.2.2. Explanatory Variables

The main explanatory variable of this paper is management shareholding, which the author divides into two levels, firstly, whether there is a system of management shareholding in listed companies, and secondly, then through the proportion of management shareholding to study the impact of the level of shareholding on the investment efficiency.

Whether management shareholding (sfcg): in order to study hypothesis H1: the implementation of management shareholding system can effectively improve the investment efficiency of listed companies. Introducing the dummy variable of whether the management holds shares or not, the sample variable of the implementation of the management shareholding system is set to 1, and the sample variable of the non-implementation of the management shareholding system is set to 0.

Management shareholding ratio (mshare): in order to investigate hypothesis H2: the effect of management shareholding ratio on the company's investment efficiency shows a significant positive relationship. The management shareholding ratio variable is introduced, which is the ratio of the total number of shares held by management to the total number of shares in the company.

2.2.3. Control Variables

Table 2: Variable names and definitions of Regression model.

Variable Type	Variable Names	Variable Symbols	Variable Definitions	
Dependent Variable	Underinvestment	unin	Negative residuals in Model 1	
	Overinvestment	ovin	Positive residuals in Model 1	
Independent Variable	Management shareholding	sfcg	0, management does not hold shares 1, management holds shares	
	Management's shareholding	mshare	Total number of shares held by management as a percentage of	
Control Variable	Gearing ratio	lev	Firm's total number of shares	
	Company Size	size	Consistent with Model 1	
	Years of listing	age	Consistent with Model 1	
	Whether the chairman is also the general manager	jr	Consistent with Model 1	
			0, the chairman of the board of directors is not also the general manager	
	Number of Executives	gg	1, the chairman of the board is also the general manager	
Shareholding of the largest shareholder	top1	The number of executives in the company takes the logarithm		

A company's investment efficiency can be affected by a variety of factors, and this paper draws

on the relevant literature to include some important influences in the regression model as a way of controlling research bias.

The variable names and definitions of the regression model are shown in Table 2.

2.3. Model construction

The empirical part of this paper mainly uses multiple linear regression model.

In order to test hypothesis H1 and investigate whether the management shareholding system can effectively improve the investment efficiency of listed companies, model 2 is established:

$$\begin{aligned} unin_{i,t} (or\ ovin_{i,t}) = & \beta_0 + \beta_1 sfcg_{i,t} + \beta_2 lev_{i,t} + \beta_3 size_{i,t} \\ & + \beta_4 age_{i,t} + \beta_5 jr_{i,t} + \beta_6 gg_{i,t} + \beta_7 top1_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (2)$$

In order to test hypothesis H2, the effect of management shareholding on the company's investment efficiency shows a significant positive relationship, model 3 is developed:

$$\begin{aligned} unin_{i,t} (or\ ovin_{i,t}) = & \beta_0 + \beta_1 mshare_{i,t} + \beta_2 lev_{i,t} + \beta_3 size_{i,t} \\ & + \beta_4 age_{i,t} + \beta_5 jr_{i,t} + \beta_6 gg_{i,t} + \beta_7 top1_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (3)$$

3. Empirical Analysis

3.1. Residual Measures Model

3.1.1. Descriptive statistics

The 7096 valid samples obtained after screening were first substituted into Model 1, and the descriptive statistics of the variables in the model are shown in Table 3.

Table 3: Descriptive statistics of the residual measure model.

Variable	Mean	Minimum	Median	Maximum	Standard Deviation	Sample Size
$I_{i,t}$	0.047	-0.585	0.027	5.456	0.114	7096
$Growth_{i,t-1}$	2.900	0.715	2.002	126.952	9.548	7096
$Lev_{i,t-1}$	0.437	0.017	0.428	0.995	0.206	7096
$Cash_{i,t-1}$	0.167	0.0004	0.138	0.936	0.116	7096
$Age_{i,t-1}$	11.864	1	11	27	6.752	7096
$Size_{i,t-1}$	22.397	15.979	22.248	28.509	1.309	7096
$Ret_{i,t-1}$	0.032	-16.751	0.058	4.248	0.441	7096
$I_{i,t-1}$	0.050	-0.486	0.030	5.456	0.115	7096

From the descriptive statistics of the variables of the residual metric model presented in Table 3, it can be seen that the mean value of the actual investment variable in this period is 0.047, the minimum value is -0.585, and the maximum value is 5.456, and the sample value is more dispersed, which is due to the differences between the level of actual investment caused by differences in the industry in the full sample, the nature of property rights, and other reasons. The TobinQ value reflecting the company's growth opportunities has a minimum value of 0.715 and a maximum value of 126.952, with a median value of 2.002 less than the average value of 2.900, which indicates that there are more small values in the growth opportunities data, and the enterprise value of the sample

listed companies is at a lower level. The minimum value of gearing ratio $Lev_{i,t-1}$ is 0.017 and the maximum value is 0.995, which can be seen that the level of different enterprises' liabilities varies greatly, and the average value is 43.7%. Although the corporate gearing ratio has been reduced with the gradual improvement of China's capital market, liabilities are still an important means of financing for listed companies in China. The minimum value of cash holdings in the lagged period is 0.0004, and the maximum value is 0.936, which can be seen that the proportion of money stock held by China's listed companies is not high, and the overall average value is only 0.167, low money holdings reduce the liquidity of funds, which will limit the investment behavior of enterprises. The minimum value of the company's listing years $Age_{i,t-1}$ in year t-1 is 1, the maximum value is 27, and the mean value is 11.864; the minimum value of the company's size $Size_{i,t-1}$ in year t-1 is 15.979, and the maximum value is 28.509, and the standard deviation is 1.309. Due to the different business strategies of different enterprises and their different profitability, there are differences in the stock return rate of the listed companies of the sample in year t-1, and the minimum value is -16.751 and the maximum value is 4.248 and the mean value is 0.032.

3.1.2. Regression results

Table 4: Regression results for the residuals metric model.

Variable	Coefficient	t	Sig.
Intercept	0.0463	1.82	0.069
$Growth_{i,t-1}$	0.0013	9.49	0.000
$Lev_{i,t-1}$	-0.0046	-2.01	0.044
$Cash_{i,t-1}$	0.0236	4.32	0.086
$Age_{i,t-1}$	-0.0094	-4.11	0.000
$Size_{i,t-1}$	0.0030	1.71	0.100
$Ret_{i,t-1}$	0.0011	1.51	0.178
$I_{i,t-1}$	0.2329	20.38	0.000
Industry		control variable	
year		control variable	
Adj R-squared		0.2610	
F		78.47	
Sig.		0.0000	
N		7096	

Multiple linear regression analysis was performed on the residual measure model and the results are shown in Table 4. The regression model adjusted R^2 is 0.2610, the model fit is good, the F value is 78.47, and it is significant at 1% statistical level, which indicates that the model design is more reasonable, and it is more scientific and effective to use the residuals obtained from the model to measure the investment efficiency. In addition, the VIF value is less than 10, indicating that there is no multicollinearity. The signs of the coefficients of the explanatory variables in the model are all consistent with expectations.

3.2. Regression Model of Whether Management Holds Shares on Investment Efficiency

This paper first explores the impact of the implementation of management shareholding system on the investment efficiency of enterprises, respectively, with underinvestment and overinvestment as the dependent variables for testing, the results are shown in Table 5.

In terms of the size of the absolute value of the coefficients of the explanatory variables, the value of the impact of whether management shareholding on underinvestment is 0.0048, while the value of the coefficient of the impact on overinvestment is 0.0021, and the difference between the two suggests that management shareholding system has a better mitigating effect on underinvestment than inhibiting effect on overinvestment.

In terms of significance, in the full sample of underinvestment, the dummy variable of whether management owns shares is significant at the 0.01 level; in the subsample of overinvestment, the coefficient of the dummy variable of whether management owns shares exhibits a negative value and passes the test of significance at the 0.1 level only.

It should be noted here that the reason why the coefficient of the impact of the variable whether the management holds shares on investment efficiency differs in sign in the underinvestment and overinvestment sub-samples is because the two manifestations of the investment efficiency problem are numerically placed on both sides of the zero. The negative value of investment efficiency in the underinvestment sample and the positive value of the explanatory variable management shareholding or not represent the greater the value of investment efficiency in firms that have implemented a management shareholding system, i.e., the greater the investment efficiency as it converges to zero from the left side. Overinvestment in the sample of investment efficiency is positive, negative explanatory variables on behalf of the implementation of the management shareholding system of the enterprise investment efficiency value is smaller, that is, from the right side of the convergence of the zero point, the higher the investment efficiency. The above findings indicate that the implementation of management shareholding system can effectively improve the investment efficiency of enterprises compared to listed companies with no management shareholding. Specifically, management's shareholding can effectively alleviate underinvestment and at the same time inhibit overinvestment to a certain extent, which strongly supports the research hypothesis H1 of this paper: the implementation of management shareholding system can effectively improve the investment efficiency of listed companies.

Table 5: Regression results of whether management holds shares and investment efficiency.

Variable	Underinvestment Full Sample	Overinvestment Full Sample
sfcg	0.0048*** (3.98)	-0.0021* (-1.21)
lev	-0.0085*** (-3.42)	0.0360 (1.49)
size	0.0034*** (7.79)	0.0111*** (3.01)
age	0.0002** (2.17)	-0.0006 (-0.87)
jr	-0.0017* (-1.65)	0.0248*** (2.83)
gg	0.0047*** (3.94)	-0.0341*** (-3.30)
top1	-0.00004 (-1.14)	0.0003 (1.13)
Adj R-squared	0.0610	0.0290
F	13.56***	4.73***
N	4836	2260

Note: *, **, *** denote 10%, 5%, and 1% significance levels, respectively.

3.3. Regression Model of Management Shareholding on Investment Efficiency

This section will use the 5629 samples in the full sample that have implemented the management shareholding system to further investigate the impact of management shareholding ratio on investment efficiency.

In exploring the relationship between management shareholding ratio and investment efficiency, this paper still distinguishes investment efficiency as underinvestment and overinvestment and conducts separate regressions, the results of which are shown in Table 6.

From the regression results, it can be seen that the explanatory variable management shareholding ratio has a significant positive impact on investment efficiency. Specifically, in the underinvestment sample, management shareholding is significantly and positively correlated with investment efficiency at the 5% level, indicating that as management shareholding increases, the value of investment efficiency (negative) gradually increases, the closer it gets to zero, indicating that the more effective the investment is. In the over-investment sample, the proportion of management shareholding is significantly and negatively correlated with investment efficiency at the 10% level, indicating that as the proportion of management shareholding increases, the value of investment efficiency (positive) gradually decreases, and the closer it is to zero, which represents the more efficient investment. Hypothesis H2 is verified that as the proportion of management shareholding increases, the higher the investment efficiency of the company.

Table 6: Regression results of management shareholding ratio and investment efficiency.

Variable	Underinvestment Full Sample	Overinvestment Full Sample
mshare	0.0068** (2.15)	-0.0483* (-1.63)
lev	-0.0044* (-1.67)	0.0025 (0.09)
size	0.0029*** (6.18)	0.0146*** (3.35)
age	0.0002** (2.21)	0.0003 (0.33)
jr	-0.0027*** (-2.62)	0.0231** (2.39)
gg	0.0029** (2.39)	-0.0297*** (-2.58)
top1	-0.00007** (-2.17)	0.0004 (1.29)
Adj R-squared	0.0520	0.0180
F	9.33***	2.34***
N	3801	1828

Note: *, **, *** denote 10%, 5%, and 1% significance levels, respectively.

4. Conclusions and Policy Recommendations

4.1. Research Conclusions

(1) China's listed companies generally have the problems of underinvestment and overinvestment, and most of them show underinvestment

In the process of studying the investment efficiency of listed companies in China, this paper applies Richardson's residual measure model and finds that the proportion of underinvestment samples to the total samples is high, reaching 68.15%, which indicates that most of the enterprises

in China have the phenomenon of inefficient investment.

(2) In China, the implementation of the management shareholding system has a greater breadth, but the depth of implementation, i.e., the level of management shareholding ratio, is low

In the 7096 samples of this paper, the proportion of enterprises with management shareholding as a systematic arrangement is as high as 79.34%, and further analysis of the proportion of management shareholding reveals that in China's listed companies, the average proportion of management shareholding is only 12.6%, and the proportion of shareholding is low overall.

(3) The implementation of management shareholding system can effectively improve the investment efficiency of listed companies

By setting the dummy variable of whether the management holds shares or not, it is found that the implementation of management shareholding promotes the improvement of the efficiency of enterprise capital investment, specifically, the enterprise underinvestment has been mitigated and overinvestment has been suppressed, and a further comparison can be obtained that management shareholding has a more effective and significant impact on mitigating the underinvestment problem.

(4) There is a significant positive correlation between management shareholding ratio and enterprise investment efficiency

The empirical test finds that there is a linear correlation between management shareholding ratio and enterprise investment efficiency, and the impact is positive, indicating that increasing management shareholding ratio will enhance the incentive effect, so that the interests of shareholders and management correlation is stronger, and management will pay more attention to the long-term development of the enterprise instead of personal short-term interests, and the inefficient investment behaviors of the management constraints to reduce the agency conflict, and to improve the efficiency of the investment.

4.2. Policy Recommendations

(1) Improve laws and regulations to expand the scope of management shareholding

From the government's side, it should learn from the exploration and achievements of developed countries on equity incentive mechanism, combine with the basic national conditions of China's socialist market economy, and promote the effective application of the management shareholding mechanism in China's enterprises through legislation or regulations. The improvement and implementation of laws and regulations not only signals to the market and enterprises that the state supports the mechanism of management shareholding, but also forms the process of effective supervision.

From the perspective of enterprises, although the management shareholding mechanism has been improved to a certain extent, the proportion of management shareholding is uneven. When enterprises use the management shareholding system, if the control intensity is too high, it may backfire. If the control force is too low, the incentive effect may not be fully reflected. According to the enterprise's own development stage, production scale and industry, the incentive role of management shareholding should be maximized.

(2) Establishment of investment efficiency evaluation system

Based on China's economic environment and fundamentals, a set of comprehensive and multi-level investment efficiency evaluation system should be established to correctly evaluate the investment efficiency of enterprises. This paper analyses the impact of management shareholding on investment efficiency, finds the most effective shareholding way and proportion, and avoids the management from making adverse investment decisions for its own interests.

(3) Foster a mature capital market

In a mature capital market, the stock price can reflect the company's operating conditions and long-term development potential, which can truly reflect the company's value. Therefore, it becomes especially important to cultivate a mature capital market. If the real value of the company can be indirectly shown through the stock price, the improvement of investment efficiency will bring about the rise of operating performance, and the performance will be reflected in the stock price, then managers will work seriously and invest prudently in order to improve the stock price.

References

- [1] Berle A A, Gardiner C Means. *The modern corporation and private property*. *Public Administration*, 1934, 12(2): 191-212.
- [2] Jensen M C, Meckling W H. *Theory of the firm: Managerial behavior, agency costs and ownership structure*. *Journal of financial economics*, 1976, 3(4):305-360.
- [3] Sok-Hyon Kang. *Agency and Corporate Investment: The role of executive compensation and corporate governance*. *Journal of Business*, 2006 (5):123-130.
- [4] Hu Guoliu, Huang Jinggui, Qiu Yizheng. *Equity Structure and Corporate Capital Expenditure Decision: Theoretical and Empirical Analysis*. *Management World*, 2006 (1): 33-37.
- [5] Khuong, N V. *Agency cost: A missing link between female on board and firm performance*. *Business Strategy & Development*, 2022. 5(3).134-136.
- [6] Zhong Haiyan, Ran Maosheng, Wen Shouxun. *Research on the Relationship between Equity Structure and Corporate Investment Behavior*. *Statistics and Decision Making*, 2009 (19): 97-101.
- [7] Qiang Guoling. *"Does the Strong Country Order and Management Equity Incentives Reduce Overinvestment in Companies?"* *Investment Research*, 2012 (2): 36-43.
- [8] Li Weian, Zhou Tingting, Han Zhongxue. *Dynamic Effects of Management and Related Party Shareholdings: Based on Overinvestment Perspective*. *Journal of Management Engineering*, 2015 (3): 9-19.
- [9] Yang Huihui, Xi Yuqin, Yan Yukun. *Motivation of controlling shareholders, equity incentives, and investment efficiency of non-state-owned enterprises*. *Soft Science*, 2016, 30 (08): 92-96.
- [10] Jin Chuhan. *Research on Agency Behavior, Equity Incentives, and Inefficient Investment*. *Modern Marketing (Second Quarter)*, 2020 (05): 49-50.
- [11] Tian Lina, Zhang Xuejiao. *Equity incentives, internal control, and inefficient investment in enterprises*. *Business Accounting*, 2021 (20): 65-68.
- [12] Liu Chuangjing. *Research on the Impact of Equity Incentives on Investment in Listed Companies*. *Business Managers*, 2023, (04): 69-71
- [13] Morck R, Shleifer A, Vishny R W. *Management ownership and market valuation: An empirical analysis*. *Journal of Financial Economics*, 1988, 27(2): 293-315.
- [14] Jensen M C, Murphy K J. *Performance Pay and Top-management Incentives*. *Journal Political Economy*, 1990(2): 132~151.
- [15] Liu Qi, Xie Xiaochen. *Management Shareholding, Tax Avoidance, and Inefficient Investment in Enterprises*. *Finance and Economics*, 2017 (04): 45-51+55.