

# **Study on the Relationship between the Top Management's Power, Equity Compensation Gaps and the Enterprise Performance----Based on the Panel Data after the implementation of China's Administrative Measures of Stock Option Incentives of Listed Companies**

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## **Abstract**

*This paper chooses the A-share companies from China's manufacturing industry that has implemented the stock ownership incentives as the sample, attempts to check the relation between the shareholding ratio of the management and the enterprise performance, and further analyzes the influence of the industry involved to the relation between the ownership concentration and the performance. This study finds that the implementation of the stock incentive plan has a certain excitation effect on the business performance of the sample companies; the shareholding ratio of the management has significant positive correlation to the enterprise performance; the implementation effect of the restricted ballot pattern is better than that of the stock option pattern.*

**Keywords:** stock ownership incentive; enterprise performance; management

## **1. Introduction**

As a long-term incentive system, stock ownership incentive has been applied widely in China since 2006. The nature of the stock ownership incentive is to let the market set price and pay for the top executives, and thus make. Through this, the benefits of the top executives, the agents, become the increasing function of long-term performance of the corporation and the corporation value, and it also guarantees that they will work hard in order to realize the maximization of the value of the corporation. Meanwhile, the commission-agency contradiction caused by the separation of the ownership and management right can be resolved effectively. Compared with the European and American countries, China's stock ownership incentive is rather late, and develops comparatively stagnant. After the reform of non-tradable shares, the environment of the capital market has improved, the enthusiasm of the listed companies to implement the stock incentive plan is unprecedented high. Numerous scholars have done a number of studies on this issue. But different from the mature market of the western countries, China's capital market is still not mature, and also of particularity: weak correlation, non-standard market transactions, imperfect legal system, etc.

Now there is no consensus on how the implementation effect of the stock incentive plan is and how the relation between the stock ownership incentive and the enterprise performance is. Therefore, this paper chooses the A-share companies from China's manufacturing industry that has implemented the stock ownership incentives as the sample, and further analyzes the influence of the industry involved to the relation between the ownership concentration and the performance. This paper, based on the related theories and the research status home and abroad, analyzes the current situation of the stock ownership incentive of the listed companies of manufacturing industry from the perspectives of number, pattern, region, level, period of validity, company scale, and enterprise property.

Then, this paper takes the 84 A-share listed companies of China, which are enforcing the stock incentive plan after the reform of non-tradable shares, as the sample, the 252 data from 2011 to 2013 as the study objective, conducts qualitative study the implementation effect of the stock ownership incentive through longitudinal and horizontal comparisons; then makes a multiple regression analysis with return on equity as dependent variable, managerial ownership ratio and stock ownership incentive pattern as the independent variable, company scale, asset-liability ratio, turnover of receivable account and inventory turnover ratio as the control variable, to check the relation between the shareholding ratio of the management and the enterprise performance.

## **2. Literature Review and Research Hypothesis**

### **2.1 Equity Compensation Gap and Enterprise Performance**

How will the increase gap of top management's payments influence the enterprise performance? There are distinctly different opinions about this issue both in the theoretical studies and the empirical studies. Among the theoretical studies, the tournament theory and the behavioral theory are the typical representatives. The former is proposed by Lazea and Rosen, tends to discuss the relation between the payment structure and the enterprise performance from the perspective of the competition, with the payment gap in and between the hierarchies of the management as the entry point and the proxy variable of the compensation structure, draws the conclusion that the compensation gap has positive relation to the enterprise performance. The behavioral theory tends to study from the perspective of equity, and proposes that bigger compensation gap will have a bad influence on the promotion of the enterprise performance.

Though these two theories have totally different opinions, both get the support of empirical studies home and abroad. The empirical researches made by the scholars of China achieved consistent results. Lin Junqing (2010) found that the top management behavior of the China's listed companies conformed to the expectation of the tournament theory, the compensation gap is positively related to the enterprise performance. In the implementation of the stock ownership system, the final amount of the equity compensation is decided by the enterprise performance. Therefore, to maximize the equity compensation, the top management with more incentive stock rights will work harder to improve the enterprise performance level. But the enlarged equity compensation will probably lead to the opportunistic behaviors of the incentive objects with less incentive stock rights, and thus influence the stability of the enterprise performance.

Based on the previous analyses and summary, it can be concluded that the stock ownership incentive will be the common interests orientation and action orientation of the management and the shareholders, decrease the opportunistic behavior of the management, and lower the supervision cost of the shareholders. In the meantime, the more shares the management has, the harder they work, and through this, the enterprise performance can improve continuously. Hence, the shareholding level of the management is positively related to the enterprise performance. Consequently, by controlling the influence of such factors as enterprise scale, asset-liability ratio, turnover of account receivable, inventory turnover ratio, this paper puts forward the following hypothesis to be proved:

**Hypothesis 1:** In the enterprises implementing stock ownership incentive, the higher the management's shareholding ratio is, the higher the enterprise performance level is, and meanwhile the higher the fluctuation degree of the enterprise performance is.

### **2.2 Restricted Stock Option**

The stock incentive patterns of the sample company mainly include the stock option and the restricted ballot. The difference of these two mainstream models lies in the symmetry of rights and obligations, incentive and punishment. Stock option holders enjoy the executing right, but do not need to bear the corresponding obligations, so if the share price slumps, or cannot reach the scheduled financial index goal, the shareholders just give up the executing right, instead of generation any economic losses, and thus resulting to the dissymmetry of incentive and punishment. While the restricted ballot is just the reverse, its rights and obligations are symmetric, and it has certain punitiveness. When conferring restricted ballot, the listed companies set strict conditions, such as lock-up period, performance objectives, etc., binding the shareholders' compensation with business performance closely. Therefore, the incentive effect of the restricted ballot is better than that of stock option. Hall (2000) also deemed that the value of the restricted ballot model is more than that of stock option. Therefore, put forward the second hypothesis of this paper.

**Hypothesis 2:** The implementation effect of the restricted ballot is better than that of the stock option.

### **3. Methodology**

This paper chooses the 168 A-share listed companies that are implementing the stock incentive plans as the research objective. In order to guarantee the validity of the sample and the veracity of the results, this paper screens the samples according to the following principles:

1. Remove ST and PT listed companies, for whose financial condition is abnormal, performance is extremely bad and will affect the research results in a bad way.
2. Remove the companies with data missing problem, and suspending the stock incentive plans.
3. Remove the ROE with negative numbers, considering their underperformance will have a negative influence on the research results.

This paper selects from the CSMAR the data of the A-share listed companies of the manufacturing industry in Shanghai and Shenzhen, which have implemented the stock incentive plans from 2011 to 2013, from CCER the financial data of the these companies in these three years, and finally gets 252 panel data of 84 companies as the final sample of the empirical research. Both the data screening and the empirical test adopt statistical software STATA10.0.

#### **3.1 The Selection of the Dependent Variable**

As for the evaluation of the enterprise performance, different scholars choose different measurement indexes. In the worldwide range, the general enterprise performance evaluation indexes include Tobin's Q, EPS, and ROE. ROE is the most typical aggregative indicator to evaluate the owned capital and the ability of gaining compensation, and international, general index and the core index of DuPont System of Analysis that can reflect the profitability and capital gain level. This index can be used to judge a company's profitability level in the involved industry, and the gap to other industries, etc. In general, the higher net assets income rate indicates high lucrative ability of the company with owned capital, and better business performance. Therefore, this paper chooses ROE as the dependent variable to measure the enterprise performance.

#### **3.2 The Selection of Independent Variable**

MSR: used to measure the management's shareholding level, the calculation formula is the ratio of share number of the management to the whole number of the shares.

MODE: in China, the most common stock incentive models are stock option, restricted ballot, and stock appreciation right. The majority of the sample companies in this paper adopt the former two kinds. Therefore, this paper introduces a dummy variable MODE to measure the difference of the incentive effects. MODE=1 indicates the restricted ballot, MODE=0 represents the stock option.

#### **3.3 The Selection of the Control Variable**

The selection of the control variable is very significant to the analysis results of the empirical research. Only by adding necessary control variable to the model can the reliability and veracity of the research conclusion be guaranteed. This paper refers to the practice of some scholars in China, chooses the following indexes---enterprise scale, asset-liability ratio, turnover of account receivable, and the rate of stock turnover, as the control variable.

LNSIZE: firstly, the enterprise scale influences the financing capacity. The companies in larger scale can raise funds easily from the inside and outside of the company. Secondly, the scale effect can make bigger company more effective in business, and get higher benefits. Thirdly, the larger the company is, the risk defense ability of it will be much stronger. Therefore, this paper uses the logarithm of the book total asset at the end of the year to represent the enterprise scale.

LEV: firstly, the debtors may exert obvious influence on the decisions of the management, and then influence the value and performance of the company. Secondly, keeping reasonable LEV is of great importance to the development of the company. LEV will influence the enterprise performance.

ARTR and ITR: ARTR refers to the ratio reflecting the velocity turnover of the receivable. High ARTR indicates higher capital usage efficiency.

ITR can measure the mobility of the stock and rationality of the stock's ratio, which will on the one hand, promote the continuity and stability of the company's production and management, on the other hand, enhance the capital usage efficiency and short-term debt paying ability. Higher capital usage efficiency indicates better enterprise performance.

#### 4. Model Specification

This paper chooses the multiple regression model to conduct empirical tests. This model studies the linear relation between one random variable and multiple variables, the basic form is:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_p X_p + u$$

Where, Y is the dependent variable,  $\beta_0$  is the constant term,  $\beta_1, \beta_2, \dots, \beta_p$  are regression coefficients,  $X_1, X_2, \dots, X_p$  are the independent variables, u is the random error.

Based on the regression model and the previous hypothesis, build the following two models:

$$\text{Model 1: ROE} = \beta_0 + \beta_1 \text{MSR} + \beta_2 \text{LNSIZE} + \beta_3 \text{LEV} + \beta_4 \text{ARTR} + \beta_5 \text{ITR} + u$$

$$\text{Model 2: ROE} = \beta_0 + \beta_1 \text{MODE} + \beta_2 \text{LNSIZE} + \beta_3 \text{LEV} + \beta_4 \text{ARTR} + \beta_5 \text{ITR} + u$$

Model 1 is used to test H1, model 2 to H2.

#### 5. Results

##### 5.1 Data Analysis

To investigate the degree of the statistical relation between all variables, and test whether there is multicollinearity among these variables that will lead to the loss of significance of the research conclusions, a correlation analysis of all variables should be conducted. Table 1 lists the Pearson correlation analysis results.

**Table 1: Means, Standard Deviations and Correlations**

	ROE	MSR	MODE_1	MODE_2	MODE_3	LEV	LNSIZE	ARTR	ITR
ROE	1								
MSR	0.0026	1							
MODE_1	-0.0007	-0.0346	1						
MODE_2	-0.0362	-0.0961	-0.2453*	1					
MODE_3	0.0372	0.1117	-0.1397*	-0.9256*	1				
LEV	-0.0021	-0.1223	0.0743	0.1930*	-0.2261*	1			
LNSIZE	0.3036*	-0.2508*	-0.0006	0.1757*	-0.1792*	0.5652*	1		
ARTR	0.1821*	-0.1298*	-0.0616	0.1486*	-0.1277*	0.0844	0.1438*	1	
ITR	0.2839*	-0.1005	-0.0949	-0.0703	0.1088	-0.1227	0.0470	0.0525	1

note: \*  $p < .05$

According to the first column of Table 1, the coefficient indexes of all variables are positive, and obvious at the level of 0.05, which indicates LNSIZE, ARTR, ITR all have significant positive correlation to ROE; while the correlation index of the management's shareholding ratio MSR to ROE is 0.0026, failing the test of 5% significance level, needing further analysis to draw the conclusion. Besides, LEV, LNSIZE, ARTR, ITR all have negative correlation to MSR, which indicates that in the sample company, the company with larger scale, strong debt paying ability and operation capacity has lower management shareholding ratio. It can also be concluded that except for the absolute value of the correlation indexes of MODE-2 and MODE-3 is 0.9256, the correlation indexes of other variables are all not in excess of 0.8. The minimum of the correlation index's absolute value is 0.0006, the maximum is 0.9256. Therefore, there is no multicollinearity among all variables, thus the statistical model is valid.

##### 5.2 Testing of Hypotheses

This part will test the correlation between management's shareholding ratio, stock incentive pattern, and enterprise performance based on the multiple regression analysis.

###### 1. Linear regression analysis of MSR and ROE

To test H1, conduct linear regression analysis on the model 1, the results are as shown in Table 2.

**Table 2: Results of Regression Analysis**

Source	SS	df	MS	Number of obs	=	252
Model	3325	5	665.0	F( 5, 246)	=	14.15
Residual	11558	246	46.98	Prob>F	=	0.000
Total	14882	251	59.29	R-squared	=	0.223
				Adj R-squared	=	0.2076
				Root MSE	=	6.854
ROE	Coef.	Std.Err.	t	P> t	95% Conf.	Interval
MSR	0.0664	0.0309	2.150	0.0330	0.00545	0.127
LEV	-0.0966	0.0325	-2.970	0.00300	-0.161	-0.0326
LNSIZE	2.755	0.464	5.940	0	1.842	3.669
ARTR	0.000297	0.000119	2.500	0.0130	6.28e-05	0.000531
ITR	0.00435	0.00102	4.250	0	0.00233	0.00636
cons	-46.44	9.414	-4.930	0	-64.98	-27.90

From the regression results of model 1 in Table 2, the fitting degree of model 1 is 20.76%. Considering there are many influence factors of the return on equity, and in previous studies, the fitting degrees mostly concentrate in the interval from 20% to 40%, the fitting degree of model 1 is acceptable. F-statistics of the variance analysis is 14.15, P value is 0.000, less than 0.05, indicating model 1 is generally significant. It can be concluded that the regression conclusion is reliable. MSR and ROE are significantly positive correlated in the confidence interval of 95%, the return on equity increases with the management's shareholding ratio, therefore, H1 is valid. In addition, the test results manifest that the enterprise scale, operation ability are positive correlated to ROE, the debt paying ability of the enterprise has significantly negative correlation to ROE.

## 2. Linear regression analysis on MODE and ROE

Based on the model 2 and removal of 9 data from 3 companies using stock appreciation pattern, conduct the regression analysis on the model 2, the test results are as shown in Table 3.

**Table 3: Results of Regression Analysis**

Source	SS	df	MS	Number of obs	=	243
Model	3182	5	636.4	F( 5, 237)	=	13.19
Residual	11433	237	48.24	Prob>F	=	0.000
Total	14615	242	60.39	R-squared	=	0.218
				Adj R-squared	=	0.2012
				Root MSE	=	6.946
ROE	Coef.	Std.Err.	t	P> t	95% Conf.	Interval
MODE	1.026	0.965	1.060	0.289	-0.876	2.927
LEV	-0.0957	0.0340	-2.810	0.00500	-0.163	-0.0286
LNSIZE	2.635	0.471	5.590	0	1.706	3.564
ARTR	0.000293	0.000121	2.430	0.0160	5.50e-05	0.000531
ITR	0.00410	0.00105	3.920	0	0.00204	0.00616
cons	-44.67	9.653	-4.630	0	-63.69	-25.65

According to the regression results of model 2 in Table 3, the fitting degree of model 2 is 20.12%, basically qualified. F-statistics of the variance analysis is 13.19, P value is 0.000, less than 0.05, indicating model 1 is generally significant. The regression conclusions are reliable. The standard regression indexes of MSR and ROE are not significantly positive correlated in the confidence interval of 95%. But the positive correlation index indicates that the implementation effect of restricted ballot is better than that of stock option. Therefore, H2 is valid. In addition, the test results manifest that the enterprise scale, operation ability are positive correlated to ROE, the debt paying ability of the enterprise has significantly negative correlation to ROE.

## 6. Conclusion

This paper chooses the 252 sample data as the research objective, through empirical tests, achieves the following conclusions;

1. The implementation of the stock incentive plan played an incentive role in the operation performance of the company. The average ROE of the sample company is relatively stable. Its operation performance is generally better than the average level of the listed companies of the manufacturing industry in the same period.
2. The management's shareholding ratio is positive correlated to the enterprise performance. The correlation index is not high, indicating the improvement of performance caused by the stock incentive plan is not obvious, and the incentive function has not fully realized.
3. The implementation effect of restricted ballot is better than that of stock option. Considering the correlation index is 1.026, strictly speaking, the incentive function of the restricted ballot is a little better than that of the stock option.

The above findings demonstrate that the top management's power influences the equity compensation contract, and will lead to enterprise performances of different quality. In order to achieve the high quality enterprise performance, the company should for one thing, stimulate the top management to work hard to improve the performance by making full use of the top power and the equity compensation gap, for another, promote the performance appraisal indicator of enterprise performance fluctuation, and thus lower the fluctuation degree. These conclusions offer references to the understanding of these three factors, and enacting more effective equity compensation contract in practice.

## 7. Discussion

To sum up, compared with the western developed capital market, China's stock incentive system in listed companies are still in the start stage, needing active, cautious, and gradual implementation. The listed companies in China, especially the listed companies of the manufacturing industry in the leading position should gain a deep insight into the fundamental realities of China, and learn from the international experience, keep researching on the original basis. It is imaginable that with the development of the capital market of China, the improvement of the professional manager market, and the laws and regulations related with stock ownership incentive, and the increasingly scientific performance appraisal systems, more reasonable business structure and stock incentive plan design, the stock incentive system of China will surely exert its incentive effect, and deal with the principle-agent issue effectively, improve the overall competition of the listed companies, and promote the development of the listed companies.

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