

## The Empirical Research on the Equity Incentives and Corporate Performance of Listed Companies——Based on A Shares of 2016

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### Abstract

As an effective method to solve the problem of separation of the two powers in modern enterprises, equity incentive has been widely used by western developed countries. However, the development of equity incentive mechanism is later in China, so the actual effect of it in China still needs to be analyzed and demonstrated. This paper analyzes the relationship between equity incentive and corporate performance by counting the listed company data in 2016, in order to demonstrate the influence among the incentive ratio, executive price, different incentive methods and the performance level of a company.

### Keywords

Listed Companies; Equity Incentive; Corporate Performance.

### 1. Introduction

Research on the equity incentive starts relatively late in China. In 1990's, ShenZhen Vanke Grop tried out equity incentive, equity incentive mechanism began from then on in China. In twenty-first century, with the development of globalization of the world economy, China began to encourage the ability of Listed Companies to carry to equity incentive mechanism. The government departments of the equity incentive mechanism also constantly improve and vigorously promote, more and more listed companies and even private enterprises will equity incentive system as a good way to improve the performance of the company, it also creates opportunities to promote the in-depth study of many experts and scholars on the incentive system of the present stage of our country.

LD Brown and YJ Lee (2011) research shows that equity incentive does not significantly improve corporate performance, the same point of view are S.F.Xiao, T.Jin, Y.Liu (2012) and J.J.Xu, Y.Chen, Z.Y.Chen (2016).But, J Fuller, MC Jensen (2010)and S.H.Guo(2016) pointed out that equity incentive significantly improve corporate performance. O Kadan ,J Yang(2016),L.Yan and J.Deng(2010) believed a significant negative correlation between equity incentive and corporate performance. In addition, TM Pergola, GW Joseph (2011),J.J.Song and L.L.Zhang (2015) regard a curvilinear correlation between equity incentive and corporate performance.

The above results show that most scholars have affirmed the conclusion correlation between equity incentive and corporate performance, but there is also a small part of scholars deny the equity incentive effect on corporate performance. Because the selected samples and used research method are different of the different scholars. Then, at the present stage how are equity incentive mechanisms carry out in our country? Does it promote to the corporate performance? Is there a certain correlation? So, under this background, this thesis is carried on. This paper has studied the relationship between equity incentive and corporate performance at the present stage base on the implementation of the equity incentive mechanism of the A shares Listed Companies in 2016.At the same time, we established the empirical analysis model of equity incentive affecting corporate performance. Through the analysis of the test and regression of the related datas, finally come to the conclusion of the article. According the research results, we will provide some suggestions and countermeasures to

improve the equity incentive system in our country in the future, hoping to help the healthy development of China's capital market in the future.

## 2. Sample selection

This article selected dates of A shares Listed Companies in 2016, through the CSMAR database collected, and then through the EXCEL statistical screening, in 2016 years published implementation plan and to determine the implementation of the 282 equity incentive of listed companies as the research sample. In order to effectively guarantee the purity of samples and not to be disturbed by the abnormal fluctuations of data, we get rid of the following factors.

- ①The data of listed companies excluding the financial enterprises, because there are some differences between the financial listed companies and non listed financial companies in accounting methods, business scope, the level of operating efficiency, is not conducive to statistical processing.
- ②The data of listed companies excluding Listed Companies of ST class and has issued an unqualified audit report by a certified public accountant, because such companies are likely to have poor financial conditions or even the possibility of financial fraud.
- ③According to the statistical results of relevant dates, Among the listed companies that chose equity incentive in 2016, there were 47 stock options and 212 restricted shares. In statistical analysis, focused on data processing of the two part of the listed company in 2016 years, excluding the repeated disclosure of equity incentive plan and lack of financial data of 35 listed companies, finally obtained a total of 224 listed companies data.

## 3. Variable definition

- ①Dependent variable: the dependent variable is the listed company's performance, and the earnings per share are used as the standard index to measure the performance of the listed company.
- ②Independent variables: independent variables are equity incentive ratio, exercise price and equity incentive model.
- ③Control variables: control variables selected are four indicators which have great influence on the efficiency of the enterprise. They are: the debt to assets ratio, the total assets turnover, the net profit growth rate and the capital scale. The results shown in table 1:

Table 1. Statistical table of research variables

	Variable name	Variable code	Meaning
Dependent variable	earnings per share (%)	EPS	net profit/capital stock
Independent variables	equity incentive ratio (%)	RATIO	equity incentive total stock / total shares
	exercise price	PRICE	the executive price stipulated in the equity incentive plan
	equity incentive model	MODEL	MODEL=1 for stock options and MODEL=0 for restricted shares
Control variables	debt to assets ratio (%)	DEBT	total liabilities / assets
	total assets turnover(%)	TURNOVER	net operation revenue / average total assets
	net profit growth rate(%)	GROWTH	(net profit for the current year -net profit for the same period of last year)/net profit for the same period of last year
	capital scale (%)	SIZE	ln(capital scale)

## 4. Model design

Because of the long-period separation of ownership and management, the information asymmetry between the principal and the agent. Therefore, if the enterprise can properly give the agent a certain proportion of the shares of the company, the agent and the trustee in the interests of mutual convergence, it can effectively reduce the agency costs associated with moral hazard, improve the performance of the company. So, the basic assumption of this paper is that the performance level of listed companies will be effectively affected by the implementation of equity incentive. At the same time, the article selected EPS as the standard index of the impact of equity incentive about the performance of the listed company, so we proposes hypothesis 1:

Hypothesis 1: There are positively correlation relationship between equity incentive and corporate performance of listed companies, and the higher the proportion of equity incentive, the better the company performance.

Listed companies in the disclosure of the company's equity incentive plan, will be clearly pointed out that the equity incentive exercise price, only the company's share price of listed companies reached the provisions of the exercise price, be incentive to sell shares of the company to obtain the corresponding equity incentive income. In theory, if the listed companies exercise the higher the price, the relevant person in charge of the enterprise will be more willing to actively manage the company, and prompting the company's share price to rise, as soon as possible to obtain value-added benefits. So we proposes hypothesis 2:

Hypothesis 2: The higher the exercise price of the equity incentive program is, the better the performance of the company will be.

Because the operation of stock option incentive method is simple and convenient, this kind of incentive method is relatively loose to the incentive personnel's exercise condition. So, in the initial stage of the implementation of the equity incentive system in China, the most of listed companies are more inclined to use stock options to encourage. But, the exercise conditions of restricted stock are more stringent, requiring companies to achieve certain performance goals, incentive objects can exercise so regardless of the business owners or by encouraging employees, can play a good supervisory role. So we proposes hypothesis 3:

Hypothesis 3: Restricted stock is better than stock option in improving corporate performance.

According the above research, we give the empirical analysis model:

$$EPS = \alpha + \beta_1 RADIO + \beta_2 PRICE + \beta_3 MODEL + \gamma_1 DEBT + \lambda_2 TURNOVER + \gamma_3 GROWTH + \lambda_4 SIZE + \varepsilon$$

In the above formula,  $\alpha$  represents constant term in the model,  $\beta(1,2,3)$  and  $\gamma(1,2,3,4)$  represent the regression coefficients of the independent variables in the model,  $\varepsilon$  represents the random disturbance term in the model.

## 5. Empirical analysis

### 5.1 Descriptive statistics analysis

Firstly, the descriptive statistical analysis for the sample data collected, statistical summary of the independent and dependent variables and control variables of the maximum value, minimum value, average value, standard deviation and variance, therefore, the relevant variables for data integration using SPSS19.0 software, the results shown in table 2:

Table 2. Descriptive statistics of variables

	N	MIN	MAX	AVG	SD	S2
EPS	224	-0.63	2.00	.3070	.32513	.106
PRICE	224	1.53	74.83	13.6948	11.1470	124.256
MODEL	224	.00	1.00	.1830	.38756	.150
RATIO	224	.02	9.80	1.5875	1.55587	2.421
DEBT	224	.02	.94	.3735	.19361	.037
TURNOVER	224	.05	9.38	.4776	.66889	.447
GROWTH	224	-7.16	46.98	.8920	4.53163	20.536
SIZE	224	19.74	27.93	22.0454	1.21996	1.488
N	224					

Data sources:CSMAR database,SPSS19.0

Form the above table, showed max of EPS is 2,min of EPS is -0.63,average is 0.3077 and SD is 0.32513 of Listed corporate.EPS have a gap of the different sample, but it isn't very obvious, which proved that Listed corporate are more willing to implement the equity incentive system.max of exercise price is 74.83,min of exercise price is 1.53 and average is 13.6948,which shown different sample firms limited the exercise price to implement equity incentive plan, the exercise price difference is very large. On the whole, the fluctuation range of the data is great. Max of debt to assets ratio is 0.94,min of debt to assets ratio is 0.02 and average is 0.3735. On the whole the sample values are close, and the difference of sample data is very small. At the same time, the differences of capital scale is very small, too.The sample data fluctuations are relatively stable.

On the other side, equity incentive ratio, total assets turnover and net profit growth rate of sample data are very different. For example, max of equity incentive ratio is 9.8, min of equity incentive ratio is 0.02.This results are also consistent with the China Securities Regulatory Commission limits the proportion of 10%. Net profit growth rate of sample data are very different, max of max of net profit growth rate is 46.98, min is -7.16 and average is 0.892.This shown that the profitability of Listed Companies in China is not stable.

## 5.2 Correlation analysis

The correlation between variables is checked by SPSS19.0, and the results are shown in Table 3:

Table3. Correlation test among variables

		EPS	PRICE	MODEL	RATIO	DEBT	TURNOVER	GROWTH	SIZE
EPS	Pearson Correlation	1	.247**	.050	-.054	.039	.057	.057	.336**
	Sig(2-Tailed)		.000	.460	.421	.557	.393	.396	.000
	N	224	224	224	224	224	224	224	224
PRICE	Pearson Correlation	.247**	1	.277**	-.019	-.155*	.052	-.008	-.249*
	Sig(2-Tailed)	.000		.000	.781	.020	.437	.902	.000
	N	224	224	224	224	224	224	224	224
MODEL	Pearson Correlation	.050	.277**	1	.046	.131*	-.051	.220**	.178**
	Sig(2-Tailed)	.460	.000		.493	.050	.448	.001	.007
	N	224	224	224	224	224	224	224	224
RATIO	Pearson Correlation	-.054	-.019	.046	1	.051	.073	-.022	-.071

	Sig(2-Tailed)	.421	.781	.493		.447	.274	.746	.291
	N	224	224	224	224	224	224	224	224
DEBT	Pearson Correlation	.039	-.155*	.131*	.051	1	.205**	-.078	.499**
	Sig(2-Tailed)	.557	.020	.050	.447		.002	.245	.000
	N	224	224	224	224	224	224	224	224
TURNOVER	Pearson Correlation	.057	.052	-.051	.073	.205**	1	-.035	.043
	Sig(2-Tailed)	.393	.437	.448	.274	.002		.604	.519
	N	224	224	224	224	224	224	224	224
GROWTH	Pearson Correlation	.057	-.008	.220**	-.022	-.078	-.035	1	.034
	Sig(2-Tailed)	.396	.902	.001	.746	.245	.604		.617
	N	224	224	224	224	224	224	224	224
SIZE	Pearson Correlation	.336**	-.249**	.178**	-.071	.499**	.043	.034	1
	Sig(2-Tailed)	.000	.000	.007	.291	.000	.519	.617	
	N	224	224	224	224	224	224	224	224

\*\* . Correlation is significant at the 0.01 lever (2-tailed).

\*.Correlation is significant at the 0.05 lever (2-tailed).

Data sources:CSMAR database,SPSS19.0

From the above table, we can find that the correlation coefficient between EPS and exercise price is 0.247, which is significantly related to the level of 1%, which is in line with the hypothesis of this paper. The correlation coefficient between earnings per share and asset size was 0.336, which was also significant at the level of 0.01. Considering that the larger the size of the assets, to a certain extent on the number of the total equity of listed companies will increase earnings per share will be affected, which also shows the rationality of this variable we choose.

Due to the different equity incentive model will inevitably affect the enterprise announced the exercise price, so we can see that the correlation coefficient between the exercise price and the equity incentive model is 0.277, also at 1% level significantly. Similarly, the correlation coefficient between the price and the rate of assets and liabilities of the exercise is -0.155, the correlation coefficient between the model and the rate of assets and liabilities of the 0.131 equity incentive, the results show that these two indicators are at the level of 5% showed a negative significant correlation. The correlation coefficient between the asset liability ratio and the total asset turnover is 0.205, and the correlation coefficient with the asset size is 0.499. Because the three indicators are related to the amount of assets of enterprises, they are significantly related at the level of 1%.

When the integration test in the correlation of variables, we would like to think that if the Pearson correlation coefficient between the two variables in the 0.3-0.5, so between the two variables may exist only weakly correlated, can be clearly seen that the Pearson correlation coefficient between the variables of the selected are under 0.5, statistically speaking, the selection of variables is meaningful, will not affect the results of the empirical analysis.

### 5.3 Multiple regression analysis

The article carries on the regression test data through the SPSS19.0 to the obtained, obtains the result as follows table 4:

Table 4. Model result summary

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Standard error of estimate	F	Sig.F	Durbin-Watson
1	.540 <sup>a</sup>	.291	.268	.27816	12.669	.000	2.049

a. Predictor variables: SIZE, GROWTH, TURNOVER, RATIO, PRICE, MODEL, DEBT

b. Dependent variable: EPS

Data sources: CSMAR database, SPSS19.0

In general, the range of R is between 0-1, and if the R value is greater can show the higher fitting degree of regression model, we can see from table 4, the regression model of the R value is 0.540, R<sup>2</sup> is 0.291, the adjusted R<sup>2</sup> was 0.268, showed that only 26.8% of the predicted model values consistent with the data provided by the. Overall, the model fitting degree is relatively low, but considering the control variables the influence of corporate performance exist in the enterprise, and the empirical analysis shows only a few of the more important, and because of the large number of selected variables, so that the article can accept this will not affect the fitting. To the results of empirical analysis.

In addition, we generally think the Durbin-Watson value is 2, the best fitting model, regression model test of independence of the residual value is 2.049, which indicates that the model design is reasonable; there will be no pseudo regression and self-correlation. At the same time, F-measure is 12.669 and the corresponding concomitant probability of Sig was 0, significantly less than 5%, which proved that the independent and dependent variables between the significant linear correlation between, in accordance with the relevant assumptions made by the model. So, in summary, we can see that the model used to verify the hypothesis is reasonable and can be effectively analyzed, the result as follows table 5:

Table 5 Model regression analysis coefficienta

Model	Non standardized coefficient		Standardized coefficient	t	Sig.	Collinearity statistics	
	B	Std Error Difference				Tolerance	VIF
CONSTANT	-3.268	.428		-7.642	.000		
PRICE	.012	.002	.398	6.268	.000	.813	1.230
MODEL	-.122	.054	-.146	-2.271	.024	.795	1.257
RATIO	.023	.012	.013	.229	.819	.970	1.031
DEBT	-.423	.125	-.252	-3.382	.001	.591	1.693
TURNOVER	.027	.029	.055	.931	.353	.931	1.074
GROWTH	.004	.004	.054	2.25	.028	.928	1.078
SIZE	.162	.020	.609	8.065	.000	.576	1.735

a. Dependent variable: EPS

Data sources:CSMAR database,SPSS19.0

By table 5, we can see that the value of VIF has remained at around 1, significantly less than 10, which indicates that the model does not have the problem of multicollinearity. At the same time, the tolerance between the variables of the regression model is greater than zero, so the regression analysis of the article can be meaningful. On the whole, the absolute value of the correlation coefficient of asset liability ratio is the largest 0.423; Sig is 0.001, which shows that there is a significant negative correlation between the asset liability ratio and earnings per share. The asset liability ratio reflects the ability of a listed company to repay its debts with assets. However, the high debt ratio indicates that the enterprise will face very serious financial risk, and the enterprise does not have enough working capital. Therefore, when the asset liability ratio of enterprises reaches a certain proportion, earnings per share will naturally decline significantly.

The proportion of the equity incentive coefficient of B was 0.023, the T value is 0.229, indicating the proportion of equity incentives and earnings per share (EPS) there is a positive correlation between, to verify the 1 assumption, namely: the equity incentive and corporate performance is positive correlation, the greater the proportion of equity incentive, corporate performance is better. But at the same time, we can also find that the probability of Sig accompanied by equity incentive ratio value of 0.819, more than 0.05, which shows that the indexes of equity incentive ratio did not pass the 5% significance level test, illustrate the relationship between these two variables is not very significant, which reflects the limitations of equity in China at the present stage the existence of incentive system, equity incentive has not reached the expected initial effect, need to further optimize the rectification.

The exercise price of the coefficient of B is 0.012, the T value is 6.268, the value of Sig is 0, 0.05 lower than the significance level, by means of statistical test, proved that the positive correlation between the exercise price and the performance of the company, which also verify the assumptions of the previous 2, namely: there is a positive correlation between the exercise price and the performance of the company, the exercise price is higher, the better the corporate performance.

For the hypothesis 3, we can see that there is a negative correlation between equity incentive model (MODEL) and earnings per share (EPS) of listed companies. The correlation coefficient was -0.122, t value is -2.271, with probability Sig value is 0.024, lower than the significance level of 0.05, with statistical significance, that is to say the implementation of listed companies to enhance the effect of stock option model is better than the limit on the performance of the stock incentive plan shares, hypothesis 3 was established.

## 6. Conclusion and proposal

According to the analysis results, we have verified the positive correlation between equity incentive and corporate performance, but at the same time, we also found that the positive correlation is not very significant, the reason is: There are a large number of state-owned enterprises in Listed Companies. There are many well profit enterprises in listed companies, which due to the state-owned companies. These companies not only enjoy national policy of care, but also get more national economic support. So there enterprise's performance lever is not depends on ability the manager or senior executive. At the same time, because senior executive appointment and in state-owned companies are directly appointed by the state government, some of the individuals involved in the political background. Executives during the performance of the company did not significantly affect their positions after the distribution, so the equity incentive for them, is only an additional welfare system, not to promote the positive effect of corporate executives. In additional, equity incentive program is unreasonable. Through the above statistical analysis can be found, generally at a low level to choose the proportion of equity incentive of Listed Companies in China, coupled with the country for all enterprises' incentive proportion also gives standard limit of 10%, all publicly disclosed the implementation of incentive programs of listed companies, only 3 to 7% the proportion of above in 2016. Such a low proportion of equity incentive can continue to be effective for a short period of time,

directly leading to senior executives cannot get expected expectations, equity incentive effect is minimal.

So, the following suggestions are made: formulate equity incentive plans in line with their own circumstances; Optimize the governance structure of listed companies, speed up the construction of China's capital market, improve the implementation of equity incentive environment.

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