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Study of Effects of Equity Incentive in Gem Listed Company

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Abstract
Based on the analysis of Chinese gem listed company equity incentive the implementation of the status quo, on the basis of choosing the gem in 2011, in 2012 the implementation of equity incentive plan of the 55 of listed companies and the matching with the implementation of equity incentive of 55 transverse comparison of listed companies, found that the gem listed company equity incentive can improve the company's performance. Selected by August 31, 2013, 114 published the draft of the equity incentive of the gem listed companies as samples, using linear regression analysis, found that the validity of equity incentive, incentive, stock option incentive model and company performance there is no significant correlation.

Key words: Gem; The listed company; Equity incentive; The company's performance

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1. THE GEM LISTED COMPANY EQUITY INCENTIVE STATUS QUO

1.1 The Number of Companies to Launch Equity Incentive Status Quo

Equity incentive policy is more and more popular in the gem listed companies, as of December 31, 2013 the gem listed companies has reached 356, of which the implementation of equity incentive has 147 accounts for 41.29% of the total. From the point of the release time of the draft of the equity incentive. In 2010, 18 equity incentive drafts announced gem listed companies, In 2011, 37 equity incentive drafts announced gem listed companies, in 2012, 48 equity incentive drafts announced gem listed companies in 2013, 60 equity incentive drafts announced gem listed companies, a trend of increased year by year. Some of the gem listed companies released more than once equity incentive draft, such as ShenZhouTaiYue, etc. Gem implement equity incentive on the number of companies in the a-share listed companies occupy A considerable proportion. Detailed in the following table.

Table 1
In 2010-2013 Gem Equity Incentive Distribution and Account for the Proportion of A-share Listed Companies

Year	2010	2011	2012	2013
The gem listed companies	18	37	48	60
A-share listed Companies	66	114	118	158
Percentage	27.27%	32.46%	40.68%	37.97%

Note. Data sources: according to the tide of information network data sorting.

A shares the plate on the implementation of equity incentive, the GEM become one of the main force on the implementation of equity incentive, the reason: listed on the gem is mainly for new and high technology industries, a strong demand for talent, and much more urgent demand for equity incentive; Traditional industries and the state holding listed companies (such as oil, finance, real estate, cement, nonferrous metal and other monopoly industries and enterprises) are mainly distributed in the main board, restriction of national policies and mechanisms, although the strong demand for equity incentive, but it is difficult, limited effect. A period of time in the future, therefore, in the gem listed company equity incentive policy implementation in the a-share listed companies will still occupies the important position.

1.2 The Choice of Incentive Pattern Analysis

From the practice of equity incentive plans of listed companies, the equity incentive patterns usually include stock options, restricted stock, performance shares, stock appreciation rights and phantom stock, etc. And at the present stage the most motivational tools in use are mainly stock options and restricted stock. The statistics from 18 listed companies with equity incentive draft of GEM 2010 shows that there are 14 of them using the stock options, 3 using restricted stock and one using a hybrid mode. It shows there are 30 companies with stock options, 5 with restricted stock and 2 with a mixed mode from 37 listed companies in 2011. In 2012, there are 18 companies with stock options, 17 with restricted stock and 13 with a mixed mode. In 2013, there are 25 companies with stock options, 22 with restricted stock and 13 with a mixed mode.

From the above data we find that in 2010 and 2011 the early year of GEM board most of the listed companies with equity incentive tend to use the incentive mode, while in 2012 and 2013 restricted stock mode and stock option come to a balance. During 2012 to 2013, more and more companies use mixed mode, the differences of choice tendency become smaller and this shows the current program of listed companies gradually specialized, sophisticated and personalized.

1.3 The Distribution of the Incentive Ratio

According to "Equity Incentive Management of Listed Companies (Trial)", total number of listed companies equity incentive proportion should not exceed 10% of the total equity, and the cumulative total number of each object should not exceed 1% of the total equity.

According to statistics, listed companies proportion of equity incentive averaged 3.17 percent. And among these, the lowest percentage of incentive shares was Sanchuan which was 0.45%, the highest was 9.47% of Amway shares. Others were between them. As we can see from Table 2, proportions of the companies in our country listed on GEM equity incentive concentrated from 1% to 5% the total equity at the time which is lower than the western countries.

1.4 The Distribution of the Effective Period of Equity Incentive

Here effective period refers to the period that incentive objects exercise the rights conferred by the equity. The length of the period needs to be made by the equity incentive mode settings. Since the implement of our major business is stock option mode. And the article of "Equity Incentive Management of Listed Companies (Trial)" states the interval from the date of stock options granted to the first row of the right can not less than one year. The effective period calculated from the granted date can not exceed ten years. In this 163 listed companies, in addition to the information did not specify Wanda incentive is valid, the remaining 162, only one enterprise Ningbo GQY whose validity of this reached the upper limit of 10 years and the shortest validity is three years and only three. The average validity is 4.51 years. Most of the effective period of the listed companies is 4 or 5 years.

2. RESEARCH DESIGN

2.1 Literature Review and Research Hypotheses

In China, scholars do lots of research with the relevant data of Chinese enterprises equity incentive and wondered whether there is any relationship between the equity incentive and corporate performance. But they have not reach the same conclusion. Some scholars believe that there is no correlation between the equity incentive and corporate performance. Zhu (2010) did the empirical research on the sample of Shanghai and Shenzhen A-share listed companies, not distinguished the incentive mode and industry. He chosen the company's managements who have the company's stock during 2000 to 2005 as an initial sample and he got 659 companies. He concluded equity incentive of listed Companies in general terms is invalid. Although equity incentive modulus is positive, but other statistics are very small. There was no correlation between them at the meaning of statistics. Qian (2012) used those SMEs who declared the implementation of equity incentive as the original sample. Through a two-year before and after incentive policy's change results and compare the performance of the implementation of horizontal equity of SMEs found that the SME board listed company equity incentive effect not significant. According to the implement of equity from 1 January 2011 to 31 December 2011 of incentives in listed companies in Shanghai and Shenzhen, Feng (2013) randomly selected 37 companies as the sample and carried out the analysis of the data using SPSS 17. 0.

The results obtained from the analysis showed the impact of equity incentive for the ROE is not significant. Effective implementation of equity incentive is largely count on the design of incentive programs and companies should combine the actual situation and promote the effectiveness of incentive programs. Liu (2012) use those who launch equity incentive programs listed companies in 2006-2009 as samples. He did the empirical analysis about the relationship between the equity incentive and the performance of the company and concluded that there was no linear relationship between the proportion of listed companies incentives and corporate performance. Yang (2013) on the basis of equity incentives of Chinese listed companies on the status of implementation of the analysis, selected 198 listed companies who implemented equity incentive between 2009-2011. She use correlation analysis and multiple linear regression analysis and did the empirical analysis about the relationship between the equity incentive and the performance of the company and concluded that there was no linear relationship between the proportion of listed companies incentives and corporate performance. But some researchers found the company's equity incentive can improve the performance of the company and make a certain role. As Zhou and Yan (2013) took Shanghai and Shenzhen A-share listed companies as the research object in 2011 and did the empirical analysis of equity incentive impact on the performance of listed companies by multiple linear regression analysis, verified equity incentives can enhance the performance of listed companies. Zhe and Xu (2013) took Shanghai and Shenzhen A-share listed companies as the research objects in 2010 and did the empirical analysis of equity incentive impact on the performance of listed companies using Eviews software, concluded it was a positive correlation between equity incentive and the value of listed companies. Jin (2010) selected those listed companies who announced the implementation of equity incentive and eventually put into the implementation phase before April 30, 2008 as a sample. The findings showed that small board listed companies can enhance the performance of the company. This paper proposes the hypothesis based on the conclusions of the existing literature references.

Hypothesis 1: The equity incentive of the GZM listed companies can enhance the role of the company's performance.

Equity incentive degree that the equity ratio of equity incentives is an important design element of the contract, the convergence hypothesis of the interests shows a higher stake could make the manager bundled together with the interests of shareholders, and the shareholders concerned about their own identity in order to improve as a shareholder responsibility which can maximize the capacity and technology. Despite many of our scholars believe that the proportion of Chinese equity incentive is too small and the corporate governance is not perfect, equity incentives did not make a significant effect. However, some scholars concluded by the empirical research there was a positive correlation between the degree of equity incentives and company performance. Song and Rong (2012) used the A-share listed companies in Shanghai and Shenzhen Stock from 2006 to 2008 for as data sample, the empirical verified the relationship between equity incentives and earnings management, found that the number of equity incentives and earnings management a significant positive correlation. Fu (2013) used those listed companies who implement equity incentives during 2006 to 2011 as study sample, the findings showed that the strength of the equity incentive and performance of the company made positive correlation. Therefore, this paper put up hypothesis 2.

Hypothesis 2: The degree of equity incentive of the GZM listed companies and the company's performance make positive correlation.

Here effective period refers to the period that incentive objects exercise the rights conferred by the equity. The length of the period need to be made by the equity incentive mode settings. Since the implement of our major business is stock option mode. And the article of "Equity Incentive Management of Listed Companies (Trial)" states the interval from the date of stock options granted to the first row of the right can not less than one year. The effective period calculated from the granted date can not exceed ten years. The statistics show the average validity of the Chinese companies listed on GEM is 4.51 years and a little short compared with Western countries. Equity incentive is a long-term incentive policy, the longer incentive validity have the more obvious the effect would be. Therefore, this paper put forward hypothesis 3.

Hypothesis 3: The effective period of equity incentive of the GZM listed companies and the company's performances make positive correlation.

The patterns of equity incentive usually include equity incentive stock options, restricted stock, performance shares, stock appreciation rights and phantom stock and so on. Chinese equity incentive of GEM listed companies only use stock options, restricted stock, and both mixed mode. According to the statistics the use of stock options up to 53.37%, restricted stock and mixed-mode respectively 28.83% and 17.80%. Since most companies choose stock options mode, indicating that most companies think stock options can better improve the performance of the company, so this paper put forward hypothesis 4.

Hypothesis 4: Stock option model can improve the performance of the company better.

2.2 Variable Settings

(1) Explained variables. According to previous research and the draft GEM listed companies equity incentive, most companies use a total return on assets (ROA), return on equity (roe), etc., as a measure of company's performance indicators. These indicators may reflect the added value of owners' equity, the company's competitiveness and long-term growth potential and also has good comparable.

(2) Explanatory variables. Equity incentive degree (strength) indicates the total number of issued incentive percentage of total share capital when signing incentive plan. Equity incentive mode, due to stock option model belongs to qualitative data so using dummy variables to represent stock options and stock option takes 1, other modes take 0. The validity of equity incentive can check from the draft of GEM listed companies.

(3) Variable control. When to research the factors affecting the performance of the company, not only the equity incentive would affect the company's performance but also balance sheets, etc. will have an impact on company performance. In order to better study the

equity incentive impact on company performance, so the company's size (size), asset-liability ratio (LEV), total asset turnover (ATO) become the control variables. Relevant variables are described below.

Table 4
Variable Settings

Name	Type	Code	Definition
Return on net assets	Explained variables	ROE	Net profit/Net assets
Return on total assets		ROA	Net Profit/Total assets
Equity incentive degree	Explanatory variables	Strength	Total number of issued incentive/incentive plan The total share capital when the company signed
Equity incentive mode		Model	Dummy variable, taking 1 when the mode is stock option, the other takes 0
Equity incentive validity		Validity	the number of years about equity incentive validity
Size of the company	Controls of variables	Size	Natural logarithm of total assets
Asset-liability ratio		LEV	Total Liabilities/Total Assets
Total asset turnover		ATO	Operating income/total assets

2.3 Model Design

Model 1: $ROE = C_1 + a_1 Strength + a_2 Model + a_3 Validity + a_4 Size + a_5 LEV + a_6 + ATO + \varepsilon$

Model 2: $ROA = C_2 + b_1 Strength + b_2 Model + b_3 Validity + b_4 Size + b_5 LEV + b_6 + ATO + \varepsilon$

C_1, C_2 is constant, a_1~a_6, b_1~b_6 is coefficient, ε is error term.

2.4 Sample Selection and Data Sources

This paper researches the impact of GEM listed companies equity incentives on the performance of the company. The sample is the GEM in 2011 and 55 listed companies in 2012. And according to the same industry, the same time to the market, listed companies without the implementation of equity incentive, differences of the asset size within 5% (choosing the closest to value if when you select more than 5% still no match, then removed the sample) and other conditions, we selected 55 listed companies as paired samples. We selected the third quarter financial data of listed companies in 2012&2013 and used independent T-test method for horizontal comparison about equity incentive effect of companies listed on GEM (as some companies have not yet released the annual report in 2013, so we selected the third quarter report data). When in the study of degree of the equity incentive, incentive mode, validity of the equity incentives how to affect performance of the company, the selected sample is the 114 listed companies on GEM who published the equity incentive draft before August 31, 2013 (excluding ST, ST*, and in this delisted companies during the time; excluding those revoked, stopped the implementation and incomplete data listed companies). Empirical research selected the first three quarters of 2013 annual data and used linear regression analysis. Measurable indicators of company equity incentive effect is ROA, ROE, and the data comes from the WIND database, CHINF GEM (http://www.cninfo.com.cn/). Data were analyzed using statistical software spss 17.0.

3. EMPIRICAL RESEARCH

3.1 Equity Incentive Impact on Company Performance Test

Table 5
Descriptive Statistics

Year	Project	The companies implement equity incentive		The companies without equity incentive		All listed companies	
		ROA	ROE	ROA	ROE	ROA	ROE
2012	Minimum	- 0.0100	- 0.0200	- 0.0300	- 0.0400	- 0.0300	- 0.0400
	Maximum	0.1000	0.1500	0.1200	0.1400	0.1200	0.1500
	Mean	0.4480	0.5730	0.0341	0.0420	0.0394	0.0496
	Standard deviation	0.2474	0.3148	0.0270	0.0311	0.0263	0.0321
2013	Minimum	- 0.0300	- 0.0700	- 0.0200	- 0.0200	- 0.0300	- 0.0700
	Maximum	0.1000	0.1800	0.1400	0.1600	0.1400	0.1800
	Mean	0.0396	0.0530	0.0301	0.0389	0.0349	0.0460
	Standard deviation	0.0300	0.0417	0.0305	0.0365	0.0305	0.3963

From the Table 5, we can find the average ROA and ROE of the implementation of GEM listed company's equity incentive were 0.0448, 0.5730 which were higher than the companies without equity incentive separately

0.0341, 0.0420. By 2012 and 2013 data comparison, we can see that the number of the performance of the GEM equity incentive companies declined, but by comparing all the data of 2012 and 2013 listed companies we can see the performance of all listed companies have generally declined, it can be inferred that the annual decline in performance may be caused by the greater environmental impact. Although in 2013 the implementation of equity incentive performance of listed companies has declined, but still higher than the non-implementation of the listed company's equity incentive. Then by independent sample T-test about the performance indicators (ROA, ROE) of the companies and the paired companies we can make the statistical analysis.

Table 6
Statistics

	The company type	N	Mean	Standard deviation	Standard error of the mean
ROA	The sample company	55	0.0448	0.0247	0.0033
	Matching company	55	0.0341	0.0270	0.0036
ROE	The sample company	55	0.0573	0.0315	0.0043
	Matching company	55	0.0420	0.0311	0.0042

Table 7
Independent Sample Test Results

		Levene test of variance equations		The mean equation of t test				
		F	sig	*t*	df	sig.(On both sides)	The mean difference	Standard error values
ROA	Assuming equal variance	0.3710	0.5440	2.1540	108.0000	0.0330	0.0106	0.0049
	Assumes that the variance is not equal			2.1540	107.1960	0.0340	0.0106	0.0049
ROE	Assuming equal variance	0.0060	0.9370	2.5730	108.0000	0.0110	0.0154	0.0060
	Assumes that the variance is not equal			2.5730	107.9870	0.0110	0.0154	0.0060

Table 7 shows that the observations of ROA and ROE are separately 2.1540 and 2.5730 and the corresponding P values were 0.0106, 0.0154 significantly less than level of 0.05, so you can reject the hypothesis. And that indicates ROA and ROE have significant differences between the sample companies and paired sample companies. Seen from the difference between the mean average, the sample companies is higher than the proportion of sample companies, implemental side have better performance than the other side. Since they have controlled the industry, size, time to the market at the beginning. Therefore, the difference of empirical can be considered as a result of the implementation of incentive stock options, the implementation of the GEM equity incentive for companies can improve the performance of a certain action and so it prove the hypothesis 1.

3.2 Research of Elements of Equity Incentive Contract's Impact on the Performance of the Company

For hypothesis 2, 3, 4, it use spss17.0 and make regression analysis about the variables of Model 1 and Model 2. The results are shown in Table 8.

Table 8
Regression Coefficients

	Model 1				Model 2			
Variable	*B*	Coefficient	*t*	sig	*B*	Coefficient	*t*	sig
C	- 0.3310		- 3.2680	0.0010	- 0.4770		- 3.5470	0.0010
Validity	- 0.0030	- 0.0690	-0.8610	0.3910	- 0.0030	- 0.0530	- 0.6260	0.5320
Model	0.0020	0.0350	0.4310	0.6680	0.0050	0.0570	0.6680	0.5060
Strength	- 0.2570	- 0.1130	- 1.4430	0.1520	- 0.3030	- 0.1050	- 1.2840	0.2020
Size	0.0200	0.3460	4.0000	0.0000	0.2600	0.3680	4.1530	0.0000
Lev	- 0.1500	- 0.7180	- 7.0440	0.0000	- 0.1130	- 0.4270	- 3.9900	0.0000
Ato	0.0440	0.4510	4.7080	0.0000	0.0620	0.5000	4.9680	0.0000
Fvalue		10.0530				7.4590		
Adjust The *R* Square		0.3250				0.2550		
Sig		0.0000				0.0000		

As we can see from Model 1 of Table 8, the adjustment of the model is 0.3250 in R indicating a good fit of the Model 1. The statistic of ***F*** is 10.0530 and sig is 0.0000 which less than 0.05 indicating that the model in general is significant. Model 2 is also significant as a whole, but its adjusted R is 0.2550 less than Model 1 whose adjusted R is 0.325, so the fit of the Model 1 higher than Model 2.

Judging from the results of the Model 1 regression coefficient of incentive validity is - 0.0690, *t* value of -0.8610, whose sig is 0.3910 significantly greater than the 0.05 level and so the hypothesis 3 has not been confirmed. Excitation pattern model one's regression coefficients is 0.0350, *t* value of 0.4310, its associated probability of 0.6680 sig significantly greater than 0.05, indicating that there is no significant correlation between stock options and performance of the company. Equity incentive degree's regression coefficients is -0.1130, *t* value of -1.4430, which is accompanied by the probability of 0.1520 sig greater than the level of 0.05 and indicating that there is no significant correlation between the stock incentive and corporate performance. Therefore hypothesis 2 and assuming 4 also are not been confirmed. The results from model 1 show the size of company, asset turnover have significantly positive correlation with the total return on assets ROA and the regression coefficients is separately 0.3460,0.4510. Asset-liability ratio and return on assets ROA have significantly negative correlation and the regression coefficient is -0.7180.

The results from the regression of Model 2 is the same with the Model 1 and further validate the conclusions of Model 1.

CONCLUSION

This paper selected 55 listed companies in 2011 and 2012 as well as the implementation of equity incentive 55 listed companies without the implemention of equity incentive which paired on the industry, time to market, company size, etc. We selected the third quarter financial data of listed companies in 2012 & 2013 and used independent T-test method for horizontal comparison about equity incentive effect of companies listed on GEM and found companies listed on GEM equity incentive can improve their performance to a certain role. Else we chose the 114 listed companies on GEM who published the equity incentive draft before August 31, 2013, using linear regression analysis about the annual reports of the first third quarter 2013 data and found that the influence validity of equity incentive and incentive strength of the company make to performance of the company have no significant correlation. Equity incentive validity, as well as the degree of equity incentive and incentive model did not significantly affect the company's performance and probably due to the equity incentive contract design exists problem. Contractual elements of incentive stock options should be made on its own characteristics of listed companies, if it is blind imitation of the equity incentive plan may not be able to make the company's performance improved.

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