

# The Relationship between the Level of Equity Incentive and Performances Based on EVA

Wang Jue<sup>1</sup>, Shi Kailin<sup>2</sup> and Yu Tuanye<sup>3</sup>

<sup>1</sup>School of Economics and Management, Accounting Department, Tongji University,  
1239 Siping Road, Shanghai 200092, China

<sup>2</sup>Business College, Michigan State University, East Lansing, MI 48824 USA

## ABSTRACT

*Since equity incentive was supported by the government in 2005, more and more firms implement the equity incentive but in different levels. This paper analyzes the reasons which influence the level of implementing the equity incentive, basing on the 164 companies which carried it out from January 2005 to December 2014. EVA as enterprise performance indicators, this paper finds that the better the firm performs on EVA for the first time, the higher level of equity incentive will be put into action, which means this kind of firms are more likely to carry out the equity incentive for the second time. However, companies don't perform better for the second time. Therefore, the government should support the equity incentive policy further and strengthen the promotion. What's more, enterprises should make adequate preparation before they implement equity policy and be more careful for the second time.*

**Key words:** equity incentive, business performance, EVA

## 1. Introduction

In June 2014, China Securities Regulatory Commission(CSRC) formulated and published Guiding Opinions on the Pilot Implementation of Employee Stock Ownership Schemes by Listed Companies. Statistics show that since the CSRC issued the employee stock ownership plan, nearly 100 companies have launched the plan. Specifically, from July 2014 to January 2015, respectively 2, 4, 8, 10, 11, 26, 27 listed companies issued employee stock ownership plan and the number increased steadily. As a new equity incentive type, it has received a high degree of attention from the government and a positive response from the market. In fact, since CSRC issued Listed Company's Equity Incentive Management Approach at the end of 2005, it formally established the system framework of the listing company equity incentive. As of 2014, a

total of 453 companies announced the preliminary plan of the equity incentive, 334 companies have implemented equity incentive. Thus it can be seen that the market has a positive attitude towards the long-term incentive mechanism.

With the separation of corporate ownership and control right, the agency problem between management team and shareholders has become an important issue in corporate governance. Enterprises make the incentive target and the enterprise to form a community of interests through conditional giving part of the shareholders' equity and interests to the incentive target so as to achieve the long-term goals of the enterprise and it basically solves the problem of the agency problem through the way of equity incentive. Equity incentive was born in 1950s in the United States. PFIZER is the first company in the world to issue executive stock options. Subsequently, the United Kingdom, France and Japan and other developed countries also adopt the equity incentive approach, and it leads the global equity incentive boom. However, China starts late in this area. In 1980s, China's equity incentive has just started. Although we continued to explore, the development was very slow, at the same time, it was controversial. We all believed that the equity incentive mechanism was not suitable for China's national conditions at that time. A series of reasons lead to the implementation of equity incentive in our country is not successful, such as imperfect corporate governance mechanism, low proportion of management shareholding, as well as policies and laws do not support it. Until December 31, 2005, CSRC issued Listing Corporation Equity Incentive Management Approach (Trial), which marked the real sense of the equity incentive officially kicked off. Since 2006, it started implementing the revised Securities Law and Company Law and it has made clear regulations on buying back shares in the enterprise and transfer of shares in the term of senior management team, which made the equity incentive gradually improve and be able to develop healthily in our country's law. At present, the equity incentive has been valued in our country, more and more enterprises begin to implement equity incentive, and they even implemented many times and combined with different ways. This phenomenon has brought us some problems: Does the implementation of equity incentive really help to improve the performance of enterprises? Why some companies choose to implement equity incentive many times? Do they do this because the performance is better? The performance of the enterprise that implements it twice will be better? This paper analyzes the effect after the implementation of equity incentive and the performance impact of different enterprises in the implementation of different equity incentive, and studies the relationship between equity incentive and corporate long-term performance by taking EVA as a measure of performance index in order to better implement equity incentive, let it adapt to the Chinese economic model so as to complete the company's long-term goals.

## **2. Literature review**

### **2.1 Equity incentive and enterprise performance**

The research of Jensen (1986) and Hanson and Song (2000) show that because it's difficult for the company to supervise the management team, so the implementation of the management team equity incentive will greatly reduce the agency cost of the company. Since it reduces the chance of a large amount of free cash flow, it improves the company's value<sup>[1]</sup>. Stoyu I. Ivanov and Janis K. Zaima(2011) study the relationship between the implementation of equity incentive and the company's capital cost, and they find

that the implementation of equity incentive is helpful to increase the value of enterprise<sup>[2]</sup>; Tan Jian (2005) carries out an empirical study on influencing factors by using panel data of China's listing Corporation for three years in 2001-2003, and the results show that managers equity and debt ratio is negatively related, and there is significant, which proves that the increase in equity ownership can significantly reduce the company's equity agency costs<sup>[3]</sup>; Zhou Jianbo, Sun Jusheng (2003) take 34 companies that implemented management team equity incentive in listing companies in 2001 Annual Report that announced by the beginning of 2002 as the research samples. They find that the most enterprises before the implementation of equity incentive have good performance, and it has a selective bias. While in the enterprise with high growth, managerial ownership proportion and enterprise performance are positively correlated<sup>[4]</sup>;Huang Guoan (2004) establishes the mathematical model and concludes that the operator's shareholding ratio is positively related to the earnings of several assets after deducting nonrecurring gains and losses through collecting, comparing, sorting and analyzing 668 state-owned holding industrial listing company index in Shanghai and Shenzhen<sup>[5]</sup>; Hu Tiejun and Guan Mingkun (2008) select 51 listing companies that implemented the incentive mechanism after the reform as samples and the research results show that, through the reform of equity division, it makes the executive incentive mechanism improved and it improves the listing company governance structure and the performance of the company. And they find that executive equity incentive effect is significantly stronger than the salary incentive<sup>[6]</sup>. Chen Jizhuan (2007) analyzes the impact of equity incentive system on corporate performance before and after the equity division reform. He concludes that after the implementation of the equity incentive plan, the company's performance is improved<sup>[7]</sup>.

Demsetz (1983) points out in the paper that management holding shares has an impact on the company's performance mainly through the company's internal and external factors, such as investment opportunities, business risk and growth, etc. It is an endogenous variable, and it does not have an impact on the company's performance<sup>[8]</sup>;Through the factor analysis of listing companies that have implemented equity incentive in China, Xu Yiqun and Shi Shuiping (2010) construct the regression model, and the results show that in general, the correlation between equity incentive of listing companies in China and corporate performance is positive, but it is not significant; There is an interval effect between the operating performance of the listing company and the proportion of the capital stock for the incentive, but its correlation decreases with the increase of the shareholding ratio<sup>[9]</sup>;Wang Liuchi and Wang Mei (2014) draw the same conclusion through the correlation of the proportion of equity incentive, corporate performance, the size of the company and the property of the company, as well as modeling and empirical analysis by taking 78 A shares of listing companies that implemented the equity incentive plan in the two cities of Shanghai and Shenzhen in 2011 as a sample<sup>[10]</sup>; Through the statistical analysis of the data of 56 listing companies, Gu Bin and Zhou Liye (2007) believe that the incentive effect of equity incentive on the company performance is not obvious, performance improvement is not significant after the implementation of equity incentive, and different industries and different incentive models have different incentive effects<sup>[11]</sup>; Through an empirical analysis of the net assets yield of 76 listing companies, Cheng Zhongming and Xia Yingui (2009) come to the conclusion that equity incentive has a certain effect in some cases, but it is not significant<sup>[12]</sup>; Chen Yong, Liao Guanmin and Wang Ting (2005) choose 46 listing companies that actually implemented the equity incentive plan from 1999 to 2001 as the research object, they find that the enterprise performance is only

slightly improved after the implementation of equity incentive plan, but it is not obvious<sup>[13]</sup>; The proportion of equity incentive is the largest in the form of equity incentive in our country but the effect is not obvious. Huang Jinsong (2004) carries on the analysis from the company's asset management, finance, solvency and development capacity by taking 92 listing companies that implemented the stock options incentive as the example in 2002<sup>[14]</sup>. Empirical analysis shows that compared to listing companies that implemented the stock option incentive plan and others that did not implement the stock option incentive plan; there is no significant difference in the operating performance of the company.

## 2.2 Research on EVA performance evaluation index

Yang Guobin and Li Chunfang (2007) define EVA as the difference between capital gains and capital costs. More specifically, EVA is the difference between the net operating profit after tax and the total investment capital cost (the sum of borrowed capital and its own capital). If the difference is positive, it shows that companies create value and wealth; On the contrary, it means that the value of the enterprise has been lost; if the difference is zero, it shows that the profits of the enterprise can only meet the expected benefits of the creditors and investors<sup>[15]</sup>. Bennett Stewart (1991) believes that EVA as an effective management tool, which has been internationally recognized as the standard of corporate governance. EVA is an important indicator to establish the financial management and the integrated analysis framework of incentive and compensation. It can re-allocate resources to create lasting value for companies, customers, employees, shareholders and managers through this framework<sup>[16]</sup>; Peter Drucker (1999) analyzes the unique advantages and limitations of EVA by using standard research methods, and he concludes that the EVA can more accurately measure operating results than the traditional indicators<sup>[17]</sup>. From the perspective of economic theory, Wang Qingfang and Zhou Zijian (2001) analyze the EVA performance evaluation theory and the value driving principle from the perspective of economic theory, they believe that EVA is an effective performance evaluation index that can better evaluate the performance of the enterprise and it will help investors to make a reasonable investment decision<sup>[18]</sup>. Wang Yanni and Wang Bo (2004) compare the EVA with the traditional manager performance evaluation, enterprise value assessment, investment project evaluation, the index or method of network stock evaluation and new evaluation methods to carry on the comparative analysis one by one, they find that EVA is not omnipotent, but with regards to the enterprise performance from the financial evaluation, its comprehensiveness and authenticity are very good<sup>[19]</sup>. Wang Wei, Chen Jiang and Yang Chonghuai (2005) compare the EVA estimation method with the current enterprise discounted free cash flow method, and they think EVA has dual advantages of easy to calculate and assess the value and effectiveness and being related to the enterprise value<sup>[20]</sup>.

Through the literature review, it focuses on the study of equity incentive in the proportion of executive ownership and the impact of the enterprise, as well as the comparison of whether it has an impact on the performance of enterprises after the implementation of equity incentive. The above literature mainly adopts the financial index method to measure the enterprise performance. Namely, it carries out a comprehensive evaluation of the company's empirical results and empirical risk through qualitative or quantitative analysis of the company's profitability, operational ability, financial benefit, growth ability and other indicators for a period of time. Financial indicators may include: profitability indicators: net assets yield, earnings per share,

profit ratio of cost, sales profit margins, etc.; Operational capability indicators include: accounts receivable turnover ratio, inventory turnover rate, turnover of current assets, etc. Solvency indicators include: asset liability ratio, quick ratio, liquidity ratio and payment capacity coefficient, etc. Through the above summary, there are the following two points of view: First, it believes that there is a significant positive correlation between shareholding ratio of management team and enterprise performance in the enterprise that implemented equity incentive. Secondly, it believes that equity incentive and corporate performance have a positive correlation, but it is not significant. At the same time, the operating performance of the listing company and the proportion of senior executives have the interval effect. The reasons for these differences of research opinion are that: (1) The enterprises that implemented equity incentive before 2005 do not really play the role of equity incentive because of the imperfect laws and policies, so the performance of enterprise performance is lack of research significance; (2) The development of equity incentive in our country is abnormal so that executive shareholding enterprises do not implement equity incentives. Enterprises that implement equity incentive only take stock as an intermediary in the calculation of bonuses, and executives are not essentially holding; (3) The sample selection is different, and the research methods are also different. At the same time, through the performance evaluation of domestic and foreign scholars, it is found that EVA is a better indicator of enterprise performance evaluation.

As far as the study of equity incentive is concerned, we find that it mainly studied the correlation between equity incentive executive shareholding and corporate in the past. It mainly focused on the comparison between the two types of enterprises, which were the enterprises that implemented equity incentive and those didn't implement equity incentive. There was little group comparison between enterprises that have implemented equity incentive. And there is little research on the reason why enterprises implemented equity incentive in varying degrees. As for the performance indicators after the implementation of equity incentive, it basically selected financial indicators and the study of EVA was rarely involved.

### **3. Theoretical analysis**

#### **3.1 The theoretical basis of equity incentive**

Equity incentive is a kind of incentive method that the operator obtains the equity form of the company and gives the enterprise managers a certain economic rights so that they can participate in corporate decision-making, profit sharing and risk taking as the identity of the shareholders so as to be diligent and responsible for the company's long-term development. The theoretical basis of equity incentive is mainly based on human capital management, the principal-agent theory and the two-factor theory.

##### **3.1.1 HCM – Human Capital Management**

HCM – Human Capital Management originated from economics research. In 1960s, American economists Schultz and Becker created the theory of human capital and they opened up a new way of thinking about human production capacity. The theory argues that the physical capital refers to the capital on the physical product, including plant, machinery, equipment, raw materials, land, monetary and other securities, etc. And human capital is the capital which is reflected in the human body. Namely, the sum of the costs of the education, vocational training, and the opportunity cost of receiving education of the producers,

it is represented by the total stock of all kinds of production knowledge, labor and management skills, and health quality which is contained in the human body.

Adam Smith is the first one who regards human capital as the capital. He puts forward that the proficiency level of labor skills and judgment ability are bound to restrict people's ability and level of labor, the proficiency level of labor skills need to be improved through education and training, education and training will take time and pay tuition fees. Marx thinks that labor is the main source of social wealth creation. The concrete labor of human beings creates the value of the use of the goods, and abstract labor creates the value of the goods. Value is the general human labor that is condensed in the commodity and the size of the value depends on the necessary social labor. Marx divides human labor into complicated labor and simple labor, the former has a higher value, it is multiple times simple labor, he views science and technology, as well as education as an important source of productivity, which can improve people's intelligence and skills. Therefore, Marx's labor value theory is the most basic theory of valuation measuring of human resources.

### **3.1.2 Principal-agent Theory**

The principal-agent theory is one of the main contents of the contract theory of institutional economics, and the principal-agent relationship refers to one or more behavioral subjects appoint or employ other behavioral subjects to serve for him or them according to expressions or implied contract, while granting the latter a certain degree of decision-making rights and paying for the appropriate remuneration according to the quantity and quality of the service provided by the latter. The authorized person is the principal, and the licensee is the agent.

The principal-agent theory is based on Asymmetric Information Game Theory. Asymmetric information refers to the information that some participants have but others don't have. The asymmetry of information can be divided from the following two angles: The first is asymmetric time, and the second is the content of asymmetric information. From the time of asymmetric occurrence, the asymmetry may occur before the parties sign the contract and it may also occur after the signing of the contract; they are referred to as *ex ante* asymmetry and *ex post* asymmetry. *Ex ante* asymmetric information may result in adverse selection results, and *ex post* asymmetric information may result in moral hazard. In the case of asymmetric information, the principal cannot observe the behavior of the agent, they can only observe the relevant variables, and these variables are determined by the agent's actions and other exogenous random factors. Therefore, the client cannot use the "mandatory contract" to force the agent to choose the action that the client wants. Incentive compatibility constraints are at work. So, the client's problem is to choose the incentive contract that satisfies the constraint and incentive compatibility constraints to maximize their expected utility.

### **3.1.3 Two-Factor Theory**

Two-factor theory, it is also known as hygiene-motivational factors. It is one of the representatives of the incentive theory, which was proposed by the American psychologist Herzberg in 1959. According to the theory, there are two main factors that cause people's work motivation: one is the incentive factor; the other is the hygiene factor. Only incentive factors could bring people satisfaction, while hygiene factors could

eliminate people's dissatisfaction, but it will not bring satisfaction. Hygiene factors refer to the factors causing the employee dissatisfaction. If hygiene factors cannot be satisfied, it is easy to make the employee feel discontent, go-slow, and even lead to combative behaviors, such as a strike. However, after the improvement of the hygiene factors, no matter how hard it is to make an improvement, it is difficult to make the employees feel satisfied. Therefore, it is difficult to stimulate the enthusiasm of the employee. So for hygiene factors, the opposite of "dissatisfaction" should be "no satisfaction". Incentive factor refers to the factors that can cause employees to feel satisfied. The result of improving the incentive factors can greatly stimulate the enthusiasm of the employee and improve the efficiency of labor production. But for incentive factors, even if the management team does not give its satisfaction, it will not make the employees feel dissatisfied. So for incentive factors, the opposite of "satisfaction" should be "no satisfaction".

### **3.2 Selection of performance indicators----EVA theory**

EVA is the English abbreviation of the economic value added, which refers to capital cost is deducted from the net operating profit after tax, including equity and debt. Its core is that the capital has a cost, only when the enterprise's profit is higher than the cost of its capital (including equity cost and debt cost) will create value for the shareholders.

EVA is an evaluation tool for evaluating the effective use of capital and the ability to create value for shareholders and reflect the ultimate business objectives of the enterprise. EVA provides better performance evaluation criteria and it allows managers to make more informed decisions, as the economic value added requires the cost of all capital, including equity and debt. The concept of capital cost makes managers more diligent and wise to use the capital to meet the challenge and create competitive power. But taking into account the cost of capital is only the first step; the economic value added corrects performance measurement standards that mislead the managers. Under the current accounting methods, managers' efforts in the development of innovation and the establishment of brand will reduce profits, which makes them blind to expand production, promote sales to improve the book profits, and the upgrading of the company's system will be out of the question. Managers improve financial leverage in order to gloss over the book's investment income. It makes clear the economic value added calculation method according to customer needs, and it usually adjusts only 5 to 15 specific subjects. With the measures of economic value added, managers do not make inflated book profits again, and they can make aggressive investments more freely in order to obtain long-term returns.

Specifically, the economic value added is the difference between the net profit after tax and the total capital, including the borrowed capital and its own capital. If the difference is positive, then it shows that the company creates value and increased the wealth. If the difference is negative, the company has a loss; if the difference is zero, the company's profits can only meet the expectations of the creditors and shareholders, and it does not create more value. The main objective of the operation of the company is to maximize the shareholders' rights. Shareholders' rights and interests include two parts, one is the share capital, that is, the shareholders directly invest capital to the company; another part is the additional value created by the company over a period of time. However, the average profit calculation does not take into account the cost of capital and the share capital indeed has the opportunity cost. From the perspective of shareholders, he has

a wide variety of investment options. If the rate of return on investment is higher, he will move on to other areas. So the company has to pay enough for its shareholders to give up the profits of other investment opportunities, and this is the opportunity cost of equity. Such opportunity costs are a part of the added value of equity itself, it is not created by the production and operation of the company, so EVA is the profit after subtracting the capital cost of equity capital.

## 4. Empirical Methods

### 4.1 Sample selection and data sources

Based on the listed companies of Shanghai and Shenzhen as samples during the study period of January 1, 2005 to December 31, 2014, 453 companies (16.8% of all listed companies) announced the equity incentive plan. Among them, 334 companies implemented the equity incentive, accounted for 12.4% of all the listed companies, while 119 companies announced the equity incentive plan but not implemented, accounted for 4.4% of all listed companies. In terms of the different levels of equity incentive implementation, a total of 232 companies applied only one type of equity incentive while about 14 companies put two types into use. What's more, accurately 38 companies implemented the equity incentive with scheme twice. 50 companies implemented the equity incentive twice or more. The data of the 232 listed companies above is filtrated; (1) Eliminate the samples of missing financial data within two years; (2) Eliminate ST companies; (3) Eliminate those implemented two types of equity incentive due to too few samples. In conclusion, a total of 164 companies are analyzed by classification and comparison in different implementation levels. Among them, 101 companies implemented equity incentive once with plan once; 20 companies implemented the policy once with plan twice; 43 companies planned and implemented the policy twice or more.

The data source of the paper is all from CSMAR database. The information of the implementation level refers to the equity structure plates of Golden Sun Securities. Related calculation analysis is completed via the software excel 2013.

The EVA results are all from CSMR database and its calculation formula refers to the Central Enterprise Manager Business Performance Assessment Tentative Procedures issued by SASAC ( State-owned Assets Supervision and Administration Commission ):

Net operating profit after tax (NOPAT) = net profit + (interest expense + research and development adjustment)\*(1 - corporate income tax rate)

Total capital = average owners' equity + average total liabilities - average interest - free current liabilities - average of projects under construction

The weighted average cost of capital = 5.5%

Corporate income tax rate is 33% before 2008, 2008 while the rate is 25% after 2008.

Average interest-free current liabilities include notes receivable, taxes payable, accounts payable, deposit received, payroll payable, interest payable, dividends payable, other payables and other current liabilities

Specific payable shall be regarded as interest-free current liabilities deduction.

## 4.2 Research Hypothesis

Based on human capital management, the principle-agent theory and the two factor theory, equity incentive contributes to increase efficiency, which can boost the company's performance. Due to the positive marketing reaction to the policy, the first research hypothesis is put forward:

Hypothesis 1. Equity incentive can boost company's EVA obviously.

We continue to analysis the EVA influenced by the different degree of equity incentive implementation.

Hypothesis 2 .The higher promotion degree of equity incentive, the better EVA companies get.

We study some companies which carried out the policy many times further and analysis whether they performed better after the second implementation.

Hypothesis 3 .The second equity incentive implementation can improve EVA significantly.

## 4.3 Model Specification

The essay divides listed companies which carried out equity incentive once and which applied the policy twice or more into two groups. We try to find the difference between the two groups according logistic analysis. The regression model is as follows:

$$\text{OPTION} = \beta_0 + \beta_1 \text{EVA} + \beta_2 \text{HRV} + \beta_3 \text{ASSET} + \beta_4 \text{FCF} + \beta_5 \text{HRV} + \beta_6 \text{GROA} + \varepsilon \quad (5.1)$$

**Table 1. Variable Declaration**

	Variable Name	Definition	Expected Symbol
Dependent Variable	OPTION	Define companies which apply equity incentive twice as 1, otherwise 0;	
Explanatory Variable	EVA	EVA data selected from CSMR to measure companies' performance	+
	HRV	Human Resource Value, HRV=Net Profit/Industry Returns-Company Assets according to Herman Theory	+
Control Variable	SMAR	Senior Management Shareholding Ratio	+
	ASSET	Nature Logarithm of Total Asset indicates Enterprise Scale	+
	FCF	Free Cash Flow	+
	GROA	Growth rate of total asset indicates corporation growth	+

This paper makes regression analysis to all samples of 164 companies which carried out equity incentive. The four- year financial data is chosen from the previous year to two years after the implementation to study the relationship between the enterprise performance and the degree of equity incentive implementation. Three group samples of companies' EVA are made further comparison according to statistical description and T test. Those include companies which carried out the policy once with plan

once, which carried out the policy twice with plan once and which carried out the policy twice or more with plan twice. What's more, a comparative analysis of companies' performances is made between those which implement the policy once and more than once.

#### 4.4 Regression Analysis

This paper has studied all influencing factors of 164 companies of regression analysis. 509 samples are chosen after eliminating some incomplete data and 2% of the maximum and minimum values. The result is as follows:

**Table 2 All Sample Regression Analysis**

Regression Parameter	Correlation Coefficient	Standard Error	P-value
EVA	0.0010	0.0030	0.7457
HRV	2.49E-05	3.26E-05	0.4455
SMAR	-0.0182	0.1069	0.8645
ASSET	0.0503**	0.0219	0.0225
FCF	6.40E-05	0.0006	0.9248
GROA	-0.0072	0.0119	0.5471
Constant Term	0.4369***	0.0812	1.16E-07
The Amount of Samples	509		

PS: \*, \*\*, \*\*\* indicate that the T test value is significant at 10%, 5% and 1% individually, the followings are the same.

According to table 2, EVA coefficient is positive, which suggests companies which implemented equity incentive once performed better than which implemented the policy twice, and in line with expectations. HRV coefficient is positive but insignificant, which indicates that the human resource cost of different degree of implementation is much the same. However, the results of both two are not significant, showing that EVA and human resource cost have little influence on the different levels of equity incentive implementation. Asset scale coefficient is positive and passes the 5% significance level test, which suggests that the enterprises of larger size implement equity incentive in higher level.

#### 4.5 Descriptive Statistical Analysis

According to the whole sample analysis, Table 3 describes the mean changes in the enterprise performance after the equity incentive implementation. Through the annual change of EVA, we can see that the EVA performance fell on the exact year of implementation but showed an upward trend after two years. Since the average value is easily affected by the maximum and the minimum, we also choose the median index to assist the judge. According to the change of the median, EVA went up from the previous year to the year after the equity incentive implementation, a drop in the next year though, but still higher than the implementation of that year. But we find that enterprise EVA did not change significantly after carrying out this policy according to the Paired T test of EVA Variation (Table 4).

**Table 3 EVA Descriptive Statistics**

	Sample Size	Minimum	Maximum	Average	Median	Standard Deviation
EVA-1	164	-4.4794	76.9279	2.6045	0.5485	8.2830
EVA0	164	-18.0106	64.2108	2.5578	0.7081	7.7742
EVA1	164	-36.2317	93.8235	2.7064	0.7771	10.1906
EVA2	164	-38.3787	101.0354	2.8305	0.7165	11.3379

**Table 4 Paired T Test of EVA Variation**

		t Stat	P(T<=t) Single Tail
Pair1	EVA-1-EVA0	0.12104	0.4519
Pair2	EVA0-EVA1	-0.3582	0.3603
Pair3	EVA1-EVA2	-0.2883	0.3867
Pair4	EVA-1-EVA2	-0.2533	0.4002

In order to better analysis the change in enterprises' performance, this paper carries on the classification to all samples. According to the different degrees of implementation, the samples are divided into three groups respectively to explore the performance variation of these three kinds of enterprises. Group 1 represents the companies which carried out the policy once with plan once; group 2 represents the companies which carried out the policy twice with plan twice; group 3 represents the companies which carried out the policy and planned for many times.

Variable value OBJECTIVE is used to distinguish the enterprise type. As for group 1, this paper defines the objective = 0; as for group 2, defines the objective =0.5; and for group 3, defines the objective = 1 to respectively test the change of each group of EVA.

According to table 5, the average EVA of Group 1 fell on the implementation year but showed an upward trend after that year, not overtaking the performance of the previous year of the implementation though. As for group 2, the EVA performance rose and peaked on the year after implementation but dropped since then, worse than the year before the implementation. As for group 3, EVA increased during the four years. Since the conclusion might be influenced by the maximum and the minimum, this paper uses median as reference and concluded the same change trend, what's more, the EVA of the last year was better than that of the previous year of the implementation.

**Table 5 EVA Variation under Different Degrees of Equity Incentive Implementation**

	Objective	Sample Size	Average	Median	Standard Error	Standard Deviation
EVA-1	0	101	2.9632	0.4855	0.9927	9.9766
	0.5	20	3.5498	0.6988	1.5823	7.0762
	1	43	1.3224	0.6486	0.3129	2.0522
EVA0	0	101	2.4531	0.67974	0.8946	8.991
	0.5	20	5.0563	0.9488	1.8501	8.2742
	1	43	1.6417	0.7913	0.4103	2.6906
EVA1	0	101	2.4690	0.6671	1.1897	11.9569
	0.5	20	5.5248	1.6188	2.0381	9.1146
	1	43	1.9529	0.7920	0.6912	4.5329
EVA2	0	101	2.8810	0.6399	1.3674	13.7425
	0.5	20	2.1357	0.9012	0.7987	3.5721
	1	43	3.0349	1.0004	1.0020	6.5709

PS: Objective=0、0.5、1 indicate the companies which implemented incentive equity once with plan once, which implemented the policy twice with plan twice and which planned and implemented the policy many times.

In order to review the change trend of enterprise EVA in the long run, this paper respectively calculates the variation of EVA value for the first year, the second year and the third year. This paper defines EVA variation of the previous year and the implementation year as  $\Delta$ EVA0; the variation of the year and the year after implementation as  $\Delta$ EVA1; the variation of the next two years of the implementation as  $\Delta$ EVA2 to find more details about the three group EVA variation respectively.

Table 6 shows the T test conclusion of the enterprises' EVA variation and average value under different implementation degree of equity incentive. Companies which carried out the policy once with plan once performed better since the EVA increased, but failed to pass the significant test. As for the companies which implemented the policy twice with plan twice, EVA showed an upward trend in the first year and passed the 10% level of significant test but decreased in the third year significantly. When it comes to the companies which planned and carried out the policy many times, their performances in the third year improved and passed the 5% level of significant test. Therefore, this paper concludes that the implementation of equity incentive can improve the enterprise's performance to some extent. Companies implemented equity incentive many times because they improved their performances in the long run. Companies which carried out the policy once with plan twice just experienced a failed plan so they planned again successfully, getting better performance in the first year finally. However, the EVA of this type of companies declined significantly in the second year after the implementation. Therefore, they chose to implement the policy only once.

**Table 6: EVA Variation and Significant Test of Companies under Different Degrees of Equity Incentive Implementation**

	Objective	Sample Size	Average	P(T<=t) Single Tail	t Stat	t Single Tail Critical	P(T<=t) two tails
	0	101	-0.5101	0.1876	0.8908	1.6602	0.3751
$\Delta$ EVA(0)	0.5*	20	1.5065	0.0995	-1.3308	1.7291	0.1990
	1*	43	0.3193	0.0993	-1.3062	1.6820	0.1985
	0	101	0.0160	0.4902	-0.0246	1.6602	0.9803
$\Delta$ EVA(1)	0.5	20	0.4686	0.2075	-0.8335	1.7291	0.4149
	1	43	0.3112	0.1927	-0.8772	1.6820	0.3853
	0	101	0.4119	0.2253	-0.7574	1.6602	0.4506
$\Delta$ EVA(2)	0.5**	20	-3.3892	0.0405	1.8430	1.7291	0.0810
	1**	43	1.0820	0.0115	-2.3606	1.6820	0.0230

Enterprises which implemented equity incentive once and twice are divided into two groups, which are made further T test. According to double sample Heteroscedasticity T test (Table7), this paper finds that  $\Delta$ EVA(2) passed the 5% level of significance test, but the  $\Delta$ EVA (0) and  $\Delta$ EVA (1) did not pass the significant test. Therefore, this paper concludes that the EVA of enterprises which carried out equity incentive twice or more varied more significantly than those implemented the policy once. It is precisely because enterprises got better performance after the implementation that they enhanced the degree of implementation, choosing to put the policy into practice twice.

**Table 7 EVA Variation under Different Degrees of Equity Incentive Implementation**

(Implementation Once—— Implementation Twice or More )

	t Stat	t Single Tail Crisis	P(T<=t) Single Tail	P(T<=t) Double Tails
$\Delta$ EVA(0)	-0.8688	1.6546	0.1931	0.3863
$\Delta$ EVA(1)	-0.3373	1.6544	0.3681	0.7363
$\Delta$ EVA(2)**	-1.7988	1.6554	0.0370	0.0741

Since only a few enterprises implemented equity incentive many times, only 14 companies were chosen. This paper eliminates companies which carried out the policy the second time in recent years due to lacking abundant financial data.

The data can be divided into two groups, separately for EVA of enterprises which implemented equity incentive after the first time and the second time. Four years of data is selected, from the previous year to two years after the implementation. This paper defines  $\Delta$ EVA0 as the EVA variation of the previous year and exact year of implementation ;  $\Delta$ EVA1 as the variation of the exact year and the year after

implementation;  $\Delta\text{EVA}2$  as the variation of the first two years after implementation to further analysis the two groups' EVA change trend respectively.

EVA boost after the implementation in both groups via Table 8. However, only EVA in the second period of the enterprise which carried out the policy passed the 5% level of the significant test, which disobeyed hypothesis 3. Companies which carried out the equity incentive in the second time boost their performances but not significantly, while companies raised their EVA performances significantly between the first two years after implementation.

**Table 8 EVA Variation and T Test of Equity Incentive Implementation for the First Time and the Second Time**

	objective	t Stat	t Single Tail Crisis	P(T<=t) Single Tail
$\Delta\text{EVA}0$	O	-1.1051	1.7709	0.1446
	T	-1.2548	1.7709	0.1158
$\Delta\text{EVA}1$	O	-0.1198	1.7709	0.4532
	T	-0.1157	1.7709	0.4548
$\Delta\text{EVA}2$	O**	-1.8513	1.7709	0.0435
	T	0.1842	1.7139	0.4932

PS: Objective=O indicated companies which implemented equity incentive for the first time; Objective=T indicates companies which implemented equity incentive for the second time

#### 4.6 Robustness Test

This paper uses net profit as a corporate performance indicator to do robustness test. Data comes from enterprises which implemented equity incentive once with plan twice and which planned and implemented the policy more than two times. Results (Table 9) show that companies which carried out the policy once with plan twice increased the net profit significantly after the first two years of implementation, passing the level of 5% significant test. As for the latter group, they boost their performances during the four years and passed the levels of 1% and 5% significant tests. In conclusion, enterprises improved the performance of enterprises to a certain extent after the implementation of equity incentive.

**Table 9 Net Profit Variation and T Test of Enterprises with Equity Incentive Implementation under Different Degrees**

	Objective	Sample Size	t Stat	t Single Tail Crisis	P(T<=t) Single Tail	P(T<=t) Double Tails
$\Delta\text{Value}(0)$	0.5	20	-1.3067	1.7291	0.1034	0.2069
	1***	43	-2.6963	1.6820	0.0050	0.1000
$\Delta\text{Value}(1)$	0.5**	20	-2.4709	1.7291	0.0116	0.0231
	1**	43	-2.0392	1.6820	0.0239	0.0478
$\Delta\text{Value}(2)$	0.5	20	0.5761	1.7291	0.2857	0.5713
	1**	43	-2.2357	1.6820	0.0154	0.0307

This makes T test for the variation of the two samples. The results (Table 10) showed that companies which implemented and planned the equity incentive many times enhanced their net profit more obviously than which carried the policy once with plan twice, passing the levels of 5% and 10% significant test. Therefore, the former group got better EVA than the latter group.

**Table 10 Net Profit Variations under Different Degrees of Implementation  
(Companies with One Implementation and Plan Twice- Companies with Plan and Implementation Twice or More)**

	t Stat	t Single Tail Crisis	P(T<=t) Single Tail	P(T<=t) Double Tails
$\Delta$ Value(0)**	-1.8669	1.6720	0.0335	0.0671
$\Delta$ Value(1)*	-1.4836	1.6787	0.0724	0.1447
$\Delta$ Value(2)**	-2.3010	1.6753	0.0128	0.0255

## 5. Research Conclusion and Prospect

### 5.1 Conclusion

Equity incentive plan, as one long-term incentive system for employees under the modern enterprise system, has had a very deep influence since its first implementation. It provides the institutional complement for the "principal-agent" relation of the modern professional managers, which is the most important impact. After paying the motivation cost, enterprises can get longer incentive effect. What's more, the motivated employees will work hard in order to reach the awarding and unlock conditions in a certain period, achieving employee benefits and win-win situation in the end. Equity incentive plan, in theory, has very positive effects on employee motivation, especially for the management. In this paper, enterprises which implement the equity incentive are divided into three groups. Group 1 are companies which carried the policy once with plan once; Group 2 are companies which carried out the policy once with plan twice; Group 3 are companies which planned and implemented the policy more than two times. This paper studies the EVA variation of enterprises after implementing the equity incentive.

The results show that as for Group 3 (companies which planned and implemented the policy more than two times) boost their performances on the exact year and the second year after the implementation, passing the levels of 10% and 5% significant test. Group 2 (companies which carried out the policy once with plan twice) improved EVA on the year of implementation, decreased on the second year of the implementation significantly though. Therefore, this paper draws the conclusion that equity incentive can boost enterprises' performance to some extent. If companies enhance their performance in the long run, they will choose to implement the policy many times. However, they will carry out the policy after revising the plan if companies experience a failed plan, which resulting Group 2 boost their performance significantly on the exact year of implementation. As their EVA dropped in the second year of the implementation, they choose to put the policy into practice only once.

Based on this, this paper gets further study for the enterprises which planned and implemented the equity incentive twice or more, which results that their performances (EVA) are boosted significant after the implementation, better than that of companies which carry out the policy once. In conclusion, the degree of EVA variation can influence the degree of equity incentive implementation. The better EVA enterprises get, the higher degree they implement the equity incentive. For further investigation, this paper finds that enterprises boost their performance, but not dramatically.

Above all, this paper shows that equity incentive can boost enterprise EVA in the long run to some extent. Since their performances got improved, enterprises strengthened the implementation of equity incentive. Making full preparation of plan and choosing appropriate chance to carry out the policy can get better achievements. However, if enterprises don't get good results, they should put more emphasis and treat the equity incentive more cautiously.

## **5.2 Policy Suggestion**

According to the further study of the implementation of equity incentive in this paper, suggestions are given as follows:

First of all, the government's support for the listed company equity incentive should be enhanced. The results show that the implementation of equity incentive does improve the enterprises' performances (EVA) to some extent. With the development of equity incentive in China, we should promote the system development positively in China. On the existing pattern of capital market, we should build a sound legal and regulatory system and strengthen the legal norms and policy advocacy according to our own economic development and financial environment characteristics. Referring to the new developments of the international capital regulation, Chinese equity incentive should be guided to a healthier way and become more effective. As a kind of long-term incentive mechanism, equity incentive can strengthen the consciousness of employees of the shareholders and sense of responsibility, leading to enterprises' performances improvement and listed companies development vigorously.

What's more, enterprises should make full preparations for equity incentive. As for the implementation, both the individual conditions of enterprises and the environment factors should be considered. Companies should seize the best opportunities and combine the enterprises' nature with governance patterns to find the most appropriate ways of equity incentive. They also should choose the most suitable incentive levels to guarantee the equity incentive effects, with fully consideration of its feasibility and effectiveness.

The last but not at least, enterprises should treat equity incentive for the second time with more caution. Many enterprises choose the second implementation for the good effect for the first time. When they carry out the policy for the second time, they should consider carefully whether it's necessary for them to implement the policy again according to their current conditions and governance patterns. They should choose the most appropriate incentive patterns and make fully preparations to achieve the best effects.

**References**

- [1] Jensen MC, Meckling. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure [J]. *Journal of Financial Economics*, 1976, (3):305-360.
- [2] Stoyu I. Ivanov, Janis K. Zaima. Analysis of the effects of ESOP adoption on the company cost of capital [J]. *Managerial Finance*, 2011, 372.
- [3] Jian Tan, the Influential Factors of Listed Companies' Financing Structure under the Asymmetric Information Environment [D]. Chongqing University, 2005.
- [4] Jianbo Zhou, Jusheng Sun. the Effect Research of the Management of Equity Incentive—the Empirical Evidence from Chinese Listed Companies[J]. *Economic Research*, 2003, 05:74-82+93.
- [5] Guoan Huang, Research on the State-owned Enterprise Equity Incentive Mechanism——Based on the Quantitative Analysis of Statistical [M]. Shanghai University of Finance and Economics Press, 2004.
- [6] Tiejun Hu, Mingkun Guan, Yanbing Li. The Empirical Research of the Relationship between the Listed Companies' Equity Incentive and Performances after Equity Division [J]. *Journal of Liaoning Shihua University*, 2008, 01:96-98.
- [7] Jizhuan Chen. Analysis of the Stock Option Incentive Effects under the Share Reform [D]. Wuhan University of Technology, 2007.
- [8] Demsetz, H.nad Lehn, K., 1985, “The Structure of Corporate Ownership: Causes and Consequences”, *Journal of Political Economy*, 93, 1155-1177.
- [9] Yiqun Xu, Shuiping Shi. Could Equity Incentive Improve Enterprises' Performances——Based on the Empirical Evidences of Chinese listed Companies [J]. *Journal of Shanxi Finance University*, 2010, 04:53-59.
- [10] Liuchi Wang, Mei Wang. Empirical Research on the Relationship of Listed Companies' Equity Incentive and Performances [J]. *Journal of Nanjing Finance University*, 2014, 01:41-46.
- [11] Bing Gu, Liye Zhou. Research on the Effects of Equity Incentive Implementation of Listed Companies [J]. *Accounting Research*, 2007, 02:79-84+92.
- [12] Zhongming Chen, Yingui Xia. Empirical Research on the effects of Management Equity Incentive [J]. *Communication of Finance and Accounting*, 2009, 32:40-41.

- [13] Yong Chen, Guanmin Liao, Ting Wang. Empirical Analysis on the Equity Incentive Effects of Chinese listed Companies [J]. *Management World*, 2005, 02:158-159.
- [14] Jinsong Huang. Practical Research on the Stock Option System in China [J]. *Academic Exploration*, 2004, 07:37-39.
- [15] Guobing Yang, Chunfang Li. The Enterprise Performance Evaluation Index System——EVA [N]. *Capital Construction Newspaper*, 2007-12-12005.
- [16] Bennet Stewart. EVA :Fact and Fantasy[J].*Journal of Applied Corporate Finance*,1991 (9) :17
- [17] Peter Drucker. Enterprise Performance Evaluation [M]. Beijing: China Renmin University Press, 1999:21~25.
- [18] Qinfang Wang, Zijian Zhou. EVA: Research on Value Assessment and Performance Evaluation [J]. *Contemporary Finance & Economics*, 2001, 10:75-78.
- [19] Yanni Wang, Bo Wang. Comparative Analysis on EVA and Evaluation Index [J]. *Modern Management Science*, 2004, 07:48-49.
- [20] Wei Wang, Qiang Chen, Chonghuai Yang. Discussion on the EVA Evaluation Methods [J]. *Journal of Anhui Business Vocational Technical College*, 2005 (1) :28-32.