

# The Relationship between Executive Equity Incentives and Corporate Performance

## -- Empirical Analysis based on Listed Logistics Companies

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### Abstract

The article adopts the data of A-share logistics listed companies in China from 2015-2019 and empirically investigates the relationship between executive equity incentives and corporate performance using multiple regression analysis, and the findings show that there is a significant inverted U-shaped relationship between executive equity incentives and corporate performance, a certain percentage of shares held by executives helps to improve corporate performance, and equity incentives show a synergistic effect of interests; however When the shareholding of executives exceeds a certain percentage, it shows the benefit encroachment effect, and accordingly, corresponding countermeasures and suggestions are proposed. It is necessary to increase the equity incentive of executives in China's listed logistics companies and continuously improve the executive compensation incentive system; further improve the corporate governance system to create a good internal environment for the implementation of executive equity incentive; and improve the relevant system of the capital market.

### Keywords

Equity Incentives; Corporate Performance; Logistics Companies.

### 1. Introduction

The issue of executive compensation of listed companies has been the focus of attention in both theory and practice. The optimal contract theory suggests that a reasonable executive compensation design should achieve a positive correlation between the level of executive compensation and corporate performance. Executive compensation generally includes monetary compensation, equity incentive and other invisible incentive methods. Since the promulgation of the "Measures for the Administration of Equity Incentives for Listed Companies (Trial)" in 2006, equity incentives have attracted much attention in China. Whether the equity incentive has played its proper effect, scholars at home and abroad have done a series of researches. First, equity incentives are positively correlated with corporate performance. Jensen & Murphy (1990) argued that executive shareholding can effectively align the interests of executives and shareholders. The study of Zhou R.J. et al. (2010) also found a significant positive relationship between executive equity incentives and firm performance, and the incentive effect of executive shareholding was verified. Gong Y.H. and He F. (2013) used empirical analysis to study the correlation between executive power, equity income gap and firm performance and found a significant positive relationship among equity pay gap, firm performance level and volatility. Secondly, equity incentives are negatively related to firm performance. Fama & Jensen (1983) suggested that too high a shareholding of executives will lead to their own personal interests through manipulating the board of directors, which will affect the interests of other investors and the firm. And it is not conducive to the enhancement

of firm value. Third, there is no significant correlation between equity incentives and firm performance. Lv C.J. and Yan M.Z. (2011) found that due to the imperfection of corporate governance structure and supervision mechanism, equity incentive has become a tool for executives to seek benefits; and in China, due to the pressure of delisting, the poor performance of the company is unable to provide equity incentive, thus, it does not play its proper role. Li Z.Q. (2000) showed that there is no significant correlation between management shareholding and corporate performance, pointing out that the percentage of management shareholding of listed companies in China is low and equity incentives do not play their motivational role. Gu B. and Zhou L.Y. (2007) conducted an empirical study on the effect of executive equity incentives after excluding the influence of industry and found that there was no significant correlation between executive equity incentives and firm performance, and the long-term incentive effect of equity incentives was not obvious.

To sum up, the research on the relationship between executive equity incentives and corporate performance has not yet reached a consistent conclusion, and it is rarely seen in a specific industry. To address the above research gaps, this paper uses the data of listed companies in logistics industry from 2015 to 2019 to verify the relationship between executive equity incentives and corporate performance, further enriching the theoretical research on the relationship between "incentive-performance". This paper provides reference for logistics listed companies to further effectively play the long-term role of equity incentives, improve the executive compensation incentive mechanism, and promote the improvement of corporate performance.

## 2. Theory and Research Hypothesis

In the modern enterprise system, the principal-agent problem between managers and shareholders always exists. The shareholders' goal is to maximize the value of the company, while executives who do not have the residual claim have a self-interest motive. As a long-term incentive method, the equity incentive system has been highly sought after by listed companies since its emergence, which can effectively alleviate the principal-agent problem between shareholders and managers, promoting the synergy of interests between shareholders and executives. Undoubtedly, granting executives a certain number of shares makes executives' earnings linked to the company's interests, which enhances executives' risk-taking ability and motivates them to improve the efficiency of corporate operations, thus corporate performance. However, when the shareholding of executives is too high, their power increases and they can control the company's decisions by manipulating the board of directors, such as surplus management, manipulating incentive programs, etc. to increase their own personal compensation, which will finally reduce the value of the company. In 1983, Fama proposed the trench effect, that is, with the gradual increase of shareholding, the voice of executives in the company becomes bigger, making them no longer subject to the supervision and management mechanism. Therefore, this paper argues that giving executives a certain percentage of shares helps to achieve convergence of interests and thus improve corporate performance. However, the encroachment effect of equity incentives gradually emerges as the percentage of executives' shares increases. As early as 1990, McConnell & Servas used an empirical analysis to explore the correlation between firm value and executive shareholding ratio and major shareholders' shareholding. They found that there is a significant inverted U-shaped relationship between firm value and executive shareholding ratio, i.e., within a certain range, firm value increases with the increase of shareholding ratio, but after reaching a certain ratio, there is an inflection point, i.e., the firm value decreases with the increase of shareholding ratio. Chen SH.W. and Liu N.P. (2006) selected a sample of high-tech enterprises and used empirical analysis to find that there is a significant quadratic curve relationship between executive shareholding and firm

performance, and it helps to promote firm performance when the percentage of executive shareholding is below a certain number. Therefore, equity incentive has both the side of interest convergence and the side of interest encroachment, and there is a reasonable interval for its role to play. The moderate level of equity incentive can stimulate the enthusiasm of executives to work and promote the improvement of corporate performance.

Accordingly, Hypothesis 1: There is a significant inverted U-shaped relationship between executive shareholding and firm performance.

### 3. Study Design

#### 3.1. Sample Selection and Data Sources

The A-share logistics listed companies in China from 2015-2019 were selected as the sample, and a total sample size of 186 was finally obtained. The data indicators were mainly obtained from the Guotaian database, and some information was supplemented by consulting the annual reports of listed companies. To ensure the accuracy of the research results and avoid the influence of extreme values, the samples of the upper-and lower-percent intervals of the continuous variables were subjected to tailoring. The software used for multiple regression analysis in the empirical analysis is: STATA14.0.

#### 3.2. Model Construction and Variable Definition

##### (1) Model construction

To verify the inverted U-shaped relationship between executive equity incentives and firm performance in China's listed logistics companies, three models are constructed. Model 1 examines the effect of each control variable on firm performance; Model 2 introduces the equity incentive variable and examines the linear relationship between equity incentive and firm performance; Model 3 introduces the squared term of equity incentive and examines the inverted U-shaped relationship between executive equity incentive and firm performance. Model 2 is analyzed in comparison with model 3 to draw more convincing conclusions.

$$Roa_{it} = \alpha_0 + \lambda_n \sum Control + \varepsilon_{it} \quad (1)$$

$$Roa_{it} = \alpha_0 + \beta_1 Share_{it} + \lambda_n \sum Control + \varepsilon_{it} \quad (2)$$

$$Roa_{it} = \alpha_0 + \beta_1 Share_{it} + \beta_2 Share_{it}^2 + \lambda_n \sum Control + \varepsilon_{it} \quad (3)$$

##### (2) Variable definition

The specific variables are defined as shown in Table 1.

##### 1) Dependent variable - firm performance (Roa)

Referring to the related literature, this paper uses return on assets to represent corporate performance.

##### 2) Independent variable - Equity incentive (Share)

This paper examines the impact of executive equity incentives on corporate performance. Drawing on relevant domestic and international literature, the ratio of year-end executive shareholdings to total company shares disclosed in the annual reports of listed companies is selected to represent the equity incentive index.

##### 3) Control variables

According to previous studies in the literature, firm size (Size), proportion of independent directors (Indr), board size (Board), duality (Dual), and equity concentration (Top1) all have an effect on firm performance. Therefore, they are set as control variables, while controlling for year.

**Table 1.** Variable definition

Variables	Symbol	Definition
Corporate Performance	Roa	Return on Assets
Executive Equity Incentives	Share	Number of shares held by executives at the end of the year/total shares of the company
Company Size	Size	Logarithm of total company assets
Two jobs in one	Dual	Chairman is also Managing Director take the value of 1, otherwise 0
Percentage of independent directors	Indr	Number of independent directors as a percentage of the number of board of directors
Board Size	Board	Number of Board of Directors
Shareholding Concentration	Top1	Percentage of shareholding of the largest shareholder
Year	Year	Dummy Variable

## 4. Empirical Analysis

### 4.1. Descriptive Statistics of Variables

**Table 2.** Descriptive statistics

Variables	Sample	Mean	Std. Deviation	Minimum	Maximum
Roa	186	0.017	0.173	-1.276	0.234
Share	186	0.046	0.093	0.000	0.462
Board	186	8.640	1.719	5.000	15.000
Indr	186	0.369	0.051	0.333	0.571
Size	186	22.547	1.391	20.297	26.105
Top1	186	40.792	14.156	11.038	76.651
Dual	186	0.344	0.476	0.000	1.000

Table 2 shows the results of descriptive statistics of each variable. The mean value of corporate performance of listed logistics companies in China is 0.017, the minimum value is -1.276, and the maximum value is 0.234, which indicates that there is a large difference in return on assets among listed logistics companies. The mean value of the shareholding ratio of executives in listed logistics companies is 0.046, the maximum value is 0.462, and the minimum value is 0. It can be seen that the overall shareholding ratio of executives is still relatively low, indicating that the role of equity incentive has not been fully played in China's listed logistics companies, and the gap between different companies is large. From the situation of control variables, the mean value of the proportion of independent directors in China's listed logistics companies is 0.369, which has reached the regulation that the proportion of independent directors should not be less than one-third as stipulated by China Securities Regulatory Commission. The mean value of the shareholding ratio of the first largest shareholder is 40.792%, which indicates that the shareholding ratio of the first largest shareholder in China's listed logistics companies is

generally high and the phenomenon of concentration of equity still exists. In addition, the mean value of the number of board of directors is 8.64, the mean value of the logarithm of company asset size is 22.547, and the mean value of two positions in one is 0.344, which indicates that 34.4% of the listed logistics companies in China have the situation of two positions of general manager and chairman in one.

#### 4.2. Multiple Regression Analysis

Table 3 shows the results of multiple regression analysis. From the results of regression equation 1, most of the control variables are significantly correlated with corporate performance. The larger the company's asset size, the better the corporate performance. A certain degree of equity concentration contributes to the improvement of corporate performance. The combination of two positions has a significant negative correlation with corporate performance, indicating that the combination of two positions of chairman and general manager reduces corporate performance. From the results of regression equation 2, executive equity incentive promotes corporate performance at the 5% significant level with a correlation coefficient of 0.7. From the results of regression equation 3, the squared term of equity incentive is negatively correlated with corporate performance at the 5% significant level with a correlation coefficient of -3.939. Model 3 has a substantially higher regression coefficient compared with model 2, and the goodness of fit of the model ( $R^2$ ) is also improved from 0.296 to 0.324. Therefore, it can be seen that model 3, the inverted U-shaped relationship between executive equity incentives and firm performance, can better fit their relationship. It indicates that a certain percentage of executive shareholding is beneficial to firm performance, but beyond a certain percentage, there is an inflection point and equity incentives will instead reduce firm value. Thus, hypothesis 1 is verified.

**Table 3.** Multiple regression

Variables	(1)	(2)	(3)
Share		0.700**	2.131***
		(2.27)	(3.13)
Share <sup>2</sup>			-3.939**
			(-2.34)
Board	0.028	0.027	0.026
	(1.44)	(1.35)	(1.32)
Indr	0.161	-0.187	-0.461
	(0.22)	(-0.24)	(-0.60)
Size	0.096***	0.095***	0.088***
	(3.89)	(3.91)	(3.63)
Top1	0.005**	0.006**	0.007**
	(2.00)	(2.12)	(2.49)
Dual	-0.170***	-0.178***	-0.183***
	(-3.92)	(-4.01)	(-4.18)
_cons	-2.614***	-2.502***	-2.288***
	(-5.06)	(-4.79)	(-4.38)
N	186	186	186
Adj R <sup>2</sup>	0.269	0.296	0.324

#### 4.3. Robustness Test

In order to ensure the credibility of the research findings, the following robustness tests were done: first, replacing the variables and using Tobin's Q instead of return on assets for the

regression analysis, the research findings did not change substantially; to reduce the possible endogeneity problems within the model, the lagged one-period executive equity incentive data were used and the regression analysis was conducted, and the research findings were found to be basically consistent with the previous paper, indicating that the research has robustness.

## 5. Conclusion

Previous studies in the literature on the relationship between executive equity incentives and corporate performance have not reached a consistent conclusion and are less often put into a specific industry. This paper use the data of China's A-share listed logistics companies from 2015-2019 to empirically verify the impact of executive equity incentives on corporate performance, and the study finds that there is a significant inverted U-shaped relationship between executive equity incentives and corporate performance. According to the above research the following suggestions are made:

(1) Increase the equity incentive of executives in China's listed logistics companies and continuously improve the executive compensation incentive system. From the research results, the average value of the shareholding ratio of executives in China's listed logistics companies is 0.046 at present, and the overall shareholding ratio is low. Therefore, on the basis of the monetary compensation system for executives, the long-term incentive effect of equity incentive should be given full play. Vigorously promote the equity incentive system to realize the linkage between the earnings of executives and the value of the company by giving them a certain percentage of shares, so as to stimulate their work motivation, improve their operation efficiency and motivate them to work hard for the long-term development of the company.

(2) Further improve the corporate governance system to create a good internal environment for the implementation of the equity incentive system. Therefore, in order to make the equity incentive really play its role, it is necessary to continuously improve the internal check and balance mechanism of the company, strengthen the role of restraint, and increase the opportunity cost for executives to seek private benefits.

(3) Improve the relevant system of capital market. In general, China's capital market is influenced by policies, the stock market is volatile, and the correlation between stock price and company performance is not high, which affects the effect of equity incentive. Therefore, it is necessary to guide investors to invest rationally, improve the information disclosure system, and increase the supervision of the capital market to promote the stable development of the capital market.

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