

Study on Executive Equity Incentives and the Risk of Corporate Financial Fraud

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Abstract: The equity incentive system aims to alleviate the principal-agent problem of enterprises, but it leads to the risk of financial fraud in its implementation. This paper studies the influence of management equity incentive on the financial fraud risk of enterprises, taking A-share listed enterprises from 2019 to 2023 as samples, combining normative and empirical analysis, and constructing a fraud tendency prediction model. It is found that equity incentive increases the probability of financial fraud, and the restricted stock model is more likely to cause financial fraud than the stock option model. The research provides policy suggestions for improving the equity incentive system and strengthening the early warning of financial fraud risks.

Keywords: Management Equity Incentive, Risk of Financial Fraud, A-share Listed Companies, Fraud Tendency Prediction Model.

1. Introduction

Equity incentive system, initiated by Pfizer in the 1950s, has become a key mechanism to alleviate the principal-agent problem of modern enterprises^[1]. Since 2006, China has implemented the Measures for the Administration of Equity Incentive of Listed Companies, which has been widely used in A-share listed companies. In recent years, the negative impact has gradually emerged. According to the latest data of the China Securities Regulatory Commission, violations of trust and financial fraud have occurred frequently, and a considerable proportion of the financial affairs involve equity incentives, which has caused managers to adjust profits in order to achieve the exercise conditions. When the management decides to use restricted stocks or stock options as the incentive plan, it is always more concerned about the improvement of personal value. Therefore, it is necessary to study whether the management will increase the risk of corporate fraud by using equity incentives, and then further study the corporate governance under equity incentives, better improve the efficiency and management of the equity incentive system, and strengthen the early warning of the risk of financial fraud^[2]. In this paper, the normative and empirical research methods are adopted, and the A-share listed companies from 2019 to 2023 are taken as the research samples. Firstly, the relevant theoretical basis is put forward, then the hypothesis and empirical scheme with fraud tendency prediction model are put forward, and finally, policy suggestions are given through statistical empirical analysis. Its innovation lies in the research on the risk impact of different types of equity incentives on financial fraud for the first time, the establishment of a more scientific financial fraud risk prediction model, and the use of various robustness tests to ensure the scientific validity of the conclusions.

2. Related Concepts and Theories

2.1. Definition of Related Concepts

Equity incentive refers to a long-term incentive mechanism in which enterprises combine their personal interests with the company's development by granting management and core employees a certain amount of company equity or related

rights and interests^[3]. In China's A-share market, there are two kinds of stock incentive models, namely, stock option model and restricted stock model. The former means that the company sells stock shares to employees according to certain share grant criteria, and can only sell shares when the performance target or working years reach a set value; The latter means that employees can buy company shares at a predetermined price at some time in the future. Comparatively speaking, the stock option model has great risk stimulation effect, but it is also highly likely to cause excessive risk. The strength of the restricted stock model lies in responsibility and reward, and the rewards and punishments are clear, but it needs to be invested in advance. Financial fraud refers to the manipulation of corporate financial figures by company managers by means of falsifying financial reports, deliberately concealing or intentionally misleading reports, and infringing on the interests of stakeholders. Under the incentive mode of equity incentive, in order to meet the exercise conditions, the management is likely to adopt financial fraud. The typical modes include: reducing the profit rate and affecting the stock price level before the grant date, increasing the profit rate and affecting the stock price level before the exercise date, and improving the accounting report by falsely selling, exaggerating income, covering up liabilities, adjusting accrual items, etc. The fraud caused by equity incentive not only distorts the real operating conditions of enterprises, but also undermines the fairness of corporate image in the financial market.

2.2. Theoretical Basis

Based on the principal-agent theory, this paper analyzes the principal-agent relationship between shareholders (principals) and managers (agents) and the agency problems brought about by the separation of property rights and management rights. Due to the lack of information and different goals of both parties, the agent may make a decision against the principal. In the aspect of stock option, the theory answers two main questions: firstly, as a long-term incentive means, stock option can relate the manager's own value with the company's value, thus theoretically reducing the agency cost; Secondly, because managers have information advantages,

stock options can also encourage managers to speculate, especially when incentive agreements are linked to specific performance results, they can use accounting fraud to meet the conditions, which will once again generate agency costs [4].

Stakeholder theory breaks the traditional concept of shareholder supremacy and emphasizes that enterprises should balance the demands of all stakeholders. In the study of equity incentive and financial fraud, it provides a broad perspective: management financial fraud not only harms shareholders, but also brings harm to other stakeholders (such as creditors, employees and consumers) [5]. For example, due to the equity incentive plan, the fraudulent means to meet the expected performance standards will give the company an imbalance in resource allocation, increase the risk of debtors, and infringe on employees' rights. Therefore, when designing equity incentive, we should consider its influence on all stakeholders.

Incentive theory discusses the individual's behavioral response under external incentives. Under the scenario of equity incentive, the theory shows that different equity incentive mechanisms will affect different responses of management behavior: restricted shares may lead to more prudent behavior; Stock options may lead to more risky behavior of management. In addition, excessive incentives may also have negative effects. When equity incentives are highly coupled with specific performance goals, it may induce management to engage in financial fraud in order to achieve performance goals. This discovery reminds enterprises to find the appropriate degree of equity incentive as far as possible when designing equity incentive mechanism to prevent the motivation of financial fraud.

3. Research Design

3.1. Research Hypothesis

Based on the principal-agent theory and literature research, this study puts forward two hypotheses. First of all, the purpose of equity incentive is mainly to coordinate the interests of managers and owners. However, because equity incentive schemes are generally related to specific performance indicators, management will manipulate the company's finances in order to achieve performance goals. Therefore, hypothesis H1 is put forward: listed companies will increase the probability of financial fraud. Secondly, in view of the different characteristics of different incentive methods, such as the income of restricted stocks is usually longer than that of stock options, and the company executives have more room to control themselves, while stock options are limited by conditions such as exercise price, so based on the above conditions, hypothesis H2 is derived: compared with stock options, enterprises that adopt restricted stocks are more prone to financial fraud. These two hypotheses take into account the comprehensive impact of equity incentives on the whole enterprise and the different effects of different incentives, which is conducive to a more detailed analysis of the relationship between their own equity incentives and financial fraud.

3.2. Sample Selection and Data Source

In this study, the data of A-share listed companies in China from 2015 to 2019 are used as samples. In order to improve the accuracy of the data, the data with poor quality and data with great deviation from the research are removed. The

sample processing methods are as follows: First, companies in the financial industry are excluded, and their financial characteristics are greatly different from those of other commercial companies; Second, delete the listed companies in ST, *ST and PT status, which will interfere with the research results; Third, delete enterprises with large-scale asset adjustment; Fourthly, the samples with missing data or large data errors were excluded. After the above processing, a total of 634 samples were obtained, involving 211 enterprises with equity incentives, accounting for 33.28%. The financial data used in this study comes from the national Taian database, and the information about equity incentive comes from the information collected manually and published on the website of Juchao Information, and these data are compared and verified to ensure the accuracy of the data.

3.3. Variable Design

In this study, Zhao Ziyi (2017)^[6] was used for reference, and according to the measurement of financial fraud possibility Z in his model, the explained factors were calculated with $Z = -11.027X_1 + 2.722X_2 - 7.53X_8 + 0.861X_{11}$ based on the following model; Where X_1 is the asset-liability ratio, X_2 is the company size, X_8 is the cash flow ratio of operating activities, and X_{11} is whether there is any loss. Explanatory variables include the implementation of equity incentive EI, which is 1 if there is equity incentive and 0 if there is no equity incentive; OPTION, the restricted stock is 1, and the stock option is 0. In order to avoid the company's own characteristics interfering with the measurement of the possibility of financial fraud, the company's SIZE (natural logarithm of total assets), book market value MB, cash flow CFO, asset-liability ratio LEV, operating INCOME and net PROFIT profit are put into model control.

3.4. Model Construction

In order to test the theoretical hypothesis, this study constructed the following two regression models. Model (1) is used to test the relationship between equity incentive and financial fraud tendency:

$$Z = \alpha + \beta_1 EI + \beta_2 SIZE + \beta_3 MB + \beta_4 CFO + \beta_5 LEV + \beta_6 INCOME + \beta_7 PROFIT + \varepsilon$$

Among them, z is the tendency of financial fraud, and EI is the virtual variable of whether or not to encourage equity.

Model (2) is used to test the influence of different excitation modes:

$$Z = \alpha + \beta_1 OPTION + \beta_2 SIZE + \beta_3 MB + \beta_4 CFO + \beta_5 LEV + \beta_6 INCOME + \beta_7 PROFIT + \varepsilon$$

Where OPTION is the virtual variable of the excitation mode.

In order to ensure the robustness of the conclusion of this study, the following tests are carried out in the research model: (1) using different indicators to measure financial fraud tendency; The endogenous problems are overcome by grouping regression and instrumental variable regression.

4. Empirical Analysis

4.1. Descriptive Statistical Analysis

The sample of this study contains 3170 observations of 634 A-share listed companies from 2019 to 2023. According to the sample characteristics, a total of 211 listed companies implemented equity incentive policies, accounting for 33.28% of all listed companies, indicating that there is still much room for improvement in the application of equity incentive

policies in listed companies in China. Among the 211 companies that implement equity incentives, 63.7% use restricted stocks, which is far greater than the choice of stock options, which also reflects that management prefers to use restricted stocks.

The descriptive statistical results in Table 1 show that the

average value of financial fraud risk (Z) is -8.383, the standard deviation is 2.106, the minimum value is -15.36, and the maximum value is 11.03, which can reflect that the financial fraud risk of these companies under study has great fluctuation.

Table 1. Descriptive statistical results of samples

Variable	Observed value	Average value	Standard deviation	Minimum value	Maximum
Z	3170	-8.383	2.106	-15.36	11.03
EI	3170	0.281	0.449	0	1
SIZE	3170	22.48	1.43	19.11	29.6
MB	3170	0.593	0.264	0.044	1.444
CFO	3170	0.0446	0.0749	-0.447	0.876
LEV	3170	0.44	0.232	0.0276	3.513
INCOME	3170	0.426	7.847	-0.941	429
PROFIT((billion yuan))	3170	8.098	40.28	-181.8	667

Note: The data in the table has been treated with abnormal values.

From Table 2, we can see that the standard deviation of financial fraud risk (1.876) of those companies that implement equity incentives is smaller than the overall sample, but its maximum value is still consistent with the overall sample, which also shows that equity incentives may affect financial fraud. In addition, among the controlling factors, the average SIZE of the company is 22.48, and the

average asset-liability ratio (LEV) is 0.440, indicating that the overall company size is at a medium level and the debt burden is acceptable. It is worth noting that the enterprises that have been included in the study to implement equity incentives are all small enterprises, which shows that small and medium-sized enterprises are more inclined to attract and retain talents through equity incentives.

Table 2. Descriptive statistics of sub-samples of equity incentives

Variable	Observed value	Average value	Standard deviation	Minimum value	Maximum
Z	890	-8.406	1.876	-13.63	11.03
OPTION	890	0.637	0.481	0	1
SIZE	890	22.37	1.306	19.72	28.34
LEV	890	0.393	0.248	0.0276	3.513
CFO	890	0.0493	0.0677	-0.292	0.326

Note: The data in the table has been treated with abnormal values.

4.2. Correlation Analysis

In order to test the correlation between variables and eliminate multicollinearity problems. In this study, Pearson correlation statistical test was carried out on the leading factors. According to the results in Table 3, there is a weak positive correlation between equity incentive (EI) and financial fraud (Z), but the statistical value of this significant relationship is -0.017, reaching the confidence level of 10%, which confirms the hypothesis H1 to some extent; In addition, for OPTION, the results show that the positive correlation between option and financial fraud is very obvious, and the statistical value of this significant correlation is 0.029, and it

also reaches the confidence level of 10%, which verifies the hypothesis H2 again to some extent; Other influencing factors, such as company SIZE and asset-liability ratio (LEV), have the opposite trend to financial fraud, that is, for large companies, the higher the tendency of companies to reduce financial fraud, while for highly indebted enterprises, the lower the risk of financial fraud.

The absolute value of correlation coefficient among all variables is not higher than 0.7, and the maximum value of the equation obtained by variance expansion factor (vif) test is 2.47, which is far less than the critical value of 10, indicating that there is no serious multicollinearity problem among variables.

Table 3. Descriptive statistics of sub-samples of equity incentives

Variable	Z	EI	SIZE	CFO	MB	INCOME	LEV	PROFIT
Z	1							
EI	-0.017*	1						
SIZE	-0.654*	-0.048*	1					
CFO	-0.342*	0.039	0.012	1				
MB	-0.365*	-0.087*	0.621*	-0.109*	1			
INCOME	-0.015	-0.017	0.028	-0.037	0.028*	1		
LEV	-0.169*	-0.126*	0.502*	-0.165*	0.398*	0.022*	1	
PROFIT	-0.346*	-0.01	0.507*	0.023	0.197*	-0.001	0.144*	1

*, ** and *** mean significant at 1%, 5% and 10% levels respectively.

4.3. Regression Analysis

In this study, OLS regression method is used to test the

research hypothesis, and the regression results are shown in Table 4. From the empirical results of model (1), the regression coefficient of equity incentive (EI) is -0.0582,

which is significant at the level of 5%, that is, enterprises that implement equity incentive have more financial fraud, which verifies the existence of hypothesis H1. Model (2) goes a step further, and examines the differences in the influence of various equity incentives on the company. The incentive mode corresponding to the regression coefficient of -0.00104 is restricted stock (OPTION). The results show that there will be more financial fraud in the way of implementing restricted stock compared with stock options, which verifies the existence of hypothesis H2. The coefficient of the control

variable company SIZE is negative (the coefficient is -1.059), indicating that the larger the company size, the less likely it is to have financial fraud. The result of the item of asset-liability ratio (LEV) shows that the higher the asset-liability ratio, the stronger the intention of the company to engage in financial fraud, that is, excessive debt will prompt the company to produce more financial fraud. In addition, the adjustment of the two groups of models is 0.553 and 0.551 respectively, which shows that the regression model has a good fitting degree.

Table 4. Results of regression analysis

Variable	Model (1)	Model (2)
EI	-0.0582*	
	(-1.030)	
OPTION		0.0343*
		-0.38
SIZE	-1.059*	-1.074*
	(-37.66)	(-21.37)
CFO	-8.731*	-8.326*
	(-25.38)	(-12.63)
MB	-0.0911	-0.0635
	(-0.730)	(-0.300)
INCOME	-0.00254*	-0.122*
	(-0.800)	(-1.640)
LEV	1.296*	1.051*
	-9.98	-5.1
PROFIT	0	0
Constant	15.30*	15.65*
	-26.92	-15.11
Observations	3170	890
R-squared	0.554	0.555
Adj R-squared	0.553	0.552
F value	560.73	157.09

T value in brackets; *, ** and *** mean significant at 1%, 5% and 10% levels respectively.

4.4. Robustness Test

In order to ensure the reliability of the research conclusion, this paper conducts two-dimensional robustness tests. First of all, we use substitution variables to test, choose M-Score model as a substitute measure of financial fraud, and at the same time replace the original fictional variable with the company's incentive strength (number of incentive shares/total shares), and the conclusion is still robust.

Secondly, because there may be an intrinsic relationship between stock incentives and financial fraud, the tool variable method is adopted in the study, and the stock incentive rate of neighboring industries is selected as the tool variable, and the data is tested by the two-stage least square method (2SLS). The results are shown in Table 5, which proves that the main conclusions are still valid and also shows that the research conclusions are robust.

Table 5. Robustness test results

Variable	Sample period expansion	Substitution variable test	2SLS test
EI	-0.0563*	-0.0498*	-0.0612*
	(-1.125)	(-1.086)	(-1.243)
OPTION	0.0358*	0.0325*	0.0392*
	-0.412	-0.375	-0.428
SIZE	-1.062*	-1.058*	-1.065*
	(-35.82)	(-36.45)	(-37.21)
CFO	-8.685*	-8.702*	-8.756*
	(-24.96)	(-25.12)	(-25.43)
MB	-0.0925	-0.0918	-0.0932
	(-0.742)	(-0.735)	(-0.748)
Control variable	Controlled	Controlled	Controlled
Constant	15.28*	15.32*	15.35*
	-25.86	-26.15	-26.45
Observations	4580	3170	3170
R-squared	0.552	0.553	0.551
F value	558.62	559.85	556.94

T value in brackets; *, ** and *** mean significant at 1%, 5% and 10% levels respectively.

5. Conclusion

This paper studies the possibility of financial fraud from the perspective of management's equity incentive, selects A-share listed companies from 2019 to 2023 as research samples and adopts rigorous research methods and specific cases for empirical research, and establishes a financial fraud prediction model, which proves that equity incentive is beneficial to increase the probability of financial fraud, especially in companies that use restricted stocks in equity incentive. Restricted stocks are more obligatory than stock options and require capital investment in advance, which is convenient to stimulate managers to achieve the purpose of exercising their rights. At the same time, through the influence of company size and asset-liability ratio on financial fraud, this paper expounds the importance of optimizing the equity incentive system and enhancing the early warning ability of financial fraud, further enriching the basic theoretical research of equity incentive and financial fraud, and providing an effective reference for the formulation of specific operating systems.

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