Journal of Social Science Humanities and Literature, Vol.7, Issue 2, (Apr)
ISSN 2277-842X **2024**
DOI: 10.53469/jsshl.2024.07(02).09

Executive Incentives and Corporate Risk Taking

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Abstract: ***Risk-taking is a fundamental driving force for long-term sustainable economic growth, can corporate risk-taking be enhanced through executive incentives and how to adjust the level of corporate risk-taking? This paper utilizes data from 1886 Shanghai and Shenzhen A-share listed companies from 2010 to 2021, and conducts an empirical analysis by using fixed-effects model panel regression. This paper compares the effects of compensation incentives, equity incentives, and the simultaneous implementation of both incentives on the level of corporate risk-taking, and finds that equity incentives, as a long-term incentive, can significantly enhance corporate risk-taking compared to compensation incentives and the simultaneous implementation of both incentives. Further analysis reveals that equity incentives increase risk-taking by affecting selling expenses, but have no significant effect on administrative expenses and operating costs. Therefore, effective incentives can bring real benefits and create substantial value for enterprises. This paper provides a theoretical reference for the strategic planning and sustainable development of listed companies.***

Keywords: Equity incentives; Compensation incentives; Risk taking.

1. INTRODUCTION

Risk-taking is a fundamental driving force for the long-term sustainable growth of the macro and micro economy, and is an important part of an enterprise's investment decision-making, referring to the enterprise's choice of the level of expected returns and the degree of fluctuation of expected returns in its investment decision-making. The level of an enterprise's risk-taking reflects its willingness and ability to pay for the pursuit of business profits, and affects the enterprise's investment efficiency, competitiveness and business performance.

It has been found that appropriate risk-taking by enterprises is conducive to the stimulation of their vitality, the enhancement of their value, and can increase the total assets of enterprises (Su Kun, 2016) [1]. Too low risk-taking will reduce the business performance of the enterprise, which is not conducive to the long-term development of the enterprise; too high risk-taking will lead to an increase in the uncertainty of the enterprise's future earnings, a decrease in the survival rate, and it is easy to fall into an existential crisis after the impact. Therefore, enterprises should choose the appropriate level of risk-taking according to their own development situation.

The choice of a firm's level of risk-taking depends on its internal and external environment. On the one hand, macroeconomic uncertainty can have an important impact on the behavior of micro firms, and changes in the investment and financing environment, and the orientation of economic policies can change firms' expectations for the future. For example, the optimism generated by high economic growth will also strengthen managers' motivation to seek high-risk opportunities amidst policy uncertainty, and loose monetary policy will increase corporate risk-taking, while the development of financial markets is the opposite (Zhou Binrui et al., 2017) [2].On the other hand, internal factors of firms in turn greatly affect the level of corporate risk-taking, including the pledge of major shareholders' equity (He Weifeng et al., 2018) [3], management power, and the CEO's impoverished origins (Ma, Yongqiang, and Qiu, Yu, 2019) [4] significantly reduce corporate risk-taking, whereas interlocking shareholders' holdings (Du, Shanchong, and Ma, Lien-Fu, 2022) [5], and corporate reputation (Ma, Qingbo, et al. 2022) [6], and CEO's rich career experience help to enhance corporate risk taking.

With the separation of corporate ownership and management under the modern enterprise system, executives become the main decision makers of the firm and therefore have a significant impact on corporate risk-taking choices. Executive incentives, as a central means of influencing managers' work attitudes and abilities and stimulating micro-economics, may shape managerial behavior, which in turn affects the level of corporate risk-taking. Typical executive incentives include short-term monetary compensation incentives and long-term equity incentives. It has been found that short-term compensation incentive system can effectively curb management's risk aversion, enhance management's motivation to engage in risky investment in the short term, and raise the level of corporate risk-taking to improve corporate performance in the short term. According to the Administrative Measures for Equity Incentives of Listed Companies, equity incentives refer to long-term

incentives for directors, senior management and other employees based on the company's shares. After the implementation of the equity incentive system, the interests of enterprise owners and managers converge, prompting the management to pay more attention to the long-term business objectives of the enterprise, enhancing its long-term motivation to engage in risky investment, and improving the level of risk-taking of the enterprise. At the same time, the stock market produces good expectations for the enterprise, and the increase in investor confidence contributes to the increase in market capitalization of the enterprise. Studies have focused on the impact of equity incentive systems on the level of corporate risk-taking, so is the impact of short-term compensation incentives and long-term equity incentives on the level of corporate risk-taking consistent? At the same time, most studies on the economic consequences of corporate incentives assume that the risks of fixed and variable costs are the same, i.e., the economic consequences of innovation and other innovations generated by variable and fixed costs are homogeneous, and that firms invest the same amount of money in long-term and short-term employees. However, in reality, the level of risk borne by the costs it pays is different, when fixed costs account for a higher proportion of the risk borne by the enterprise is higher, when variable costs account for a higher proportion of the risk borne by the enterprise is lower, the impact of compensation and equity incentives can be reflected in the enterprise's operating leverage, this paper uses operating leverage as a proxy variable to measure the level of risk borne by the enterprise. This paper conducts empirical research on the impact of executive incentives on enterprise risk-taking, and uses the regression coefficient of the rate of change of enterprise sales revenue on the rate of change of total cost to measure the risk-taking level of the enterprise, respectively, to test the impact of equity incentives, compensation incentives and the two incentives at the same time on the risk-taking level of the enterprise, which is further divided into the risk-taking of the core business costs and non-core business costs to carry out the analysis of the heterogeneity of the risk-taking of the core business costs.

2. THEORETICAL ANALYSIS AND RESEARCH HYPOTHESES

2.1 Executive Incentives and Corporate Risk Taking

Reasonable and effective executive incentives can control the risk-taking level of the enterprise, enterprise shareholders in order to maximize their interests in the higher risk-taking level can be diversified through the diversification of investment to diversify the risk, presenting the characteristics of risk appetite, however, a large portion of the manager's personal interests and his or her job enterprise bundled can not be achieved effective diversification, resulting in the enterprise to carry out high-risk projects after the failure of the investment in its The degree of wealth loss is higher than the degree of shareholders' loss, which makes them show the characteristics of risk aversion. Therefore, there is no conclusion in the academic community as to whether the risk appetite of executives converges with that of shareholders after incentivizing them, and how it affects corporate risk-taking.

According to the principal-agent theory, there is a conflict of interest between the shareholders and managers of the company, and the managers will generate moral hazard and adverse selection problems due to egoistic motives in the process of enterprise management decision-making, choosing low-risk short-term gain projects, giving up some higher-risk gain projects with a long period of time, which are conducive to the long-term development of the enterprise, and minimizing the level of enterprise's risk-taking. Incentives are effective as a measure to reduce managers' behavior against shareholders' wishes. The explicit incentive of salary gives managers additional income, and the implicit incentive of equity grants managers part of the ownership of the enterprise, so that they internalize the interests of the shareholders of the enterprise as the same owners, which can effectively alleviate the agency conflict, enhance the convergence of risk preferences between managers and shareholders, and fundamentally stimulate the willingness of managers to take risks in order to realize the interests of the company in the long term, thus increasing the level of risk-taking in the enterprise. The risk-taking level of the enterprise will be improved. It has been found that shareholders intend to achieve the wealth goal, so that executives accept the level of risk consistent with their own ability to bear, must be given to the executives with the corresponding cash pay compensation (Zhou Ze will et al., 2018) [7]. As compensation incentives make managers inclined to the realization of self-work value, the pursuit of short-term returns, compared with equity incentives so that managers have the enterprise residual claiming rights to internalize it, more concerned about the future development of the enterprise. Therefore, the implementation of equity incentives will significantly improve the enterprise's risk-taking, and the greater the incentive strength, the greater the strength of equity incentives to improve the level of enterprise risk-taking (Leng Xuelui et al., 2022) [8].

The agency cost hypothesis suggests that executive shareholding can reduce agency conflicts and increase the level of corporate risk-taking, and when executive shareholding exceeds a certain threshold, the trench effect appears and reduces the level of risk-taking. Equity incentives and risk taking have an inverted "U" shaped

relationship, which only exists in the group with high competition in the product market, and this finding supports the agency cost hypothesis; meanwhile, using the management expense ratio and total asset turnover ratio as the proxy variables for agency cost, it is found that the higher the agency cost is, the higher the risk taking is. It is found that the higher the agency cost, the lower the level of risk taking, which further validates the agency cost hypothesis (Li Xiaorong and Zhang Ruijun, 2014) [9]. Equity incentive system in the implementation of its "golden handcuffs" due to the lack of effective supervision of the imperfect corporate governance structure, resulting in the existence of both incentive effects and welfare effects, as a rational economic man, managers will always seek to maximize their own interests, leading to the generation of power rent-seeking behavior, and can not effectively enhance the level of corporate risk-taking. Risk aversion hypothesis that executive shareholding makes the human capital of executives concentrated in a company, the degree of wealth dispersion is reduced, aggravating the degree of risk aversion of managers, and compensation incentives aggravate the short-sighted behavior of managers who only focus on short-term returns, resulting in risk averse executives are more inclined to reduce the company's risk-taking based on the need to diversify the risk of personal wealth, and the risk taking of the executive incentives and the corporate risk taking is negatively correlated (Liang Quanxi). negatively correlated (Kwonhee Liang and Xueshi Zhan, 2016) [10].

Scholars have conducted comprehensive research on the relationship between executive incentives and corporate risk-taking, enriching the relevant theoretical results, especially the effect of equity incentives on the level of corporate risk-taking, but there is still disagreement on the positive effect of incentives and welfare behavior. This paper argues that executive compensation incentives to a certain extent promote the realization of the value of the manager's work and their own wealth appreciation, but due to the inability to effectively diversify the risk is more focused on low-risk short-term returns, and therefore may not promote the level of corporate risk-taking increase. Executive equity incentives internalize the manager as one of the owners of the firm, sharing benefits and risks with shareholders. Equity incentive plans are usually linked to corporate performance and shareholder returns. When executives are closely tied to the interests of the firm, they are more motivated to take risks and pursue long-term corporate interests. Equity incentive plans can motivate executives to actively seek and seize new business opportunities. Equity incentive plans usually set a series of long-term goals, such as market share growth and profit growth. These goals require executives to take a certain amount of risk in their decision-making and to adopt appropriate strategies to achieve these goals. Equity incentive plans encourage executives to take certain risks while pursuing long-term interests, and therefore are conducive to overcoming short-sighted behavior to extend long-term investment horizons and increase long-term investment willingness and risk tolerance. At the same time, the implementation of equity incentives can transmit to the outside world the signal that management will not seize the company's interests to produce a reputational effect, managers are more concerned about the realization of long-term interests of the enterprise, the level of corporate risk-taking increased. This paper puts forward the following hypotheses:

H1: Equity incentives can significantly increase firms' risk-taking compared to compensation incentives.

3. RESEARCH DESIGN

3.1 Sample selection and data sources

This paper selects the A-share listed companies in Shanghai and Shenzhen from 2010 to 2021, and excludes the data of the companies after the financial listed companies, ST and *ST companies, missing data and three industries of accommodation and catering industry category, education, health and social work category with the number of companies in the industry less than 10 as the research samples, and finally obtains a total of 22632 observations from 1886 companies. The data in this paper comes from WIND database, Flush database and CSMAR database.

3.2 Variable Definition

3.2.1 Explanatory variable

In this paper, we refer to the method of Baiqiang Wang et al. (2021) [11] to construct a firm's operating leverage to measure the firm's risk-taking level.

The operating leverage of an enterprise is the relative ratio of its fixed costs to its variable costs (fixed costs/variable costs), when the fixed costs of an enterprise account for a relatively low proportion of its variable

costs are relatively high, the correlation between costs and revenues is higher, and the impact of lower revenues on the profitability of the enterprise is buffered to a certain extent, and at this time, the enterprise's operating leverage is lower, i.e., the risk of taking is lower. When the proportion of fixed costs is relatively high, indicating that the enterprise's willingness to increase long-term cost investment, the enterprise's cost elasticity is smaller, the same income changes will lead to greater profit fluctuations, at this time the enterprise's operating leverage is higher, that is, the risk of higher.

This paper explores whether executive incentives increase the operating leverage of total costs. The rate of change in total costs (ΔlnTotalcost) is the logarithmic change in a firm's total costs for the year, i.e., the logarithmic change in the sum of operating costs, administrative expenses and selling expenses. The rate of change in sales revenue (ΔlnSales) is the logarithmic change in sales revenue for the year. The regression coefficient of the rate of change of sales revenue on the rate of change of total costs is the proportion of the total costs of the enterprise with the change in revenue, when the regression coefficient is negative and the larger the absolute value, indicating that the weaker the link between the two, the cost elasticity is small, the risk of high risk taking, and vice versa. The rate of change of total cost (ΔlnTotalcost) is further subdivided into the rate of change of administrative expenses (ΔlnAdmin), the rate of change of selling expenses (ΔlnSellingexp), and the rate of change of operating costs (ΔlnCOGS), with the same measurement method as the above, whereby the former two manifest that the enterprise changes the level of enterprise risk-taking by adjusting non-core costs, and the latter manifests that the enterprise changes the level of enterprise risk-taking by adjusting core costs. Adjustment of core costs to change the level of corporate risk-bearing, divided into core cost risk-bearing, non-core cost risk-bearing

3.2.2 Core explanatory variables

(1) Pay incentives (Pay)

This paper draws on Qiu Xuelin et al. (2019) [12] to construct the corporate pay incentive (Pay) variable, first by calculating the value of the change in the logarithm of the total compensation of the executives with the top three highest pay amounts, when the value of the change is greater than 0, the company is considered to have taken pay incentives and assigned the value of 1. Otherwise, it is defaulted to the fact that the company has not taken pay incentives and assigned the value of 0.

(2) Equity Incentives (EI)

Equity incentive (EI) draws on Xu Ning et al. (2023) [13] measure, this paper in order to test the implementation of the equity incentive this measure on the ability of the company's managers whether to have an impact on the equity incentive dummy variable (EI), according to listed companies disclosure of the equity incentive implementation plan, identification of the starting node, in the year of the implementation of equity incentives and in the validity of this measure is assigned the value of 1, did not implement or no longer within the validity period is assigned a value of 0.

(3) Control variable

There are many factors affecting enterprise risk-taking, in order to ensure the stability and reliability of the empirical results, this paper controls other variables. Control variables are as follows: Asset Intensity (AI); Employee Intensity (EI1), the important role of talent in the enterprise so that equity incentives "golden handcuffs" is particularly significant; enterprise size (Firmsize), large-scale firms are more likely to have a higher risk-taking ability; gearing ratio (Lev), a higher gearing ratio means that enterprises may face greater financial risk, need to bear higher financial expenses, thus increasing the operating costs. Higher gearing means that companies may face greater financial risks and need to bear higher financial expenses, thus increasing operating pressure; Return on Assets (ROA), higher ROA means better asset utilization efficiency and profitability, and companies are more inclined to higher risk-taking in their own better business conditions; Management Shareholding Ratio (Gshare); Listed Companies (Listsage), there have been a lot of studies on the role of risk-taking ability of large-scale companies. Age (Listage), it has been found that firms in the start-up and decline stages are more inclined to take risks compared to firms in the grower and mature stages. The definitions of the variables are shown in Table 1.

Table 1: Definition of variables

Variable type	variable name	variable symbol	Description of variables
risk tolerance	Rate of change in total costs	ΔlnTotalcost	Logarithmic change in the total cost of the enterprise for the year, i.e., logarithmic change in the sum of operating costs, administrative expenses and selling expenses
	Rate of change in sales revenue	ΔlnSales	Ratio of net profit to average total assets for the period
	Rate of change in administrative expenses	ΔlnAdmin	Changes in logarithmic value of current year's administrative expenses
	Rate of change in selling expenses	ΔlnSellingexp	Change in logarithmic cost of sales for the year
	Rate of change in operating costs	ΔlnCOGS	Change in logarithmic value of operating costs for the year
Core explanatory variables	Remuneration incentives	Pay	If the logarithmic change in the total compensation of the top three executives is greater than 0, the value is assigned to 1; otherwise, the value is assigned to 0.
	equity incentive	EI	1 if the company implemented equity incentives during the year, otherwise 0
control variable	asset intensity	AI	Ratio of total business assets to main business revenue
	Employee Intensity	EI1	Number of employees in the enterprise x 1,000 / Main business revenue
	Enterprise size	Firmsize	Natural logarithm of total assets
	gearing	LEV	Ratio of total liabilities to total assets
	return on total assets	ROA	Ratio of net profit to average total assets for the period
	Management shareholding	Gshare	Percentage of company shares held by management
	Listing age	Listage	Years of business establishment plus 1 to take natural logarithms

3.3 Model setup

In this paper, we construct a fixed-effects panel regression model to test the effects of short-term compensation incentives, long-term equity incentives, and a combination of the two incentives on corporate risk-taking, and design an econometric model as shown in equations (1) and (2).

$$\triangle lnTotalcost_{it} = \beta_0 + \beta_1 \triangle lnSales_{it} \times Pay_{it} + \beta_2 \triangle lnSales_{it} + \beta_3 Pay_{it} + \beta_4 \triangle lnSales_{it} \times controls_{it} + \gamma controls_{it} + year_t + industry_i + \varepsilon_{it} \quad (1)$$

In model (1), the $\Delta \text{lnTotalcost}_{it}$ is the rate of change in total costs, the$\Delta \text{lnSales}_{it} \times \text{Pay}_{it}$ is the cross-multiplier term between the rate of change in sales revenue and compensation incentives, and $\Delta \text{lnSales}_{it}$ is the rate of change of sales revenue, the Pay_{it} is the compensation incentive, and $\Delta \text{lnSales}_{it} \times \text{controls}_{it}$ is the $\Delta \text{lnSales}_{it}$ the cross-multiplication term with the control variables.control_{it} is the set of control variables, in addition, the model further controls for year and industry fixed effects. Focusing on the coefficientβ_1 The value of the coefficient, whenβ_1 is negative, it indicates that the rate of change in sales revenue after the implementation of compensation incentives is weakly linked to the rate of change in total costs, i.e., higher firm risk-taking, and vice versa.

$$\triangle lnTotalcost_{it} = \beta_0 + \beta_1 \triangle lnSales_{it} \times EI_{it} + \beta_2 \triangle lnSales_{it} + \beta_3 EI_{it} + \beta_4 \triangle lnSales_{it} \times controls_{it} + \gamma controls_{it} + year_t + industry_i + \varepsilon_{it} \quad (2)$$

In model (2), the$\Delta \text{lnSales}_{it} \times \text{EI}_{it}$ is the cross-multiplier term between the rate of change in sales revenue and equity incentives, andEI_{it} is the equity incentive.control_{it} is the set of control variables, in addition, the model

further controls for year and industry fixed effects. Focusing on the coefficient β_1 of the model, when the value of β_1 is negative, it indicates that the rate of change in sales revenue is weakly linked to the rate of change in total costs after the implementation of equity incentives, i.e., firms' risk-taking is higher, and vice versa.

$$\triangle lnTotalcost_{it} = \beta_0 + \beta_1 \triangle lnSales_{it} \times Pay_{it} \times EI_{it} + \beta_2 \triangle lnSales_{it} + \beta_3 Pay_{it} + \beta_4 EI_{it} + \beta_5 \triangle lnSales_{it} \times controls_{it} + \gamma controls_{it} + year_t + industry_i + \varepsilon_{it} \quad (3)$$

In model (3), the $\Delta lnSales_{it} \times Pay_{it} \times EI_{it}$ is the cross-multiplier of the rate of change in sales revenue with compensation incentives and equity incentives. $control_{it}$ is the set of control variables, in addition, the model further controls for year and industry fixed effects. Focusing on the coefficient β_1 on the value of the coefficients, which, when β_1 is negative, it indicates that the link between the rate of change in sales revenue and the rate of change in total costs is weaker, i.e., the firm's risk-taking is higher, after implementing both short-term compensation incentives and long-term equity incentives, and vice versa.

4. EMPIRICAL FINDINGS

4.1 Descriptive statistics

Table 2 shows the descriptive statistics values of the variables, which shows that the mean value of the rate of change of total costs is 0.121 with a standard deviation of 0.328, the mean value of the rate of change of sales revenue is 0.118 with a standard deviation of 0.363, and there is a more pronounced variability in the costs of other costs, including overhead, selling expenses, and operating costs, among the various companies. In terms of mean value, the compensation of executives was $2,403,740,000, of which 460 companies implemented both compensation incentive plans and equity incentive plans, and the mean value of compensation incentives in this type of company was $4,807,260,000. The average value of compensation incentives is 0.079, and the average value of equity incentives is 0.217, indicating that companies implement equity incentives more than compensation incentives, but in general companies implement fewer incentives for executives, and it may be necessary to further explore suitable incentives, from the standard deviation of compensation incentives for 0.269, and equity incentives for 0.412, indicating that the implementation of equity incentive system in each enterprise There are large differences. Regarding the control variables, in general, the standard deviation of each variable is 5.583 for asset intensity, 1.415 for enterprise size, 9.060 for return on total assets, and 1.102 for the age of listing, which is a large difference among enterprises.

Table 2: Descriptive statistics

variant	sample size	average value	(statistics) standard deviation	minimum value	maximum values
Tmv	22632	0.898	1.832	0.000	10.156
ΔlnTotalcost	22130	0.121	0.328	-4.832	5.843
ΔlnSales	22629	0.121	0.358	-4.875	6.502
ΔlnAdmin	22630	0.099	0.305	-4.051	5.429
ΔlnSellingexp	22128	0.092	0.465	-10.209	9.714
ΔlnCOGS	22630	0.123	0.376	-5.686	6.527
EI	22632	0.217	0.412	0.000	1.000
Pay	22632	0.079	0.269	0.000	1.000
AI	22629	2.422	5.853	0.000	357.29
EI1	22629	0.001	0.001	0.000	0.111
Firmsize	22632	22.344	1.415	0.000	28.636
LEV	22632	0.448	0.223	0.007	4.995
ROA	22632	5.692	9.060	-117.046	489.064
Gshare	22632	0.066	0.134	0.000	0.821
Listage	22321	0.535	1.102	0.000	3.466

4.2 Regression results

This paper examines the effect of executive incentives on corporate risk-taking using a fixed effects panel regression model. Table 3 shows the multiple regression results of compensation incentives, equity incentives, and

the cross-multiplication term of compensation incentives and equity incentives on corporate risk-taking. The coefficient of ΔlnSales×Pay in column (1) is 0.0002, but it is not significant, indicating that the management is still characterized by risk aversion after the implementation of compensation incentives in the firms, focusing on short-term returns, which does not have a significant effect on corporate risk-taking.

The coefficient of ΔlnSales×EI in column (2) is -0.0363, which is significantly negative at the 5% significance level, indicating that after the implementation of equity incentives the link between the rate of change in the enterprise's sales revenues and the rate of change in the total cost of the enterprise is weakened, the proportion of fixed costs is relatively high, and the enterprise's risk-taking is improved, and the company that implements equity incentives has a higher level of risk-taking by an average of 0.0363 than that of the company that does not implement them. The reason for this is that equity incentives as a long-term incentive system, the implementation of management internalized as one of the owners of the enterprise, more concerned about the future long-term development of the enterprise, and actively improve the enterprise's operating ability, risk identification capabilities, long-term investment willingness to enhance the choice of more net present value of positive high-risk investment projects, thereby increasing the level of risk-taking enterprises.

The coefficient of ΔlnSales×Pay×EI in column (3) is -0.0126, which is not significant, indicating that after the implementation of incentives combining short-term compensation incentives and long-term equity incentives, the company will not motivate managers to actively realize the value of their work in the short term while focusing on the long-term earnings of the company as expected, and the company's risk-taking has not been improved.

Due to the implementation of compensation incentives for executives after the enterprise led to the effect of equity incentives worse, first of all, the average value of compensation incentives for 2.4374 million yuan, and in both the implementation of compensation incentives and the implementation of equity incentives in the enterprise the average value of compensation incentives for 4.8726 million yuan, so the high salary compared to the equity incentives to bring a more substantial gains; Secondly, considerable pay gains and executives actively work after the Corporate performance may be affected by other factors in the future is not clear enough, executives can not see the positive effects of the implementation of equity incentives; Finally, at present, there are only more than 2,000 listed companies in China have implemented or are implementing equity incentive plans, the A-share market implementation of equity incentives accounted for about 50% of the company; and there are incentives proportion of the phenomenon of low, of which 2022, A-share state-owned listed companies to implement the Equity incentive plan, the total amount of granted interests accounted for the proportion of the company's total share capital of most of the concentration of 3% or less. China's equity incentive implementation ratio is not high, the scope is narrower, can not perfectly achieve the expected incentive effect. "Two birds in the forest are better than one bird in the hand," so managers are more inclined to obtain immediate vested interests, rather than willing to risk high-risk long-term investment, resulting in the level of corporate risk-taking can not be significantly improved.

Table 3: Benchmark Estimated Regression Results of Executive Incentives on Firm Risk Taking

Variant	(1) ΔlnTotalcost	(2) ΔlnTotalcost	(3) ΔlnTotalcost
ΔlnSales×Pay	0.0002		
	(0.0050)		
ΔlnSales×EI		-0.0363**	
		(-2.0427)	
ΔlnSales×Pay×EI			-0.0126
			(-0.5914)
ΔlnSales	0.2920**	0.2872**	0.2916**
	(2.2076)	(2.2033)	(2.2009)
Pay	-0.0003		0.0004
	(-0.0428)		(0.1090)
EI		0.0033	-0.0013
		(1.1647)	(-0.5948)
ΔlnSales×AI	-0.0037***	-0.0037***	-0.0037***
	(-4.0003)	(-4.0199)	(-3.9988)
ΔlnSales×EI1	-3.8535***	-3.8868***	-3.8568***
	(-4.2742)	(-4.4058)	(-4.2883)

ΔlnSales×Firmsize	0.0282***	0.0287***	0.0282***
	(4.5084)	(4.6233)	(4.5018)
ΔlnSales×LEV	-0.0122	-0.0156	-0.0123
	(-0.6211)	(-0.7914)	(-0.6271)
ΔlnSales×ROA	-0.0015**	-0.0016**	-0.0015**
	(-2.3419)	(-2.4950)	(-2.3496)
ΔlnSales×Gshare	0.0467	0.0634	0.0469
	(0.7110)	(1.0014)	(0.7104)
ΔlnSales×Listage	-0.0064	-0.0055	-0.0061
	(-0.9133)	(-0.9890)	(-1.0626)
AI	0.0004	0.0004	0.0004
	(0.4439)	(0.4375)	(0.4429)
EI1	2.6349	2.6559	2.6277
	(1.0969)	(1.1020)	(1.0915)
Firmsize	0.0093***	0.0094***	0.0094***
	(3.5469)	(3.5767)	(3.5657)
LEV	-0.0169	-0.0163	-0.0168
	(-1.5734)	(-1.5193)	(-1.5627)
ROA	-0.0023***	-0.0023***	-0.0023***
	(-4.1951)	(-4.1933)	(-4.1883)
Gshare	0.0391**	0.0364**	0.0388**
	(2.3449)	(2.2022)	(2.3158)
Listage	-0.0023	-0.0021	-0.0023
	(-0.8328)	(-0.7784)	(-0.8529)
_cons	-0.1419***	-0.1461***	-0.1442***
	(-2.6097)	(-2.6744)	(-2.6335)
F	1422.50	1416.09	1432.23
r2_a	0.9181	0.9182	0.9181
N	22127	22127	22127

Note: t-values in parentheses, ***, ** and * represent results significant at 1%, 5% and 10% significance levels, respectively, as below.

4.3 Further analysis

Through the above empirical test found that the link between the rate of change of sales revenue and the rate of change of total costs weakened after the implementation of equity incentives, i.e., the enterprise's operating leverage has become larger, indicating that the enterprise's risk-taking has increased. In order to further analyze the specific item cost of enterprise adjustment, this paper subdivided the rate of change of total cost into the rate of change of management expense, the rate of change of selling expense and the rate of change of operating cost, and analyzed the change of the relationship between the rate of change of sales revenue and the three costs after the implementation of equity incentives, in which the management expense and the selling expense are the non-core cost risk-taking, and the operating cost is the core cost risk-taking. The explanatory variable in column (1) is the rate of change of administrative expenses, and the coefficient of Δ lnSales × EI is 0.0175 but not significant, the explanatory variable in column (2) is the rate of change of selling expenses, and the coefficient of Δ lnSales × EI is -0.1272, which is significant at 5% significance level, and the explanatory variable in column (3) is the rate of change of operating costs, and the coefficient of Δ lnSales × EI is -0.0283, which is significant at -0.0283, which is significant at 5% significance level. has a coefficient of -0.0283, but is not significant, indicating that firms increase risk-taking by increasing fixed costs in sales expenses after the implementation of equity incentives. Fixed costs are the part of the enterprise within a certain range that does not change with the product output or the flow of goods, including selling expenses, after the implementation of equity incentives, managers show a higher risk appetite tendency, based on the long-term development needs tend to invest in more long-term high-risk projects with positive NPV, and the need to actively explore the new market, so it is inevitable that the need for an increase in selling expenses. For management costs, managers at this time internalized as one of the owners of the enterprise, in the interests of the enterprise, its goal is to maximize the interests of the enterprise, i.e., increase revenues, reduce costs, the cost of this expense for its own, as far as possible to reduce, and will not increase the fixed costs. Operating costs for the core business costs, managers can not easily change. Therefore, the enterprise

through the implementation of equity incentives can promote the enterprise non-core cost risk-bearing, but for the enterprise core cost risk-bearing.

Table 4: Impact of Equity Incentives on Administrative Expenses, Selling Expenses, and Operating Costs Operating Leverage

Variant	(1) ΔlnAdmin	(2) ΔlnSellingexp	(3) ΔlnCOGS
ΔlnSales×EI	0.0175	-0.1272***	-0.0283
	(0.5825)	(-2.8061)	(-1.5217)
ΔlnSales	-1.2702***	0.3725	1.1447***
	(-5.5466)	(0.8566)	(12.1622)
EI	-0.0037	0.0117	0.0036
	(-0.6206)	(1.2519)	(0.9537)
ΔlnSales×AI	-0.0004	-0.0029*	0.0004
	(-0.9168)	(-1.7247)	(1.4898)
ΔlnSales×EI1	2.0544	-2.1568	2.5816*
	(1.2680)	(-0.5375)	(1.6912)
ΔlnSales×Firmsize	0.0725***	0.0182	-0.0053
	(6.6725)	(0.9217)	(-1.2275)
ΔlnSales×LEV	-0.0181	-0.1038	-0.0108
	(-0.3760)	(-1.6174)	(-0.5342)
ΔlnSales×ROA	0.0041***	-0.0005	-0.0020***
	(3.3974)	(-0.2296)	(-3.4547)
ΔlnSales×Gshare	0.2137**	-0.2350	0.0310
	(2.3663)	(-0.9574)	(0.3156)
ΔlnSales×Listage	-0.0297**	-0.0549***	0.0043
	(-2.3557)	(-3.0309)	(0.7872)
AI	0.0039***	-0.0017	0.0004
	(3.2235)	(-0.5762)	(0.8371)
EI1	6.9606***	-10.1609	0.2832
	(3.3737)	(-1.4504)	(0.2604)
Firmsize	0.0279***	0.0377***	0.0092***
	(4.4577)	(4.2097)	(4.0655)
LEV	-0.0786***	-0.0566**	-0.0059
	(-3.9141)	(-1.9860)	(-0.4422)
ROA	0.0002	-0.0028***	-0.0033***
	(0.2725)	(-3.5399)	(-5.1744)
Gshare	0.1546***	0.1764***	0.0126
	(5.5361)	(3.9046)	(0.5883)
Listage	-0.0100**	0.0130	-0.0048*
	(-1.9562)	(1.3845)	(-1.6739)
_cons	0.4380***	-0.7064***	-0.1615***
	(-3.2772)	(-3.6823)	(-3.5498)
F	141.4915	103.0551	1486.4900
r2_a	0.3611	0.2889	0.9015
N	22626	22125	22626

Note: t-values in parentheses, ***, ** and * represent results significant at 1%, 5% and 10% significance levels, respectively, as below.

4.4 Robustness tests

4.4.1 Placebo testing

In order to test the robustness of the main explanatory variable implementation of equity incentives (EI), the value of this indicator is reset, and the dummy variable EI is assigned a value of 1 in the year prior to the implementation of equity incentives, and 0 in the other years for the placebo test. Models (1) and (2) tested the effect of equity incentives on corporate risk-taking without controlling and controlling for other variables, respectively, and the

coefficients of Δ lnSales × EI were insignificant, indicating that the implementation of equity incentives does not have a significant effect on the increase in risk-taking, which supports the robustness of the result that the implementation of equity incentives promotes the tendency of firms to favor higher operating leverage, i.e., an increase in the level of risk-taking by firms.

Table 5: Placebo test

variant	(1) ΔlnTotalcost	(2) ΔlnTotalcost
ΔlnSales×EI	0.0140	-0.0018
	(0.7285)	(-0.1028)
Controls		Containment
Year	Containment	Containment
Industry	Containment	Containment
r2_a	0.9049	0.9205
N	22130	20280

Note: t-values in parentheses, ***, ** and * represent results significant at 1%, 5% and 10% significance levels, respectively, as below.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

This paper explores the impact of executive incentives on corporate risk-taking and finds through empirical tests that: (1) Compared to compensation incentives, long-term equity incentives can significantly increase the level of corporate risk-taking. By sharing benefits with the enterprise, setting long-term goals, and improving risk identification and management capabilities, equity incentives encourage executives to actively take risks. (2) When companies implement equity incentives and compensation incentives at the same time, the impact on the level of corporate risk-taking is not significant. (3) Further analysis reveals that after the implementation of equity incentives, the enterprise enhances risk-taking through the increase of fixed costs in selling expenses, while administrative expenses and operating costs have no significant impact, i.e., after the implementation of equity incentives, the enterprise improves the risk-taking of non-core costs, and does not have a significant role in promoting the risk-taking of core costs.

5.2 Recommendations

Effective internal governance is the key to the stability of enterprises, equity incentive system through the incentive of executives can play the role of executives to maximize the interests of the enterprise, stimulate the role of work enthusiasm, and then enhance the enterprise risk-taking on the enterprise to create substantial value, high-quality development has an important impact. In order to improve the incentive effect, a few suggestions are put forward.

Improve the scope and intensity of incentives, so that the incentive income is more substantial. So far China has only more than two thousand listed companies have implemented or are implementing the equity incentive system, and the incentive ratio is low, short cycle. Therefore, the attractiveness of the executives is not big, incentive is not high, the enterprise should establish dynamic and flexible long-term incentives, improve the intensity, so that incentives really achieve the effect of incentives.

Adopt flexible equity incentive contract and set up front-end earnings. Equity incentives are not obvious after the incentive effect is implemented at the same time with salary incentives, the possible reasons are executives are uncertain about the future of the enterprise, and the equity incentive earnings have a long-term nature. Enterprises can flexibly set up earnings, and cash in part of the earnings in advance at important project nodes or when major breakthroughs are made. However, it is also necessary to beware of executives generating illegal operation behavior.

Cultivate the risk-taking spirit and risk control and management ability of executives, and design a supporting system to encourage executives to improve their risk-taking level. Executives are the leaders who lead the enterprise to move forward, and their personal risk awareness and risk management ability affect the level and

value of the enterprise's operation and development. Executives need to learn risk management skills from time to time, establish a reasonable risk-taking spirit, positively influence the risk-taking ability of the enterprise, and form the thinking of enhancing value through "risk-taking". At the same time, enterprises can also design a matching executive risk incentive system, incorporating executive compensation incentives and executive risk incentives into the same internal governance system, encouraging executives to be courageous to challenge and increase the awareness of risk-taking.

Provide reasonable and legitimate incentives and manageable risk-taking. The design and implementation of the equity incentive system needs to take into account the specific circumstances and objectives of the company and ensure fairness, reasonableness and transparency. In addition, for listed companies, there is a need to comply with relevant laws, regulations and regulatory requirements. Risk taking needs to be carefully and reasonably assessed. Enterprises should conduct risk management and control to ensure that the risks assumed are within a manageable range and match the strategic objectives and resource capabilities of the enterprise.

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