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On the Relationship Between Compensation Difference and Voluntary Turnover Rate of Core Staff and Enterprise Performance of Small and Micro Technology Enterprises Based on Tournament Theory

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Abstract

Small and micro technology enterprises are the most active and promising groups in scientific and technological innovation. The health and stability of these enterprises are critical to the steady and rapid development of the national economy. Based on the tournament theory and empirical analysis, this paper probes into the influence of compensation difference on the voluntary turnover of senior executives, examines how compensation difference affects the enterprise performance indirectly through the voluntary turnover of senior executives, and clarifies the functional relationship between the compensation difference among senior executives, the voluntary turnover rate of senior executives and enterprise performance. The findings not only offer empirical evidence for the influencing mechanism of how compensation difference affects the enterprise performance indirectly through the voluntary turnover of senior executives, but also provide important guidance for benign competition and healthy and stable development of small and micro technology enterprises.

Keywords: small and micro technology enterprises; compensation difference; voluntary turnover rate of senior executives; enterprise performance.

1. INTRODUCTION

Small and micro technological enterprises are the most active and potential group in technological innovation and the healthy and stable development of these enterprises is an important foundation for the steady and rapid development of national economy (Srivastava and Insch, 2007). More and more attention has been given to small and micro technological enterprises, so more and more researches have been conducted on how to achieve optimal management and how to adjust compensation structure reasonably to achieve the purpose of improving firm performance (Sakawa et al., 1998).

At present, researches on executive compensation dispersion and firm performance are in the initial stage in academic circles. The existing researches are mainly qualitative researches studying the concept, element and influencing factor of executive compensation dispersion from the perspective of management, lacking empirical researches on the relationship between executive compensation dispersion in small and micro technological enterprises and firm performance (Ridge et al., 2015; Shufflebotham, 2007; Devaro, 2006; O'Brien & David, 2014). This paper tries to conduct systematic specification and empirical research on the relationship between executive compensation dispersion in small and micro technological enterprises and firm performance, which further reveals the mechanism of executive compensation dispersion in small and micro technological enterprises on firm performance. This not only provides empirical test of the mechanism of executive compensation dispersion in small and micro technological enterprises on firm performance, but greatly enriches and develops the compensation theory of core employees.

2. DEFINITION OF RELEVANT CONCEPT AND THEORY INTRODUCTION

2.1 Executive Compensation

Compensation is the various forms of remuneration that employees receive for the efforts they pay in enterprise management and production. Compensation has its broad sense and narrow sense (Lejdelin and Lindén, 2008). The narrow sense of compensation is currency, or the remuneration of labor that can be transformed into currency (Ochieng, 2013) while the broad sense of compensation includes not only the narrow sense of compensation, but other non-monetary remuneration (Petra and Dorata, 2013; Zhang et al., 2015). The compensation studied in this paper only includes only annual total remuneration revealed in the annual reports of listed companies. The annual total remuneration refers to the annual remuneration stipulated by China Securities Regulatory Commission, including basic salary, performance salary, bonus, welfare, subsidy, housing allowance and other subsidies.

2.2 Firm performance

Firm performance refers to the enterprise management benefit and operator performance during certain operating period (Dong and Zhu, 2013). Modern enterprises use various indexes to measure their performance, and the most important indexes are financial accounting index and market index (Gomez-Mejia, 1992). The application of these two indexes in the measurement of the performance of listed companies has its advantages and disadvantages. At present, foreign scholars tend to select market index as the studying object in researches because market index forces operators to pay more attention to long-term performance of enterprises (Harris, 2009). The disadvantage is that operators may lack control over market indexes (Lo et al., 2011); on the contrary, financial accounting indexes can make executives to pay more attention to short-term performance of enterprises while the disadvantage is that executives may pursue short-term benefit blindly through manipulating net profits, ignoring the long-term performance of enterprises.

2.3 Correlation Theory of Executive compensation dispersion

2.2.1 Tournament Theory

Lazear and Rosen jointly proposed tournament theory (Duursma, 2011). This theory regards the executives as participants in a tournament and the opportunities for promotion and increase of salary as the prize of victory. Those who win the final victory will win the opportunity for promotion and the prize; to win the prize, participants must compete fiercely with each other, promoting executives to put great efforts in work. This theory holds that the compensation dispersion among employees is not determined by the dispersion of marginal productivity, but determined by the dispersion of position. Tournament theory stresses that the executive compensation dispersion should be adjusted based on the uncertainty of external environment; under uncertain external environment, the competition might be influenced by fortune, which exerts negative impact on the working enthusiasm of executives.

2.2.2 Act Theory

Contrary to the idea of enlarging compensation dispersion in tournament theory, act theory encourages to narrow the compensation dispersion, which starts from the perspective of fairness. This theory advocates less competition and smaller compensation dispersion to satisfy the sense of fairness. In this way, executives are promoted to strengthen cooperation and improve working efficiency in their work, thus promoting the improvement of firm performance.

3. MECHANISM ANALYSIS OF THE IMPACT OF EXECUTIVE COMPENSATION DISPERSION ON FIRM PERFORMANCE

3.1 Positive Impact Analysis of Executive compensation dispersion on Firm performance

Tournament theory can promote the competition among executives. The possibility of implementing tournament theory will increase with the increase of supervision cost. The investigation data indicates that majority of enterprises at this stage support tournament theory, this chapter analyzes the positive relationship between executive compensation dispersion and firm performance from the perspective of agent risk.

We set small and micro technological enterprises employ two agents in the risk at the same time, which is $i=1, 2$, enjoying equal position and compensation incentive system in the enterprise. The production function is represented in Y ; the effect function is represented in U ; the risk factor is represented in ε . The relationship between Y and U is shown in Formula 1:

$$\begin{cases} Y(a_i, q_i) = a_i + q_i + \varepsilon \\ w = s + b \cdot Y \\ U(w_i, a_i) = u(w_i) - c(a_i) \end{cases} \quad (1)$$

$$u', u'' > 0; u''' \leq 0; c'' > 0; \lim_{a_i \rightarrow \infty} c'(a_i) < \lim_{w_i \rightarrow \infty} u'(w_i).$$

In the above Formula, a_i represents working enthusiasm; q_i represents the value output of the i th agent; w_i represents the total remuneration of agents; s is the fixed salary of agents; b is the performance ratio given by the enterprise; $c(a_i)$ represents the input cost of agents; $U(w_i, q_i)$ is the benefit of a certain agent.

We can see from above that with the increase of b , serving as incentive effect, the working enthusiasm of agents also increases, which leads to the increase of Y in the effect function. To further analyze Formula 1, we assume that the working enthusiasm of agents a_i can be measured and the working enthusiasm (a_i) and the amount of compensation (w_i) are explicitly stipulated in the labor contract $\{w(q), a\}$. If the labor contract is established, it will directly lead to the maximization of production effect function (Y). The condition of maximization of Formula (1) is shown in Formula 2:

$$\begin{aligned} & \max_{\{w(q), a\}} E[x(a, q)] \\ & s. t. E[u(w(q)) - c(a)] \geq 0 \end{aligned} \quad (2)$$

We can find the solution through Euler-lagrange differential equation, which is Formula (3):

$$\begin{cases} a: c'(a) - \lambda = 0 \\ \lambda: E[u(w(q))] - c(a) = 0 \\ w(q): u'(w(q)) - \lambda = 0, \forall q \end{cases} \quad (3)$$

The enterprise can set two compensation level w_1 and w_2 . When $q_2 > q_1$, $w_1 > w_2$; the compensation dispersion $\Delta w = w_2 - w_1$.

We set p as the probability of agents to get the salary, so the expectation effect of the i th agent is shown in Formula (4):

$$u_i = w_i + p_i(w_1 - w_2) - c(a_i) \quad (4)$$

We can see from Formula (4) that p_i is the value of cumulative probability ($q_j - q_i$) on ($\varepsilon = a_i - a_j$), thus we can obtain Formula (5):

$$p_i(a_i, a_j) = F(X_i > X_j) = F(a_i + q_i > a_j + q_j) = F(\varepsilon' < a_i - q_j) = \Phi(a_i - a_j) \quad (5)$$

$\bar{a}_i = \arg \max_{a_i} (w_1) + \Phi(a_i - \bar{a}_j)(w_1 - w_2) - c(a_i)$. We assume that Formula (5) is concave function, and then we can regard $\bar{a}$ as the unique solution of enterprise owners and agent game model.

If agent (q_i) possesses equal effort level ($\bar{a}$) and conforms to the first derivative of $\bar{a}$ at the same time, then the following conditions need to satisfied:

$$\begin{cases} \phi(0)(w_2 - w_1) = c'(\bar{a}) \\ p_i = \phi(0) = 0.5, (i = 1, 2) \end{cases} \quad (6)$$

In terms of $\Delta w = w_2 - w_1$, we can find a positive relationship between compensation dispersion and the effort level of agents ($\bar{a}$). The greater the compensation dispersion, the higher the working effort level of agents; this reflects that principals can exert impact on the enthusiasm of agents by controlling compensation dispersion and thus influence firm performance indirectly. The constraint conditions of increasing relationship are shown in Formula (7):

$$\begin{cases} \max_{u_1, u_2} 2(\bar{a}(w_1, w_2) - 0.5(w_2 + w_1)) \\ \text{s. t. } w_1 + 0.5(w_2 - w_1) - c(\bar{a}(w_1, w_2)) \geq 0 \end{cases} \quad (7)$$

The decision conditions influencing principals in Formula (7) is $\max_a 2(a - c(a)), 0 \leq c'(a) \leq 1$.

In conclusion, the balance of principals and agents is shown in Formula (8):

$$\left\{ c' \bar{a} = 1, c' \bar{a} = \phi(0)(w_2 - w_1), c(\bar{a}) = \frac{w_2 + w_1}{2} \right\} \quad (8)$$

Under the balance of principals and agents, if the risk of agents is neutral, then agents can reach the optimal effort level while principals can exert impact on the effort level of agents by controlling compensation dispersion, thus promoting the development of enterprise development.

3.2 Analysis of Impact of Executive compensation dispersion on Firm performance

Considering the complex relationship between executive compensation dispersion and firm performance, this paper establishes the mathematical analysis model of the impact of executive compensation dispersion on the change of firm performance to further analyze the change law of performance of listed companies in our country and executive compensation dispersion.

We set the compensation dispersion when the optimal incentive level is obtained by executives as Δw and the cost of input as c . In this way, the function relationship between executive compensation dispersion Δw and the cost of input can be expresses in Formula (9):

$$\Delta w = f(c, \bar{a}) \quad (9)$$

$\bar{a}$ represents all of the other factors influencing the executive compensation dispersion, which are exogenous variables.

There exists marginal decrease effect in the utility satisfaction degree brought by the enlarging of executive compensation dispersion, so we can know that $\frac{\partial \Delta w}{\partial c} = \frac{\partial f}{\partial c}$ is decreasing function, which is $\frac{\partial^2 \Delta w}{\partial c^2} = \frac{\partial^2 f}{\partial c^2} = f' < 0$.

The function relationship expression between executive compensation dispersion and firm performance is shown in Formula (10):

$$V = \phi(\Delta w, \bar{b}) - c \quad (10)$$

$\bar{b}$ represents all the other factors influencing firm performance, which are exogenous variables. Function $\phi(\Delta w, \bar{b})$ is mainly used to reflect the impact of the executive compensation dispersion and all the other factors on firm performance.

We can know from tournament theory that the enlarging of executive compensation dispersion is in favor of the promotion of firm performance. $\phi(\Delta w, \bar{b})$ function satisfies the following conditions, as is shown in Formula (11):

$$\frac{\partial \phi(\Delta w, \bar{b})}{\partial \Delta w} = \phi' > 0 \quad (11)$$

There also exists marginal decrease effect in the incentive effect of executives brought by executive compensation dispersion, which facilitates the marginal decrease effect in the impact of executive compensation dispersion on firm performance brought by. The specific conditions are shown in Formula (12).

$$\frac{\partial}{\partial \Delta w} \left(\frac{\partial \phi(\Delta w, \bar{b})}{\partial \Delta w} \right) = \frac{\partial}{\partial \Delta w} (\phi') = \phi' < 0 \quad (12)$$

For the input of cost, the relationship between the input of cost of executives k and firm performance V is the first partial derivative, as is shown in Formula (13):

$$\frac{\partial V}{\partial c} = \frac{\partial \phi(\Delta w, \bar{b})}{\partial c} - 1 = \frac{\partial \phi}{\partial \Delta w} \times \frac{\partial \Delta w}{\partial c} - 1 = \phi' \times f' - 1 \quad (13)$$

Then, we take the derivative of the input of cost in Formula (2), which is:

$$\frac{\partial^2 V}{\partial c^2} = \frac{\partial}{\partial c} \left(\frac{\partial v}{\partial c} \right) = \frac{\partial}{\partial c} (\phi' \times f' - 1) = \phi' \times (f')^2 + = \phi' \times f' \quad (14)$$

We can obtain from Formula (9) and Formula (13) that $f' < 0, \phi' > 0, \phi' < 0$, so $\frac{\partial^2 V}{\partial c^2} < 0$.

We can discover that the relationship between the effort cost of executives c and firm performance is an inverted U shape curve based on the relationship between second derivative and graphic shape and firm performance. Meanwhile, the compensation of executives is proportional to the input of cost. Therefore, we further deduce that the relationship between the executive compensation dispersion and firm performance is an inverted U shape curve, which is shown in Figure 1.

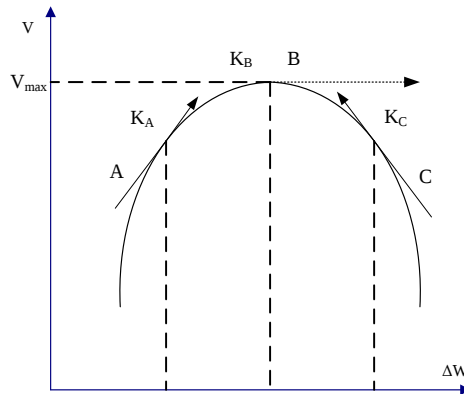


Figure 1. Tendency Chart of Dynamic Change Between Firm performance and Executive compensation dispersion

We can see from above Figure that the slope changes from K_A to K_B and then to K_C with the change of compensation dispersion from A to B and to C. This indicates that with the enlarging of executive compensation dispersion, the firm performance increases at first and then decreases and reaches the maximum value $V_{\max}$ at Δw_B compensation dispersion.

4. RESEARCH HYPOTHESIS AND EMPIRICAL ANALYSIS OF IMPACT OF INTERNAL COMPENSATION DISPERSION ON PERFORMANCE

4.1 Design of Model Variables

(1) Dependent variable:

This paper takes the performance of small and micro technological enterprises as the dependent variable in the model, which is because the main content of the research in this paper is the impact of executive compensation dispersion of small and micro technological enterprises on firm performance. The firm performance, as an

influenced variable, is regarded as dependent variable. In specific analysis process, Return on Equity (ROE) and TBQ are used to measure firm performance.

(2) Independent variable:

This paper selects the Dispersion as the independent variable and takes economic salary like salary and bonus that can be easily quantified as the research object. Meanwhile, the executive compensation dispersion refers to the difference between the average value of the top three and the last three in the senior executive team.

(3) Control variable:

OCN: ownership concentration. The stock rights of small and micro technological enterprises are usually concentrated in core founders and thus we can use ownership concentration to reflect the structure architecture of senior executive team.

Size: firm size. In most situations, firm size determines the operation capability and complex degree of a firm and firm size has multiple influence on the performance of this company.

DAR: debt asset ratio. Debt asset ratio refers to the ratio of gross liability and total asset of a company. This paper applies debt asset ratio of small and micro technological enterprises as the variable to investigate the capital structure of a company.

GRW: firm growth, which is also called operation and development ability or growth ability of a company. The operation and development ability of a company is gradually accumulated through production and operating activities. This ability reflects the development tendency and potential of future production and operating activities of a company while the future development potential determines the firm performance to a large extent.

Table 1. Definition of Variable Type

Variable type	Variable symbol	Variable meaning and measuring method
Dependent variable	Perf TBQ	Corporate net profit / average total assets The market value of the total assets of the enterprise / the resetting of the total assets of the enterprise
Independent variable	DISPERSION OCN	The average salary of top three executives -the average salary of other executives The square of proportion of the top five shareholders of the total number of shares
Control variable	SIZ	Natural logarithm of total assets at the end of the year
	DRA	The ratio of total liabilities to total assets at the end of the year
	GRW	Total business income / total assets of enterprises

4.2 Assumption and Establishment of Model

This paper adopts linear regression analysis and combines influence evaluation theory. This paper makes the following assumptions of the relationship between the executive compensation dispersion and firm performance:

S1: The executive compensation dispersion is positively correlated to firm performance. That is to say, the greater the executive compensation dispersion, the better the firm performance.

S2: The executive compensation dispersion of the senior executive team in listed companies and firm performance is inverse U shape. The impact of the latter on the former has interval characteristics.

This paper designs the following two models based on the above two assumptions and the selected variable indexes:

$$\text{Model 1: ROE} = \beta_0 + \beta_1 \text{DISPERSION} + \beta_2 \text{OCN} + \beta_3 \text{SIZ} + \beta_4 \text{DAR} + \beta_5 \text{GRW} + \varepsilon$$

$$\text{Model 2: ROE} = \beta_0 + \beta_1 \text{Gap} + \beta_2 (\text{DISPERSION})^2 + \beta_3 \text{OCN} + \beta_4 \text{SIZ} + \beta_5 \text{DAR} + \beta_6 \text{GRW} + \varepsilon$$

In this model, β_0 represents the intercept of constant term; β_i represents the coefficient of each explanatory variable; ε represents the disturbance term of error.

4.3 Sample Sources and Sample Selection

This paper selects the small and micro technological enterprises in Shanghai and Shenzhen Stock Market in 2014 as the research object and the data sources are Resset (<http://www.resset.cn>), GSMAR (<http://www.gtarsc.com>) and National Bureau of Statistics (<http://www.stats.gov.cn/tjsj>).

Table 2. Industrial Distribution of Sample

Industry	Code	Sample size	Minimum Value(w)	Maximum Value(w)	Mean Value(w)	Standard Deviation
Agriculture	A	22	5.33	65.90	32.22	18.19
Mining	B	14	6.00	146.32	52.20	39.55
manufacturing	C	752	1.94	469.20	42.43	38.40
Energy	D	9	5.00	62.00	31.62	20.20
Building	E	24	12.42	110.00	52.13	27.15
transportation	F	7	22.14	83.22	42.71	23.35
IT	G	113	4.74	215.92	42.62	32.50
Wholesale &retail	H	52	2.60	195.51	48.55	41.35
Realty business	I	66	6.00	392.06	65.92	60.17
Social services	J	33	10.56	94.17	40.58	23.12
Communication	K	10	10.33	90.00	40.87	24.58
General	L	17	17.33	170.99	54.68	39.80
Total		1119	1.94	469.20	45.54	32.37

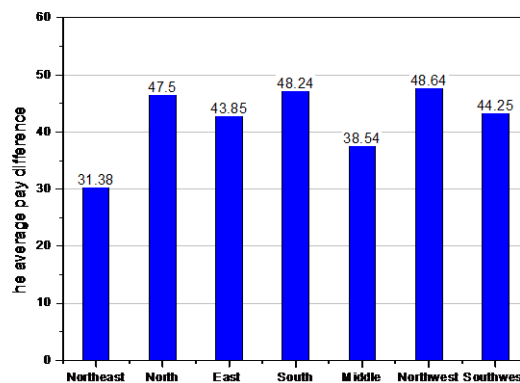


Figure 2. Comparison Diagram of Mean Compensation Differenece of Executives in Different Regions

We can see from Table 2 and Figure 2 that the compenstaion differenece of executives is not only related to industrial distribution, but varies greatly in different regions. The development of compensation incentive system in small and micro technological enterprises is unbalanced.

4.4 Empirical Analysis

This paper firstly conducts descriptive statistical analysis of the variabels in the model and the mean value, standard deviation, minimum value and maximum value are shown in Table 3.

Tabel 3. Descriptive Statistical Analysis of Variables

Variable	Observed value	Mean value	Standard deviation	Minimum Value	Maximum Value
ROE	1119	10.4266	9.860194	-74.1351	69.3756
TBQ	1119	1.486231	2.4588	-17.6954	32.545
DISPERSION	1119	27.43035	31.56338	0.31	357.7
OCN	1119	56.12995	16.47295	10.1623	97.64
SIZ	1119	21.39683	1.007352	18.70215	28.4326
DAR	1119	34.8089	21.53553	0.708	93.9836
GRW	1119	29.01681	133.4036	-100	4088.531

To avoid the multicollinearity among variables and conduct Pearson test on the variables involved in this model. The results are shown in Table 4.

Table 4. Correlation Analysis of Variables

Variable	ROE	TBQ	DISPERSION	OCN	SIZ	DAR	GRW
ROE	1.0000						
TBQ	0.6450	1.0000					
DISPERSION	0.1571	0.0631	1.0000				
OCN	0.2265	0.1465	0.0326	1.0000			
SIZ	0.1955	0.0542	0.4085	0.0016	1.0000		
DAR	-0.0049	-0.2460	0.1876	-0.2298	0.3613	1.0000	
GRW	0.0581	0.0090	-0.0200	-0.0119	0.0085	0.0232	1.0000

We can see from this Table that the two correlation coefficients (ROE and TBQ) to measure the executive compensation dispersion and firm performance in small and micro technological enterprises are both positive value, which are 0.0631 and 0.1571 respectively. In this way, the assumption is confirmed, which is the firm performance will increase with the enlarging of executive compensation dispersion. This result supports the viewpoints in tournament theory.

However, will the constant enlarging of executive compensation dispersion exceeds the degree in the compensation incentive system and have a negative effect? Will firm performance presents the variation trend of increasing at first and decreasing later with the enlarging of executive compensation dispersion? To verify whether inverted U shape curve characteristics exists in the relationship between executive compensation dispersion and firm performance, which is assumption 2, this paper introduce StataI2.0 statistical software to conduct regression on the model. The results are shown in Table 5.

Table 5. Statistical Regression Results of Model

Variable	ROE Value			TBQ Value		
	Coefficient	t value	Prob.	Coefficient	t value	Prob.
C	-28.6089	-4.63	0.000	10.00197	14.53	0.000
DISPERSION	0.0698459	4.38	0.000	0.0066756	3.39	0.001
DISPERSION ²	-0.000247	-4.04	0.000	-0.0000208	-2.52	0.012
OCN	0.0676867	4.72	0.000	-0.0004603	-0.26	0.795
SIZ	1.495591	4.93	0.000	-0.352282	-10.24	0.000
DAR	-0.277577	-1.98	0.000	-0.0085119	-5.36	0.000
GRW	0.0348127	6.41	0.000	0.0008321	2.58	0.010
adj.R ²		0.1076			0.2337	
Wald F test		22.35			56.53	
Prob.		0.0000			0.0000	
N	1119					

We can see from Table 5 that $\beta_2^{\text{ROE}} = -0.000247 < 0$. That is to say, whether the dependent variable is TBQ or ROE, the relationship between compensation dispersion in small and micro technological enterprises and firm performance presents inverted U shape curve characteristics on the whole.

We substitute the regression coefficient in Table 5 into model 2 and take the first derivative of variable DISPERSION, setting the value as 0. We can calculate that the executive compensation dispersion at the turning point is 141.39 and 160.47 respectively. That is to say, when the executive compensation dispersion in listed companies reaches 1.4139 million, the return on net assets of enterprises will gradually decrease with the enlarging of compensation dispersion; when the executive compensation dispersion reaches 1.6047 million, the return on net assets of enterprises will decrease dramatically with the enlarging of compensation dispersion. In conclusion, the regression results fully validate assumption 2. Whether ROE or TBQ serves as the dependent variable, there is a significant positive correlation between executive compensation dispersion in listed companies and firm performance in first degree term statistics and there is a significant negative correlation between executive compensation dispersion in listed companies and firm performance in quadratic term statistics.

5. CONCLUSION

This paper takes small and micro technological enterprises as the research object and combines tournament theory and act theory to deeply analyze the influence mechanism of executive compensation dispersion on firm performance. Combined with the own characteristics and current situation of small and micro technological enterprises, this paper applies corresponding data to conduct empirical analysis of the impact of executive compensation dispersion on firm performance. The research conclusions in this paper are as follows:

- (1) There is great industrial and regional difference in the executive compensation dispersion in small and micro technological enterprises. Tournament theory and act theory are both applicable in the development of small and micro technological enterprises at this stage.
- (2) The establishment of model and correlation analysis of data variables indicate that there is a positive correlation between executive compensation dispersion and firm performance, which conforms to tournament theory.
- (3) The regression results of model indicate that the relationship between executive compensation dispersion and firm performance in small and micro technological enterprises presents the inverted U shape curve characteristics, which reflects that the promotion of tournament theory on firm performance is limited. The over dispersion will exert negative impact on enterprises, which verifies the restriction effect of act theory.

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REFERENCES

- Devaro J. (2006). Strategic promotion tournaments and worker performance. *Strategic Management Journal*, 27(8), 721–740.
- Dong X., Zhu, D. (2013). The effect of the financial crisis on CEO compensation in bad versus good performance firms. *Journal of Biomedical Engineering*, 11(3), 219–223.
- Duursma M.W. (2011). Executive compensation and subsequent company performance. *Embo Journal*, 25(19), 4537–46.
- Gomez-Mejia L.R. (1992). Structure and process of diversification, compensation strategy, and firm performance. *strategic management journal*, 13(5), 381–397. *Strategic Management Journal*, 13(5), 381–397.
- Gregersen, H. (2007). Bundling human capital: the impact of international assignment experience on CEO pay and multinational firm performance. *Carbon*, 45(13), 2584–2588.
- Harris C.A. (2009). Ceo compensation and firm performance: an Australian perspective. *Journal of Cellular Physiology*, 202(1), 105–114.
- Lejdelin M., Lindén P. (2008). Ceo compensation and its relation to firm performance. *Annals of the New York Academy of Sciences*, 1003(1), 395–7.

- Lo C.K.Y., Yeung A.C.L., Cheng T.C.E. (2011). Meta-standards, financial performance and senior executive compensation in china: an institutional perspective. *International Journal of Production Economics*, 129(1), 119-126.
- O'Brien J.P., David P. (2014). Reciprocity and r&d search: applying the behavioral theory of the firm to a communitarian context. *Strategic Management Journal*, 35(4), 550-565.
- Ochieng D.E. (2013). Executive compensation and firm financial performance: a critical literature review. *Aiaa Journal*, 1(3), 699-700.
- Petra S.T., Dorata N.T. (2013). Corporate governance and chief executive officer compensation. *Corporate Governance International Journal of Business in Society*, 8(8), 141-152.
- Ridge J.W., Aime F., White M.A. (2015). When much more of a dispersion makes a dispersion: social comparison and tournaments in the ceo's top team. *Strategic Management Journal*, 36(4), 618-636.
- Sakawa H., Moriyama K., Watanabel N. (1998). Relation between top executive compensation structure and corporate governance: evidence from. *Inorganic Chemistry*, 37(9), 2273-2280.
- Shufflebotham D.H. (2007). Promotion to partner in large law firms operating in the United Kingdom: tournament theory and the monitoring of the implied promise. *Plos Computational Biology*, 3(10), 2032-42.
- Srivastava A., Insch G.S. (2007). Executive compensation differentials: testing tournament theory. *Nuclear Physics B*, 741(1), 236-268.
- Zhang C.Z., You Y., Gao Z.Q. (2015). Empirical study on the relationship between executive compensation dispersion and firm performance: the moderating role of technology intensity. *Journal of High Technology Management Research*, 26(2), 196-204.