Effect mechanism of senior manager incentive and enterprise performance under vertical dyad linkage characteristics differences

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ABSTRACT

With the development of global economy, the enterprise competition intensifies. As the main operator of an enterprise, senior manager's operation behaviors and decisions can largely affect the future development of the enterprise, which becomes the core competitive factors of the enterprise. But during the actual production and operation process, with the outstanding agent contradiction between managers and shareholders, enterprises carry out incentive measures on senior managers one after another for alleviating this kind of contradiction and lowering the agent costs. The classic Upper Echelon Theory (UET) helps people in understanding the internal relationship of the characteristics of senior managers and enterprises decision-making behavior and then how they affect enterprise performance. However, former researches on the relationship between senior manager team's characteristics and enterprise performance are all based on the average level or heterogeneity of the whole manager team. There are little studies on the relationship of the incentive and performance based on the vertical dyad linkage (VDL) characteristic differences of the chairman and other senior managers. So this paper proposes a research on the effects of senior managers' incentive and enterprise performance, and discusses the relationship of chairman-senior manager team's VDL characteristics and the way to adjust the incentive and performance. By analyzing the sample data of public enterprises in Shanghai and Shenzhen during 2014-2018, this paper probes into the relationship of incentive and performance based on theory analysis and case studies, and the regulation on the relationship between the VDL characteristics of chairman-senior managers.

Keywords: Vertical dyad linkage, senior manager incentive, enterprise performance

1. INTRODUCTION

During the process to market economy, there are various stress on the scientific and sustainable development of Chinese enterprises. According to relevant data, the GDP year on year growth was 6.6% by the analysis of China's economic operation in 2018 while 6.1% in 2019. The growth rate slowed down, risks increased, structural, systemic and periodic problems arose, which all make enterprises remain hard-pressed. With the dilemma, not only strategies and measures for development, but also talents cultivation should enterprises be well equipped. Talents are the only core factor for enterprises' development. Only with reasonable mechanisms on properly introducing and training talents for the maximum leading effects, can make the single talent optimized as a team, even arouse the congregation effect of an industry and stimulate the innovation and creativity of the talents to the maximum, which can significantly improve the enterprise benefits.

Attracting talents focuses on making good use of incentive mechanisms. Among modern Chinese enterprises, it is common that the economic and proprietary rights of an enterprise are separated. The owner of an enterprise, shareholder, entrusts capable talents to manage his enterprise, which leaves the enterprise with professional management and also ease his burden. As we can know from the Principal-Agent Theory (PAT), the ultimate objective for a client, namely shareholder is to maximum the enterprise value and get a sustainable development of the enterprise. At the same time, as an agent, a senior manager keeps his eyes more on his own pay. Different objectives lead to a conflict that could not make the performance of the enterprise to a maximum. To effectively restrain the conflict, enterprise owners notice that a series of incentives can be used to get the managers satisfied.

There are serious incentives for senior managers. Most common one is pay incentive. Good pay can meet the most basic needs of the managers, it is also an important point to attract talents. Xu (2017)[1] believed that this kind of incentive is the necessary guarantee for enterprise innovation investment and sustainable development. But simply boosting the pay will make the managers damage the interests of shareholders by opportunistic actions. To avoid the negative effects of senior managers' high pay, China has introduced a "pay restriction policy" at the beginning of 2009 for the strict control and standardization of the pay management strategy. The policy controls strictly on the unreasonable astronomical pay and

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tries to find a new balance point with scientific and effective pay incentive ways. This makes the managers more responsible on the enterprise performance. But the hidden risks inside make part of the listed enterprises walk into and implement equity incentive in 2006. This method of equity incentive held by managers can lower the conflict between managers and owners and share residual rights in some extent. It can make their interests convergent and promote the operation strategy of the enterprise development. But there are also some shortcomings in this kind of incentive: if unreasonable equity incentive exists, there might be conflict of interests during investment; and the senior manager might pursue his own certain interests maximized and choose the original solution instead of innovation investment, which negatively affects the enterprise performance. Therefore, reasonable incentive mechanism for effectively motivating the manage team and its enthusiasm for management, reducing agent costs, making the most of the talents is the key issue in enterprises governance.

In 1984, Hambrick and Mason[2] proposed an UET for personal characteristics of managers. They supposed that the demographic characteristics are the main factors influencing the managers' abilities on obtaining and analyzing information. In 1989, Tsui et al.[3] found that the difference between the upper and lower level managers can affect their behaviors and then proposed the concept of VDL combining Similarity-Attraction Theory for a more comprehensive observation of the internal operation of the enterprise.

China praises highly on the Confucian culture of seniority of people with difference ages and positions since ancient times. Therefore, the VDL characteristics makes positive working environment and then reduces the bad communication effects between people in different positions. This helps in lowering the agent cost in some extent and reaching the maximum enterprise values. And whether the effects can influence the manager incentives and enterprise performances is the main research aspect in this paper.

Hence, this paper proposed a research on the effects of senior managers' incentives in view of team VDL based on UET and PAT for a better solution for achieving the sustainable development of enterprises.

2. THE RELATIONSHIP BETWEEN SENIOR MANAGER INCENTIVE AND ENTERPRISE PERFORMANCE

As we can know from PAT, owners of enterprises, namely shareholders might choose to employ some professional and experienced managers for a better management. But along with the separation of two rights, the situation of asymmetric information between owners and managers appears. Managers run the enterprises directly and get information different from second handed information by shareholders, whom are at a disadvantage in terms of information accessing method, with the only way through enterprise's financial statement. Shareholders burden different risk preference from managers. With the separation of two rights, shareholders get most parts of interests with less risks while managers get a small part but with most of the risks. Therefore, managers' preference low risk strategies. And as to personal goals, there is also conflict between the two. As the actual owners of enterprises, shareholders are with the goal of maximizing the enterprise value; at the same time, as agent, managers pursue their personal interests to the maximum. These three obvious differences make the agent costs generated. And there might be moral hazard and adverse selection issues for managers with not enough supervision by shareholders. That is to say, managers might harm the shareholders' interests for their own interests. To avoid this kind of behavior and lower the agent cost, reasonable incentives for management are needed, especially for senior managers.

The senior manager incentives are mainly achieved by pay raise because the managers' pays are also performance-related. And managers try to get more personal pays by motivating themselves harder and giving full play to their own values for their own goals going the same with shareholders. With shared information realization, agent costs decrease due to asymmetric information and enterprise's short-term interests increase. Senior managers' equity incentive is mainly by giving the management a certain residual right and making them as the "owner" of the enterprises. This makes the goals of the two reach unanimity and the managers loyal to the enterprise and strive for it, which is a long-term incentive mechanism.

Obviously, short- and long-term incentive mechanisms can both advance the degree of hard-working as to senior managers and the more consistent the goal of managers with shareholders' interests, the sharper the increase of the enterprise's interest. Therefore, the incentives for senior managers positively related to enterprise's interest. As a result, this paper proposes hypotheses 1a and 1b:

H1a: Pay incentive is positively related to enterprise's interest.

H1b: Equity incentive is positively related to enterprise's interest.

3. THE EFFECT OF VDL ON SENIOR MANAGER INCENTIVE AND ENTERPRISE PERFORMANCE

In Enterprise Risk Management - General Framework, the board of directors should take responsibility for enterprise risk management by approving and supervising the risk preference of the enterprise's behaviors. Among the listed enterprises in China, chairman is the core of the enterprise, and has the biggest decision-making power on enterprise investment behaviors. In China, people are sensitive to hierarchy and authority. So the chairman can not be ignored during the invest and decision-making process. Due to position and level differences, the VDL characteristics between chairman and senior managers are the important research point studying interactions within the senior management team. Also, Liu (2017)[4] found that the role orientation of an individual in an organization depends largely on his official position in it. Therefore, taking the VDL differences of senior management team into supervision can bring overall differences of the team characteristics to light in another aspect and reflect the internal structure and running status of the enterprise during the decision-making in investment by the management team.

Unreasonable senior manager incentives go together with certain agent costs. Due to the story that people never satisfy with their own personal interests to a certain extent, senior managers try hard and risk to make themselves more interests concealing enterprise's relevant information by unreasonable means, which aggravates the situation of asymmetric information between senior managers and shareholders. This never helps in solving the problem but also expanding the agent costs instead. Therefore, we should try to find the best solution for the effect of senior manager incentives on enterprise performance by analyzing the internal factors of the senior manager team. As a result, this paper proposes the following hypotheses:

(1) Effect of chairman-senior manager team's age VDL difference on senior manager incentives and enterprise performance

Age is a relatively important factor influencing the enterprise management. Because managers with difference ages might be affected by events of different times and have different cognitions and perceptions with age. Datta (1994)[5] found that the age VDL characteristics of the senior managers are totally different from the CEO's decision facing risks. China is a Confucian country respecting elders whom has some certain authority on the youngers. In this regard, Chinese scientist Zhao (2016)[6] found the positive effect of age VDL on innovation performance based on the effects of VDL differences on senior manager's innovation performance, which is in accord with Liden's (1996)[7]. Due to the fact that the age gap between superior and subordinate is in a way accordant to social norms. Older superior is more willing to choose and train excellent talents and young subordinate is more likely to respect his superior and then the enterprise, cooperating actively with the superior and striving to improve themselves. This reduces the agent cost which is increased by unreasonable senior manager incentives and make the enterprise value maximized. Therefore, if the differences of the senior manager's age VDL is bigger, senior management team will respect the chairman better. And it helps in avoiding the behaviors by senior managers pursuing their own interests and hurting the shareholders' due to unreasonable senior manager incentives. Finally, it can promote the enterprise's rapid growth. As a result, this paper proposes hypotheses 2a and 2b:

H2a: The bigger the differences of the age VDL between chairman-senior management team, the stronger the positive effect of senior manager's pay incentive on enterprise performance

H2b: The bigger the differences of the age VDL between chairman-senior management team, the stronger the positive effect of senior manager's equity incentive on enterprise performance

(2) Effect of chairman-senior manager team's education background VDL difference on senior manager incentives and enterprise performance

Education background means one's experience studying, which can tell his knowledge structure and values. At the same time, the background reflects one's education level. The higher the education level, the richer the knowledge structure and the more rational their values. Education background VDL difference is the chairman-senior management team's education background difference. The bigger the difference, the wider the gap of the educational level of the management team. That is to say, the chairman's educational level higher than the management team's. Based on Social Norm Theory, Chairman is well-educated than the subordinates, which is in accord with norms. Brew, et al. (2004)[8] held the idea that Chinese people take hierarchy and authorities sensitively. And in China, the interaction in line with social norms will have better consequences. Yang (2014)[9] found that when a superior is stronger than his subordinate, the subordinate will obey the superior. And then the internal conflicts are adjusted with a good working system which can lower the agent costs from incentives for senior managers and increase the enterprise performance. Therefore, the following hypotheses 3a and 3b are proposed based on the above analysis:

H3a: The greater the difference of the education background VDL between chairman and senior management team, the more positive the effect of pay incentive for senior managers on enterprise performance.

H3b: The greater the difference of the education background VDL between chairman and senior management team, the more positive the effect of equity incentive for senior managers on enterprise performance.

4. MODEL

This paper chooses Return on Assets (ROA), an accounting index, for the measurement variable of major enterprise performance: ROA = Net profit / Average Total Assets. And data all come from CSMAR (China Stock Market & Accounting Research Database).

The adjustable variables in this paper are the characteristics of senior management team. With references to the research of Li and Zhou (2017)[10], Yang Lin and Yang (2012)[11], this paper selects two main characteristics: the difference of VDL between chairman and senior management team (DAge) and the difference of education background VDL between chairman and senior management team (DEdu).

Referring to the previous research experience (He, 2015[12]; Jiang and Lu, 2006[13]), five control variables has been selected in this paper, such as enterprise size (Size), asset-liability ratio (LEV), free cash capacity (FCF), listing age (CAge) and ownership concentration (LS).

On the basic study of the effects of senior management team incentives on enterprise performance, this paper analyses and tests the effects of senior management team characteristics on the relationship between senior manager incentive and enterprise performance and designs a model followed in Figure 1.

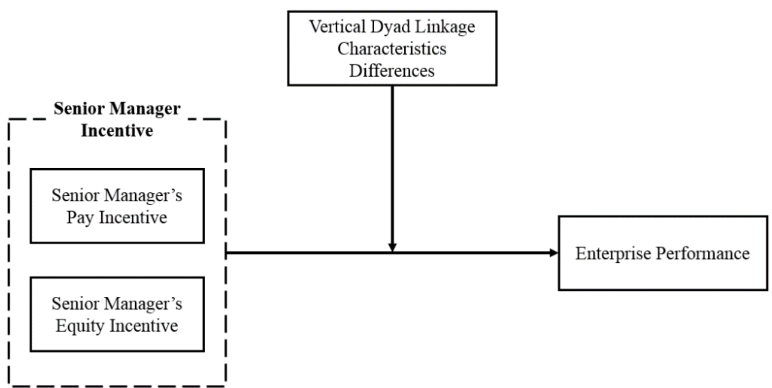

Figure 1. Research model.

5. EMPIRICAL ANALYSIS

We choose 2471 valid samples from Shanghai and Shenzhen A-Share listed enterprises' empirical data from 2014 to 2018. Meanwhile, we choose the two variables of senior management team VDL characteristics on age and education background.

As we can see from Table 1, the correlation coefficient between senior manager's pay incentive (PAY) and the range of enterprise performance (ROA) is 0.189, and it is positive related at 1%. This shows that the bigger the pay incentive of senior managers, the better the enterprise performance, which certifies hypothesis 1a. The correlation coefficient between senior manager's equity incentive (INC) and the range of enterprise performance (ROA) is 0.120, and it is positive related at 1%. This shows that the bigger the equity incentive of senior managers, the better the enterprise performance, which certifies hypothesis 1b. In a word, enterprises should pay more attention to the senior manager incentive mechanism, and provide appropriate pay and share for them, which will promote the enterprise performance and interests.

Table 1. Correlation test.

	ROA	PAY	INC	DEDU	DAGE	SIZE	LEV	FCF	CAGE	LS
ROA	1									
PAY	0.189^{***}	1								
INC	0.120^{***}	0.412^{**}	1							
DEDU	-0.051^{**}	-0.026	-0.046^{**}	1						
DAGE	-0.037^{*}	-0.008	-0.017^{*}	0.009	1					
SIZE	0.015^{*}	0.347^{***}	0.107^{***}	0.07^{***}	-0.024	1				
LEV	-0.340^{***}	0.075^{***}	-0.004^{*}	0.102^{***}	-0.032^{*}	0.558^{**}	1			
FCF	0.370^{***}	0.096^{***}	0.051^{*}	-0.015	0.008^{*}	-0.009	-0.174^{***}	1		
CAGE	-0.162^{***}	0.102^{***}	-0.113^{***}	0.121^{***}	-0.095^{***}	0.384^{***}	0.375^{***}	-0.053^{**}	1	
LS	0.059^{**}	-0.028^{*}	-0.057^{**}	-0.061^{***}	-0.017	0.146^{***}	0.118^{***}	0.096^{***}	-0.043^{**}	1

Notes. $*p<0.05$, $**p<0.01$, $***p<0.001$.

With the descriptive statistics and correlation analysis of all the variables completed, for a further study on the relations among senior managers' characteristics, senior manager incentives and enterprise performance, SPSS 23.0 samples are used by regression analysis for the certification of the hypotheses.

From the results of Model I and Model II in Table 2, we get the idea that PAY and INC positively relate with ROA respectively, which shows the hypotheses 1a and 1b are correct. This certifies that short-term pay incentive for senior managers can promote the enterprise performance and a good short-term pay incentive mechanism can stimulate senior managers for more effective management and increase the enterprise performance. Moreover, when senior managers hold shares, they will maximize the value of the enterprise as their own goal. And under the situation of senior managers' interests convergent with enterprise's, the equity incentive makes the management team avoid risks and adjust enterprise's financial policy. And long-term equity incentive pushes senior managers for effective management and this in-turn promotes the enterprise performance.

Besides, we can know from the correlation coefficient between control variables and enterprise performance, the enterprise size (SIZE), free cash capacity (FCF), and ownership concentration (LS) are all positively related with the enterprise performance at 1%. It tells that when the SIZE is bigger, and the internal management system has been gradually improved with a good management strategy, the enterprise performance is improved together. But LEV is negatively related with enterprise performance (B=-0.119, $p<0.01$), which shows that the bigger the LEV, the lower the enterprise performance. This is because the LEV level affects the R & D investment decision from the technology enterprise's senior management team: high LEV makes the team reduce the investment to avoid risks. This might make the enterprise lose the opportunity expanding the market and ultimately affects the enterprise performance.

The effects of age VDL difference of chairman-senior management team on senior manager's pay incentive and enterprise performance by regression analysis (Model III in Table 2) show that senior manager's pay incentive is positively related with enterprise performance (B=0.014, $p<0.01$). At the same time, senior manager's pay incentive has an obvious and positive effect with the interactive items of the age VDL difference of chairman-senior management team (B=0.003, $p<0.01$). This result shows that the bigger the age VDL difference, the stronger the positive effect, which certifies the hypothesis 2a.

The effects of age VDL difference of chairman-senior management team on senior manager's equity incentive and enterprise performance by regression analysis (Model IV in Table 2) show that senior manager's equity incentive is positively related with enterprise performance (B=0.048, $p<0.05$). At the same time, senior manager's equity incentive has an obvious and positive effect with the interactive items of the age VDL difference of chairman-senior management team (B=0.016, $p<0.01$). This result shows that the bigger the age VDL difference, the stronger the positive effect, which certifies the hypothesis 2b.

Table 2. Result of regression analysis.

	ROA					
	Model I	**Model II**	**Model III**	**Model IV**	**Model V**	**Model VI**
(Constant)	-0.278***	-0.203***	-0.297***	-0.350***	-0.152***	-0.196***
PAY	0.009***		0.014***		0.007***	
INC		0.019**		0.048**		0.023**
DAGE			-0.001***	-0.001**		
PAY-DAGE			0.003***			
INC-DAGE				0.016***		
DEDU					-0.001	-0.001
PAY-DEDU					0.010***	
INC-DEDU						0.058***
SIZE	0.010***	0.013***	0.020***	0.021***	0.010***	0.013***
LEV	-0.114***	-0.119***	-0.067***	-0.075***	-0.115***	-0.120***
CAGE	-0.001***	-0.001**	0.001	-0.001	-0.001**	-0.001**
FCF	0.219***	0.224***	0.344***	0.329***	0.190***	0.219***
LS	0.024***	0.022**	0.042***	0.048***	0.023***	0.020***
R^2	0.328	0.319	0.354	0.326	0.391	0.324
ΔR^2	0.326	0.317	0.352	0.323	0.389	0.321
F-Value	171.779***	164.614***	134.991***	118.787***	157.939***	117.834***

Notes. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

In a word, the bigger the age VDL difference, the stronger the positive effect of senior manager incentives on enterprise performance due to the authority of the chairman. Because it is in accord to social norms if the chairman's age is older than the average age of senior management team, the team will follow the chairman's arrangement, which makes the two with the consistent interests, avoids senior managers' moral hazard and adverse selection issues and lower the agent costs in consequent. And if chairman is older than senior managers, with his more social experiences, he can consider things in a more comprehensive way and senior managers will respect and actively follow chairman's decisions, which helps in improving the enterprise performance. That is to say the effects of senior manager incentives on enterprise performance are stronger with the increase of the gap of age VDL.

The effects of education background VDL difference of chairman-senior management team on senior manager's pay incentive and enterprise performance by regression analysis (Model V in Table 2) show that senior manager's pay incentive is positively related with enterprise performance (B=0.007, p<0.01). At the same time, senior manager's pay incentive has an obvious and positive effect with the interactive items of the education background VDL difference of chairman-senior management team (B=0.010, p<0.01). This result shows that the bigger the education background VDL difference, the stronger the positive effect, which certifies the hypothesis 3a.

The effects of education background VDL difference of chairman-senior management team on senior manager's equity incentive and enterprise performance by regression analysis (Model VI in Table 2) show that senior manager's equity incentive is positively related with enterprise performance (B=0.023, p<0.05). At the same time, senior manager's equity incentive has an obvious and positive effect with the interactive items of the education background VDL difference of chairman-senior management team (B=0.058, p<0.01). This result shows that the bigger the education background VDL difference, the stronger the positive effect, which certifies the hypothesis 3b.

In a word, the bigger the education background VDL difference, the stronger the positive effect of senior manager incentives on enterprise performance due to the authority of the chairman. Because it is in accord to social norms if the chairman is more well-educated than the average education level of senior management team. Zhang (2018)[14] considered that chairman with high-level education background have better risk control ability than the management team. When the gap of education background is big, there might be positive behaviors between them, like chairman providing more support, resources and development opportunities and the management team giving back more contributions and loyalty. This kind of education level gap promotes the team atmosphere with more mutual appreciation and support, helps in lowering the agent costs and increases the enterprise performance.

And if chairman is older than senior managers, with his more social experiences, he can consider things in a more comprehensive way and senior managers will respect and actively follow chairman's decisions, which helps in improving the enterprise performance. That is to say the effects of senior manager incentives on enterprise performance are stronger with the increase of the gap of age VDL. Therefore, the positive effect of senior manager incentives on enterprise performance will be strengthened in turn.

6. POLICY AND SUGGESTIONS

The results of this study have an important practical value for enterprises on arranging core management team, choosing appropriate incentive ways so as to reach the goal of high-quality development.

Firstly, optimizing the senior manager's pay incentive. Senior manager's decision and operation are ultimately importance for any enterprise's development. The results in this study show that senior manager's pay incentive is helpful to raise the enterprise performance. The theory of incentives show that enterprises can make full use of pay incentive such as increasing fixed salary or annual bonus for senior managers' hard-working, and finally achieve the goal and get a better enterprise performance. Therefore, if further motivation for senior managers team needed, enterprises can appropriately raise pay incentive to a higher level.

Secondly, appropriately increasing the senior manager's equity incentive. By giving the managers enterprise residual rights in some extent, equity incentive can make the interests of managers and shareholders convergent and alleviate the interest conflicts between the two sides, which satisfies the senior manager's interests maximized together with the shareholder's. Long-term equity incentive pushes senior managers for effective management and this in-turn promotes the enterprise performance. Research results in this paper show that part of the enterprises has no equity incentive mechanism with no senior managers holding none share. Therefore, enterprises should be aware of the influence of the equity incentive mechanism on senior managers and set up scientific and reasonable equity incentive. And while implementing the incentive, enterprises should increase the share ratio of senior managers to an appropriate extent for the best stimulation effects with the efforts from managers to the greatest extent.

Thirdly, in terms of recruitment and selection of management talents, senior managers, as the core of the enterprise's employees, are usually the decision makers on major investment plans. Their cognition, values and risk preferences have a significant impact on the enterprise's future. Therefore, the recruitment of senior managers is important. Based on former research results and the effects of senior managers' age and education background VDL characteristics on enterprise performance, listed enterprises can set up a senior management team with high efficiency and in line with the development of the enterprises. Specific speaking, if the gaps of age and education background VDL between chairman and senior management team are relatively small, the incentives can be enlarged to increase the enterprise performance; if the gaps of age and education background VDL between chairman and senior management team are relatively big, it will be better to choose a reasonable incentive strategy for the increasement of the enterprise performance. While establishing a senior management team, the gaps of age and education background VDL between chairman and senior management team should be in a certain range, which is helpful to the exchange and communication, and consider a comprehensive consideration on investments to reach a consensus. And the consensus can guide the senior managers to make the optimal decision and promote the enterprise's sustainable operation.

7. SHORTCOMING OF THE STUDY AND PROSPECTS

Firstly, the measurement of senior manager incentives is not comprehensive enough. Senior manager's incentives can be divided into explicit recessive and dominant incentives. Dominant incentives mainly include remuneration in short-term and equity in long-term; recessive incentive includes non-pecuniary compensation and promotion incentive. But we only select two variables in this paper and hope to make up for the deficiency in this aspect in our future research.

Secondly, the selection of VDL characteristics of chairman-senior management team is not comprehensive. This paper mainly discusses the gaps of VDL characteristics of age and education background, but the quantifiable indicators of demographic characteristics are not the two only, which lack a certain degree of preciseness. Our follow-up research will further consider the characteristic differences between chairman and senior managers, verify the possible advantages in this hierarchic structure, and set up a theoretical foundation for enterprise reform and economic development with high quality.

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