

# Research on the Impact of Venture Capital and Executive Compensation of GEM Strategic Emerging Industry Enterprises on Its Performance

Sun-Lei Yang<sup>a</sup>, Yu-You Huang<sup>b</sup>, Jin Dong<sup>c,\*</sup> and Mei-Xin Xu<sup>d</sup>

Wuhan Textile University, Hubei province, China

<sup>a</sup>50495815@qq.com, <sup>b</sup>844957751@qq.com, <sup>c</sup>448960717@qq.com, <sup>d</sup>403047676@qq.com

**Keywords:** Strategic emerging industries, Executive compensation, Venture capital, Financial performance.

**Abstract.** Based on the data of strategic emerging industrial enterprises in the GEM, this paper attempts to analyze the impact of corporate venture capital and executive compensation on the performance of strategic emerging industries in the GEM through empirical research. The results show that for enterprises with strategic emerging industries with risky investment background, the number of venture capital shareholders among the top ten shareholders is positively correlated with their corporate performance. The executive compensation and the company's asset size have a significant positive impact on the company's performance. The shareholding ratio of the executives is negatively correlated with the company's performance. There is no correlation between the two.

## 1. Introduction

Under the conditions of market economy, the amount of executive compensation, the structure of enterprises, and the way of incentive policies have profoundly affected business operations and economic development. This paper takes the data of strategic emerging industrial enterprises in the GEM as a sample, and attempts to analyze the data of strategic emerging industrial enterprises in the GEM through empirical research. Based on the micro-level of the enterprise, the relationship between executive compensation, venture capital and corporate financial performance is analyzed and observed. Through its impact on business operations, the most fundamental role of the two is discussed.

## 2. Research Hypothesis

### 2.1. Venture Capital and Financial Performance

Fang-Xiu SONG and Chen-Chen LI (2014) analyzed the data of more than 150 enterprises approved by the Shenzhen Stock Exchange in the period from 2009 to 2010, and found that the data changes of the business performance before and after the IPO of the venture capital background are relatively more obvious. Yao LI and He SONG (2017) analyzed and analyzed the M&A events of China's GEM from 2010 to 2013. Whether the venture capital institutions participated in the development of the company did not have much influence, and accompanied by the number of shareholding institutions and shareholding ratio. Improvement, corporate M&A performance has increased significantly. High-profile venture capital-backed M&A performance is significantly better than low-reputation venture-backed companies.

The strategic emerging industries studied in this paper have high technical content and high risks, and venture capital is the preferred financing method. While investing in venture capital, venture capitalists must intervene in the management of the company to reduce investment risks and obtain excessive returns. They must participate in the decision-making of major issues, and even dismiss the company manager if necessary, and take over the company by hand. Then propose the first hypothesis:

H1: For strategic emerging industries, the greater the number of venture capital among the top ten shareholders, the better the company's performance.

## **2.2. Executive Compensation and Financial Performance**

Because the interests of the company's owners are not exactly the same as the interests of the company's executives, the company's executives may harm the interests of the company's shareholders for their own benefit.

John (1999) conducted a batch study on some financial data of listed companies in the United States, showing that the executive compensation system is positively or negatively related to the performance of the company's industry, not solely determined by the economic development of the enterprise, but by the governance layer. According to the structure, the lower the efficiency of the governance structure, the higher the executive compensation system will be. Conyon and He(2011) compare the executive compensation system of Chinese enterprises with the performance of enterprises, and obtain a large positive correlation between the salary system in the form of money and the performance of the company, and the equity incentive can promote the high degree. Better work, so that the interests of both are converging. Therefore, in addition to increasing the annual remuneration of company executives, the company also uses incentives to enable executives to work hard to obtain high returns to improve corporate performance. Further proposing a second hypothesis:

H2: For strategic emerging industries, the higher the executive compensation, the better the company's performance.

## **3. Research Design**

### **3.1. Data Sources**

This paper selects the data for 2013-2015. The database is mainly from the CSMAR GEM data of Guotaian Database. In the process of statistical analysis, some missing data were extracted, based on the availability and integrity of the data, and finally 167 samples were retained. Data processing and analysis, mainly using Excel and econometric software SPASS.

### **3.2. Data Processing**

This paper selects the listed company of Guotaian Database GEM as the initial sample. As of December 2017, more than 715 companies are listed on the GEM. The GEM market is based on the national independent innovation strategy and is an excellent soil for entrepreneurial innovation. The industry studied in this paper has innovative and strategic characteristics, and the research is on the impact of venture capital on the listing of enterprises, so choose the GEM to conduct research. After studying the composition data of GEM shareholders, it was found that most companies have a venture capital background, which is more common on the GEM.

Methodology for screening companies that derive strategic emerging industries: by comparing the 2016 edition of the Strategic Industry Key Products and Services Guidance Catalogue issued by the "Announcement of the National Development and Reform Commission of the People's Republic of China". The names of the industries in which the enterprises are located have been screened, and 404 of them are among the strategic emerging industry categories. This paper takes them as the main research objects.

On how to screen out companies with a background of venture capital: collect the top ten shareholder names of listed companies in the GEM in 2013, 2014 and 2015, if they have "risk investment", "venture capital", "investment company" and "technical investment". "Investment Co., Ltd." "Investment Center" and "Investment Fund", and its list is included in the "China Venture Capital Development Report", which is defined as a venture capital background. In the end, 167 companies with venture capital backgrounds were obtained. And the number of venture capital among the top ten shareholders of these ventures with financial investment background was counted, and the statistical results ranged from 1 to 9.

## 4. Selection of Variables and Construction of Models

### 4.1. Variable Selection

In this paper, financial performance is used as an explanatory variable, and venture capital and executive compensation are used as explanatory variables. Since many other factors also affect the performance of financial performance, this paper introduces control variables to control those factors that have a significant impact.

#### 4.1.1. Explained Variable

The financial performance is the explanatory variable in the hypothesis of this paper. Based on the availability and breadth of the indicators, this paper chooses the standard of return on equity (ROE) as a representative to measure the financial performance of the enterprise.

#### 4.1.2. Explanatory Variables

In order to study the impact of venture capital and executive compensation on the company's financial performance, this paper excludes enterprises with no risk investment background, and takes enterprises with venture capital background as the research object. The specific amount of venture capital they have is used as an explanatory variable, which is recorded as VC number (1-9), which is used to measure the number of venture capital among the top ten shareholders of the company. Different incentives for different incentives affect executives' financial performance. There are many forms of compensation. Considering the availability of data, the natural logarithm of the previous three executives' annual remuneration and the proportion of the top three executives' shareholdings are recorded as lnPAY and MSP.

#### 4.1.3. Control Variables

The study of financial performance should introduce some important influencing factors to control. This paper introduces the age of listing (denoted as Age), the asset-liability ratio (denoted as lev), and the natural logarithm of total assets (denoted as: lnSCALE) to control research. Specific variables are defined as follows:

**Table 1.** Variable definition

Variables	Variable code	Value method
Roe	ROE	ROE = net profit / average net assets
Natural logarithm of executive compensation	lnPAY	PAY = average of the top three senior managers' salary sum
Executive shareholding ratio	MSP	MSP = number of executives holding shares / total share capital
Lev	LEV	LEV=Debt book value/company total assets
Natural logarithm of total assets	lnSCALE	Company's total asset value
venture capital	VCnumber	The amount of venture capital institutions among the company's top ten shareholders
Listing period	Age	Company's listing period

### 4.2. Model Building

In order to verify the above hypothesis, this paper establishes the following linear regression model for hypotheses 1, 2, 3, and 4 by using multiple linear regression analysis under the common characteristics of controlling investment efficiency:

$$ROE = \alpha_1 + \beta_1 \ln PAY + \beta_2 MSR + \beta_3 LEV + \beta_4 VC \text{ number} + \beta_5 Age + \beta_6 + \varepsilon \quad \text{formula 4-1}$$

## 5. Empirical Analysis

### 5.1. Descriptive Analysis

**Table 2.** Sample descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROE	167	7.7307	7.4902	-64.7315	40.1709
lnPAY	167	13.1073	0.4963	11.7361	14.7601
MSP	167	0.2034	0.1769	0.0000	0.6830
LEV	167	26.8223	15.4008	2.4386	68.7484
lnSCALE	167	21.0196	0.6245	19.5884	23.5269
VCnumber	167	3.0000	1.7578	1.0000	9.0000
Age	167	3.8221	1.2007	1.2795	6.1726

We have descriptive statistics on the data as a whole and obtained the results. As shown in Table 2, the four statistics of the mean, standard deviation, minimum and maximum values of the sample are obtained.

The data shows that for the return on equity (ROE), the difference between the minimum and maximum values is large, and the standard deviation is 7.4902, which indicates that the financial performance of the company is quite different. For the number of venture capital institutions (VC number), the average value is 3.000, and the maximum value is 9 (since the statistics of the top ten shareholder names in this paper are selected and the enterprises with venture capital background are selected, the maximum number will not exceed ten, the minimum value. Is 1). For the natural logarithm of executive compensation (lnPAY), the minimum value of 11.7161 is not much different from the maximum value. The shareholding ratio of executives (MSP) is at least 0.0000 and the maximum is 0.6830, which means that not all companies implement equity incentive policies, and different companies have different incentive policies. The asset-liability ratio (lev) is quite different. For the company's listing period (Age), the average value is 3.8221, the minimum value is 1.2795, the maximum value is 6.1726, and the standard deviation is 1.2007, indicating that the listing period varies greatly. For the natural logarithm of the total assets (lnSCALE), the difference between the minimum and maximum values is small, and the standard deviation is 0.6245, indicating that the company size is not much different.

### 5.2. Correlation Analysis

#### 5.2.1. Study the Relationship between Venture Capital and Executive Compensation on the Company's Financial Performance

**Table 3.** Variable Correlation Analysis Table (Venture Investment, Executive Compensation and Financial Performance)

	ROE	lnPAY	MSP	lnSCALE	Age	LEV	VC number
ROE	1.0000						
lnPAY	-0.0469***	1.0000					
MSP	-0.0427***	0.0743***	1.0000				
lnSCALE	0.0575***	0.9662***	0.2720***	1.0000			
Age	-0.0956***	-0.3234***	-0.0751** *	-0.3157***	1.0000		
LEV	-0.1076***	-0.0944***	-0.1091** *	-0.1020***	0.2804* **	1.0000	
VC number	0.0195	0.0321**	0.2361***	0.0720***	-0.0489* **	-0.4236** *	1.0000

\*\*\*P<0.01, \*\*P<0.05, \*P<0.1

From Table 3 we can conclude that corporate performance and venture capital are positively correlated, but not significant. There is a positive correlation between monetary compensation and performance in executive compensation, but the proportion of executives' shareholdings is negatively correlated with corporate performance, which contradicts the assumptions. It may be that the shareholding ratio of executives is positively related to the performance of the company within a certain range. Exceeding a certain range, there is not only an incentive effect, but also a negative correlation. After the analysis is completed, the paper will also conduct re-study through multiple linear regression analysis.

### 5.3. Multiple Linear Regression Analysis

**Table 4.** Regression results table (risk investment, executive compensation and financial performance)

Variables	Coefficient	T value	P value
VCnumber	4.8639	1.77	0.079
lnPAY	0.045191	17.33081	0.0000
Age	4.6958	0.93	0.355
lnSCALE	12.0414	1.46	0.146
LEV	0.015047	1.47189	0.1411
MSP	-0.06146	-2.47673	0.0133
Constant	-228.6383	-1.32	0.188
Obs	167		
R-squared	0.0715		

The regression analysis of executive compensation and other variables is shown in Table 4. The analysis shows that the mathematical model R-squared has a value of 0.0548. As can be seen from the above table, the amount of corporate finance and risk investment is positively correlated, and the P value of the model is less than 0.1, which is significant at the level of 10%, indicating that the more the number of venture capital, the better the financial performance of the enterprise. In strategic emerging industries, the greater the number of venture capital among the top ten shareholders of the company, the better the financial performance of the company. Affirming H1, the executive compensation system and the company's performance development are largely proportional to each other. It can be seen that the annual compensation of senior executives can improve the financial performance of the company; the shareholding ratio of executives and company performance is largely Negative correlation is presented, which means that the incentive effect of equity incentives on company performance does not exist, so we conclude that it is not completely consistent with H2.

## 6. Conclusions and Policy Recommendations

### 6.1. Conclusion

This paper uses the relevant data of Guotaian GEM 2013-2015 as a research sample to empirically study the impact of venture capital and executive compensation on corporate performance in strategic emerging industries. Through the above regression results, the following conclusions can be drawn: For enterprises with strategic emerging industries with risky investment background, the more the number of venture capital shareholders among the top ten shareholders, the stronger their business performance; meanwhile, the performance of executive compensation to enterprises Has a positive correlation, but this effect is weak. In the long run, the development of the company, the shareholding ratio of the executives and the company's performance are largely negatively correlated, that is, the equity incentives have no obvious relationship with the company's development.

The current situation in China is that the shareholding ratio of executives is relatively low, and

the probability of invisibility is far from sufficient. Many enterprises only pay attention to such simple rewards as compensation, and equity incentives cannot play their due role. The company's larger asset size also means that executives can have more resources and opportunities, and they need more time and energy from the executives, so they should get more returns and have a certain impact on the company's performance. Combined with the above, we can also conclude that the company's asset size has a positive relationship with the company's performance to a certain extent.

## **6.2. Policy Advice**

### **6.2.1. Executive Compensation**

First, the selection and employment system is market-oriented. Enterprises should closely follow the pace of market economy development, reform the management appointment system, and change the appointment system of senior management. From the aspects of the talents and literacy of the competitors, the ability to cope with risks, etc., comprehensively assess the talents, recruit managers who meet the development requirements of the enterprise, and determine the level of compensation according to the merits of their performance.

Second, the incentives are diversified. Enterprises should provide more development and leisure opportunities for outstanding executives, such as going abroad for study, paid vacations, etc., to maximize the satisfaction of executives at work, and make them more enthusiastic to create wealth for the company. In the activity.

Third, establish and improve internal restraint mechanisms. Effective and timely supervision, objective and fair control of company performance, improve the corresponding performance appraisal system, reduce short-term investment opportunism in the long run, and prevent fraud.

Fourth, enterprises should adopt more effective incentives to solve the problem of "insufficient incentives" that are common in enterprises with different property rights. We can learn from the experience of developed capital markets to grant executive stock options, and bundle their personal interests with the goal of maximizing corporate value, so that they pay more attention to the growth and development of the company. Only when the value of the enterprise increases, the executives can get a good return when they exercise their power. If the executives do not work diligently, they will not be able to obtain private benefits or even be dismissed due to poor performance. It establishes a risk awareness of "one glory, one loss and one loss".

### **6.2.2. Venture Capital**

First, actively cultivate high-quality and high-level venture capital talents.

Second, venture capitalists and enterprises should combine their own conditions and characteristics of investment projects, and choose appropriate cooperation models. They should not only seek short-term benefits, but also play a strategic guiding role and guide enterprises through market orientation.

Third, the government should also actively support and promote the development of the venture capital industry, and properly supervise, give certain preferential tax incentives to the venture capital industry and carry out key training and support.

Fourth, build a talent training mechanism in line with China's national conditions, and focus on cultivating local venture capital talents to improve the quality of the venture capital industry.

## **7. References**

- [1] Fang-Xiu SONG and Chen-Chen LI. The Impact of Venture Capital on Performance Changes of IPOs before and after IPO Listed Companies [J]. *Journal of Finance and Economics*, 2014, (5): 44-54 (In Chinese)
- [2] Yao LI and He SONG. Research on M & A Performance and Impact Mechanism of Listed Companies Supported by Venture Capital [J]. *Accounting Research*, 2017, (6): 60-67 (In Chinese)
- [3] Jone E. core. Robert WHohhausen and David F. Larcker: *Corporate governance, chief executive*

officer compensation and firm performance [J]. *Journal of Financial Economics*, 1999,51(3): 371-406

[4] MARTINJ, CONYON, LERONGHe. Executive compensation and corporate governance in China[J]. *Journal of Corporate Finance*, 2011, (17): 1158-1175