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Industry Dividend Cycle, Executive Compensation Incentive and Enterprise Performance

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ABSTRACT. *Based on 2647 valid samples of real estate industry and information technology industry from 2005 to 2016, multiple regression model was used to empirically test the relationship between industry dividend cycle, executive compensation incentive and enterprise performance. The research shows that :(1) the performance of enterprises in the industry dividend cycle is higher than that of enterprises in the non-industry dividend cycle; (2) the industry dividend cycle has a positive impact on the relationship between executive compensation incentives and corporate performance, and the impact has regional differences. The research of this paper is helpful for enterprises to seize the opportunity of industry development, reasonably design the incentive system of executive compensation, and improve enterprise performance.*

KEYWORDS: *industry dividend cycle, executive compensation incentive, enterprise performance, executive excess compensation*

1. Introduction

Since 2015, China's economic development has entered a "new normal" under the influence of factors such as the decline of population welfare and the profound adjustment of the international economic pattern. Deepening supply side reform, improving enterprise performance and enhancing enterprise competitiveness are effective ways to ensure the long-term and stable development of China's economy. The development of an enterprise is closely related to the position of its industry in the system and market. The higher the position of an industry in the system or market, the more power it has and the more dividends it can obtain from the system and market. That is, when an industry has a high institutional or market position, it is in the dividend period during the bonus period. As the pillar industry of the national economy, the real estate industry and the strategic emerging industry information

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technology industry have experienced the industry dividend cycle, which is the key industry to be studied.

Since 1998, the real estate industry has experienced many stages of development. In 2008, the financial crisis led to a comprehensive recession of the economic environment and a significant slowdown in the development of the real estate industry. At the executive meeting of the state Council held on February 20, 2013, the "five national regulations" on the regulation of the real estate industry was issued, ending the golden age of the real estate industry; after 2016, the real estate industry went to Inventory has been listed as a national key issue, the real estate industry is facing many difficulties. However, the information technology industry has entered a period of rapid development since it was listed in the first batch of national standard formulation and revision project plans in 2006.In 2016, the development plan of software and information technology service industry (2016-2020) further promoted the information technology industry to change from a big one Strong.

Under the theoretical framework of management rights, executive compensation is the embodiment of management rights. The increasing control of management over the company has brought about an impact that executives can more easily break the existing system of power supervision and power checks and balances. As a result, executive compensation has become the performance of management rent-seeking, not an effective incentive way. The optimal contract theory holds that, the board of directors can effectively supervise the management to make the optimal compensation contract design, so as to maximize the interests of executives and shareholders at the same time. Although the theory of management power is totally different from the theory of optimal contract, executive compensation incentive is always a means to motivate executives to improve corporate performance. How to effectively use the above theory to improve corporate performance is a common problem faced by enterprises. Industry dividend cycle reflects the support of the state in the system, market and other aspects of the industry. Can we design an appropriate executive compensation incentive system to improve enterprise performance in combination with industry dividend cycle? This is the problem to be solved in this paper.

Scholars at home and abroad have made a lot of achievements in the research on the impact of corporate performance, but no scholars have explored the transfer effect

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of industry dividend on corporate performance from the perspective of industry. In addition, the existing research on executive compensation and corporate performance has not reached the same conclusion, and few scholars combined with industry dividend cycle to study the relationship between executive compensation and corporate performance. Based on this, this paper has two main innovations: (1) the first study of the industry dividend cycle on corporate performance, to explore the impact of industry meso factors on corporate micro performance; (2) the industry dividend cycle will be included in the study of executive compensation and corporate performance, and further explore the relationship between industry dividend cycle, executive excess compensation and corporate performance.

2. Theoretical analysis and research hypothesis

2.1 Industry dividend cycle and enterprise performance

Under the influence of macro factors, the industry is in the leading position in the system and market. To obtain the system and market dividend is in the industry dividend cycle. The development of national strategy, system incentive, science and technology development and market demand are the key factors to determine whether the industry is in the dividend cycle.

In terms of national strategic development, the real estate industry was positioned as a national pillar industry in 2003, and has been developing at a high speed since then. The government has promulgated a series of laws and regulations to regulate the real estate market, strengthen management and supervision, which to a certain extent improves the performance of real estate enterprises. Since the release of the 13th five year plan for the development of national strategic emerging industries in 2016, the real estate industry has been developing rapidly. Seven strategic emerging industries represented by information technology industry have become the main driving force of economic growth. In terms of institutional incentive, institutional environment is not only positively related to the performance of start-up enterprises, but also can regulate the relationship between organizational redundancy and enterprise performance in economic transformation, which is conducive to improving enterprise performance. In the aspect of science and technology development, the development of science and technology must be the result of science and technology innovation.

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Science and technology innovation can improve the utilization efficiency of resources, comprehensively enhance the core competitiveness of enterprises, and then improve the performance of enterprises. In terms of market demand, market demand can not only improve product quality, but also promote the transformation of emerging industries, help enterprises innovate and improve enterprise performance.

To sum up, the development of national strategy, system incentive, science and technology development and market demand will have a positive impact on enterprise performance. In the industry dividend cycle, the adjustment of national strategy creates many convenient conditions for the development of the industry. Various policies issued by the government provide many new development opportunities for all walks of life. With the transformation of market economy, the progress of science and technology, and the industry structure. Many changes have begun to appear, the role of market demand is more obvious, the competitiveness of enterprises in some industries has gradually increased, and the operation of enterprises will also directly affect the performance of enterprises. Therefore, the following assumptions are proposed:

Hypothesis 1: industry dividend cycle is positively correlated with firm performance. That is, the performance of enterprises in the industry dividend cycle is better than that in the non industry dividend cycle.

2.2 Industry dividend cycle, executive compensation incentive and enterprise performance

Some scholars have done a lot of research on the relationship between executive compensation and corporate performance. There is a positive correlation between executive compensation and company performance, but there are always significant differences between China and the United States. The compensation performance contract relationship between listed companies and executives in China has been basically formed, and there is a significant positive correlation between executive compensation and corporate performance. In the context of salary restriction, the positive correlation between executive compensation and corporate performance is significantly reduced. However, there is no correlation between the executive compensation level, compensation structure and corporate performance.

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From the research results of scholars at home and abroad, we can see that there is no unified conclusion between executive compensation and corporate performance. It is necessary to introduce other regulatory variables to further study the correlation between executive compensation and corporate performance. In the enterprises with high financing constraints, there is a significant positive correlation between executive compensation and corporate performance. It can be seen that the industry dividend cycle does have an impact on the relationship between executive compensation incentive and corporate performance. As a comprehensive reflection of national strategy, institutional incentive, technological development and market demand, does the industry dividend cycle have an impact on the relationship between executive compensation incentive and corporate performance? The change of industry cycle will have an impact on the financial strategic mode of enterprises. The system environment has a significant impact on the incentive effect of executive compensation. The better the business environment is, the higher the executive compensation is, the higher the quality of enterprise accounting information is, and the high-quality accounting information really improves the performance of the company, that is, the profit growth rate of the enterprise is synchronous with the industry cycle.

In conclusion, the industry dividend cycle will have an impact on the relationship between executive compensation incentive and corporate performance. In addition, the eastern market-oriented process index is higher, the institutional environment causes institutional differences of listed companies, and regional factors become an important factor affecting the performance of listed companies. Therefore, the following assumptions are proposed:

Hypothesis 2: the correlation between executives; excess compensation and the performance of enterprises in the industry dividend cycle is higher than that of enterprises in the non industry dividend cycle.

Hypothesis 3: there are regional differences in the impact of industry dividend cycle on the correlation between executive compensation and corporate performance.

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3. Research and Design

3.1 Sample selection and data source

This paper takes 2005-2016 as the research area and China real estate listed companies and information technology listed companies as samples to explore the relationship between industry dividend cycle, executive compensation incentive and corporate performance. In order to ensure the reliability and validity of the study, the initial samples were processed and screened as follows: (1) ST and * ST enterprises were eliminated; (2) Enterprises with missing financial data were eliminated. Finally, 2647 valid samples are obtained, and the sample data comes from CSMAR database.

3.2 Definition of variables

1. Explained variable

Enterprise performance refers to the enterprise operating efficiency and operator performance in a certain period of operation. The level of enterprise operating efficiency is mainly reflected in profitability, asset operation level, debt paying ability and follow-up development ability. The performance of the operator is mainly reflected by the achievements and contributions made by the operator to the operation, growth and development of the enterprise in the process of operation and management. In this paper, the return on total assets (ROA) is used to express enterprise performance.

2. Explanatory variable

Industry dividend cycle is subject to national development strategy, system incentives, scientific and technological development and market demand four factors. The influence of these four factors on the industry is concentrated in the performance of the industry. Economic Value Added (EVA) is the most accurate measure to measure the performance of a company. It can make the most accurate and appropriate evaluation on the performance of a company in whatever period of time. The EVA ratio of industry net assets reflects the EVA created per unit net assets of the industry. It can compare the growth of EVA in different industries with the same scale

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and analyze whether the industry is in the dividend cycle. The calculation formula of EVA rate of industry net assets is:

$$\text{EVA rate of industry net assets} = \frac{\text{industry EVA}}{\text{industry net assets}}$$

Among them, the calculation formula of industry EVA is: industry EVA= after-tax net operating profit of the industry - cost of capital of the industry

When EVA ratio of industry net assets is positive, it means that the industry is in the dividend cycle; when EVA ratio of industry net assets is negative, it means that the industry is not in the dividend cycle. In this paper, dummy variable T represents the industry dividend cycle, T=0 represents the dividend cycle, and T=1 represents the non-dividend cycle.

Executive compensation generally includes monetary compensation and stock options, etc., but for most listed companies in China, monetary compensation is still the most important way, and stock options and other incentive methods are not common. Overseas research on executive compensation mainly focuses on CEO compensation, while domestic research on the impact of company information disclosure tends to examine the compensation level of the top three executives。 Therefore, this paper uses the natural logarithm (lnap) of the top three executives to express executive compensation incentive.

3. Control variable

This paper selects size, tobinq, oc10 and area as control variables. The variables involved in this paper and their measurement are shown in Table 1:

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Table 1 Variable definition

Variable type	Variable name	Variable symbol	Variable definition
Explained variable	Enterprise performance	ROA	Return on total assets
Explanatory variable	Industry dividend cycle	T	T = 0 for dividend period, t = 1 for non dividend period
	Executive compensation incentive	LNAP	Natural logarithm of top three executives's; compensation
	Executive overpayment	OVERAP	The difference between the actual salary and the expected salary of senior executives
control variable	Enterprise scale	SIZE	Natural logarithm of total assets at the end of the period
	Enterprise growth	TOBINQ	Tobin Q value
	Equity concentration	OC10	Shareholding ratio of top ten shareholders
	Intangible assets ratio	IA	Intangible assets / total assets of the enterprise
	Business area	EAST	If east = 1, the enterprise is located in the East, and the rest is 0

3.3 Model construction

In order to test the hypothesis proposed in this paper, the following regression models are constructed:

Build model 1 based on assumption 1:

$$ROA_{it}=\alpha_0+\alpha_1 T_{it}+\alpha_2 SIZE_{it}+\alpha_3 TOBINQ_{it}+\alpha_4 OC10_{it}+\alpha_5 EAST_{it}+\varepsilon_1 \quad (1)$$

Build model 2 based on assumption 2:

$$ROA_{it}=\beta_0+\beta_1 LNAP_{it}+\beta_2 SIZE_{it}+\beta_3 TOBINQ_{it}+\beta_4 OC10_{it}+\beta_5 EAST_{it}+\varepsilon_2 \quad (2)$$

Build model 3 according to hypothesis 3:

$$ROA_{it}=\gamma_0+\gamma_1 T_{it}+\gamma_2 LNAP_{it}+\gamma_3 SIZE_{it}+\gamma_4 TOBINQ_{it}+\gamma_5 OC10_{it}+\varepsilon_3 \quad (3)$$

Among them, ROA represents enterprise performance, T represents the virtual variable of industry dividend cycle, lnap represents executive compensation incentive, size represents enterprise scale, tobinq represents enterprise growth, oc10 represents the shareholding ratio of the top ten shareholders of the enterprise, and East represents the region of the enterprise.

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4. Empirical Analysis

4.1 Descriptive statistics

Table 2 is the descriptive statistical results of main variables. In order to exclude the influence of extreme values, the variable observed values were winsorize processed with 1% quantile in this paper. It can be seen from table 2 that the ROA is 0.031, the maximum value is 0.496, and the minimum value is -3.856, indicating that the performance of listed enterprises in information technology industry and real estate industry is at a low level, which is mainly related to China economic development entering the "new normal"; the standard deviation of T is close to 0.5, indicating that there is a change in industry dividend cycle and the development of enterprises is far away. The maximum value of lnap is more than 17, and the minimum value is less than 11, which shows that enterprises pay different attention to the compensation of executives. In terms of control variables, the standard deviation of control variables such as size and tobinq is large, which shows that there is a great heterogeneity in enterprise size and growth. Descriptive statistical results indirectly show that it is feasible to study the relationship between industry dividend cycle, executive compensation incentive and corporate performance.

Table 2 Descriptive statistics

	Obs	Min	Max	Mean	Std.Dev.
ROA	2647	-3.856	0.496	0.031	0.145
T	2647	0	1	0.72	0.450
LNAP	2647	10.728	17.406	14.135	0.882
SIZE	2647	16.757	27.446	21.856	1.461
TOBINQ	2647	0.094	42.393	2.680	3.360
OC10	2647	11.190	97.490	56.881	16.089
EAST	2647	0	1	0.83	0.375

Source: calculated based on CSMAR database data

4.2 Correlation analysis

Table 3 shows the person correlation coefficient between enterprise performance and test variables. It can be seen, at the significance level of 5%, there is a significant

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positive correlation between industry dividend cycle and executive compensation incentive and enterprise performance, which lays the foundation for the research hypothesis of this paper. In terms of control variables, there is a significant correlation between enterprise SIZE, TOBING and ROE. In addition, the correlation coefficient of any two variables is less than 0.6, so it can be preliminarily considered that there is no serious multi-collinearity problem, which is suitable for linear regression analysis.

Table 3 Correlation coefficient table

	ROA	T	LNAP	SIZE	TOBINQ	OC10	EAST
ROA	1						
T	0.056**	1					
LNAP	0.167**	-0.094**	1				
SIZE	0.093**	-0.282**	0.580**	1			
TOBINQ	0.049*	0.194**	-0.084**	-0.452**	1		
OC10	0.105**	-0.007	0.128**	0.074**	0.032	1	
EAST	0.071**	0.060**	0.052**	0.046*	-0.014	0.019	1

4.3 Regression analysis

This paper uses stata14.0 to test 2647 valid samples of real estate industry and information technology industry. Further tests show that the VIF values are less than 10, which further shows that there is no serious multicollinearity problem among variables. The regression results are shown in Table 4.

Model 1 explores the impact of industry dividend cycle on corporate performance. From table 4, the regression coefficient of T is 0.010, which is significant at 5% confidence level. Hypothesis 1 holds, indicating that the performance of enterprises in industry dividend cycle is higher, indicating that industry dividend cycle can be transmitted to enterprises, which has a positive impact on corporate performance. Model 2 explores the impact of industry dividend cycle on the relationship between executive compensation incentive and corporate performance. The regression results of model 2 show that when t = 1, the LNAP is 0.019, which is significant at 1% confidence level; when t = 0, the LNAP is 0.005, which is significant at 10% confidence level. If 0.019 is greater than 0.005, hypothesis 2 holds, it shows that when the enterprise is in the industry dividend cycle, executive compensation incentive can significantly improve enterprise performance, but when the enterprise is not in the

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industry dividend cycle, executive compensation incentive has no obvious effect on enterprise performance. Model 3 explores the relationship between industry dividend cycles, executive compensation incentive and enterprise performance in different regions. The regression results of model 3 show that when EAST = 1, the T is 0.009, which is significant at 1% confidence level, and the LNAP is 0.014, which is significant at 1% confidence level; when East = 0, the T is 0.004, which is not significant. The LNAP is 0.009, which is significant at 10% confidence level. Hypothesis 3 is established, which shows that for enterprises in the eastern region, industry dividend cycle and executive compensation incentive can have a significant positive impact on the performance of enterprises in the eastern region, but the impact on enterprises in the western region is not significant. In addition, from the regression results of control variables, we can see that the larger the enterprise scale, the better the growth, the more concentrated the equity, and the better the enterprise performance.

Table 4 Regression results

Variable	Model1	Model2		Model3	
		T=1	T=0	EAST=1	EAST=0
T	0.010** (4.33)			0.009*** (3.90)	0.004 (0.75)
LNAP		0.019*** (10.39)	0.005* (2.15)	0.014*** (9.20)	0.009* (2.12)
SIZE	0.0054*** (6.59)	-0.0004 (-0.28)	0.0007 (0.40)	-0.0008 (-0.80)	0.0029 (0.86)
TOBINQ	0.005*** (12.45)	0.004 * * (8.64)	0.004*** (3.48)	0.005*** (11.34)	0.001 (0.99)
OC10	0.0007*** (11.92)	0.0008*** (10.43)	0.0005*** (4.80)	0.0006*** (9.97)	0.008*** (4.82)
EAST	0.016*** (6.14)	0.019*** (5.85)	0.007 (1.80)		
CONSTANT	-0.157*** (-8.37)	-0.291*** (-11.52)	-0.099** (-3.29)	-0.201*** (-9.51)	-0.221*** (-4.50)
F	81.82	92.22	10.69	96.00	9.88
N	2647	1902	745	2199	448

Source: according to the data of CSMAR database, * * *, * *, * are significant at the level of 1%, 5% and 10%, respectively.

4.4 Robust test

In order to ensure the reliability of the conclusions, the following robustness tests are carried out. First of all, with reference to the practices of Luo Hong, Luo Kun and Cao Guangyu, we use "the logarithm of the total remuneration of the top three directors, supervisors and senior executives of listed companies" and "the logarithm of the total remuneration of the top three directors" to replace "the logarithm of the

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total remuneration of the top three senior executives" to calculate the excess remuneration, and put it into the model for regression, and the conclusion has not changed substantially. Secondly, referring to Ye Jianhong and Wang Wei's definition method of excess compensation, the regression residual is used as the measurement standard of the excess compensation of senior executives, and the regression analysis is carried out again, and the conclusion remains unchanged. Finally, the effective samples of real estate and information technology enterprises are put into the model for regression respectively, and the conclusions have not changed substantially. Therefore, it can be considered that the results of this paper are robust and credible.

5. Conclusion

Through empirical analysis of empirical data from listing formulas of China's real estate industry and information technology industry from 2005 to 2016, this paper explores the relationship between dividend cycle, executive compensation incentive and enterprise performance, and draws the following conclusions: (1) Industry dividend cycle is positively related to enterprise performance. Enterprises in the industry dividend cycle are supported by national strategies, systems and scientific and technological development, which is conducive to their own development and growth, so as to improve enterprise performance.(2) Executive compensation incentive can effectively improve the performance of enterprises in the industry dividend cycle, but has little impact on the performance of enterprises in the non-dividend cycle. Salary incentive for senior executives is a recognition of their abilities. When an enterprise is in the bonus cycle of the industry, senior executives can seize the opportunity to improve corporate performance. In addition, the industry on executive compensation and corporate performance extra bonus cycle correlation effect is more obvious in the eastern region, the influence of uneven level of development in eastern and western regions, the eastern region business support for national strategy, institutional incentives more agile reaction, the resulting industry bonus cycle impact on executive compensation and corporate performance correlation extra regional differences.

Based on the above research conclusions, the following policy suggestions are put forward: (1) When designing executive compensation incentive system, enterprise owners should consider the dividend cycle of the industry they belong to. If the

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industry they belong to is in the dividend cycle of the industry, they can combine the theory of management rights to give full play to the rights of executives and encourage them to seize the opportunities of the industry; if the industry they belong to is not in the industry. In the dividend period, we should combine the optimal contract theory to provide appropriate compensation for the executives, so as to avoid the negative impact of excessive compensation on the corporate performance. (2) When managing an enterprise, executives should improve their policy and system acumen, seize the opportunity provided by the industry dividend cycle of the enterprise, and improve enterprise performance.

The research of this paper has the following limitations: (1) This paper only based on the data of Listed Companies in real estate industry and information technology industry, which can only represent the data of these two industries, and has no generalization. In the future, scholars can expand the research object to provide more convincing evidence. (2) At present, there are no scholars to measure the industry dividend cycle. In this paper, EVA rate of industry net assets is used to measure the industry dividend cycle, which may have some errors. In the future, scholars can provide more accurate measurement methods.

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