

Design and Incentives of Equity Incentives in Chinese SOEs in Response to Environmental Uncertainty

--Case Study of Hikvision Based on Grounded Theory

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Abstract: High-tech companies are the most affected by restrictions on their ability to innovate. As the epitome of high-tech enterprise development in China, Hikvision actively explores and boldly innovates the equity incentive method and is always adapting to cope with internal and external environmental instability. This paper analyzes and compares the first four equity incentives based on the uncertainty factors and motivations of the internal and external environment of the enterprise, takes this as the starting point, starts from the environmental motivations, and according to the constructively-rooted theory proposed by Glaser and Strauss, carries out programmed coding for the three dimensions of environmental factors, equity incentive plan selection and overall enterprise value enhancement. In this paper, we investigate the rationality of Hikvision's equity incentive policy setting, evaluate the effectiveness of the equity incentive policy, and predict the likelihood of equity lock-up under future environmental trends through tools such as excess return and return on equity. Based on the advantages and disadvantages, this paper puts forward the improvement of the equity incentive policy already implemented, and puts forward the universal suggestions on the application of equity incentive to deal with the environmental uncertainty, and establishes the equity incentive model for enterprises to deal with the uncertain environment to help enterprises make better management decisions.

Keywords: uncertainty of environment, Hikvision, equity incentive, incentive effect, performance

1. Introduction

This paper is devoted to the study and analysis of how Chinese high-tech enterprises can improve their independent innovation capacity and overall value through financial tools in the context of environmental uncertainties in order to take the high ground in the industry. As a local company in Zhejiang province, Hikvision has used the past two decades to demonstrate to the world China's confidence in independent R&D in science and technology and revolutionize the security sector, which has long been monopolized by foreign countries. Unlike most SOEs that have adopted a prudent financial strategy, Hikvision's equity incentive plan has been at the forefront of SOE reform, which has contributed to the steady growth of Hikvision's independent R&D strength and the rapid

increase in its market capitalization. In all the charts below, the data is from publicly available corporate earnings and flush software.

Chapter 1 is an introduction, presenting background and re-searching the implications of equity incentives. Section 2 is devoted to literature review related concepts and theories, elaborating on equity incentives and environmental uncertainty related concepts and theories. Section 3 presents the research design ideas for Hikvision case data open coding, subject coding, and selective coding, respectively. Chapter 4 is devoted to the introduction, positioning and comparison of the four different equity incentive plans. Section 5 we analyze the equity incentive setting problem under environmental uncertainty in Hikvision and investigate equity incentive setting strategies in combination with environmental uncertainty.

2. Literature Review

Through the study of domestic and foreign literature, this paper reviews the environmental uncertainty, equity incentive motivation and implementation effect.

In this paper, we review environmental uncertainties, equity incentives, and implementation effects through a study of domestic and international literature. Regarding the relevant factors of equity incentive schemes, Baranchuk found that in the design process of equity incentive schemes, some unreasonable elements can be set, but the enterprise benefits cannot be realized [1]. Chang.X.K. pointed out that equity incentive plans should adequately reflect the effective cost and risk control of equity incentive [2]. Jensen develops appropriate performance analysis system, so as to keep the interests of managers and owners consistent [3].

The grounded theory approach is a qualitative one, based on inductive logic without a prior organizer [4]. Shen C.H also reached a similar conclusion. Through the implementation of equity incentives for employees, they found that the cost of the company would increase and even produce negative effects [5]. Sapp S.G. showed that the higher the shareholding of senior managers of a company, the better the company's operating efficiency, and there is a positive correlation between the two [6]. In this paper, we use Hikvision as an example to study the impact of uncertainty in the internal and external environment on how companies implement equity incentives.

3. Research Design

In this study, we mainly use the longitudinal single case study approach. First of all, the research question of this paper involves the detailed process of "how to". Since its inception, Hikvision has conducted innovative and imaginative research to design and categorize three dimensions of environmental factors, equity incentive plan selection, and corporate performance.

In this paper, based on the grounded theory, open coding, spindle coding and selective coding are carried out on Hikvision case data, respectively, to explore the environmental factors that affect Hikvision's choice of equity incentive plan, and to build a typical model of the relationship between environmental factors, equity incentive plan choice, and corporate performance.

In open coding, the data collected by the Hikvision case is analyzed line by line: conceptualization and categorization. With open coding, Hikvision case coding yields 22 concepts and 11 categories. The main purpose of spindle coding is to establish internal relations between categories. Specifically, the independent categories are regrouped according to the conceptual category relations (such as semantic relations, situational relations, or functional relations, etc.). In this study, 11 subcategories are summarized into four main categories, further clarifying the internal relationships among the data. This paper takes "environmental factors affecting Hikvision's choice of equity incentive plan" as the core category and summarizes it with a story line.

4. Case Analysis

Since Hikvision landed on the capital markets in 2010, the domestic security market for mobile phones and video surveillance has entered a period of explosion. From 2012 to 2021, Hikvision successively launched five periods of restricted stock plans (see Table 4.1), and the number of people in each stock incentive and the stock grant price kept increasing, which drove the continuous growth of Hikvision's operating income and net profit.

Table 1: Hikvision restricted stock profile.

	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Announcement day	2012.4.24	2014.4.22	2016.10.21	2018.8.16	2021.10.7
Grant date	2012.8.23	2014.10.24	2016.12.23	2018.12.20	2022.1.18
Incentive mode	Restricted stock				
Stock source	Private placement of new shares				
Validity period	10 Year				
Lockup period	24 months				
Unlock period	From 24 months to 60 months after grant				
Incentive object level rating	Excellent 100	Excellent 100	qualified 100	qualified 100	qualified 100
Ratio of unlocking to unlocking	qualified 95	qualified 95	qualified 50	improved50	improved50
	improved 0	improved 0	Unqualified 0	Unqualified 0	Unqualified 0
Incentive shares	8,611,611	52,910,082	52,326,858	121,195,458	99,417,229
Total stock (%)	0.43	1.32	0.86	1.31	1.06
Motivators (%)	9.86	11.86	19.64	24.74	23.27
Grant price	10.65	9.50	12.63	16.98	29.71

4.1. Analysis of Hikvision's Previous Equity Incentive Plans

The first equity incentive (2012) in January 2004, the shareholder Gong Hongjia expressed his willingness to transfer 15% of the equity to the management team in the future. In 2007, the fulfillment of this commitment enabled the Company's management to reap significant benefits from equity and asset appreciation. This is a beneficial incentive and an essential basis for Hikvision's future normal course equity incentive plan.

The second equity incentive (2014). The incentive program, which includes executives for the first time and focuses on grass-roots managers, awarded 70.82 percent. With respect to the unlocking index setting, the second stage equity incentive is more difficult. The compound operating income growth rate increased to 35 percent in 2013 after the company's operating income exceeded 10 billion marks.

The third equity incentive (2016). The current index "economic added value" in the third phase requires that the un-locked value should not be lower than the average value of the three years before the award and the value of the year before the award. There is a significant jump in the excitation scale from the second to the third phase.

The fourth equity incentive (2018). The volume release lock criterion is lowered to a phase 4 minimum. Unlocking criteria are lowered to cater industry means. Unlocking metrics can be adjusted flexibly.

The fifth equity incentive (2020). The total number of incentives is up from previous installments, but the total size of incentives is down slightly. In addition, in terms of unlocking metrics, the CAGR of operating income has been adjusted down from 20% in 2018 to 15%, which is down from 35% in 2014. This design makes sense since an increase in the base itself would delay growth due to downward pressure.

4.2. Application of Grounded Theory of Hikvision's Environment

Table 2: Classification and summary of all equity incentive environmental uncertainties.

Classification of uncertain environment			Concrete performance
External Environment	Competitive advantage environment	competitor	Security products are homogenized
		Potential entrant	Cross-border integration of the Internet
	Industry environment	Domestic economy	Macroeconomic growth has slowed Industrial development suffers
		International trade	Sino-us trade friction
		Supply structure	Security supply-side reform
		Technical environment	Security technology change AI landing
Technical Environment	Material resources	Employee structure	Brain drain
		Customer status	Insufficient cash flow
	Humanistic environment	Enterprise innovation culture	Lack of innovation impetus

5. Incentive Performance Evaluation

5.1. Short-term Performance Evaluation

We chose $[-5,5]$ on the release date of Hikvision's equity incentive plan draft as the event period to investigate the fund's market response to the launch of the equity incentive plan, and calculated AR and CAR to analyze market expectations.

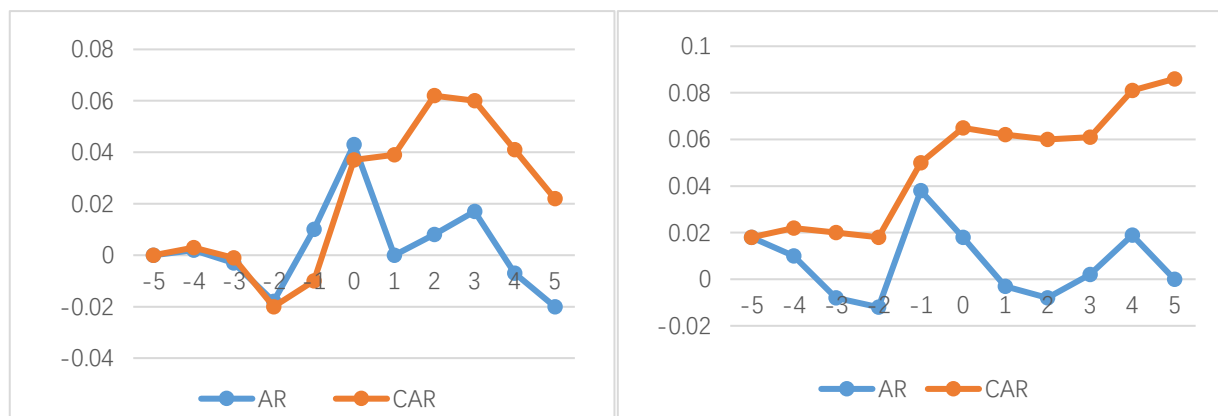


Figure 1: Changes during phase I AR and CAR. Figure 2: Changes during Phase II AR and CAR.

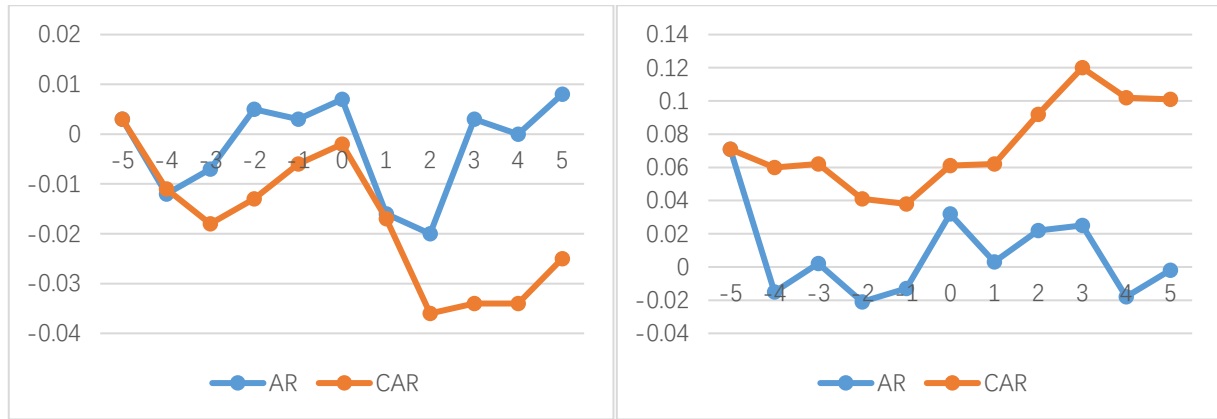


Figure 3: Changes during Phase III AR and CAR. Figure 4: Changes during Phase IV AR and CAR.

5.2. Long-term Performance Analysis

Table 3: Hikvision comprehensive evaluation score sheet.

First-order index	Secondary index	2010	2011	2012	2013	2014	2015
Solvency	Current ratio	0.0275	0.0172	0.0151	0.0135	0.0058	0.0026
Operational capacity	Inventory turnover rate	0.0012	0.0023	0.0032	0.0047	0.0063	0.0085
Profitability	Return on equity	0.0025	0.0000	0.0017	0.0032	0.0054	0.0047
Growth ability	Revenue growth rate	0.0114	0.0065	0.0052	0.0072	0.0093	0.0068
Other indicators	Newly applied patents	0.0002	0.0001	0.0006	0.0000	0.0021	0.0084
Comprehensive performance		0.0635	0.0385	0.0486	0.0606	0.0678	0.0626
First-order index	Secondary index	2016	2017	2018	2019	2020	2021
Solvency	Current ratio	0.0051	0.0026	0.0000	0.0033	0.0013	0.0037
Operational capacity	Inventory turnover rate	0.0051	0.0026	0.0000	0.0033	0.0013	0.0037
profitability	Return on equity	0.0076	0.0068	0.0063	0.0020	0.0000	0.0014
Growth ability	Revenue growth rate	0.0046	0.0048	0.0043	0.0028	0.0015	0.0026
Other indicators	New patents	0.0030	0.0039	0.0016	0.0010	0.0000	0.0009
Solvency	Current ratio	0.0203	0.0147	0.0189	0.0313	0.0295	0.0255
Comprehensive performance		0.0753	0.0637	0.0633	0.0693	0.0626	0.0643

Following the implementation of the equity incentive plan, Hikvision's profitability improved and remained at peak levels. Equity incentives have a positive impact on corporate profitability. While Hikvision's total asset growth rate has declined, it has been more stable and consistently higher than the industry average, remaining around 20%, indicating the effectiveness of equity incentives.

Hikvision's development momentum is excellent, with a steady increase in total asset turnover, which is sufficient to demonstrate its operational capabilities.

6. Conclusion & Revelation

In this paper, under the circumstance that there are numerous uncertain factors at home and abroad in 2022 and the fluctuation range is large, the equity incentive is finally determined as a more effective incentive by referring to the ways that domestic and foreign enterprises deal with risks, and a representative enterprise in China is found, combined with the principal-agent theory, two-factor incentive theory and human capital theory. Horizontal and vertical comparison tests of stock incentive response to uncertainty were performed by Hikvision in conjunction with motivation analysis. The following conclusions can be drawn from the study:

Hikvision's equity incentive plan has been generally effective in improving the company's profitability, maintaining its operational capacity and stabilizing its growth capacity. On the one hand, the implementation effect of equity incentives is affected by objective factors such as the macroeconomic environment, the industrial competitive environment and the company's internal environment. On the other hand, imperfections in the design of equity incentives, such as single incentive mode, imbalance of incentive objects, and lack of caution in unlocking conditions, also inhibit the implementation of the effect. From a concrete point of view, there are certain deficiencies in the equity incentives of each life stage. Hikvision should further improve the company's equity incentive system, actively enhance its sensitivity, use the company's life cycle concept to improve the implementation of equity incentives in the future.

The case of Hikvision Equity Incentive shows that equity incentive is one of the effective incentive methods in business, and the equity incentive system of a business can help in the final realization of the goals at each life stage. On the one hand, equity incentives are an effective incentive method. On the other hand, equity incentives can be problematic in a variety of ways, making some companies wary. In recent years, China still in a lack of mandatory laws and regulations. But China's lack of a legal mindset sets the stage for executive misconduct. The future legalization of equity incentives is critical for the practice of equity incentives in Chinese enterprises.

This paper is based on Hikvision's equity incentive plan to study the practices of public companies in an uncertain environment. Due to the lack of field studies, the case study may have certain limitations, especially in the calculation of AR, CAR analysis and non-financial impact. In addition, although Hikvision is a leading enterprise in the field of video surveillance, its equity incentive plan provides a reference for the industry and other companies to cope with environmental uncertainties, due to the cross-industry characteristics of listed companies, the advantages of this plan may not be applicable to other listed companies, and the conclusion may have certain limitations.

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