Research and Analysis of Enterprise Equity Incentives and Technological Innovations—Taking Huawei as an Example

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Keywords: Huawei, Equity incentive, Technology innovation.

Abstract. This paper takes Huawei as a classic case, based on principal-agent theory and technological innovation theory, and uses normative research and case analysis methods to summarize and analyze the equity incentives and enterprise technologies of Huawei's different life cycles.

Introduction

Corporate management is the decision-maker of the company's major issues, and has a crucial impact on corporate investment decisions, including innovation. Management's motivation and risk appetite have an important impact on corporate investment decisions. Enterprise management has opportunistic behavior in its innovation activities. As an important mechanism for solving the principal-agent problem, an important criterion for the reasonableness of the executive compensation plan is whether it has an incentive effect on innovation. Recent studies have shown that paying according to performance is not the most rewarding plan for corporate innovation, and sometimes even negative. Since the split share structure reform, equity incentives have become an important incentive. This paper analyzes Huawei's equity incentives and R&D investment in different periods, and analyzes equity incentives and enterprise technology innovations to provide theoretical guidance and experience for other companies.

Theoretical Basis and Research Methods

In a modern joint-stock enterprise, the shareholder, according to his or her power, passes the ownership to the board of directors through elections to form a proxy for ownership. The board of directors gives the management right to the operator through the contractual relationship, forming a management right agent, and at this time, a principal-agent relationship between the shareholder and the operator is formed. Under certain circumstances, the inconsistency between the two interests may lead to the so-called “agent problem.” The main reason for the lack of R&D investment is the lack of motivation. The theory of equity incentives points out that the implementation of equity incentives can converge the interests of owners and operators, thereby reducing agency problems, enhancing R&D investment dynamics, and solving the problem of insufficient investment.

This paper adopts the vertical single case study method. The single case analysis method can make use of the empirical description to make the “how” and “why” clear. Secondly, the vertical design can better understand the situation that the enterprise is the equity incentive and R&D expenses in different life cycles, and better answer the main points of this paper.

Research Sample Selection

This paper selects Shenzhen Huawei Technologies Limited Company. (Hereinafter referred to as Huawei) as a sample case study. Huawei is a typical private enterprise and is representative of equity
incentives and technological innovation capabilities. In recent years, Huawei has served more than one-third of the world's population in more than 170 countries around the world. In the field of communications, Huawei has surpassed Cisco, Ericsson, Nokia and other Western traditional communications giants to become the industry leader. In the first half of 2018, Huawei shipped more than 95 million smartphones, becoming the global supplier of Tilda smartphones after Samsung Electronics.

As an outstanding private company, Huawei has adopted different equity incentive plans in different periods from development to growth and maturity. It has dealt with and solved a series of problems on the development road. The equity incentive plan is increasingly perfect and Mature, Huawei has become more comfortable with equity incentives, and successful equity incentives have provided valuable experience for private companies in China.

Analysis of Huawei's Stock Right Incentive under Different Life Cycles

In the initial stage of the company's financing difficulties, Huawei began a full shareholding plan, employees holding 98.6%, Ren Zhengfei holding 1.4%, through equity incentives and decentralized equity to deal with the initial instability of private enterprises. Most enterprises in China mainly adopt the incentive model of stock options. The income of the incentive object is closely related to the change of stock price in the market. When the stock price rises, the motivated object can obtain benefits through exercise.

According to Huawei's development experience and changes in the equity incentive model, the life cycle theory is used to divide the period from 1987 to 2000 into a development period, from 2000 to 2010 into a growth period, and after 2010 to a maturity period.

Early Stage Equity Incentives (1987-2000)

At the beginning of the venture, Huawei needs to carry out a large amount of funds and talents to solve the internal financing incentives. In 1990, the employee stock ownership plan was first proposed, and the issue of full shareholding was adopted. At the price of one yuan per share as the share price, the transition from the fixed stock dividend model to the virtual restricted stock model in 2000 promoted the “virtual restricted stock” incentive model.

Stabilization of Growth Equity Incentives (2000-2010)

In 2003, the new “equity allocation” strategy: the quota of shares is used to control the ratio of redemption of different employees; the proportion of core employees that can be redeemed per year cannot exceed 1/10; the fixed period is limited to three years. In 2008, the “Saturation Share Allotment” incentive model was implemented. On the basis of stabilizing old employees, a large number of new employees were attracted on a large scale, balancing the interests of old employees and new employees.

Dynamic Equity Incentives at Maturity (2010-2016)

After 2010, the virtual stock incentives were basically mature. In 2013, the employee salary was increased by 3%. The annual incentives were increased to implement the long-term equity incentive plan. In 2014, the dynamic TUP virtual stock incentives were added, with a five-year economic cycle and a certain proportion equity.

Analysis of Huawei's R&D Innovation


In the early 1990s, China's reform, opening up, and modernization drive a wave of demand for communications. In the capacity of “civil technology”, it was officially approved by the Trade and Industry Bureau. In 1993, it launched 2,000 office switches. At that time, the products were mainly
imitated, and the products themselves did not have any advantages until the first invention patent was granted in 1995. By 1999, the patents granted were 167 invention patents, 72 utility model patents and 76 design patents.

**Innovative Development Stage Innovation (2000-2010)**

After continuous high R&D investment, Huawei's skills have undergone significant changes at this stage, and it has entered the ranks of “domestic leading”. From 2000 to 2003, Huawei also experienced a period of growth stagnation. In 2004, it began to enter a large-scale development, and its technological capabilities entered the ranks of “international advanced”. In 2006, Huawei's PCT international patent application volume was 575, ranking 13th in the world. In 2008, Huawei's PCT international patent application volume was 1,737, surpassing Japan's Panasonic and Philips to become the world's number one.

**Mature Rapid Development Period (2010-2017)**

In 2013, when it entered a period of rapid development, it set up a global financial risk control center in London. In 2015, smartphone shipments exceeded 100 million units. Ranked among the top three in the global smartphone market and ranked first in China. By the end of 2017, Huawei had obtained a total of 74,307 patent licenses; it has applied for a total of 64,091 Chinese patents and applied for a total of 48,758 foreign patents, of which more than 90% are invention patents.

**Analysis of the Impact of Huawei's Equity Incentive on R&D Innovation**

**Huawei's Employee Stock Ownership Plan Is the Most Representative of the Equity Incentive System Implemented by Chinese Companies**

Ren Zhengfei exercised the company's control and ownership through only 1.4% of the company's share capital, and the remaining 98.6% of the entire “take it out”, shared with the company's staff, Ren Zhengfei's “small wealth” behavior, won The recognition of the company's employees has promoted the rapid development of the company and actually got the “big money.” Huawei's equity incentive system is different from other companies, and its incentive targets cover a wide range of incentives and focus on corporate executives and core technical personnel. The equity incentives for company executives can alleviate the problem of principal-agent, making the personal interests of senior executives consistent with the company's development goals, promoting executives to increase investment in research and development, and optimizing R&D allocation efficiency. Equity incentives for core technicians can enhance their cohesiveness, enhance their sense of responsibility to the company, make them more sense of belonging, and improve the efficiency of R&D transformation. At the same time, the two play the role of “1+1>2” and accelerate the improvement of company performance.

**Equity Incentives for Enterprise R&D Analysis**

At Huawei, there are about 80,000 people engaged in research and development, accounting for 45% of the total number of companies. By the end of 2017, it has joined more than 360 standards organizations, industry alliances and open source communities, with more than 300 key positions. At Huawei, technicians cannot blindly admire advanced technology because only market technology is valuable.

From the perspective of the company's patent application and profitability related indicators, equity incentives are not only for the company's R&D investment. Input and R&D output have a positive impact, and it also generates an increase in operating income and an increase in return on assets. These data show that equity incentives not only have a positive effect on the company's R&D investment and R&D output, but also have a positive effect on promoting R&D results to new product conversion, increasing operating income and improving asset return.
Conclusion

Technological innovation can maximize value in the synergy of corporate equity incentives. How to rationally arrange equity structure is the key to sustainable innovation. Today, as business models continue to evolve, more and more companies are adopting equity incentive systems and management shareholdings to enhance corporate vitality and innovation.

Taking Huawei as an example, this paper explores the dynamic process of its competitiveness improvement by analyzing its patent R&D investment, patent authorization and equity incentives in different periods, and then draws inspirations and suggestions for technology-based enterprises to enhance their competitiveness: Incentives are a strategy for companies to maintain long-term sustainability, enabling creators of true value of the company to share the fruits of the company's operations, thereby maintaining the enthusiasm of the company's value creators and developers. Increase R&D investment, improve R&D allocation efficiency, and effectively reduce the "free-riding" behavior of technicians and improve the efficiency of R&D input and output. Equity incentive policies play a very positive role in improving corporate management efficiency, reducing agency costs, and enhancing corporate cohesion and market competitiveness. At the same time, R&D investment plays an important role, and high-intensity R&D investment helps to improve the technical level and enhance the core competence of the enterprise. Enterprises should be inspired by Huawei's case, combine the characteristics of the company itself, attach importance to equity incentives, increase investment in research and development, and enhance the competitiveness of enterprises themselves.

Acknowledgement

This paper is one of the research results of Research on the Difference of Enterprise Innovation Resource Allocation System under Supply Side Reform in the Research project of Humanities and Social Sciences in Universities in Jiangxi Province. It is funded by The Special Fund for the Visiting Scholars of the Young and Middle-aged Teacher Development Program in Jiangxi Ordinary Universities.

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