

The Impact of r&d Investment on Coperate Performance: Taking Hd as a Case Study

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Abstract: Enterprises as the Mainstream of the Market Economy, Which Need to Promote Their Development through Continuous Technological Innovation, and r&d Activities Are the Main Driving Force. Therefore, It is Necessary to Increase the Investment of r&d. So This Article Analyzes the Research and Development Investment of Hd Company and Its Impact on Financial Performance, and Puts Forward the Relevant Suggestions for the Research Conclusions, in Order to Provide Reference for r&d Investment of the Company and Other Companies.

1. Introduction

R&D activities are the source of enterprise development, while high-tech enterprises take technological innovation as their main advantage, and they should increase R&D intensity by substantially increasing R&D investment, because R&D intensity promotes the company's innovation capability and core competitiveness. Therefore, it is particularly important to study the impact of high-tech companies' R&D investment on corporate performance.

I.Literature review

Regarding the relationship between R&D investment and corporate performance, some scholars believe that the correlation between R&D investment and corporate financial performance is not obvious. Wang Juncai and Wang Shufang (2008) conducted empirical research and found that the correlation between R&D investment and corporate performance in the electronic information industry is not significant, and the conclusions obtained by most scholars after analysis and verification are that they have a significant positive correlation. Chauvin, Hirschey (1993) using the Tobin Q factor as an indicator to measure the company's performance, selected the US company sample, and empirically tested the relationship between R&D investment and performance. The results showed that the two were positively correlated. Wei Luji (2010) used R&D intensity as an independent variable, profitability and growth ability index as the dependent variable. Through the empirical analysis of 30 Chinese high-tech listed companies in 2006-2008, the research and development investment has a performance on the company. Positive impact, there is a certain period of lag.

It can be seen that the reason for the different conclusions of the relationship between the two is mainly due to the different research fields, the different preferential policies of the country, and the differences in the R&D level of different enterprises, which may also cause deviations in the research conclusions. However, more empirical analysis concludes that R&D investment has a positive effect on performance and is lagging behind. The above studies are based on the large sample data to empirically analyze the relationship between the two, and it is easy to average the conclusions. In this paper, the case analysis method is used to analyze the relationship between R&D investment and the financial performance of individual companies. , has a certain speciality.

2. Related Concepts and Selection of Indicators

2.1 R&d Investment

R&D is an indispensable part of enterprise technology innovation, and the new accounting standards divide it into research and development. In the research stage, the research results are

uncertain, the capital investment is large, the research and development cycle is long, and the research and development cost is included in the current profit and loss. When the development stage is in progress, the research results of machinery and equipment meet the expected conditions, and should be capitalized and recognized as intangible assets; If the company is unable to accurately distinguish the two stages, it will be included in the current profit and loss.

The R&D investment evaluation index selected in this paper is the R&D intensity. On the one hand, it can be seen that the R&D investment accounts for the proportion of sales revenue, and on the other hand, it makes the horizontal comparison between different enterprises.

2.2 Enterprise Performance

The company's performance refers to the operating profit and operating results of the operators during the operation period. The operational efficiency level is reflected in four aspects: profitability, operational capability, solvency and subsequent development capability.

In recent years, the choice of corporate financial performance indicators is no longer a unified model. This paper analyzes the role of R&D investment in profitability and development capability. Performance appraisal indicators select earnings per share, net assets per share, return on net assets, gross profit margin, and net profit growth rate.

3. Case Analysis

3.1 Hd Company Overview Research and Development

HD is a listed high-tech enterprise, which is mainly responsible for research and development, production and sales of military electronic components such as tantalum capacitors. Capacitor production and research experience is rich, with domestic advanced production lines, capacitor testing technology reached a mature stage. The company pays attention to improving the reliability level and quality consistency of existing products, developing high value-added products, exploring high-end markets, and further enhancing the company's efficiency and value. In 2018, the company implemented 65 scientific research projects, including 26 government cooperation projects and 39 independent projects. The project types include new product development, product reliability improvement, and core technologies. Among them, capacitors, inductors, resistors, film capacitors, microcircuit modules, power management chips, etc. are the main research and development products.

3.2 Impact of r&d Investment on Corporate Performance

The results of corporate R&D activities are ultimately reflected in the increase profits, because the specific results are the introduction of a new products, to improve on the technology and also increase on the operating income. The military industry project has begun to release production capacity in recent years, and the sales volume of military products has been increasing. At the same time, after the advertising market, the company's non-tantalum capacitor market will gradually expand and the sales will also grow rapidly.

3.2.1 Impact of r&d Investment on Operating Income

Table 1 Change of Operating Income and r&d Investment of Hd Company from 2014 -2018

Year	2014	2015	2016	2017	2018
Operating income (ten thousand yuan)	32,936.20	39,456.17	44,873.63	52,436.60	63,631.46
Total profit (ten thousand yuan)	16,587.24	8,902.43	23,128.20	23,777.68	25,797.15
R&D investment (ten thousand yuan)	1487.92	1490.88	2177.64	2447.72	4293.40
R&D intensity (%)	4.52	3.78	4.85	4.67	6.75

Source: HD company's 2014-2018 annual report

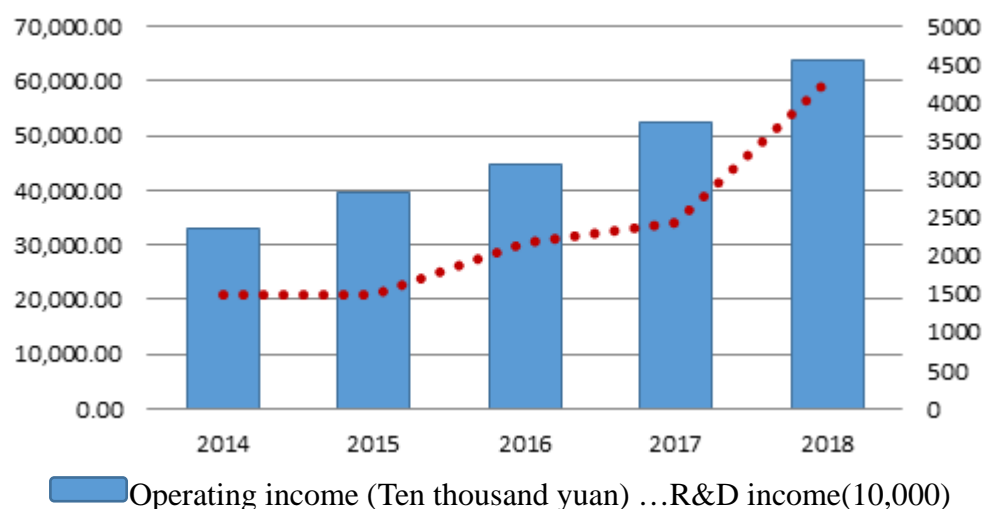


Fig.1 Hd company's r&d Investment and Operating Income Change Chart from 2014-2018

As shown from Table 1 and Figure 1, HD's operating income and total profit that have been increasing over the past five years, and the R&D investment is also increasing yearly, as the two are in trending upwardly and the growth rate of operating income in 2017 and 2018 is specially Significant, the R&D investment has also increased from 24.427 million yuan to 42.934 million yuan, and the R&D investment intensity has reached 6.75% in 2018. The reason is that the company has increased its investment in R&D, and has updated the production line building a new R&D centers and other projects, indicating HD. The also company attaches great importance to research and development, and the product production technology is constantly updated and improved, and the industry competitiveness is steadily improved as well.

Table 2 Growth Table of Hd Company's Operating Income and r&d Investment in 2014-2018

Year	2014	2015	2016	2017	2018
Operating income growth rate	54.85%	19.80%	13.73%	16.85%	21.35%
Gross profit growth rate	76.58%	-46.33%	159.80%	2.81%	8.49%
R&D investment growth rate	0.80%	0.20%	46.06%	12.40%	75.40%

Source: Calculation of HD company's 2014-2018 annual report

As shown in Table 2, HD's operating revenue growth rate in 2015 has slowed down compared with 2014, and the growth rate of 2016-2018 has stabilized, because the income growth rate was 21.35% in 2018, and the industry average growth rate was 17.20% in the same year. HD Company has good development potential, and in 2014-2015, HD's R&D investment increased slightly, and R&D investment increased significantly in 2016-2018. The R&D investment in 2018 increased by 75.40% compared with the same period of 2017. The annual financial report of HD Company showed that the increase was mainly due to the increase of 0.87 million yuan in wages and salaries of technical research and development personnel, and based on the test fee, material fee and fixed assets related to product development fees, special equipment and other expenses increased by 10.38 million yuan.

3.2.2 Impact of r&d Intensity on Financial Performance

The impact of R&D investment intensity on financial performance based on the following indicators that were selected for analysis from the perspective of profitability and development.

Table 3 Table of Development and Financial Performance of Hd Company in 2014-2018

Year	2014	2015	2016	2017	2018
R&D intensity (%)	4.52	3.78	4.85	4.67	6.75
Net profit (ten thousand yuan)	14156.70	7495.61	19630.15	19983.85	21,898.10
Net assets (ten thousand yuan)	52244.35	57601.55	83344.48	139,795.22	158,186.32
Earnings per share (yuan)	2.38	0.23	0.55	0.55	0.56
Net assets per share (yuan)	8.33	1.57	2.24	3.49	3.88
Return on Assets(%)	32.58	14.12	28.94	18.36	15.25
Gross profit margin (%)	73.36	76.39	73.85	69.51	66.05
Net profit growth rate (%)	45.90	-47.05	161.89	1.80	9.58

Source: Calculation of HD company's 2014-2018 annual report

As shown in Table 3, HD company's R&D investment increased slightly in 2014-2015, but the net profit did not increase together, and fall of RMB 7 756.61 million in 2015. The reason for the decrease in net profit was the company's business tax and surcharge. And the amount of share-based payments increased in 2015, resulting in an increase in operating costs and a decrease in total profit. In 2016-2018, HD company's net profit and R&D investment showed the same growth, while net assets always increased with the increase of R&D investment. HD company's net profit in 2018 was 218,818,100 yuan, and net assets reached 1,58,861,200 yuan.

Earnings per share and net assets per share did not increase in 2015-2018 due to the increase in R&D investment. In 2016, it increased compared with 2015. Earnings per share decreased in 2015 due to the issuance of new shares, additional issuance and allotment. The earnings of the stocks were diluted. The net assets per share began to increase year by year after 2015. The net assets per share of HD Company in 2018 was 3.88 yuan. The income that shareholders can hold is also increasing, reflecting on the profit of HD company's increased ability.

With the increase in R&D investment, HD's ROE decreased from 32.58% in 2014 to 14.12% in 2015, and continued to decline in 2017-2018. As the HD company IPO raised funds in place of 2017, the net assets increased accordingly, and in a short term, the company's return on assets that decreases yearly due to the failure to realize immediate benefits. However, in 2018, it was higher than the industry average of 7.72%, indicating that the profitability of HD companies maintained a good momentum.

The gross profit margin of sales has been higher than the industry average in the past five years. With the increase of R&D investment, it has been declining year by year. Due to the increase in the cost of products such as raw materials and the increase in the period expenses, the increase in the period expenses is due in large part due to the increase in research and development expenses. Therefore, R&D investment has an impact on sales gross margin.

In 2015, the net profit growth rate was negative, as the company's sales increased on the cost of sales and expenses increased at the same time, resulting in a decrease in the company's total profit and an increase in turnover. This led to an increase in income tax and other related expenses, and a decrease in net profit, resulting in a decrease in the net profit growth rate. In 2016, HD's net profit growth rate was 161.89%. From 2017 to 2018, as the growth rate began to slow down. The net profit growth rate was 9.58% in 2018. HD company will continue the development and take it to the next level in the future.

Summary, HD's R&D investment has a positive impact on financial performance to a certain extent, and under the premise of R&D investment growing by year the company's profitability and growth capacity are maintaining a good development trend, but R&D investment is a cost expenditure as well as the increase in the company's revenue and related expenses, affecting the HD's profits.

4. Research Conclusions and Recommendations

The above research concluded that HD company R&D investment will positively contribute to the company performance. So this article believes on the significant impact, which is the lag effect of R&D investment. Because the research and development investment cycle is long and the

risk is high, and it has not yet been determined that the results of R&D will bring positive economic benefits to the performance of enterprises. The impact was not fully reflected in the current period. On the other hand, in the early stage, R&D investment is relatively abundant, but its utilization efficiency is not high, and the resource used is unreasonable, and the profit is low.

According to the research conclusions, this article puts forward the following related suggestions, in order to serve as a reference for HD companies and other companies as well.

4.1 To Develop a Reasonable r&d Investment Plan:

The status quo of most companies is to blindly increase R&D investment to enhance innovation capability, which does not analyze the situation of the company at stage. The company needs to adopt the business strategy corresponding to its development stage, and to strengthen the R&D and expenses management, and also standardize funds. To reduce unnecessary losses, improve on the company's research and development income, and according to the company's development, should develop a financial accounting management system for research and development and a reasonable R & D investment plan to achieve a long-term development of the company.

4.2 Care Should Be Taken to Select and Manage r&d Projects

As a high-risk, high-decision activity, R&D requires extremely high capital investment and technical precision, and the possibility of R&D failure is high. So if R&D fails, most of the previously invested funds cannot be recovered. Therefore, enterprises should select the appropriate R&D projects according to the market and their own development needs. At the same time, to strengthen the risk management and control, making the appropriate R&D investment decisions after repeated verification and evaluation of R&D projects, and increase on the R&D success rate and expected rate of return as much as possible. The companies of the same or similar type can focus on jointly developing related resources and can appropriately reduce the cost and risk of development.

4.3 Specification of Information Disclosure on r&d Investment

At present, China has not made mandatory provisions for information disclosure on R&D investment. Therefore, most companies lack the standardization of R&D investment information disclosure. Therefore, the company information held by investors is not scientific and comprehensive, and it is likely that the investment decision will not be judged correctly, causing property damage and waste of resources. So, the relevant departments and companies need to work together to standardize the relevant disclosure of R&D investment. The specific recommendations are reflected in the following three aspects: The first is to explain the detailed process and situation of research and development expenses, the second is to list the non-financial information related to the research and development, and the third is to shorten the time for reporting the research and development expenses of enterprises as much as possible while ensuring the authenticity of information, which will give investors and information users more opportunities to make the right decisions.

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