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A Comparative Study of the Effectiveness of Equity Incentive Implementation between Muyuan Stock and New Hope

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Abstract: *The current research on equity incentives and inefficient investment has not yet formed a consistent conclusion, and most of the research cases are mainly in high-tech industries. Sichuan and Henan are the major livestock provinces in China, and the development of livestock enterprises in the region affects the national economy and people's livelihood. Taking Muyuan and New Hope as cases, this paper draws the following conclusions.: performance-based equity incentives stimulate management to increase the scale of investment, but companies with a large disparity in compensation within the executives are prone to overinvestment; when raising capital, companies with more financial resources utilize debt financing, especially long-term debt, and lesser ones improve working capital management efficiency. The findings of the study can provide a decision-making basis for equity incentives in livestock enterprises.*

Keywords: *Equity incentives; investment efficiency; debt structure; suggestions*

1. Introduction

Currently, the exercise conditions of most of the equity incentive plans in China are based on operating performance including operating income and net profit as indicators, rather than on share price, and are called performance-based equity incentives[1]. Regarding the comparative case studies on the effects of equity incentives, most scholars use financial indicators such as ROE and patent applications as evaluation indicators to compare the performance of equity incentive companies vertically, evaluate the effects and analyze the reasons for the differences. The case companies are mostly dominated by high-tech industries, while there are fewer non-high-tech industries. However, on the one hand, ROE is affected by both asset profitability and capital structure. Evaluating business performance by ROE as an indicator cannot reflect the changes in the company's business decisions, such as investment and financing decisions. On the other hand, the role of equity incentives is to mitigate agency costs first, followed by operating performance[2]. And inefficient investment is one of the manifestations of agency costs. Therefore, this paper analyzes the investment and financing decisions of the case company from equity incentives to evaluate the effect of equity incentives.

According to the 14th Five-Year Plan, the high-quality development of animal husbandry is a matter of national importance, in which the pig breeding industry plays a pivotal role in the stability of the animal husbandry industry. In recent years, however, the operation of livestock enterprises has faced a severe test. Because the sale of hogs is a fully competitive market, the price is in line with the market, so the revenue of the relevant enterprises is greatly affected by the changes in market prices. And China's pig price fluctuation is large, the market unpredictability is high, there is an obvious industry cycle. Especially since the "swine flu" in 2018, swine prices out of a round of strong "bull and bear" cycle. In 2021 and 2022, except for Muyuan shares, the net profit of each "pig enterprise" are negative, especially in the 21st year of the high price of pigs back down so that the relevant companies have serious losses. Although Makara realized a profit against the market, but its operating results in 21 years also suffered a big blow. At the same time, the debt ratio of each company also increased significantly, and some companies experienced cash flow shortages, raising financial risks.

The output value of animal husbandry in Sichuan and Henan ranks among the top in the country, and it is also the main pork producing area in China. Based on this, combined with the existing research in the field of equity incentives, this paper splits the ROE indicator into two parts, asset turnover and capital structure, and selects two leading enterprises in the livestock industry that implement equity

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incentives in the same time period, Muyuan in Henan Province and New Hope in Sichuan Province, to study the relationship between equity incentives and the company's investment and financing behavior.

2. Literature review

In the research of equity incentives and inefficient investment, scholars mostly refer to Richardson (2006) investment model to make research design. Lv Changjiang et al. (2011) argued that equity incentives affect both underinvestment and overinvestment and inhibit inefficient investment[3]. And Tang Yuhong et al. (2017) argued that equity incentives can alleviate underinvestment but exacerbate overinvestment[2]. In addition, R&D investment is also an important part of corporate investment. Feng Haiyan (2020) argues that companies increase R&D investment after equity incentives[4].

By organizing the past studies, it is found that there is no agreement on the studies related to inefficient investment. However, one point is the same, that is, equity incentives can alleviate underinvestment. Management may increase investment in fixed assets to meet the exercise conditions by expanding the scale of operations. As the volume of investment rises, the firm needs to finance the expansion. According to the theory of preferential financing, the company will use internal financial resources first, and then raise external financing by raising debt and issuing shares, which will have an impact on the capital structure. Xu Yao et al. (2018) argued that firm debt increased after equity incentives[5], while Wang Minghu (2021) argued that equity incentives triggered a more aggressive working capital management strategy[6].

3. Research design

3.1 Selection of Research Subjects

In this paper, two livestock companies, Muyuan and New Hope, are selected for the study, both of which are leading companies in the industry, and both of which include hog farming in their main business. Among them, Muyuan is a leading pig breeder, while New Hope focuses on feed, and also engages in chicken and pig breeding. Together, the two companies cover most of the business categories in the livestock industry. Comprehensively speaking, the two companies are representative of the entire livestock industry, and their equity incentives were launched at a relatively close time, so the effect of equity incentives can be quantitatively analyzed through some financial indicators.

3.2 Introduction to Equity Incentive Programs

Muyuan (002714) launched its first equity incentive plan in late 2019, which is divided into two parts: the first grant and the reserved part. The price of the first grant portion was ¥48.03 per share, with 909 incentive recipients, the vast majority of whom were core management and technical staff. The number of restricted shares granted was 42,710,500, accounting for approximately 1.98% of the total share capital at that time. The appraisal period is two years, 2020 and 2021, and the exercise condition is to use the sales volume of hogs in 2019 as the base, and to grow by 70% and 150% respectively in the two years of the appraisal period.

New Hope (000876) launched a share incentive program in mid-FY19, granting 3.6 million restricted shares with 8.4 million stock options to 24 incentive recipients. Restricted shares were granted at ¥8.31/share and stock options at ¥16.62/share. The restriction period arrangement of the two incentive targets is also different, with 4 years for restricted shares and 2 years for stock options. However, both use 2018 net profit and sales revenue as the base as the assessment index, requiring an average annual compound growth rate of not less than 15%.

4. Effectiveness of the implementation of Muyuan's equity incentives

Since 2013, Muyuan's fixed assets have kept rising. After the equity incentive, this expansion is in spurt, from 29.842 billion in 2018 to 177.266 billion in 2021. Throughout this expansion, the company's asset turnover has remained at the same level, indicating a good investment efficiency.

Regarding the source of financing, the company has more than sufficient profit retention and raised funds from directed issue in FY19. Regarding liabilities, after the equity incentives, Muyuan's long and short-term financial liabilities have decreased significantly as a percentage. In contrast, operating

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liabilities like accounts payable have seen a significant rise. In terms of the change in the company's cash turnover period, that turnover period also declined significantly after the equity incentive. In addition to the increase in accounts payable, the decrease in inventory turnover period also plays an important role. All of the above indicates that the company has been able to improve its profitability by reducing its cash turnover period.

In terms of expenses, Muyuan's expenses of all types rose year-on-year with its scale of operations. It is worth noting that as the company's scale of operations rose, the compensation levels of Muyuan's executives also rose year-on-year during the observation period, but there was a significant drop in the executives' compensation in 2021 when the overall hog price market was poorer, which may indicate a convergence of interests between management and shareholders. In addition to executives, ordinary employees also benefited, with pay rising steadily throughout the observation period. In addition, the company's R&D investment increased substantially after the equity incentive.

5. The implementation effect of New Hope's equity incentives

New Hope Group's fixed assets were much larger than Muyuan in 2013. At the point before the equity incentive, New Hope did not invest massively, and its operating efficiency was stable in terms of asset turnover, but this means that the company may have missed some investment opportunities and had underinvestment. With the implementation of equity incentives in 2019, New Hope's fixed asset investment scale began to rise rapidly, from 47.944 billion in 2018 to 132.734 billion in 2021, which is in line with Muyuan, but the asset turnover ratio showed a significant decline. It should be noted that the turnover rate of the pig business is generally lower than that of the feed business and the chicken business, but the company's pig business has not expanded in terms of the revenue share of New Hope in each period. In other words, the decline in asset turnover ratio was not due to the expansion of the share of revenue from pig raising. The occurrence of a decline may indicate that the company has made inefficient investments.

Analyzing the source of financing, New Hope retains more profit compared to Muyuan. In 2020, New Hope directed issue proceeds. In terms of liabilities, it is found that the percentage of its financial long-term liabilities is significantly higher, while the cash turnover period rises. Looking further, it is found that the rise in inventory turnover period is the main reason for the rise in cash turnover period. The above indicates that New Hope mainly finances itself through financial long-term liabilities and the efficiency of working capital management decreases.

In terms of expenses, after the equity incentives, the changes in the compensation of New Hope's executives and employees, as well as the growth of R&D investment have the same trend as that of Muyuan. The difference is that expenses like meeting expenses, office expenses and advertising expenses declined.

6. Variance analysis of implementation effectiveness

6.1 Levels of remuneration of executives

Equity incentives have spurred investment intensity at both companies. In 2013, New Hope operated on a larger scale and had a higher level of executive compensation. Management is easily motivated to enjoy a quiet life, avoid risks, miss potential investment opportunities[7], and may have underinvested as a result. In contrast to the pastoral principle, management needs to expand the size of the firm to improve its own returns. As the size of fixed assets increases, so does the compensation of executives.

After the equity incentives, Muyuan's asset turnover remained unchanged, while New Hope declined, showing signs of inefficient investment. This may be related to the excessive pay gap within executives. An appropriate pay gap within the executives helps to curb inefficient investment, while too high leads to a situation of over-investment.

6.2 Exercise conditions

Muyuan's exercise condition is only one, i.e. hog sales. New Hope has two, including net profit and operating income. In terms of final results, Muyuan's equity incentives based on hog sales stimulated the level of investment in fixed assets, reduced the inventory turnover period and improved the

efficiency of working capital management. New Hope Group, on the other hand, invested in fixed assets through financial long-term liabilities, and increased operating income through the rise in the volume of assets in order to meet the conditions for exercising the right, but there was a problem of inefficient investment. The increase of long-term bank loans reduces the rigidity of debt constraints on enterprises, thus reducing the efficiency of investment[8]. Meanwhile, in order to meet the net profit condition, New Hope cut overheads such as office expenses and conference fees, which could reduce waste. However, advertising expenses were also cut at the same time, which may affect the long-term development of the company.

6.3 Financial resources

Before the equity incentives, New Hope's financial resources exceeded Muyuan's. The company has more financial resources but underinvestment, until the introduction of equity incentives to alleviate such a situation, but then overinvestment. This is consistent with the findings of Tang Yuhong and Zhou Rong et al. (2017) [2]. On the contrary, Muyuan, prior to the equity incentives, continued to invest, used financial resources appropriately and did not have inefficient investment behavior. Equity incentives further stimulate the level of investment, and the company optimizes the efficiency of inventory management and appropriately increases accounts payable as a way to reduce the cash turnover period and improve the efficiency of working capital use.

7. Conclusions

This paper analyzes the case studies of equity incentives in Muyuan and New Hope to derive different implementation effects in the two companies at the same point in time. First, equity incentives stimulated the level of investment in both, but caused over-investment in New Hope. The excessive gap in executive compensation may be the cause of New Hope's inefficient investment. Second, the two had different financing methods after the equity incentives. In raising funds for expansion, both companies issued additional shares to raise capital. However, in terms of debt, New Hope mainly financed itself through financial long-term liabilities, while Makoto improved the efficiency of capital utilization by reducing the cash turnover period. This may be related to the amount of remaining financial resources. Thirdly, the changes in expenses are different. Some of the expenses of New Hope are consumed lower. This may be related to making net profit a condition for exercising the right. Similarly, equity incentives lead to a rise in the average compensation of executives and employees and a significant rise in R&D investment for both. And the rise in compensation represents the fact that equity incentives can promote shared prosperity.

The exercise conditions of performance-based equity incentives carry a clear direction of production capacity expansion, and the effect is obvious from the results of changes in operating income. However, the expansion of production capacity does not mean the improvement of operating results. Especially for companies whose hog farming business previously accounted for a low percentage of revenue, they may lack experience in cost management, coupled with a lack of understanding of the industry's return on investment, and thus an overly aggressive increase in production capacity may not be conducive to sustained operations. Compared to the feed business, the fixed asset turnover rate inherent in the hog farming industry is inherently lower, resulting in a lower return on investment. According to the formula "Revenue - Cost = Profit", since the price is entirely dependent on the market, the only way to achieve profitability under the same sales volume is to control costs and ensure a positive marginal contribution per unit of product. Among the companies with equity incentives in the industry, Makalot is the benchmark. In 2021 and 2022 the market is not good and its own significant expansion of production in the case of business conditions remain stable, which may be related to its cost management capabilities. It can be seen that cost management plus capacity increase can improve the company's operating results.

8. Suggestions

Narrowing the executive pay gap. Equity incentives stimulate investment in the firm's fixed assets when the exercise conditions are absolute numbers like revenue, sales and net income. Whereas, an excessive executive pay gap may result in inefficient investment. Therefore, narrowing the executive pay gap is beneficial to avoid this situation.

Use asset turnover as an exercise indicator. In performance-based equity incentives, management

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often chooses to increase fixed assets to meet the exercise conditions, and it is easy to ignore the profitability efficiency of the new assets in the process. In addition, a decrease in inventory turnover can lead to a decrease in cash turnover and improve the efficiency of the company's working capital utilization. Therefore, using asset turnover as an indicator of investment efficiency can urge management to improve investment efficiency and optimize working capital management strategies.

At the same time, it should be noted that not all enterprises are suitable for equity incentives. At present, China's hog market is still very cyclical, high business risk, the industry needs to improve risk awareness, control financial risk. At present, the launch of equity incentives is often accompanied by the purpose of production expansion. If the company's previous profitability is strong, it has accumulated more funds and its debt ratio is within a reasonable range, the company can try to use equity incentives to help development. Conversely, if the company's profitability is not strong and surplus funds are insufficient, it may wish to first optimize cost management, improve the utilization rate of existing capacity to achieve the purpose of increasing production and accumulate surplus funds, and then through equity incentives to assist in the expansion of production, to achieve high-quality development.

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