

# Analysis of the Profit Quality of Walvax

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**Abstract:** High quality profits can help companies achieve steady development in an increasingly competitive environment. Therefore, evaluating the quality of existing profits and identifying specific problems in operation can help enterprises quickly adjust and achieve high-quality development. Taking Walvax as an example, this article selects financial data from 2018 to 2022 to analyze the four dimensions of its profit quality, including profit level, cashability, sustainability, and structure, based on the belief that its profit quality is authentic. Through analysis, this paper identifies the problems with Walvax's profitability quality and proposes reasonable improvement suggestions.

**Keywords:** Walvax; Profit Quality; Four Dimensions; Sustainable Development

## 1. Introduction to Walvax

Walvax, also known as Walvax Biotechnology Co., Ltd., was founded in 2001 and was listed on the Shenzhen Stock Exchange in 2010. It mainly engages in the research, production, and sales of vaccine products. After more than 20 years of development, its business scope not only includes more than 30 provinces and cities, more than 2000 counties and districts in China, but also covers 18 countries in the international market. At present, Walvax has advanced research technology and industrialization platform, as well as a good product structure and rich product line.

## 2. Overview of Profit Quality

In 1930, the concept of profit quality first appeared and was applied to the securities industry in the United States. From the current scientific research situation, the academic community's understanding and research on the quality of corporate profits are still in further exploration, and an authoritative definition of corporate profit quality has not yet been obtained.

In terms of foreign research, Panagiotis G and Georgios A believe that the sustainability of a company's cash flow can have a significant impact on its future profitability quality, and the two have a positive correlation [1]. Trang Thi Ngoc Nguyen and Phuong Kim Bui believe that profitability quality is a comprehensive indicator for measuring a company's profitability [2]. Rajesh Pathak and Ranajee believe that good profit quality can help businesses solve cash flow problems. The higher the transparency of a company's financial situation, the more accurate the business operation reflected by the quality of profits will be [3].

In terms of domestic research, Li Rongjin and Lei Tingting analyzed a comprehensive evaluation model from five dimensions, including cash security, profitability, sustainability, growth, and safety [4]. Li Yao et al. used factor analysis to analyze the overall profit quality of the pharmaceutical industry from five dimensions, including profitability [5]. Meng Yuchen conducted a profit quality analysis on Dashenlin from five dimensions, including profit structure [6]. Yao Bingge et al. believe that in order to conduct a comprehensive analysis of the company's profitability, it is necessary to propose cash flow indicators [7]. Zhang Qian designed different analysis indicators from cash security, sustainability, stability, and growth to comprehensively analyze the profitability quality of GREE [8]. Li Zijin analyzed the quality of a company's profits from the indicators of reliability, sustainability, cash security, growth, and safety [9]. Zhang Jinquan et al. believe that the inherent attributes of profitability include profitability level, cashability, structure, sustainability, and stability [10].

## 3. Walvax Profit Quality Analysis

By summarizing relevant literature at home and abroad, this article selects Walvax as the

research object. Based on the opinions on the changes in Walvax's accounting policies and the audit report, it is believed that its profit quality is authentic. And further selected Walvax's financial data from 2018 to 2022 to compare and analyze its four dimensions of profit quality, including profit level, cashability, sustainability, and structure. The main source of data is Eastmoney. Due to the unavailability to obtain certain ratios on this platform, the corresponding data is mainly selected from the company's annual report and calculated independently.

For better comparative analysis, ZFSW and Changchun High-Tech (CHT), both located in the biopharmaceutical industry segment and engaged in vaccine manufacturing, were selected as comparison companies. ZFSW and Walvax were both listed in 2010, with consistent business scope and similar registered capital, making them highly comparable. In addition, as a company that entered the biopharmaceutical industry earlier, Changchun High-Tech has a relatively complete profit model, which can be used as a benchmark for comparative analysis.

### 3.1 Profit Level

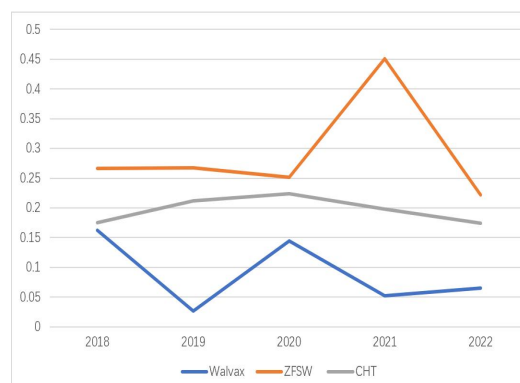
#### 3.1.1 Return on total assets

Based on Table 1 and Figure 1, it can be seen that Walvax's total asset return rate has been lower than ZFSW and Changchun High-Tech in the past five years, and Walvax's profits have significant volatility. In 2018, due to Walvax's need to continuously invest huge R&D expenses, it faced pressure from poor early operating performance and insufficient R&D funds. Therefore, the sale of 46.45% equity in Genor Biopharma resulted in an investment income of 1.176 billion yuan, leading to a sharp increase in operating performance in 2018. In 2020, Walvax's total asset return rate significantly increased, mainly due to the successful listing of the 13 valent pneumonia conjugate vaccine, which became Walvax's new profit growth point and brought significant net profit to Walvax. But the good times didn't last long. After 2021, Walvax's total asset return rate declined to around 0.06. Overall, after excluding the profit instability caused by accidental events, it can be seen that Walvax's profit level is not high.

**Table 1. Value of Return on Total Assets**

	2018	2019	2020	2021	2022
Walvax	0.16	0.03	0.15	0.05	0.07
ZFSW	0.27	0.27	0.25	0.45	0.22
CHT	0.18	0.21	0.22	0.20	0.17

Walvax	0.16	0.03	0.15	0.05	0.07
ZFSW	0.27	0.27	0.25	0.45	0.22
CHT	0.18	0.21	0.22	0.20	0.17



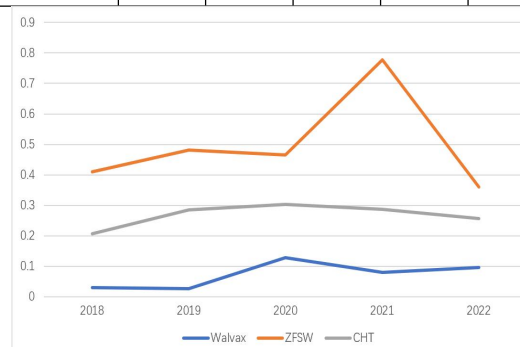
**Figure 1. Changes in Return on Total Assets**

#### 3.1.2 ROE

To ensure a more fair outcome, the return on equity used here is after deducting non recurring gains and losses. As shown in Figure 2 and Table 2, Walvax's return on equity has been lower than ZFSW and Changchun High-Tech in the past five years. After 2020, Walvax's return on equity has slightly increased, mainly due to the successful listing of the 13 valent pneumonia conjugate vaccine, which has become a new profit growth point for the company and brought significant net profits. Furthermore, Walvax's profitability level is not high.

**Table 2. Value of Return on Equity**

	2018	2019	2020	2021	2022
Walvax	0.03	0.03	0.13	0.08	0.10
ZFSW	0.41	0.48	0.47	0.78	0.36
CHT	0.21	0.29	0.30	0.29	0.26



**Figure 2. Changes in Return on Equity**

### 3.2 Cashability

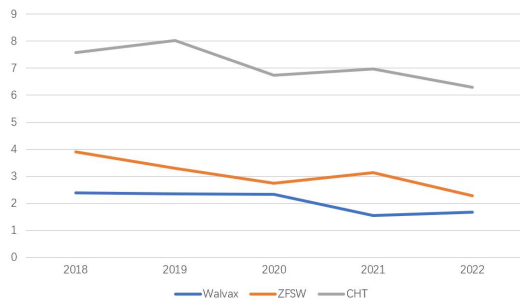
#### 3.2.1 Accounts receivable turnover rate

Based on Figure 3 and Table 3, it can be seen that Changchun High-Tech's accounts receivable turnover rate is between 6.3-8.0, far higher than ZFSW and Walvax. Compared to

Changchun High-Tech, Walvax and ZFSW have lower accounts receivable recovery levels, and Walvax's accounts receivable turnover rate has been lower than ZFSW and Changchun High-Tech in the past five years, maintaining a basic level of 1.5-2.3. This indicates that Walvax's accounts receivable turnover rate is relatively low and cannot recover outstanding payments quickly, which has a negative impact on its cash recovery and effective use. Walvax's cash acquisition ability is relatively poor, and its overall performance is not good.

**Table 3. Value of Accounts Receivable Turnover Rate**

	2018	2019	2020	2021	2022
Walvax	2.39	2.36	2.34	1.55	1.68
ZFSW	3.91	3.30	2.75	3.15	2.29
CHT	7.58	8.03	6.75	6.98	6.30



**Figure 3. Changes in Accounts Receivable Turnover Rate**

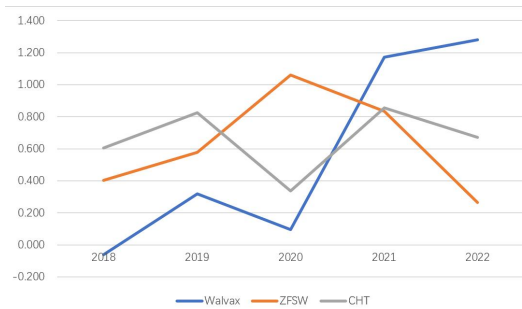
3.2.2 Profit cash coverage ratio

Profit cash coverage ratio=net cash flow generated from operating activities/net profit. From Figure 4 and Table 4, it can be seen that from 2018 to 2020, Walvax's profit cash cover ratio was generally not high and all were below 1, and all were lower than ZFSW and Changchun High-Tech. In 2018, Walvax's profit cash coverage ratio was even less than 0. After 2021, Walvax's profit cash coverage ratio has significantly increased, even surpassing ZFSW and Changchun High-Tech, with a value greater than 1. This indicates that Walvax has a strong ability to collect sales revenue, lower costs and expenses, and better operating results. This is due to the significant increase in net cash flow generated by Walvax's operating activities in 2021 and 2022. By reviewing Walvax's cash flow statement, it can be found that Walvax's main business has been relatively active in the past two years. Overall, before 2020, Walvax's profit cash coverage ratio was at a relatively low level, and its cash flow performance was relatively

poor. After 2021, the profit cash coverage ratio is at a relatively high level, and the profitability of cash flow is relatively good.

**Table 4. Value of Profit Cash Coverage Ratio**

	2018	2019	2020	2021	2022
Walvax	-0.06	0.32	0.09	1.17	1.28
ZFSW	0.40	0.58	1.06	0.83	0.26
CHT	0.60	0.82	0.34	0.86	0.67



**Figure 4. Changes in Profit Cash Coverage Ratio**

3.3 Sustainability

3.3.1 Net profit growth rate

The growth rate of net profit indicates the change in net profit compared to the previous period. To ensure a more fair outcome, the net profit growth rate after deducting non recurring gains and losses is used here.

As shown in Figure 5 and Table 5, the net profit growth rate of Walvax has fluctuated greatly in the past five years. In 2018, it was between two comparative companies. The net profit growth rate of Walvax in 2019 and 2021 was lower than that of ZFSW and Changchun High-Tech. In 2022, Walvax's net profit was only slightly higher than ZFSW and Changchun High-Tech. In 2020, Walvax's net profit significantly increased, mainly due to the successful launch of the 13 valent pneumonia conjugate vaccine, which became a new profit growth point for Walvax and brought significant net profit growth. Overall, after excluding the uncertainty caused by accidental events, it can be seen that Walvax's future profits do not have a certain degree of sustainability.

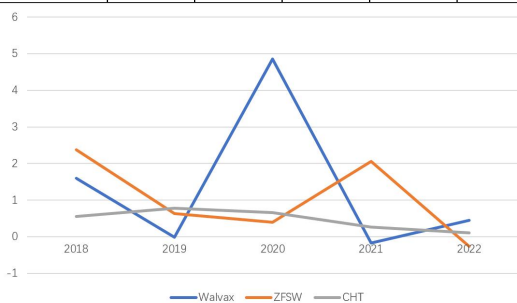
3.3.2 Growth rate of net cash flow generated from operating activities

Based on Figures 6, Table 6, and Table 7, the net cash flow generated by Walvax's operating activities was negative in 2017 and 2018, indicating that Walvax may face the risk of insufficient cash flow in its future operations.

The indicators of the three companies have shown significant fluctuations, but Walvax has the most severe fluctuations. The growth rate of net cash flow generated by Walvax's operating activities was around 0.8 in 2020 and 2022. The growth rate of net cash flow generated by Walvax's operating activities was 5.176 in 2021, which is much higher than 1, indicating that more funds can be used for production and operation in the future. The growth rate of net cash flow generated by Walvax's operating activities in 2019 was between ZFSW and Changchun High-Tech. The growth rate of net cash flow generated by Walvax's operating activities was higher than ZFSW and Changchun High-Tech in 2021 and 2022. The growth rate of net cash flow generated by Walvax's operating activities significantly increased in 2021, and then fell back to the level of 2020 in 2022. However, the growth rate of net cash flow generated by Walvax's operating activities in 2021 and 2022 was higher than that of ZFSW and Changchun High-Tech, and it was between ZFSW and Changchun High-Tech in 2020. Overall, although the growth rate of net cash flow generated by Walvax's operating activities is significant in numerical terms, the fluctuations are too large, and the overall profitability sustainability is not strong.

**Table 5. Value of Net Profit Growth Rate**

	2018	2019	2020	2021	2022
Walvax	1.59	-0.02	4.85	-0.17	0.45
ZFSW	2.37	0.64	0.39	2.07	-0.26
CHT	0.56	0.77	0.66	0.27	0.10



**Figure 5. Changes in Net Profit Growth Rate**

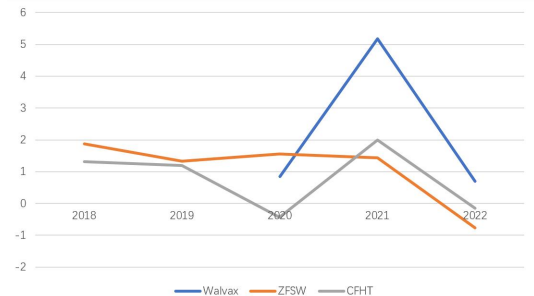
**Table 6. Value of Net Cash Flow Growth Rate Generated from Operating Activities**

	2018	2019	2020	2021	2022
Walvax	-	-	0.84	5.18	0.70
ZFSW	1.88	1.33	1.56	1.43	-0.77
CHT	1.32	1.19	-0.43	2.00	-0.15

**Table 7. Net Cash Flow Generated from**

**Operating Activities(100 million)**

	2018	2019	2020	2021	2022
Walvax	-0.65	0.62	1.14	7.1	12.0
ZFSW	5.86	13.67	34.97	85.1	19.9
CHT	8.84	19.35	11.11	33.3	28.3



**Figure 6. Changes in the Growth Rate of Net Cash Flows Generated from Operating Activities**

**3.4 Structure**

3.4.1 The ratio of operating profit to total profit

The larger the ratio of operating profit to total profit, the more profit the main business activities of the enterprise bring to the enterprise. It also indicates that the enterprise can obtain sustained and stable profits in the future, with a stable profit structure, and therefore has a high profit quality.

From Figure 7 and Table 8, it can be seen that the ratio of ZFSW's operating profit to total profit has remained relatively stable in the past five years, indicating that ZFSW's profit source is more stable. However, during the period of 2019-2022, the Walvax indicator remained relatively stable and consistent with ZFSW and Changchun High-Tech, indicating that Walvax has a relatively stable source of profit.

**Table 8. Value of the Ratio of Operating Profit to Total Profit**

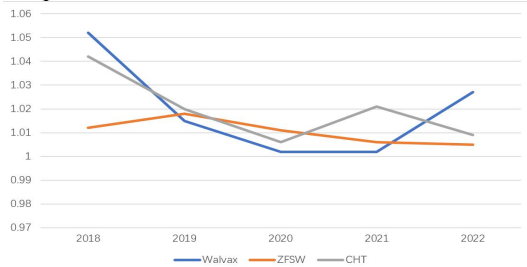
	2018	2019	2020	2021	2022
Walvax	1.05	1.02	1.00	1.00	1.03
ZFSW	1.01	1.02	1.01	1.01	1.01
CHT	1.04	1.02	1.01	1.02	1.01

3.4.2 Main business profit margin

Main business profit margin= (Main business income - Main operating costs - Taxes and surcharges)/Total profit

As shown in Figure 8 and Table 9, Walvax's main business profit margin exhibits strong volatility and a downward trend in 2020. However, Walvax's main business profit margin immediately increased in 2021 and was

much higher than ZFSW and Changchun High-Tech. Compared to others, ZFSW's main business profit margin is stable and consistently above 1, indicating that ZFSW's main business activities are the main source of profit and are relatively stable. However, the profit margin of Walvax's main business has fluctuated significantly in the past five years, indicating that there are unstable factors in the process of converting Walvax's main business into profit.

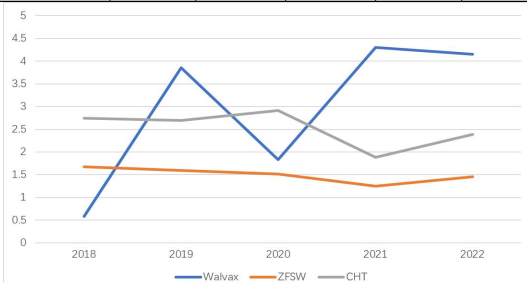


**Figure 7. Changes in the Ratio of Operating Profit to Total Profit**

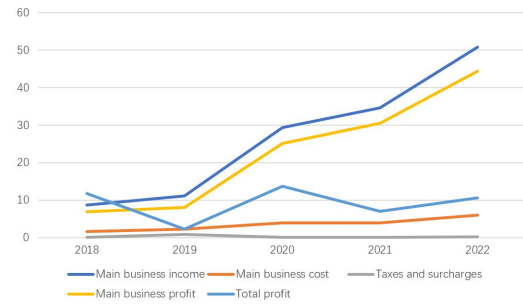
As shown in Figure 9, Walvax's main business revenue and main business costs have been gradually increasing since 2018, with almost no impact of taxes and surcharges on changes in main business profits. However, Walvax's total profit is fluctuating, leading to fluctuations in the company's main business profit margin. This indicates that Walvax's main business can provide gradually increasing profits for the enterprise. However, due to Walvax's lax cost control, the profits generated from its main business were used to offset these expenses, resulting in a decrease in Walvax's total profit. This situation is not conducive to Walvax's future stable profitability.

**Table 9. Value of Main Business Profit Margin**

	2018	2019	2020	2021	2022
Walvax	0.59	3.85	1.84	4.30	4.15
ZFSW	1.67	1.59	1.52	1.25	1.46
CHT	2.74	2.70	2.92	1.89	2.38



**Figure 8. Changes in Profit Margin of Main Business**



**Figure 9. Changes in Factors Related to Walvax's Main Business Profit Margin**

**4. Problems with Walvax's Profitability Quality**

**4.1 Walvax's Main Business Has Low Profitability and Weak Profitability Sustainability.**

In the process of analyzing the profit quality of Walvax, it was found that the profit level of Walvax is relatively low, mainly reflected in the lower values of total asset return and net asset return. The sustainability of profits is not strong, mainly reflected in the fluctuation of net profit growth rate and net cash flow growth rate generated from operating activities. Based on Walvax's income statement from 2018 to 2022, it can be seen that, except for occasional events in 2018, the main source of its profits is operating income, rather than non major operating activities such as investment income and other income, indicating that Walvax's main business has a relatively low profitability. Although the sales of the 13 valent pneumonia conjugate vaccine in 2020 led to a rapid increase in net profit for Walvax, forming a new profit growth point, compared to ZFSW and Changchun High-Tech, Walvax's profit level is still very low and its sustainability is not strong. Walvax still needs to further enhance the competitiveness of its products.

**4.2 Walvax's Accounts Receivable Occupy a Significant Amount.**

By comparing Walvax's cash flow performance index with ZFSW and Changchun High-Tech, it was found that Walvax's profit cash coverage ratio index in the past two years has exceeded ZFSW and Changchun High-Tech, and its ability to convert profits into cash has improved. However, Walvax's accounts receivable turnover rate is generally low, and accounts receivable occupy a large amount. The main reason for this situation is related to

the nature of Walvax's customers and the model of managing accounts receivable. Due to Walvax's clients being disease control centers in various cities and counties, they are highly dispersed, and Walvax is unable to receive timely cash inflows, resulting in large accounts receivable on the books and insufficient liquidity. In addition, Walvax's financial statements do not reflect the management of accounts receivable by dividing customers into credit levels based on their specific performance, in order to flexibly manage the information of accounts receivable.

#### 4.3 Excessive Reliance on Third Parties in Vaccine Marketing is not Conducive to Cost Control.

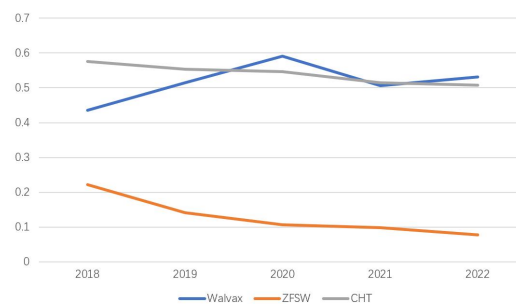
From the previous analysis of Walvax's structure, it can be seen that Walvax has not strictly controlled costs and expenses, reducing the level of total profit. By reviewing Walvax's profit and loss statement for the past five years, it can be visually seen that Walvax's sales expenses amount to a large extent, even exceeding operating costs. Therefore, further analysis will be conducted on the proportion of sales expenses to total operating costs for Walvax, ZFSW, and Changchun High-Tech.

Based on Table 10 and Figure 10, the proportion of sales expenses of Walvax has been increasing year by year, and is around 0.5, even exceeding the proportion of operating costs and R&D investment. The proportion of sales expenses of ZFSW and Changchun High-Tech is decreasing year by year, and the proportion of sales expenses of ZFSW is basically maintained at around 0.1, indicating that although there is a situation of high sales expenses in the pharmaceutical industry, there is also a possibility of controllable sales expenses. Through studying financial statements, it was found that Walvax currently has only 129 sales personnel, while its sales expenses amount to 2.02 billion. The main reason is that Walvax adopts a promotion model in vaccine promotion and maintenance, with almost no direct sales. Walvax incurs high sales expenses by signing agreements with promoters and providing promotion expenses based on marketing and performance completion. But ZFSW adopts a dual model of direct sales and promotion. Although ZFSW has as many as 3359 sales personnel, its sales expenses are only over 2.24 billion. It can be

seen that Walvax's excessive reliance on the marketing model of promotion is not conducive to cost control, which will seriously squeeze the profit space.

**Table 10. The Proportion of Sales Expenses to Total Operating Costs**

	2018	2019	2020	2021	2022
Walvax	0.44	0.51	0.59	0.51	0.53
ZFSW	0.22	0.14	0.11	0.10	0.08
CHT	0.58	0.55	0.55	0.51	0.51



**Figure 10. Changes in the Proportion of Sales Expenses to Total Operating Costs**

## 5. Suggestions for Improving the Profitability Quality of Walvax

### 5.1 Enhancing the Brand Awareness of Walvax

At present, vaccines have good market prospects. Due to the participation of many enterprises, competition in the vaccine market is bound to have an impact on Walvax's future profits. Walvax needs to increase its visibility in order to enhance its competitiveness. Strengthening brand building can not only help Walvax increase its influence in the market, allowing the vaccinated population to consider Walvax's vaccines more when they have choices, but also reflect the company's more formal production model and more trustworthy product quality through a good brand image. This is beneficial for companies to enhance their public awareness and competitiveness in the market. Therefore, strengthening brand building is not only beneficial for improving Walvax's profitability, but also reduces the promotion cost of new products, thereby improving the quality of profits.

### 5.2 Internal and External Measures to Improve Cash Flow Efficiency

Due to the unique nature of Walvax's industry, improving the speed of accounts receivable collection not only requires companies to

optimize their existing management models, but also government measures to help companies accelerate cash flow to ensure normal business and research activities. In order to ensure that the sales funds of enterprises can flow into vaccine research and production enterprises quickly, the government can use the Internet to establish third-party settlement centers, and distribute vaccine payments to vaccine manufacturers and disease control centers on a monthly basis based on the monthly sales situation. Walvax should establish an objective and effective customer credit rating management system, adjust collection strategies and plans in a timely manner according to the situation of different customers, in order to reduce the possibility and impact of bad debts in the enterprise, and improve the ability of the enterprise to obtain cash.

### 5.3 Promoting the Integration of Production and Sales to Expand the Scale of Direct Sales

Due to Walvax's reliance on external promoters in marketing, sales expenses are too high, significantly compressing profit margins. Walvax can enhance its marketing capabilities through independent recruitment, mergers and acquisitions, and establishing strategic partnerships. For the recruitment of marketing personnel, in addition to recruiting sales personnel with good professional knowledge, it is also necessary to recruit personnel who understand video processing, can record, edit, and promote videos, and use various video social platforms to popularize vaccines and promote vaccine products. In addition, Walvax can also quickly acquire strong marketing capabilities, reduce sales costs, and improve marketing efficiency by acquiring promoters or establishing long-term stable and effective strategic partnerships with high-quality promoters.

### 6. Conclusion

On the basis of considering the authenticity of Walvax's profit quality, this article comprehensively analyzes the four dimensions of profit level, cashability, sustainability, and structure of profit quality. From 2018 to 2022, Walvax's main business had low profitability, weak profitability, high accounts receivable, and poor cost control due to excessive reliance

on vaccine marketing. Although the successful launch of the 13 valent pneumonia conjugate vaccine in 2020 has become a new profit growth point for the company, bringing significant net profits to Walvax, it has not significantly improved the profitability quality of Walvax. The overall performance of Walvax's profit quality is not stable enough and not outstanding. In future development, Walvax can improve its profitability by enhancing brand awareness, implementing internal and external measures to improve cash flow efficiency, and promoting the integration of production and sales to expand the scale of direct sales. With the increasingly fierce competition in the biopharmaceutical industry, Walvax needs to make greater efforts to achieve its own sustainable development.

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