

Financial Analysis of Zhijiang Bio based on Harvard Analysis Framework

Xueqing Zhao

School of Anhui University of Finance and Economics, Bengbu, China

Abstract

Since 2020, the demand for in vitro molecular diagnostic products such as neo-coronavirus test kits has been expanding due to the neo-coronavirus epidemic, while the size of the in vitro diagnostic market has entered a period of rapid expansion. As a pharmaceutical manufacturing company, Zhijiang Bio is the only company in the world that has made outstanding contributions to the Ebola, Zika and New Crown epidemics, and has been approved by the World Health Organization and included in its official procurement list, and has a certain influence in the industry. This paper analyses Zhijiang Bio's financial statements for 2017-2020 through a Harvard analytical framework. In terms of strategic analysis, the SWOT analysis is applied to analyse the strengths and weaknesses as well as the opportunities and challenges of Zhijiang Bio; in terms of accounting analysis, the company's financial reports are used as the basis for assessing Zhijiang Bio's major accounting policies and accounting estimates to determine their reasonableness; in terms of financial analysis, the paper discusses several aspects such as solvency, operating capacity, profitability and cash flow to assess Zhijiang Bio Ltd.'s overall financial level; in terms of applied prospect analysis, through a comprehensive analysis of the above three aspects, a reasonable forecast of Zhijiang Bio's future development can be made. Finally, the paper makes some suggestions for the development of Zhijiang Biologicals. To a certain extent, it can serve as a reference for Zhijiang Bio and other companies in the same industry in China.

Keywords

Harvard Analytical Framework; Financial Analysis; Zhijiang Bio.

1. Introduction

1.1. Research Background and Significance

1.1.1. Research Background

In 2020, a global outbreak of the novel coronavirus epidemic seriously threatened the safety of human life and property. As the number of confirmed cases continues to increase around the world, the genome of the new coronavirus continues to mutate. In this context, testing for the coronavirus has become a top priority.

Shanghai Zhijiang Biotechnology Co., Ltd. (hereinafter referred to as "Zhijiang Biotechnology") is the only enterprise in the world that has been approved and recognized by the World Health Organization and listed in its official procurement directory. This paper takes Zhijiang Biotechnology as a research case and uses the Harvard analysis framework to analyze the overall operation of Zhijiang Biotechnology, in order to make a more scientific judgment on the company's development.

1.1.2. Research Significance

Compared with other companies, the manufacturers of nucleic acid detection kits bear greater social and ethical responsibilities, so it is necessary to discuss and analyze molecular diagnostic companies. This paper will use the Harvard analysis framework to study the financial reports

of Zhejiang Biotech in recent years at multiple levels and aspects, objectively express its development status, clarify its own shortcomings, and propose targeted solutions.

1.2. Research Ideas and Methods

1.2.1. Research Ideas

This article will use the Harvard analysis framework and the financial reports of Yizhijiang Biotech in recent years to discuss its existing problems and put forward reasonable suggestions.

1.2.2. Research Methods

The specific research methods used in this paper are as follows:

- (1) Literature analysis method. By summarizing and combing a large number of literature, we can deeply understand the connotation of Harvard analysis framework, and finally apply it to financial analysis, which provides useful guidance for the research work of this paper.
- (2) Case analysis method. This article will take Zhijiang Biotech as an example, use the Harvard analysis framework, and analyze its financial reports in recent years to find out the problem. According to the actual situation, corresponding countermeasures are given.
- (3) Comparative analysis method. In this paper, representative companies in three industries were selected for financial analysis and compared with JiangBiologics in order to discover the gap between Zhijiang Biotechnology and other companies.

1.3. Review of Domestic and Foreign Literature

1.3.1. Review of Foreign Literature

At the beginning of the 20th century, modern financial analysis appeared in the United States, mainly used by banks to prevent and control loan risks, but after that, people slowly realized that this method has limitations and is not comprehensive and complete. Three Harvard scholars, Palepu, Healy, and Bernard (2004), incorporated strategic analysis into early financial analysis and developed the Harvard Framework for Analysis by aggregating and organizing []. Gonzalez (2016) objectively and comprehensively introduces the advantages of the Harvard analytical framework, and divides financial analysis into four modules for a clear and intuitive understanding []. The outlook analysis included in the framework is an important way to gain a comprehensive and accurate understanding of the enterprise.

1.3.2. Review of Domestic Literature

Financial analysis in China started relatively late, relatively lagging, but with the rapid development of China's economy, the importance of financial analysis has become increasingly prominent, this research has also made great progress, many scholars also introduce non-financial indicators into financial analysis. Chen Liuping (2015) uses the Harvard analysis framework to discuss and analyze M&A cases, which has certain reference value for future generations to evaluate the company's performance, but lacks accounting analysis. Zhang Qian (2016) pointed out that in the current development environment, financial analysis should not only be carried out on the basis of sample data, but should be comprehensively studied using the Harvard analysis framework. Shi Guoqing et al. (2017) conducted an in-depth analysis of the relationship between financial analysis and corporate strategic decision-making, and believed that when formulating strategic goals and plans, enterprises should conduct a comprehensive and systematic analysis of the company's overall operating conditions through financial analysis. Xie Yubao et al. (2018) pointed out that the research and analysis of enterprise performance should not only focus on financial information, but also strengthen the analysis of statistical data, macro policies, market environment and other relevant information, so as to reflect the role of non-financial indicators in enterprise performance evaluation. Wang Shan et al. (2019) pointed out that enterprise performance varies greatly due to the choice of risk strategy, and although no reliable evidence has been found to confirm that strategic choice

has a decisive impact on firm performance, there is a more or less certain relationship between the two. Li Dingqing et al. (2020) proposed to use the Harvard framework to analyze government financial statements, and suggested using financial ratios and cash flow to analyze and evaluate government performance and financial quality.

The Harvard Analytical Framework is currently a more extensive financial analysis method, but few people use this method for research in pharmaceutical manufacturing. Therefore, this research needs to be further improved.

2. The Financial Statement Analysis of Zhejiang Biotech under the Framework of Harvard Analysis

2.1. Strategic Analysis of Zhijiang Biotechnology

2.1.1. Advantage Analysis

(1) Perfect R&D platform and excellent R&D team. Zhejiang Biotech implements standardized management throughout the research and development process and strictly controls every stage of product and technology development. Over the years, we have continuously absorbed outstanding talents and formed a multidisciplinary, multi-level and well-structured technical research and development team.

(2) There are many types of products and high conversion efficiency. After years of development, Zhijiang Biological Company has developed more than 400 kinds of products, which are used in many domestic third-class hospitals, third-party medical laboratories, centers for disease control and prevention, etc., and exported to all over the world.

2.1.2. Disadvantage Analysis

(1) Insufficient product competitiveness. The main revenue of Zhejiang Biotech comes from the sales of nucleic acid detection kits, of which HPV nucleic acid detection accounts for the largest proportion. However, in the field of HPV, compared with the leading company Capu Biotechnology, there is still a big gap in scale and unit price.

(2) Poor internal management. In 2019, the CSRC announced on its official website its decision to issue a warning letter to Zhijiang Biologics, clearly pointing out that the company had problems such as under-reporting costs, overstating revenues, poor facility management, disclosed related party transactions and internal organizational structure that were inconsistent with the facts.

2.1.3. Opportunity Analysis

(1) Huge market size. With the continuous mutation of the new crown virus, the new crown detection capacity and new crown detection efficiency across the country urgently need to be improved, and under this circumstance, the sales of molecular diagnostic instruments of Zhejiang Biotechnology have increased significantly.

(2) Development of related technologies and theories. Advances in biotechnology can not only help enterprises improve their production processes and product quality, but also help enterprises to carry out independent research and development.

2.1.4. Threat Analysis

The new coronavirus nucleic acid testing market tends to be saturated, and the international market competition is fierce. Roche, Abbott and so on occupy a place in domestic high-end products. Compared with China's molecular diagnostic technology, there is still a big gap, and the market competition will be more fierce in the future.

2.2. Accounting Analysis of Zhijiang Biotechnology

2.2.1. Inventory Analysis

The following table reflects the inventory turnover and value changes of Zhijiang Biotech from 2017 to 2020.

Table 1. Company inventory turnover

Financial indicators	Book value at the end of inventory period (million yuan)	Main business cost (million yuan)	Inventory turnover rate	Turnover days (days)
2017	3237	13747	1.27	283.38
2018	3934	16527	1.22	294.38
2019	4130	20334	1.53	234.82
2020	13173	93961	6.02	59.76

Table 2. Comparison of inventory turnover ratio between Zhijiang Biotech and other companies

Financial Indicators	Inventory Turnover (Zhijiang)	Inventory Turnover (Sheng xiang)	Inventory Turnover (Kai pu)
2017	1.27	2.76	2.34
2018	1.22	2.61	2.63
2019	1.53	2.11	3.39
2020	6.02	5.68	5.16

Analysis of Table 1 and Table 2 shows that from 2017 to 2019, the inventory turnover rate of Zhejiang Biotech was low, much lower than that of other companies in the same industry, but it showed significant growth in 2020, and the inventory turnover rate of other companies also increased significantly in 2020.

2.2.2. Accounts Receivable Analysis

Table 3. Ratio of accounts receivable to operating income from 2016 to 2020

Projects	2016	2017	2018	2019	2020
Accounts receivable	7660	9203	10510	11206	22999
Operating income (million yuan)	15664	19254	22435	25887	205214
Specific gravity (%)	48.90	47.80	46.85	43.29	11.20

As can be seen from Table 3, from 2016 to 2019, accounts receivable accounted for a large proportion of operating income, and the return on invested capital was low. In 2020, this percentage declined, likely due to the significant increase in global demand for nucleic acid test kits due to the pandemic.

2.2.3. R&D Expenditure Analysis

Table 4 shows the performance and cost of Zhejiang Biologics R&D expenditure from 2018 to 2020, the ratio of R&D expenditure to total cost, and the comparison of Zhejiang Biologics with other companies in the same industry.

The analysis data shows that the absolute amount of R&D expenditure of Zhejiang Biotech is increasing, but the proportion of R&D expenditure to total expenditure is decreasing, but the proportion of R&D expenditure of other enterprises in the same industry is relatively stable, indicating that Zhejiang Biotech's R&D needs to be strengthened.

Table 4. R&D expenditure of Zhijiang Biotechnology

Financial indicators	R&D expenditure (million yuan)	Total operating cost (million yuan)	Proportion of R&D expenses in total cost (%)
2018	1992	16527	12.05
2019	2340	20334	11.51
2020	5243	93961	5.58

2.3. Zhijiang Bio's Financial Analysis

2.3.1. Solvency Analysis

Table 5. Debt repayment index table of Zhijiang Biotech in different years

Financial Indicators	Current Ratio	Quick Ratio	Equity Ratio (%)	Gearing Ratio (%)
2017	10.88	9.85	6.62	7.92
2018	9.93	8.98	7.77	7.97
2019	7.09	6.36	9.96	10.92
2020	4.11	3.77	26.35	22.18

Analysis of the data in the above table shows that from 2017 to 2020, the equity-to-asset-liability ratio of Zhejiang Biotechnology has improved, the long-term solvency of Zhejiang Biotechnology has improved, and the company's financial risk is relatively low, which helps protect the interests of creditors.

2.3.2. Operational Capability Analysis

(1) Analysis of accounts receivable turnover

Analyzing the data in the table below, in 2020, the number of days receivable decreased significantly. This phenomenon is mainly due to the significant increase in sales of test kits in 2020 and the decrease in the number of days of accounts receivable sales, but the epidemic has been controlled for a long time, and Zhijiang Biotech still needs to pay attention to the choice of collection policy.

Table 6. Comparison of accounts receivable turnover days between Zhejiang Biotech and other companies

Financial Indicators	Accounts Receivable Turnover Days (Zhijiang)	Accounts Receivable Turnover Days (Sheng xiang)	Accounts Receivable Turnover Days (Kai pu)
2017	157.65	181.70	130.39
2018	158.16	162.84	143.21
2019	150.99	172.10	146.84
2020	30.00	26.79	120.42

(2) Analysis of total asset turnover

Table 7. Total assets of Zhijiang Biology and their turnover

Financial indicators	Total asset turnover rate	Total assets (million yuan)
2017	0.40	51607
2018	0.54	57986
2019	0.61	64193
2020	1.63	187957

The analysis of the above table shows that although the overall sales of Zhejiang Biotechnology increased in 2020, the overall sales were still low, indicating that the efficiency of Zhejiang Bio's assets needs to be improved.

2.3.3. Profitability Analysis

Table 8. Profitability indicators of Zhijiang Biotech from 2017 to 2020

Financial indicators	Operating income (million yuan)	Operating cost (million yuan)	Gross profit margin (%)	Return on net assets (%)
2017	19254	3509	81.78	10.78
2018	22435	4385	80.63	11.18
2019	25887	6182	76.12	9.01
2020	205214	52115	74.60	63.72

According to the data analysis in Table 8, Zhejiang Biotech's operating profit and operating expenses have increased, the trend is more obvious in 2020, and the return on net assets has also increased significantly in 2020, but the gross profit margin has shown a downward trend.

2.4. Analysis of Biological Prospects in Zhijiang

2.4.1. Risk Factors

(1) New product development risk. In order to meet the needs of the market, Zhijiang Biotechnology, as a high-tech industry, must constantly develop new products to meet the needs of the market.

(2) Product quality risk. If a company does not maintain a strong quality management system in the future, it will have a negative impact on the company's brand image and product sales.

2.4.2. Future Development Forecast

According to the above analysis, Zhijiang Biological is in the development stage, increasing investment in scientific research year by year, coupled with the promotion of relevant policies and the broad prospects of molecular diagnostic products, it is expected to invest more energy in research and development in the future.

3. Suggestions for Zhijiang Biology

3.1. Financial Suggestions

3.1.1. Optimize the Capital Structure of Enterprises

Decisions about the company's capital structure must take into account the specific circumstances of the industry, and the asset liability ratio of the pharmaceutical industry remains low compared to other listed companies in China. Therefore, enterprises need to further optimize the capital structure and resource allocation.

3.1.2. Improve the Company's Profitability

The development of enterprises must be supported by profitability, and only by continuously improving profitability can greater shareholder value be created through business.

3.1.3. Corresponding Increase in Cash Flow from Operating Activities

Cash flow is an important indicator to measure the financial health of an enterprise, and its level has a significant impact on the survival and development of an enterprise. Therefore, in the long run, it is necessary to increase the cash flow of operating activities accordingly.

3.2. Non-financial Proposals

3.2.1. Optimize the Product Structure, Accelerate the Development Process of Heavy Products.

According to the role of each product, adjust the product structure, optimize the product structure of research and development, increase the investment in the research and development of heavy products, and accelerate the research and development process of heavy products.

3.2.2. Establish an Effective Sales Talent Management System

In order to introduce senior management, improve internal sales management problems, and establish an effective sales management system, it is necessary to regularly evaluate the effectiveness of the existing sales talent management system.

4. Conclusion

This paper uses the Harvard analysis framework to analyze the financial statements of Zhijiang Biological in the past few years.

The first is the strategic analysis. This paper uses SWOT analysis to analyze the business strategy implemented by Zhijiang Biotechnology, and holds that Zhijiang Biotechnology should introduce new technologies, rely on strong research and development capabilities, expand the scale of the company, and win the market.

Secondly, the effectiveness of the company's accounting policies and accounting evaluation is analyzed, and it is found that the non-performing loan provision rate set by Zhijiang Biological is also consistent with the company's operating conditions.

The detailed analysis of Zhijiang Biotechnology shows that the long-term solvency of Zhijiang biological is good, but the short-term solvency is relatively weak, and there is a certain gap with the industry level.

Finally, according to the analysis, although Zhijiang biological still faces many risks, but the current business strategy of Zhijiang Biological is in line with the actual situation, coupled with the continuous expansion of market coverage, Zhijiang Biological has broad prospects for future development.

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