

Research on the Investment Value of BYD based on Financial Analysis and Valuation Analysis

Xingyu Feng*

School of Tianjin University of Commerce, Tianjin, China

* Corresponding Author Email: fengxingyu@stumail.tjcu.edu.cn

Abstract. With the promotion of China's dual-carbon strategic policy and the development of the new energy automobile industry in recent years, the new energy automobile industry has been widely concerned by the academic community and the industry, especially the fluctuation of BYD's stock price has also been widely discussed. This paper uses financial analysis and valuation analysis to study the investment value of BYD. The research results show that in terms of finance, BYD's profitability and operating capacity have shown a good upward trend, but BYD's liquidity and solvency have shown a downward trend year by year. In terms of valuation, by comparing BYD's EPS and P/E ratio with Tesla, it is found that BYD has more long-term investment value than Tesla. The research in this paper provides guidance for investors to make investment decisions, and contributes support and foundation for the future advancement of BYD and the entirety of the new energy vehicle industry.

Keywords: BYD Company, financial analysis, valuation analysis, investment value.

1. Introduction

In recent years, with the rapid development of the economy and the proposal of the dual-carbon target, China has paid more and more attention to the protection of the environment and the sustainable development of resources. As early as 20 years ago, the development and utilization of new energy has become the focus of China's national energy strategy, BYD also began the development of DM dual-mode electric vehicles in 2003. As a leader in China's new energy vehicles, BYD's investment value has been concerned by investors. In 2011, following the state's issuance of the 12th Five-Year Plan to conserve energy and reduce emissions, BYD's valuation began to rise year by year. BYD's value rose from around 329 to around 8200 between 2012 and 2020[1]. However, due to the recent impact of BYD's profit by the price war and Buffett's reduction of shares and other factors, BYD's share price fell. Therefore, investors are very concerned about whether BYD has long-term investment value in the future.

This paper will conduct an in-depth study of BYD's financial situation through the analysis of the changing trend of BYD's financial ratio from 2019 to 2023, and then analyze BYD's investment value by comparing it with Tesla's valuation.

This paper has some research significance. On the one hand, the research of this paper provides a reference for investors to understand the future development prospects of BYD, and provides a basis for investors to make investment decisions. On the other hand, this paper provides a reference for BYD's own future development planning and the whole new energy vehicle industry to face the challenge of stock price fluctuations.

2. Literature review

For the research of investment value, scholars have been analyzing it based on financial indicators for a long time. En, Tian, and Yu studied the value correlation of accounting fundamentals of Chinese listed companies by using the method of fundamental analysis of the financial statements of Chinese enterprises, and discovered that fundamental signals have additive value correlation and that fundamental research can be used to value Chinese listed firms' stocks. [2]. Shen and Tan analyzed the investment value of listed companies based on the stock valuation method and use China

Construction as an example to adopt the free cash flow technique for absolute valuation and the P/B ratio method for relative value, and put forward the view that investors should comprehensively use multiple valuation methods to make a reasonable judgment of enterprise value when evaluating the value of enterprises [3]. Sun and Kong analyzed the investment value of listed companies based on the stock valuation method and adopted the P/E ratio method and the dividend discount model to analyze the investment value of listed companies, and put forward the view that the stock price and the stock value may diverge in the short term, but in the long run, the stock price will continue to return to the stock value [4]. Chang uses the DuPont analysis method to analyze the financial situation of Uni-president enterprise, and puts forward the view that the financial index analysis is a comprehensive way to reflect the financial situation and forecast [5]. Based on the perspective of financial performance, Liu and Fan studied the intelligent prediction of the investment value of science and technology board enterprises by constructing SMOTE-PSO-SVM model, and put forward the conclusion that SMOTE-PSO-SVM model under linear kernel function can help investors in value investment valuation [6]. Cheong, Kim and Vaquero evaluated the platform company's data based on the DCF model. It is concluded that investors are advised to consider estimates of FCF, discount rate, and forecast period when assessing the company value using the DCF method. And it is also meaningful for companies to ensure competitiveness by expanding their ability to raise capital by expanding their enterprise value data based on DCF method [7].

There are also many researches on BYD's investment value, mainly around financial statement analysis, investment value analysis and so forth. Yan and Zhou built a multiple linear regression model and examined BYD's financial metrics as well as closing price information for its stock between 2011 and 2021, later discovered that there was a substantial multiple linear regression association between the multidimensional financial capabilities represented by the financial indicators and the total stock price of BYD. [8]. Chen analyzed the investment value of BYD by relative value analysis and absolute value analysis (discounted free cash flow model of two-stage growth model), and found that BYD's stock price was in an overvalued position, and put forward suggestions for investors who had bought the stock to reduce their positions [9]. By establishing a comprehensive value evaluation model, Tan combined the traditional evaluation method EVA model with the B-S model in the real option method to evaluate the value of BYD, and gave BYD suggestions on improving enterprise value and paying attention to technology research and development [10]. Wang made a financial analysis of BYD Company by using DuPont analysis method, and found that BYD's profitability has declined slightly in recent years, the operating capacity of current assets has declined, and the short-term debt repayment pressure is greater [11]. Xie analyzed BYD's strategy, accounting, finance and prospects by applying Harvard analysis framework, and found problems such as imperfect capital structure and poor solvency of BYD [12]. Based on the existing research, this paper will study the investment value of BYD through the combination of financial analysis and valuation analysis, which has the potential to provide more theoretical foundation for the research field of investment value analysis.

3. Results of financial analysis

3.1. Profitability

This paper uses ROE and Gross margin to analyze BYD's profitability. The ROE and gross margin of BYD in 2019-2023 are shown in Figure 1. Through the trend of the data, it is found that the overall change trend of ROE and gross margin in the past five years is constantly rising, except that the data from 2020 to 2021 shows a decline, and then continues to show a rising trend. Since ROE is determined by net profit and average net asset, to analyze why this decline occurred, this paper is going to start by comparing net profit and average net asset for 2020 and 2021. By comparison, we can see that the net asset (that is, owner's equity) is greater in 2021. At the same time, the net profit in 2021 has also decreased significantly. Although the operating income in 2021 still showed an upward trend, the operating costs became higher (including a significant increase in selling expenses

and administrative expenses), which led to a decrease in the final net profit. The decrease in net profit and the increase in net asset combined to result in the decrease in ROE. The motives behind the decrease in gross margin are similar to those behind the decrease in ROE.

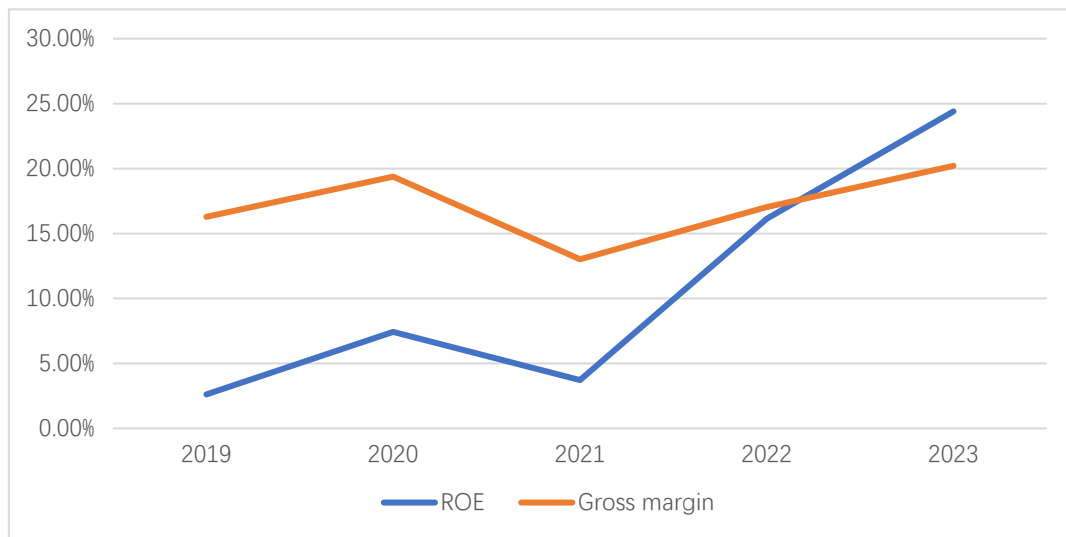


Figure 1. Profitability

3.2. Liquidity and Solvency

This paper uses Current ratio and Debt to assets ratio to analyze BYD's liquidity and solvency. The Current ratio and Debt to assets ratio of BYD in 2019-2023 are shown in Figure 2. This paper first analyse the current ratio to understand BYD's short-term solvency. Through the trend of the data, it is found that the overall change trend of current ratio in the past five years is constantly declining, except for a brief uptick from 2019 to 2020. Since the current ratio is the ratio of current assets to current liabilities, a continuous decrease in the current ratio means that the proportion of current liabilities is gradually higher than that of current assets. That means BYD's liquidity is poor. That also means BYD's short-term solvency is poor. Similarly, through the analysis of the change in the debt to total assets ratio, it will be found that BYD's long-term solvency is also very poor. The ratio of liabilities to assets is known as the debt to total assets ratio. The higher the debt to total assets ratio, the more debt funds BYD has. BYD's debt to total asset ratio in 2023 has been nearly 80%, so high debt to asset ratio is likely to let BYD into financial crisis. Through the analysis of BYD's current ratio and debt to assets ratio, it can be concluded that BYD's liquidity and solvency are relatively poor.

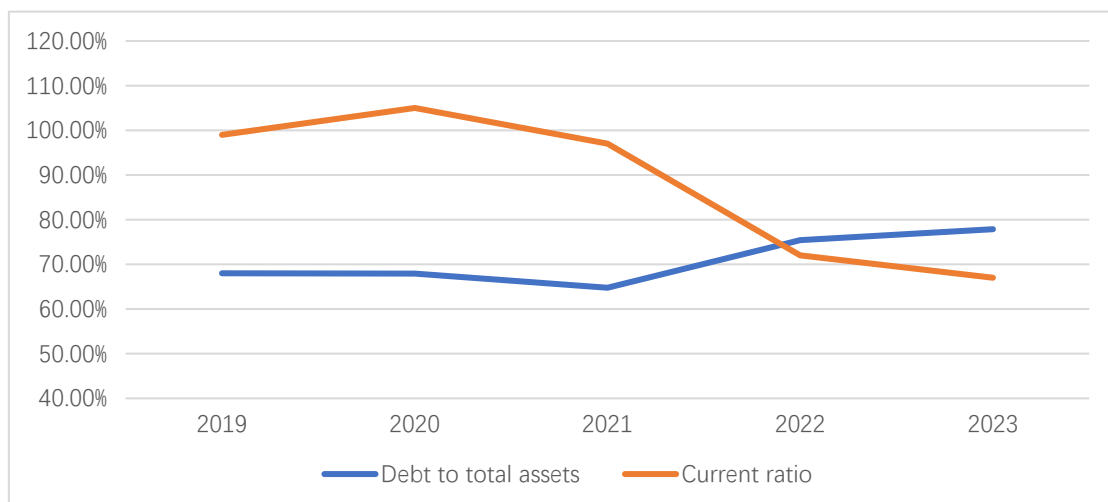


Figure 2. Solvency and Liquidity

3.3. Operating Capacity

This paper uses Inventory turnover to analyze BYD's operation capacity. The Inventory turnover of BYD in 2019-2023 are shown in Figure 3. Through the trend of the data, it is found that the overall change trend of inventory turnover in the past five years is steady after rising. Since inventory turnover reflects the effectiveness of inventory management, a continuous increase in inventory turnover means that BYD's operating capacity is constantly improving. BYD has great operating capacity.

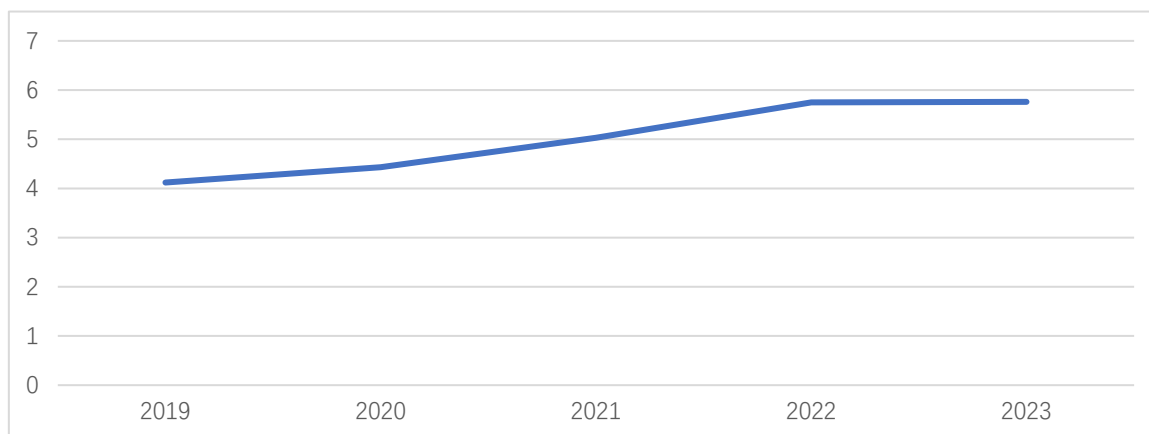


Figure 3. Inventory turnover

4. Results of valuation analysis

In the field of new energy vehicles, BYD and Tesla are neck and neck competitors. Therefore, this paper chooses to compare BYD's data with Tesla's data when conducting valuation analysis of BYD. We find that BYD's TTM EPS, which is 9.85 on 2024/3/23, is three times that of Tesla's. EPS is one of the important factors that affect the stock price, and it is an indicator that indicates the net profit earned by each share of a company. BYD's EPS is significantly higher than Tesla's, which means that the earnings per share invested in BYD is greater than Tesla's, which also means that BYD's investment value is higher than Tesla's. The next part is a comparison of the P/E ratios of BYD and Tesla. This paper finds that BYD's P/E ratio, which is 22.02 on 2024/3/23, was much smaller than that of Tesla's. The stock price of a corporation is compared to its earnings per share using the P/E ratio, which is a relative valuation metric. The presence of a low P/E ratio could suggest that a company's stock is undervalued. By comparing the P/E ratios of BYD and Tesla, I find that BYD's stock is more valuable.

Table 1. Valuation results of BYD and Tesla(on 2024/3/23)

	TTM EPS	TTM P/E
BYD	9.85	22.02
Tesla	3.13	54.58

5. Conclusion

This paper uses financial analysis and valuation analysis to study the investment value of BYD. The research results show that BYD's financial profitability generally shows a stable upward trend, and BYD's operating capacity also shows a stable upward trend year by year. However, the research results show that BYD's solvency and liquidity are poor and show an obvious downward trend, which also reminds BYD to pay attention to improving its capital structure to enhance its solvency and liquidity. Through the comparison of the valuation analysis of BYD and Tesla, it is found that BYD's EPS and P/E ratio indicators are better than Tesla's, which also indicates that BYD is a company worthy of investment by investors.

Through the research of BYD's investment value in this paper, there are mainly two aspects of research significance. On the one hand, the research of this paper provides methods and guidance for investors to have a more comprehensive understanding of BYD's financial situation and valuation, and provides certain guidance for investors to make investment decisions. On the other hand, BYD's solvency and liquidity are relatively poor, and BYD needs to continuously improve its capital structure in the future to better sustainable development.

The study of this paper also has some limitations. Although this paper makes a comprehensive analysis of the investment value of BYD from the perspective of financial analysis and valuation analysis, the investment value of a company is affected by many aspects, such as the impact of macroeconomic and policy environment. These factors have not been fully considered in the process of this study and analysis and need to be further studied in the future.

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