

# Research on Financial Competitiveness of Listed Companies in the New Energy Vehicle Industry: Analysis on BYD

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**Abstract.** Global environmental issues had already become a spotlight since last century. Nations came up with different methods to solve these problems these years. With the great technological development, new energy industry has become a key to deal with environmental problems. Among them, new energy vehicles are an aspect of this industry's application. And it is strongly supported by Chinese government. Therefore, many automotive enterprises in China change the energy source of cars from fuel to electricity. Under this circumstance, financial competitiveness has become an indicator to evaluate firm's competitive power in the market. In this research, the researcher selected BYD as an example for its position in the market and representativeness. The author investigated its financial competitiveness through analyzing the company's solvency, profitability, operating ability, and growth ability. The researcher found that BYD's short-term and long-term financial risks were on an upward trend because of its high liability portions. Besides, BYD's profitability was rising. However, BYD's operational capacity was limited. But BYD has a great future because of its great growth capacity. Through analyzing BYD's financial competitiveness, this paper may fill the research gap on the financial competitiveness of new energy vehicle companies.

**Keywords:** Financial competitiveness; new energy vehicle; BYD.

## 1. Introduction

Global warming is an urgent and significant environmental issue that requires immediate resolution. Automobile exhaust emissions constitute a major contributing factor to this problem [1]. Under this circumstance, developing the new energy vehicle industry is one of the solutions to reduce greenhouse gases emissions. Many countries started to change their structure of energy consumptions because of the growing awareness of environmental protection and the continuous progress in energy technology [2]. With the worse condition of environment, Chinese government pays more attentions to solve the environmental problems. For instance, Chinese government has published several policies in order to promote the development of new energy vehicle industry. Besides, Fournier, Hinderer, Schmid, Seign and Baumann indicated that the successful development of the electric vehicle industry faces a significant technological hurdle in the form of batteries and their electronic components. These components have been recognized as the crucial challenge that needs to be addressed throughout the entire production chain of electric vehicles [3]. China is one of the greatest markets for vehicles' production and consumption around the world. The demand of cars in China increases dramatically during the last decade. Compared with the first ten years of 21st century, people in China are more willingly to purchase a car for themselves. In the meantime, automotive enterprises in China, especially those who contributed to develop new energy technology are gradually developing under the support by government policy during these years. Those enterprises start to show advantages in the competition of domestic and international vehicle market. Among these Chinese enterprises, BYD is one of the most well-known new energy vehicle enterprises in the world. According to company executives, BYD is recognized as the world's largest manufacturer of pure electric vehicles. However, although it is essential for enterprises to shoulder social responsibility, it is also important for them to strengthen their financial competitiveness. Therefore, investigating enterprises' financial competitiveness has become a topic of concern for both the theoretical and practical communities.

In this paper, the researcher aims at analyzing the financial competitiveness of new energy automotive enterprise through an analysis of financial statement. In this research, new energy vehicles refer in particular to electric BYD is selected as an example in this research. The researcher found that BYD had higher ratio of business liabilities to assets, but its profitability was significantly improved. Besides, BYD has a relatively large inventory, so it might affect the normal operation and development of the enterprise. Because of its great growth ability, BYD has a wide development prospect.

## 2. Literature Review

### 2.1. Definition of Financial Competitiveness

Competence-based theory of the firm pointed that enterprises are essentially a collection of capabilities. Wang and Guo had advised that there were two types of core competence. One was the capability of management which was related to a firm's strategy, the other was financial competitiveness [4].

Financial competitiveness is concept of an enterprise's competitiveness combines with several elements. Zhu had indicated that financial competitiveness is a type of ability that an enterprise can combine the financial capability system of the enterprise to attain sustainable competitive advantage and leverage the financial controllable resources of the enterprise [5]. According to Zhu, financial competitiveness includes three aspects, they are financial viability, financial development capability and financial potential [6]. Besides, he also indicated that financial competitiveness was not just about how the financial performance was, it contains an enterprise's intelligence and innovation as well. However, it is tough for researchers to define and quantify these elements. Thus, the researcher only explored financial viability, financial development capability and financial potential.

### 2.2. Literature Review

#### 2.2.1. Overseas Research

Dušan had paid more attentions to liquidity ratios, activity indicator, profitability ratios and indicators of financial structure and financing [7]. Moreover, Tálas and Rózsa analyzed previous studies assessing liquidity through balance sheets and cash flow statements, studying working capital procedures, and evaluating both traditional and cash-flow-based measures of profitability in their research [8]. However, another evaluation of financial competitiveness had proposed in the research published by Lv and Abdul [9]. They used a new method for evaluating financial competitiveness based on interval data mining. Compared with the previous method, this new method is less used. Besides, the method of assessing financial reporting is more practical and easily being applying.

Therefore, Tálas and Rózsa's research can be an example for methodology in this research. Their research was well-structured and it contained a full research process. But it is not entirely applicable either, Tálas and Rózsa's research mainly focused on Innovation-Driven Enterprises. In this research, the researcher aims at finding financial competitiveness of new energy automotive enterprise.

#### 2.2.2. Domestic Research

Some of the relevance researches published by Chinese scholars were adopted a qualitative method. These researches were mainly reviews and summaries about previous studies. Hao, Qi and Guo had summarized some elements that constituted financial competitiveness and their logical relationship. They also founded a model to measure financial competitiveness [10]. However, this study was published long time ago, it might lacked of validity. Their research on financial competitiveness provided a fundamental for future study. However, this research was published in 2006, it may lacked of validity and reliability because the publish time was ages ago.

Besides, most of the existed domestic literatures used an indicator system to evaluate a firm's financial competitiveness. Financial analysis plays a crucial role in modern enterprises. Performance indicators and financial analyses are of great importance in the economy, providing guideline to

shareholders, managers, and experts. Zhang had considered that there were two types of financial analysis. One was the analysis based on accounting, it aims to accurately analyze the profitability, operating capacity, solvency, and growth of the business unit, the other was the type based on finance, its content was more extensive [11]. Therefore, the researcher mainly adopted the financial analysis based on accounting.

Firm's solvency, operating ability, profitability and growth ability are selected as the evaluation indicators. Chen had considered that evaluating firm's financial competitiveness should follow principle of comprehensiveness, flexibility and comparability [12]. Li in his research had combined with the characteristics of a specific industry, then he adopted the traditional evaluation index system and selected 14 financial indicators in solvency, profitability, operating ability, and growth ability, and constructed a financial competitiveness evaluation system [13].

These studies were published in recent years, and they also evaluate firms' financial competitiveness with specific methodologies, researcher can rely more on their conclusions. However, the researchers focused on different industries, there might be some different evaluation principals. These researches were not entirely fit either.

Currently, there are few researches on analyzing items in an enterprise's financial statement of new energy vehicle enterprise. Therefore, this research aims at filling the gap of studying financial competitiveness in new energy vehicle companies. In order to meet this object, information and data about the enterprise are given below. Besides, results and conclusions are also provided.

### **3. BYD Case Introduction**

#### **3.1. Introduction of BYD**

BYD is an automotive enterprise which is founded in 1995. The headquarter of BYD established in Shenzhen, Guangdong Province. At present, the company has over 220 thousand employees, spanning four major industries which are automobiles, rail transit, new energy, and electronics. In this study, the researcher mainly focuses on its financial performance on automobiles and new energy.

BYD is listed on the Hong Kong Stock Exchange in 2002, then it entered the automotive industry in 2003. With the development of new energy, BYD started to enter this new industry. After that, BYD is listed on the Shenzhen Stock Exchange in 2011. The enterprise announced that it stopped the production of fuel powered vehicles and focused on new energy cars in 2022.

On August 1st, 2023, BYD released its latest production and sales report. The data shown that BYD achieved a total sales volume of 262,161 new energy vehicles in July, setting a new historical record and representing a year-on-year growth of 61%. Meanwhile, BYD sold a total of 261,105 new energy passenger vehicles in July, an increase of 3.74% compared to the previous month and a remarkable growth of 61% compared to the same period last year.

As a leading enterprise in the field of new energy vehicles in China, BYD has gradually become one of the star enterprises in the global automotive industry. BYD is selected as an example that applied in this research because of its leading position of new energy vehicle industry in China. Besides, BYD has a large scale for its future development with the continuous development of the new energy vehicle market. It can be a suitable example for analyzing its financial competitiveness because of good performance on finance.

#### **3.2. Analysis of Industry Characteristics**

The new energy vehicle industry has following characteristics.

(1) New energy industry has a broad market space. In new energy vehicle industry, especially for electric vehicle, Fournier, Hinderer, Schmid, Seign, and Baumann and Castro, Barros, and Veiga indicate that batteries and other electronic components play essential roles and it is a key technological challenge to be solved in the entire production chain [14]. Besides, it is even more difficult for the production of EVs because of the poor durability of batteries for EVs [15]. Because of this characteristic, it is an opportunity for EV enterprises to explore the market.

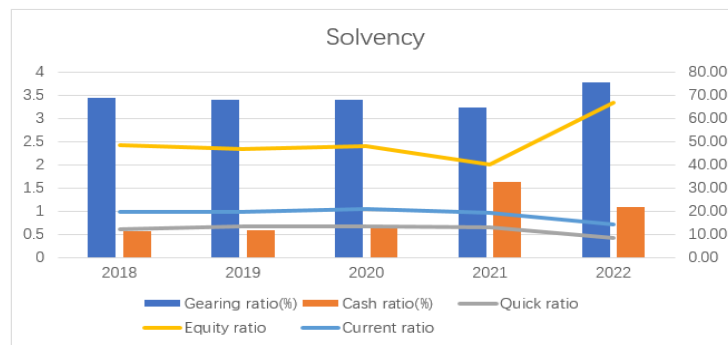
(2) New energy has played an important role in solving environmental issues. EV industry is environmentally friendly. More EVs are being driven means that less emissions of greenhouse gases. Electric vehicles use batteries as energy source so that reduce air pollution and dependence on fossil fuels. Gilmar et al. also believe that the current and constant target of research in automotive sector is to reduce greenhouse gas emissions and achieve energy efficiency improvements. Moreover, Li et al. pointed that EVs emit less heat compared to conventional vehicles, and this distinction has the potential to mitigate the impact of the urban heat island effect [16].

In general, EV industry is a vast market with opportunities to be developed. Due to its environmentally friendly characteristics, Chinese government published policies to make sure EV industry's development.

## 4. Financial Competitiveness of BYD

### 4.1. Solvency Analysis

Solvency analysis is shown in Fig.1:

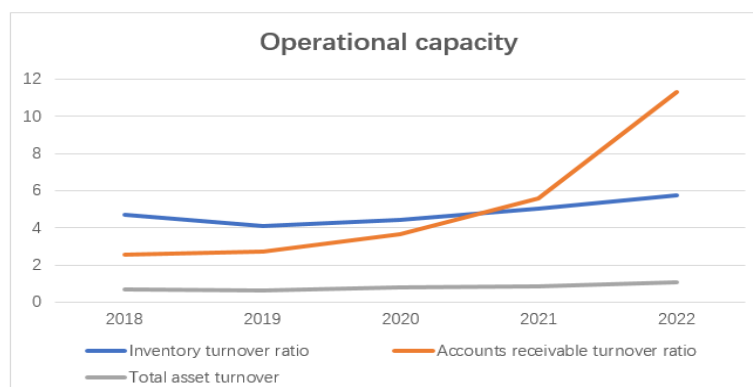


**Fig 1.** 2018-2022 Solvency of BYD.

From the perspective of solvency, BYD's gearing ratio increased to 75.42% in 2022, the company's gearing ratio has always been higher than 60% in the last five years, the enterprise's liabilities accounted for a higher proportion of assets, the current level of financial leverage is higher, and the company's degree of protection for external creditors has declined. From the short-term solvency point of view, BYD current liabilities accounted for too high, the enterprise 2022 current ratio and quick ratio have declined, and the overall level is low, 2022 current ratio is only 0.72, the company's current assets and quick assets for current liabilities is insufficient to protect the ability of the company's current assets and quick assets, the enterprise cash ratio fell to 21.63%, the company's short-term and long-term financial risk shows a rising trend.

### 4.2. Profitability Analysis

The figure 2 of profitability analysis has shown below:

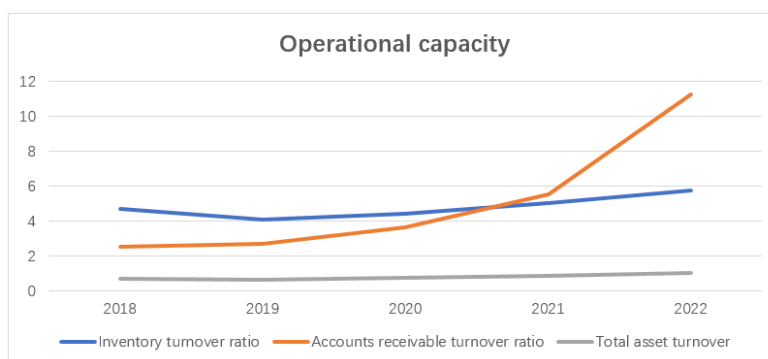


**Fig 2.** 2018-2022 Profitability of BYD.

From the perspective of profitability indicators, the company's return on total assets increased to 5.21% in 2022, and the average return on net assets increased to 16.13%, indicating that the profitability of BYD's own capital and unit assets have significantly improved, and the profit margin of the main business increased by three percentage points to 4.18% compared to 2021, with the company's products' stronger market bargaining power and the lower cost of the sales channel. From the DuPont factor dismantling of return on net assets, the company's asset turnover ratio increased from 0.87 to 1.07 in 2022, the synergistic effect of BYD's asset expansion and profitability has been improved, which also indicates that the company's asset operation and management ability has risen, and profitability per unit of assets has been strengthened. The profitability of the company's main business has expanded, mainly due to BYD's ability to improve the control and suppression of cost items, the company's financial expenses due to the increase in interest income and reduced year-on-year, along with the explosive growth of the new energy automobile industry, BYD, as a leader in new energy vehicles, new energy vehicle sales in 2022 ranked first in the world, and effectively alleviate the rise in upstream raw material prices. The cost pressure brought about by the rising price of upstream raw materials, the quality of corporate profitability has been significantly improved, BYD's current debt raising efforts are high, the company's financing leverage is limited to play the leeway, the corporate gearing ratio has reached 75.42% in 2022, exceeding the healthy range of 40%-60%, mainly due to the rapid expansion of the company's market scale, resulting in the rise of the demand for corporate operating and investment funds, which has increased the BYD Group's external financing pressure.

### 4.3. Operational Capacity Analysis

The figure 3 of operational capacity analysis has shown below:

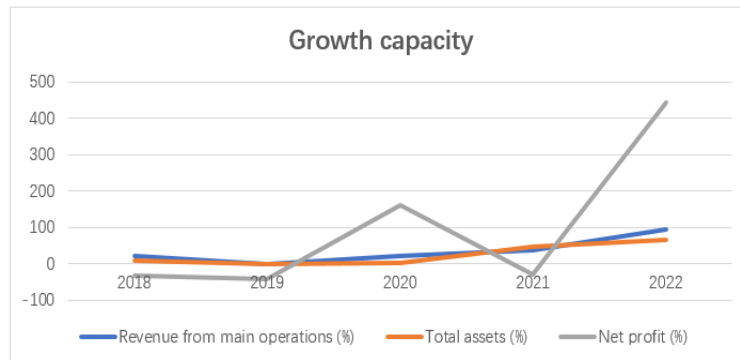


**Fig 3.** 2018-2022 Operational capacity of BYD.

In terms of operation management ability, BYD Group's total asset turnover ratio increases from 0.87 to 1.07 in 2022, and the company's vertical level of asset liquidity has improved. From the perspective of vertical change in inventory turnover ratio, BYD's inventory turnover ratio as a whole shows the development trend of decreasing first and then increasing, and the company's inventory turnover ratio increases to 5.75 in 2019-2022, but the overall level is still low, which implies that BYD's inventory is relatively larger in size and occupies more funds, which will lead to the company's lack of liquidity and slowdown of cash flow, thus affecting the normal business operation and development. From the perspective of vertical analysis of accounts receivable turnover ratio, in 2018-2022, BYD Group's accounts receivable turnover ratio showed an overall upward trend, accounts receivable turnover ratio can directly reflect the company's current accounts receivable capital recovery ability, during the epidemic, the company's accounts receivable turnover ratio increased to 3.68 and 5.58, indicating that the company's risk of bad debts and the risk of capital recovery has declined.

### 4.4. Growth Capacity Analysis

The figure 4 of growth capacity analysis has shown below:



**Fig 4.** 2018-2022 Growth capacity of BYD.

The year-on-year growth rates of BYD Group's operating revenue and net profit are both back to positive in 2022 and remain at a high level, while the growth rate of total corporate assets increases to 66.97%. In terms of growth capacity, BYD, as China's leading manufacturer of new energy vehicles, has a very bright future. With the increasing global emphasis on environmental protection and sustainable development, the new energy vehicle market will continue to grow. BYD has been focusing on technological innovation, actively investing in research and development, has made great progress in batteries, motors, electronic control, etc., and there is still room for more technological breakthroughs in the future, the enterprise has a broad development prospect.

## 5. Issues of Weakening the Financial Competitiveness of BYD

From the above analysis, the enterprise has the following problems that will weaken the financial competitiveness.

(1) In terms of solvency, the enterprise's financial leverage is high, and its current liabilities account for a disproportionately high proportion. Under this situation, high financial leverage means that the enterprise rely more on borrowed funds to support business operations. Therefore, insolvency risk increase. Besides, higher financial leverage will possibly lead to more expenditure on interest and influent enterprise's profitability. Moreover, an excessively high ratio of current liabilities means that the firm's debt has to be repaid in a short term, which might reduce its financial flexibility. Thus, BYD needs to optimize its asset-liability structure.

(2) BYD's current equity multiplier has reached a certain relatively high position, it will be difficult for financial leverage to continually grow. In such case, banks or creditors may be reluctant to provide further borrowing because liabilities are already high or the ability to service the debt is in question.

(3) Besides, there is also pressure on inventory turnover. Inventory turnover pressure may lead to a tougher situation. First, low inventory turnover rate will lead to a circumstance which products are held for a long time and depreciation occur. This will expose the enterprise to difficulties in selling or at risk of obsolescence and loss.

(4) Moreover, BYD needs to pay more attention to energy loss and environmental pollution issues. As an automotive enterprise which mainly focus on new energy, BYD attracts more attentions by the government and society. Public opinion has the potential to change consumers' purchasing decisions and behaviors. When a firm is exposed to negative public opinion, consumers may hold negative attitudes towards the firm's products or services, reduce their willingness to buy or choose competitors' products. It reduces the firm's sale, then influences its financial competitiveness.

## 6. Suggestions

In order to solve these problems, suggestions are given below.

(1) **First of all, BYD needs to optimize the asset and liability structure to reduce financial risk.** In the face of rising financial risks, the company needs to increase the optimization of the liability side, reduce the cost of debt by extending the debt maturity, negotiating lower interest rates,

optimize the balance sheet structure of the enterprise, and enhance the proportion of long-term debt, for example, BYD can appropriately enhance the amount and proportion of long-term borrowing, corporate bonds and other financing projects, and appropriately control the scale of short-term borrowing. At the same time to optimize the structure of the asset side, improve asset liquidity and profitability to cope with the risk of debt repayment, BYD also need to pay attention to cash management, rational planning of cash flow, pay attention to the establishment of a good relationship with banks and other financial institutions, and actively explore diversified financing channels to reduce the cost of financing and improve the efficiency of financing.

(2) **Besides, the enterprise should focus its development on increasing the level of net sales margin.** On the one hand, the company needs to achieve internal management cost reduction and efficiency, with better management capabilities for the profitability of the enterprise empowered, for unnecessary costs to reduce, to create more space for corporate profitability, and to choose the lower cost of the integrated channels for the investment of marketing funds. On the other hand, the company needs to actively carry out research and development of new products and new business, increase the added value of products, use product innovation to create a corporate moat, integration of upstream and downstream resources, and strive to reduce the cost of upstream raw materials, to develop the downstream market demand, to enhance overall profitability.

(3) **In order to relieve pressure on inventories, BYD needs to continue to promote marketing innovation.** BYD can create an online shopping mall, which can provide comprehensive product information, price transparency and a simplified shopping process where consumers can easily browse and purchase BYD products. At the same time, BYD can co-operate with e-commerce platforms and place its products for sale on e-commerce sites such as Jingdong and Taobao. BYD needs to use data analytics and forecasting technology to better understand market demand and product trends. By analyzing historical sales data, BYD can predict future demand and adjust production plans and inventory management strategies according to demand to ensure that inventory turnover is in line with market demand. BYD can also combine online and offline channels for promotions and marketing to increase product awareness and attractiveness. Limited-time offers and promotions can be launched on online platforms, while test drives and experiential activities can be offered in offline shops so that consumers can better experience the company's products. In addition, BYD will need to establish closer partnerships with its dealers to jointly develop marketing strategies and sales plans, as well as provide training and support, to ensure that its products are adequately displayed and promoted at all points of sale, and to enhance the marketing and sales potential of its products.

(4) **Moreover, as a technology-driven company, BYD should continue to strengthen its technological research and development, especially by investing more resources and talents in electric vehicles and high-efficiency new energy, and continue to promote technological innovation to improve the performance, efficiency and reliability of its products.** BYD needs to focus on sustainable technologies such as solar energy, energy storage systems and high-efficiency motors. These technologies help reduce energy consumption and environmental pollution and provide cleaner and more efficient solutions for new energy vehicles. Through in-depth research and development in these areas, BYD can maintain its competitive edge in the new energy market. In addition to technological innovation, BYD should also focus on product design innovation to attract more consumers and build brand image and enhance user experience through exterior design that better meets market demand, comfortable interior space and advanced user interface design. In terms of R&D approach, BYD can actively establish partnerships with other automobile manufacturers, technology companies and suppliers. Through co-operation with leading companies in the industry, BYD can share resources, knowledge and technology to accelerate the process of product development and innovation. With the continuous development of artificial intelligence and the Internet, intelligence has become a trend in the automotive industry. BYD needs to incorporate more intelligent technologies into its products, such as autonomous driving functions, intelligent transport

systems and Telematics, in order to enhance the competitiveness and attractiveness of its products, and the long-term sustainable development of the enterprise.

## 7. Conclusion

To sum up, it is extremely important for BYD to keep its financial competitiveness in a relatively high level. However, in order to make sure that the elements will not weaken its financial competitiveness, BYD need to pay more attention to their solvency and operational capacity. Although it has a good profitability and achieved a favorable competitive position in the marketplace, BYD still need to develop strategies that are appropriate for their development. Enterprises who maintain a certain level of financial competitiveness can survive in the market competition and continue to develop.

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