Analysis on the Development, Sales and Development of New Energy Vehicles by BYD Company

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Abstract. With the continuous improvement of the transportation system, the increasing demand for transportation tools by the people, and the increasing awareness of environmental protection among the global public, new energy vehicles have been widely favored, and the sales of new energy vehicles by BYD, which is committed to research on new energy vehicles, have also significantly increased in recent years. Based on the financial statements and other data released on BYD's official website, this paper conductes SWOT analysis, financial statement analysis, and marketing strategy analysis to study the overall operating status of the company and the development and sales of new energy vehicles, and proposed corresponding suggestions for its shortcomings. Research and analysis have found that due to BYD's overall good business performance in recent years, it has invested a large amount of funds and human resources in the research and development of new energy vehicles, sales, and gradually expanded overseas markets. In recent years, especially in the Chinese market, sales have continued to rise, and brand influence has further expanded.

Keywords: New energy vehicles; BYD; financial analysis; SWOT analysis.

1. Introduction

Currently, the world is facing environmental, resource, and population issues. Due to the excessive development of non-renewable resources and the increasing awareness of sustainable development in various countries and regions, countries are exploring new paths of development, resulting in the continuous development of the new energy industry. Solar energy, wind power, and hydroelectric power plants are constantly being established. In the automotive industry, the development of the new energy vehicle industry is also significantly prominent. In China, BYD has achieved considerable success by leveraging its technological, and strategic advantages. Therefore, this article takes BYD, a leading new energy enterprise in China, as the research object for analysis.

In the development process of new energy vehicles, many scholars have analyzed their operating methods, manufacturing principles, market prospects, industrial structure, infrastructure, etc. The purpose of this study is to find the unique characteristics of BYD's development and the common characteristics of the new energy vehicle industry based on BYD's development background, target market, and this text uses customer sources, financial analysis, and SWOT analysis to obtain a universal path to promote the development of BYD and the new energy vehicle industry. Provide insights and opinions for their development.

BYD Inc. is a leading multinational company located in China, specializing in the manufacture and sale of electric vehicles (EVs), batteries, photovoltaic products and other innovative technologies. Founded in 1995, Its diverse product portfolio includes electric cars, buses, trucks, forklifts and more.

2. BYD's 2022 Financial Analysis

The financial analysis of the group company's main financial indicators for 2022 is as follows.

2.1. Analysis of the Operational and Profitability of the Group Company

Table 1. Operation and profitability analysis table

Index	2021	2022	Year-on-year increase (decrease)
Operating income (in thousands of yuan)	216,142,395	424,060,635	96.20
Net profit (in thousands of yuan)	3,967,266	17,713,104	346.48
Earnings per share (yuan)	1.06	5.71	436.68

Data resource: https://www.bydglobal.com/cn/Investor/InvestorAnnals.html.

Analysis Table 1 shows that: operating revenue, net profit, and earnings per share increased significantly year-on-year.

The global smartphone industry continues to be sluggish, with a significant decrease in demand for laptops and a slight decline in tablet shipments, resulting in a year-on-year increase of only 14.30% in mobile phone components, assemblies, and other products. However, relying on our group's industry-leading research and development and manufacturing capabilities, diverse product combinations, and rich customer resources, With the increasing popularity and huge application prospects of 5G and artificial intelligence technology, the market size of new intelligent products will rapidly grow.

In addition, automobiles, automotive related products, and other products have significantly improved, with a year-on-year increase of 151.78%. Especially in the field of new energy passenger vehicles, our group relies on technological innovation and application to gradually form a multi brand gradient layout, continuously expand new paths, and develop new initiatives, adhering to the combination of pure electric and plug-in hybrid power, it has successively launched disruptive technologies such as "Blade Battery", "DM-i Super Hybrid", "e-Platform 3.0", "CTB Battery Body Integration", and "DM-p King Hybrid", helping our business to develop by leaps and bounds, resulting in annual sales of 6.887 million new energy vehicles, a year-on-year growth of 93.4%.Becoming the top selling car company in China's passenger car industry, setting a new historical high. In 2023, in addition to relying on the Group's strong self-strength, policy supply is also expected to continue to be launched, creating a good environment for the development of new energy vehicles and enabling them to continue their strong growth momentum.

Based on the above analysis, it can be concluded that the group has strong operational and profitability capabilities.

2.2. Analysis of Accounts Receivable and Inventory Situation

Table 2. Accounts receivable and inventory analysis table

Index	2021	2022	Year-on-year increase (decrease)%
Accounts receivable (thousand yuan)	36,251,280	38,828,494	7.10
Inventory (thousand yuan)	43,354,782	79,107,199	82.46

Data resource: https://www.bydglobal.com/cn/Investor/InvestorAnnals.html.

Analysis Table 2 shows that: Although both year-end accounts receivable and year-end inventory showed varying degrees of year-on-year growth, the proportion of growth compared to operating revenue was much lower. The turnover period of accounts receivable in 2022 is approximately 53 days, compared to approximately 95 days year-on-year; The inventory turnover days in 2022 are approximately 64 days, which is approximately 73 days year-on-year. The year-end accounts receivable and year-end inventory are well controlled.

2.3. Analysis of Cash Flow from Operating Activities

Table 3. Analysis of cash flow from operating activities

Index	2021	2022	Year-on-year increase (decrease)
Net cash flow generated from operating activities (in thousands of yuan)	6,566,682	140,837,657	115.13

Data resource: https://www.bydglobal.com/cn/Investor/InvestorAnnals.html.

Table 3 shows that:The significant increase in cash received from the sale of goods and provision of services this year proves that the group has sufficient liquidity to meet daily liquidity management and capital expenditure needs, as well as to control internal operating cash flow.

3. Target Market and Customers

BYD target in new-energy vehicles and renewable energy solution area. It's target clients including individual, firms and government organizations. Their clients might interest on BYD's electric car, bus and tractors.

3.1. Market Research and Analysis

The trend towards new energy cars should be wonderful. Vehicle purchase tax for new energy vehicles will continue to fall. New energy vehicles with a purchase date between 1 January 2024 and 31 December 2025 are exempt from vehicle purchase tax, and the exemption amount is limited to RMB 30,000 per new energy passenger car; new energy vehicles with a purchase date between 1 January 2026 and 31 December 2027 are subject to a 50% reduction in vehicle purchase tax, and the exemption amount is limited to RMB 15,000 per new energy passenger car. In addition, efforts will be made to establish a high quality charging infrastructure system. By 2030, a high-quality charging infrastructure system with wide coverage, moderate scale, reasonable structure and smooth operation will be basically established, which will strongly support the development of the new energy car industry and effectively meet the charging needs of commuters [1].

The market among new-energy vehicles is highly competitive. According to Market research agency Counterpoint, the leader of global electric vehicle sales in quarter 2 2023 is Tesla, which has 20% of the market share, BYD is the second with 15% market share.

Tesla: Tesla sales increased 83% year-over-year in the second quarter of 2023. Tesla Model Y accounted for 64% of Tesla's global sales. the Model Y continues to hold the title of "best-selling" passenger car model in the world.

BYD Auto: BYD Auto BEV sales grew 96% year-over-year in Q2 2023, faster than Tesla. BYD's best-selling model is the BYD Yuan Plus (or Atto 3), followed by the BYD Dolphin and BYD Seagull. The BYD Seagull was unveiled in April 2023 at the Shanghai Auto Show. The BYD Seagull is the 9th best-selling all-electric vehicle in the world. more than 35,000 BYD EVs were exported in the second quarter of 2023. Nearly two-thirds of the exported EVs were sold to Thailand, Israel and Australia [2]. In addition, it is worth mentioning that among them, BYD's cumulative sales in the first half of 2023 exceeded 1.25 million vehicles [3].

3.2. BYD Operation Strategy

BYD's has a perfect industrial chain layout, forming a complete closed industrial chain from battery raw materials to the three main power supply systems, vehicle design and production, battery recycling, and automotive services, a typical representative of vertically integrated industrial chains It is a typical representative of a vertically integrated industrial chain. In specific, they use a platform called "DI LIAN" to manage for the entire BYD industry chain. Which according to the business needs of the entire BYD industry chain, on the basis of the existing upstream and downstream

financing and payment, it has added features such as multi-level flow, order financing and prepaid financing [4].

There are a few reasons why BYD can has such popularities among the world. As it always working on innovation of product, by promoting new car and new technology. Their advertisement is usually related to the efficiency and environmentally friendly. Which could be a strategy to increase selling. Apart from that, BYD also integrate Chinese cultural element into their car, they use the name of Chinese dynasty as their car symbol Which is unique advantage compare to other car producers.

4. BYD SWOT Analysis

4.1. Strength

BYD is a company that claims to be technology driven, and they do have a high level of innovation ability and has a high market position. In terms of new energy vehicle technology, they have top-notch core technologies such as Findreams battery, Findreams Power, Yi Sifang, and Yunnian.

Findreams battery is a blade battery made of lithium iron phosphate as the positive electrode material, which broke the dominance of Tesla and CATL in ternary lithium batteries, allowing the industry to accept lithium iron phosphate, a type of battery with higher safety and performance that is not inferior to other batteries. And BYD has developed relevant hybrid systems based on this.

Yi Sifang is the Four motor wheel edge technology, under this technology, the car has four independent drive systems that can provide different twists to each of the four wheels, which allows the car to turn in place, stabilize braking during high-speed tire bursts, and drive in water.

Yunnian is a chassis suspension active control system, BYD has also broken the technological monopoly in this regard and installed it in domestic cars.

Therefore, Due to BYD's long-term foresight for products and the market, coupled with rapid technological innovation, it occupies a leading position in the domestic new energy vehicle market in China and has a first-hand advantage in the new energy vehicle market.

BYD's products are affordable and have diverse styles. By now, the series that have formed a sales network include: Dynasty series, Ocean series, Tengshi series, and Yangwang series; and there are new energy vehicle models cover various types of sedans, so consumers can better combine their personal needs and financial choices to purchase.

In addition, BYD has a good awareness of serving customers and has established a comprehensive service network. It will provide consumers with free on-site installation of charging stations and complete after-sales maintenance at any BYD repair shop.

One of the reasons why BYD continues to occupy a leading position in its development is the update of corporate strategy and decision-making capabilities. Wang Chuanfu, the founder of BYD, stated at the BYD annual meeting that companies need to master three abilities to win the "elimination competition": core technology, strategic direction, and rapid decision-making mechanism. And the founder team personally supervised the progress of important projects and customized important decisions three to five years in advance [5].

BYD has a complete and rich industrial chain in the field of new energy vehicles. Based on the scientific guidelines of the global sustainable development strategy, BYD has developed a fully functional product and service matrix in the fields of automobiles, rail transit, new energy vehicles, and electronics, laying a solid foundation for the development of the new energy vehicle industry. From the battery industry to the automotive industry, BYD's industry involves many fields and has become a leader in many fields. People witnessed the milestone moment of BYD's 1 millionth new energy vehicle being taken offline at the BYD station during the "See China Automobile" brand parade held in 2021, followed by the milestone moment of BYD's 3 millionth new energy vehicle being taken offline at the BYD station during the "See China Automobile" brand parade held in the second year [6].

4.2. Weakness

Although BYD has set its strategic goal of entering the world market for a long time, progress in some regions has been difficult due to differences in policies and product demands across different regions. In the first half of 2023, BYD's pace of going to sea was slow, especially in the European market where new car certification was slow, and many models had not yet fully passed the process. Besides, the construction process of car 4S stores in overseas markets was much slower than expected [5].

BYD has poor management of offline stores because the entry threshold for offline sales and service personnel in various automobile production companies is low, which cannot guarantee the service ability and attitude of each employee. The service attitude of some offline stores has been criticized. In addition, due to the low performance commission of sales personnel in BYD stores, it cannot enhance the enthusiasm of sales personnel in their work.

BYD's original brand image was relatively niche, with more people considering it as a mid to low-end product and the primary choice for taxi drivers. Under this brand image, it will lose some high-end market customers and affect the pricing of products.

4.3. Opportunity

New energy vehicle products are receiving widespread policy support from various countries. Currently, the government in China is increasing the coverage density of urban charging stations and providing price subsidies for purchasing new energy vehicles.

For BYD, it is located in the Hunan Provincial Government, which provides him with many policy conveniences. This year, the General Office of the Hunan Provincial Government issued the "Several Policy Measures for Fighting the Active Battle of Economic Growth and Realizing the Overall Improvement of Economic Operation", which proposed to strive for the production of new energy vehicles in the province to exceed 1 million units. Recently, multiple departments such as the Provincial Physical Management Bureau have issued the "Specific Measures for Hunan Provincial Administrative Institutions to Manage and Promote New Energy Vehicles", which require that all official vehicles that need to be purchased or updated, except for special work requirements or non-compatible models, should be purchased and equipped with new energy vehicles in principle [7].

Hunan Province not only provides policies support, but also builds a national key laboratory for advanced design and manufacturing of automobile bodies, gathering talents from multiple sources, and deeply promoting the integration of industry, academia, research and application with new energy vehicle headquarters or leading enterprises in vehicle design, champion parts, intelligent networking, and other aspects, demonstrating greater achievements in the development of the new energy vehicle industry [7].

Environmental changes and economic development bring opportunities to the development of new energy vehicles. With the overexploitation of oil, oil reserves continue to decrease, and due to wars, changes in economic development and policies in various countries, and changes in the US dollar index, international oil prices have also shown an upward trend. Therefore, car brands using new energy have gained greater development space.

With the continuous development of economies in various countries, the continuous increase in people's income, consumers' awareness of environmental protection, and deepening understanding of new energy vehicles, most consumers prefer new energy vehicles more with the promotion of various companies and governments. So the market for new energy vehicles will further expand.

4.4. Threat

The technical barriers of new energy vehicles themselves are difficult to break through, with short range, low durability of batteries, and limited applicability. They can only meet the needs of urban transportation and are only suitable for areas with high urban density. Due to the installation of urban charging stations, there is no way to popularize them in the short term.

As the advantages and development opportunities of new energy vehicles continue to emerge, manufacturers will gradually focus their research and development efforts on new energy vehicles, and competition in the market will gradually intensify, posing a threat to BYD's original market position.

From a domestic perspective in China, Wuling Automobile, which focuses on the middle and low consumer groups, continuously introduces new models with higher cost-effectiveness and more fashionable appearance and configuration based on the consumer market; Audi plans to collaborate with SAIC Group to develop a combination of connected electric vehicles for the high-end market [8]; NIO Automobile has deeply cooperated with the State Grid of China, effectively improving the patent layout and industrial chain layout of charging piles [9].

From the perspective of the world market, traditional automotive industry giants with strong capabilities such as Mercedes Benz and BMW have also begun to make efforts in the new energy vehicle industry [10]. All of these will bring tremendous pressure to BYD's development.

5. Conclusion

Based on the above analysis, several suggestions are proposed for the future work of the group company:

①The company should continue to actively layout new technologies, promote product upgrades, and meet constantly changing market demands in accordance with the overall plan of the group company. ②Expand the automotive business mainly focused on new energy vehicles, mobile phone parts and assembly business, secondary charging batteries and photovoltaic business Actively layout overseas markets and steadily take root globally Utilize one's own technological advantages to expand the business field of urban rail transit. ③The development of the new energy vehicle industry cannot be separated from technological innovation and the development of new technologies. When developing new energy vehicles, enterprises should focus on breaking through technical barriers in the development of new energy vehicles, such as battery loss issues, charging station construction issues, and new energy vehicle lifespan issues. In addition, other intelligent technologies, such as intelligent voice system and auto drive system, should also be considered when relevant technologies give full play to their advantages. ④The development of new energy vehicles requires entrepreneurs to have precise control over the current situation and market, be able to keenly detect changes in government policies, have a deep understanding of market demand for products, and make decisions faster and more accurately .

6. Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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