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Research on the Factors and Impacts on BYD's Growth in New Energy Vehicle Sales

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Abstract: In the context of the increasingly severe global energy crisis and environmental issues, new energy vehicles have gradually become a sustainable transportation solution and a development trend in the automotive industry. Against this backdrop, BYD has attracted widespread attention with its outstanding performance in the field of new energy vehicles. As a globally influential company, BYD has been committed to research and innovation in new energy technology. After years of relentless efforts, it has achieved significant success in the field of new energy vehicles. This study aims to explore in depth the reasons behind BYD's increasing sales after successfully manufacturing new energy vehicles. It focuses on analyzing where the significant advantages of new energy vehicles lie by conducting a detailed comparison of BYD's advantages and sales volume analysis, as well as comprehensively analyzing relevant research findings from various aspects such as domestic and international markets for new energy vehicles, consumer behavior, and policy influences. This research is of great significance. On one hand, it helps deepen understanding of the development dynamics and trends in the new energy vehicle industry, providing useful references for other companies; on the other hand, it provides a decision-making basis for policymakers to better promote the development of the new energy vehicle industry and optimize energy structure while protecting the environment. The ultimate conclusion drawn from this study is that BYD's sales growth benefits from practical characteristics and cost-effectiveness of new energy vehicles, while subsidies for these vehicles also play an important role.

Keywords: BYD, New energy vehicles, Market demand, Technological innovation, Consumer behavior

1. Introduction

In recent years, new energy vehicles (NEVs) have become the preferred choice for a growing number of consumers, primarily due to their economic advantages. One of the most evident reasons for this shift is the continuous rise in fuel prices, contrasting with the relatively low cost of electricity. Among NEV manufacturers, BYD has consistently maintained a leading position in the development of battery technologies, particularly in lithium iron phosphate (LFP) batteries and its innovative blade battery design. These technological advancements have significantly strengthened BYD's competitive edge in the NEV market. This paper aims to explore how BYD has achieved a great transformation from the backward production of fuel vehicles to the leading sales of new energy vehicles and an in-

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depth analysis of the internal reasons and external influencing factors of BYD's sales growth of new energy vehicles. The paper is expected to contribute to a deeper understanding of the development dynamics and trends of the new energy industry and provide experience and inspiration for other enterprises to learn from. In addition, the findings will provide a scientific basis for policymakers to designate more targeted policies to promote the healthy development of the new energy vehicle industry and promote the optimization of the energy structure and environmental protection.

2. Overview of the New Energy Automobile Industry

In different countries' New Energy Vehicle Market, there are different brands. For instance, in the United States market, Tesla is the most common choice, but in China, BYD has become a priority for many families. For normal families, the affordable price, excellent performance, long battery life, and high safety are the primary conditions for choosing a car, and BYD performs well in this regard. BYD, founded in 1995, initially mainly produced fuel vehicles, but the products' quality, appearance, and technology have been at a disadvantage for a long time, once ranked at the bottom of the domestic car rankings. However, after several years of technological research and innovation, BYD has made breakthrough progress in the field of new energy vehicles. As of the first half of 2024, BYD's new energy vehicle sales have ranked first in China with total sales of more than 570,000 vehicles. In addition, BYD's expansion strategy in the global market, especially in the European market, demonstrates its international vision. Its strategy includes a rich product line, a complete sales channel construction, and cooperation with local environmental protection policies. Research shows that BYD has gradually gained market recognition by cooperating with local European dealers and actively adapting to Europe's strict environmental protection standards.

3. Advantages of BYD's New Energy Vehicles

3.1. Price

There are two main types of new energy vehicle companies in the market. One is the development and production of new energy vehicles from traditional automobile manufacturers, including traditional mainstream companies such as General Motors in the United States, Nissan and Toyota in Japan, and the other is completely new automobile industry participants such as BYD and Tesla. Therefore, BYD's current market competitors are mainly these two types [1]. These traditional fuel vehicle brands with a century-old history face many challenges in the process of transformation and development of electric vehicles, and their new energy vehicles are sometimes even less cost-effective than domestic brands. In contrast, BYD has demonstrated significant advantages in production efficiency and cost control by implementing a vertically integrated supply chain management model, mastering the key technologies of open vehicles and parts, and relying on its own battery production and parts supply [2,3].

In the Chinese market, BYD's affordable new energy vehicle products are more easily accepted by ordinary consumers and can also meet the needs of travel. Its products are not only comparable to models of the same price in terms of quality, appearance, and interior, but also allow users to enjoy a more cost-effective car experience. In terms of pricing strategy, BYD F3 has set a goal of reducing the sales price to RMB 49,800 within five years since its launch in 2005, creating a cost-effective model [4]. In addition, after several years of research and design of new energy vehicles, BYD has launched a variety of models based on the needs of different consumer groups, all of which are priced between RMB 100,000 and 200,000. These prices are not only lower than the prices of most traditional fuel vehicles on the market but also in line with the budget of ordinary consumers, making them the first choice for many families. New energy vehicles are divided into two categories: extended-range electric vehicles and pure electric vehicles. The core advantage of extended-range

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vehicles lies in their range. BYD's extended-range vehicles have a comprehensive range of up to 1,000 kilometers, while the range of traditional small pure oil vehicles is about 500 kilometers, and the range of medium-sized pure oil vehicles is 600-700 kilometers. In addition, new energy vehicles can reduce travel caused by rising oil prices. Based on the comprehensive cost-effectiveness of price, range, and use cost, BYD's new energy vehicles occupy an important position in the car purchase list of ordinary consumers and have also won it wide recognition and high sales in the Chinese market.

3.2. Practical Analysis

BYD's new energy vehicles have significant advantages in terms of practical performance, especially in terms of post-maintenance and maintenance costs. BYD's new energy vehicles have lower post-maintenance costs than traditional dual vehicles, which effectively reduces the burden on users. BYD's new energy vehicles have excellent performance design. Since the motor is involved in the drive system, its starting and acceleration performance are stronger, bringing users a smoother driving experience. At the same time, BYD's independently developed lithium iron phosphate battery is deeply trusted by consumers due to its high safety. As BYD's innovative technology, blade batteries are widely used in many models due to their high safety and long battery life. Studies have shown that this technological breakthrough has significantly improved BYD's market competitiveness [5]. The energy conversion efficiency of new energy vehicles is extremely high, which not only reduces energy consumption but also improves energy utilization efficiency, further reducing operating costs. In recent years, BYD's appearance design has gradually developed towards youthfulness and diversification. By launching a variety of exterior and interior designs, BYD has attracted a wider range of consumer groups. Its performance is particularly outstanding among models of the same price and level. Its materials and designs are beautiful, practical, and comfortable, and can even meet diverse needs of users. Some BYD models can even be comparable to mid- and low-end models of luxury brands.

In addition, BYD has performed well in after-sales service, providing a 6-year or 150,000-kilometer vehicle warranty for new energy models and an 8-year or 150,000-kilometer warranty for core components. This policy has enhanced consumers' purchasing confidence. With the continuous expansion of brand influence and user base, BYD has also launched a high-end product, "Yangwang," which has attracted high-end customers with its outstanding performance. Some luxury brands have also begun to learn the unique technology of the Yangwang series, which has further enhanced BYD's status and brand effect in the hearts of domestic customers and gradually become one of the preferred brands for car buyers. In terms of intelligence and networking technology, BYD has also demonstrated strong competitiveness. BYD's new energy vehicles are equipped with advanced intelligent driving assistance systems, including automatic emergency braking, lane-keeping assist, adaptive cruise. and other functions. These intelligent functions not only improve driving safety but also enhance the user's driving experience. BYD has laid a solid foundation for long-term development in the field of intelligentization by continuously investing in the fields of the Internet of Vehicles and autonomous driving algorithms [6]. Intelligent driving systems can quickly identify potential dangers through real-time data analysis and take proactive warning or protective measures, thereby significantly reducing the incidence of traffic accidents and enhancing consumers' trust in the safety performance of BYD vehicles. In addition, intelligent functions can also be adjusted according to user needs, such as optimizing energy recovery mode according to driving habits or adjusting battery usage strategies according to real-time road conditions, thereby extending driving range and improving driving convenience.

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3.3. National Policy Subsidy

The national new energy subsidy policy is an important measure to support the development of the new energy industry and promote the realization of energy conservation and emission reduction goals. The policy stipulates that users can receive a certain amount of subsidies when purchasing pure electric or plug-in hybrid models that meet the national subsidy standards. For BYD, the national subsidy policy played an important role in its early development stage, not only helping it reduce product costs but also significantly increasing its market share. Data shows that BYD has received a total of 7.926 billion yuan in subsidies for new energy vehicles, accounting for 34.56% of the total subsidy amount, while Tesla only received 1.96 billion yuan. Between 2012 and 2018, BYD received an increasing amount of government subsidies year by year, and the proportion also showed an upward trend. Government subsidies are mainly related to automobiles. Although the operating profit was negative from 2012 to 2014, the net profit attributable to shareholders of listed companies was always positive, and in 2014, government subsidies accounted for 91.36% of the total profit. In 2015, government subsidies amounted to RMB 581 million, accounting for 20.58% of net profit; in 2016, they amounted to RMB 711 million, accounting for 14.07%; and in 2017, they amounted to RMB 1.275 billion, accounting for 31.36% of net profit [7]. These subsidies have greatly enhanced the market competitiveness of BYD's new energy vehicles and become a major driving force for attracting consumers to buy them.

With the gradual introduction of the national new energy subsidy policy, BYD has adjusted its strategy and shifted its focus to improving product quality, innovative transformation and brand building. In response to the intensified market competition and subsidy reduction, BYD has continuously optimized product performance through technological upgrades and intelligent transformation. For example, BYD has continued to invest in battery research and development and vehicle design, further enhancing the market competitiveness of its products. National policy subsidies played a "catalyst" role in the early stages of the development of the new energy industry, helping many automakers break the market monopoly of traditional fuel vehicles and accelerating the overall progress of the new energy vehicles industry. However, with the withdrawal of the subsidy policy, BYD has gradually formed a market competitiveness independent of policy subsidies by relying on its technological innovation, supply chain management, and scale effect. This ability to develop independently not only establishes a solid position for BYD in the domestic market but also provides strong support for its global expansion.

4. Comparison of Sales Volume of BYD's New Energy Vehicles with Competitors

4.1. Comparison with Foreign Competitors

In recent years, BYD has actively explored the international market and introduced its products to Europe, Southeast Asia, and Latin America. For these markets, BYD has adopted a localized production and cooperation strategy to cope with cost pressure and policy barriers [8]. Among them, electric buses account for a large proportion, especially in densely populated areas with high demand for transportation. The governments of these markets generally provide policy support for new energy vehicles, and consumers have a strong awareness of environmental protection, which has laid the foundation for BYD's overseas sales growth. BYD's diversified product line is also one of its key competitive advantages in expanding its international market. From entry-level electric vehicles to high-end luxury models, BYD can meet the needs of consumers at different income levels and shape a multi-level brand image and market positioning. Especially in overseas markets, BYD has strengthened its brand penetration by cooperating with local governments and enterprises. For

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example, its production bases in Europe and South America and its business expansion in Southeast Asia have successfully boosted sales growth.

However, BYD's expansion in the international market also faces many challenges.As the leader of the global electric vehicle industry, Tesla has firmly occupied the high-end market with its high-performance models and advanced autonomy. This has significantly increased BYD's competitive pressure in the high-end market. At the same time, with the rapid development of the global new energy vehicle industry, more car companies have joined the competition, bringing challenges at the technical and resource levels. For example, the prices of key battery materials (such as lithium and nickel) continue to rise, directly pushing up the production costs of electric vehicles. If BYD cannot continue to innovate in technology, it may face the risk of being surpassed by competitors.

Nevertheless, BYD's early technological advantages provide a solid foundation for its future development. Against the backdrop of global attention to carbon emission reduction, more and more countries are implementing new energy policies, providing market opportunities for BYD's further development. For example, BYD's success in the field of electric buses and taxis has enabled it to gradually expand to more countries and regions, consolidating its position in the international new energy vehicle industry. By optimizing its cost structure, enhancing its technological innovation capabilities, and implementing a diversified product strategy, BYD is expected to continue to occupy an important position in the international market in the future. Its successful market expansion experience provides a reference for other companies and also demonstrates the competitiveness and influence of Chinese new energy vehicle brands in the global market.

4.2. Comparison with Foreign Competitors

In the domestic market, BYD has gradually consolidated its leading position in the field of new energy vehicles by actively responding to national policies and by having strong product competitiveness. BYD has made full use of the government's new energy vehicle subsidy policy and has significantly reduced the cost of purchasing vehicles for consumers through various promotional activities and flexible financing plans, thus successfully attracting a wide range of consumers. These strategies have not only increased sales but also helped BYD establish a solid brand image in the domestic new energy vehicle market. Although BYD has performed well in the domestic market, it is also facing pressure from other domestic brands as market competition intensifies. For example, emerging electric vehicle brands such as Weilai, Xiaopeng, and Ideal have certain advantages in the high-end market. With intelligent technology and differentiated marketing, they have attracted young and high-income consumer groups. In addition, traditional fuel vehicle companies (such as Great Wall Motors and Gelly Auto) have also actively deployed in the field of new energy vehicles in recent years, grabbing market share by launching hybrid models and pure electric vehicles. This requires BYD to continuously optimize its product strategy and technical level in order to maintain its competitive advantage [9].

5. Conclusion

BYD's rising car sales are inseparable from its core technology and its determination to try new things. New products are more attractive while ensuring practicality and quality; especially in this era of rising oil prices, new energy vehicles have increased people's car purchase options. Energy saving, low consumption, and low car purchase costs have become the driving force for people to buy new energy vehicles. This gives it a competitive advantage in the market. In particular, the Blade battery, with its excellent durability and safety, has become an important driving force for BYD's gradual acceptance in the global market. BYD has further consolidated its market position through strategic supply chain management and cost control. Since the global demand for electric vehicles surged in

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2020, BYD has significantly improved production efficiency and reduced costs by relying on its vertical integration model. This model covers the independent production of batteries and the supply of parts, which not only reduces dependence on external suppliers but also provides important reference experience for other new energy vehicle companies. However, as manufacturing costs rise, the selling price of new products will also rise, with material price issues. But as time changes and the maturity of technology increases, BYD is also continuing to research new products "solid-state batteries," as well as artificial intelligence and smart driving. BYD is also competing with the high-end markets in Europe and the United States and Tesla in the international market. Its advantage lies in maintaining its advantages over other companies in the context of raw material shortages and tightening global environmental protection policies while promoting the development of the circular economy. BYD has become a leader in the global new energy vehicle field with its innovation capabilities, supply chain advantages, and international layout. However, in order to cope with future competitive pressures, it needs to further strengthen technological innovation, market adaptation, and resource integration. Future research should focus on BYD's response strategies when facing multiple challenges to reveal its driving force for continued growth and sustainable development path.

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