

Examination of the Impact of New Energy Subsidy Policy on Corporate Performance: A Case Study

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Abstract: This article examines the current development status and future trends of the new energy automotive sector, using Basuto Company as a case study. With the increase in global awareness of environmental protection and the restructuring of energy systems have led to the rapid advancement of new energy vehicles, which serve as a crucial method for reducing carbon emissions and attaining sustainable development. The article initially examines the definition, classification, and historical evolution of new energy vehicles, followed by an analysis of their technical attributes and market performance. The article conducts a comprehensive examination of the current policy environment, market demand, technological innovation, and industrial chain development within the new energy automotive sector. The research identified a pivotal advancement toward a sustainable future. In the global quest for clean energy and a low-carbon lifestyle, new energy vehicles have emerged as a significant focus in current transportation development. In recent years, the swift advancement of technology has facilitated significant breakthroughs in several critical domains for new energy vehicles, establishing a robust foundation for future sustainable growth.

Keywords: BYD Group, New energy cars, Subsidy policy, Novel paradigm.

1. Introduction

Preface the automobile industry, as a traditional sector in our nation, bolsters economic progress. In recent years, due to the excessive consumption of world oil resources and the escalating air pollution, the advancement of the conventional automobile industry is experiencing significant strain. Conventional fuel vehicles utilize petroleum, resulting in significant exhaust emissions during combustion, including carbon dioxide, carbon monoxide, nitrogen oxides, and particulate matter, which severely pollute the environment. Additionally, petroleum is a non-renewable resource, and the diminishing global oil reserves will increasingly strain energy supply. The new energy automotive business emerged in this setting.

In 2009, the Ministry of Finance and the Ministry of Science and Technology together released the Notice for the implementation of the Demonstration and Promotion Pilot program for energy-saving and new energy vehicles [1], marking China's official entry into the era of new energy vehicle subsidies. Between 2010 and 2016, the state progressively enhanced the subsidy program for new energy vehicles, leading to the rapid development of China's new energy vehicle industry. The yearly growth rate of new energy vehicles

Production and sales surpassed 50% [2], securing the top position globally. New energy vehicles have emerged as the most competitive burgeoning industry in China.

In 2020, owing to the combined effects of the novel coronavirus pandemic and significant reliance, the subsidy policy for new energy vehicles, initially set to conclude at the end of this year, was prolonged until the end of 2022. The prolongation of the subsidies has afforded new energy vehicle firms an opportunity to more effectively acclimate to the market. Capitalizing on the influx of subsidies following a two-year period has emerged as a critical concern for new energy vehicle firms. Per the 2021 plan [3], the subsidy standard for new energy cars will decrease by 30% in 2022. In light of reinforced policies, the market effects resulting from the reduction of subsidies are progressively diminishing, while numerous automakers are systematically introducing models tailored to specific demands, motivated by competitive market dynamics and pressures.

1.1. Objective and Importance of the Research

1.1.1. Advancing the transformation of the energy structure

A primary objective of new energy research is to expedite the shift from dependence on fossil fuels, characterized by high pollution and emissions, to a low-carbon, clean, and sustainable energy system. By means of technological innovation and policy direction, people will progressively diminish the share of conventional energy sources like coal and oil, while augmenting the share of renewable energy sources in the energy supply framework, thereby establishing a foundation for a green and low-carbon energy system.

1.1.2. Mitigating carbon emissions

In light of the significant issue posed by global climate change, it has become the agreement among the world community to decrease greenhouse gas emissions, particularly carbon dioxide emissions. New energy research is dedicated to advancing more efficient and eco-friendly energy conversion and storage technologies to substantially diminish carbon emissions during energy production and utilization.

2. Two Current operational and developmental status of BYD Company

2.1. The Current Operations and Development Status of BYD Company

Established in 1995, BYD Company is a technology-driven enterprise. The company's primary sectors encompass the vehicle industry, mobile phone components and assembly, and rechargeable battery and photovoltaic sectors. YD commenced its operations with batteries, and the backing of lithium iron phosphate and ternary batteries has facilitated its successful dominance across several sectors, including passenger automobiles, commercial vehicles, and specialized vehicles. As a global leader in new energy vehicles, BYD possesses substantial technical expertise. On October 30, 2024, BYD published its first three quarterly report of 2024, with one particular data set eliciting industry worry. BYD's operating revenue in the third quarter attained a record 2011.25 billion yuan, averaging 2.2 billion yuan daily, reflecting a year-on-year increase of 24.04%. In the initial three quarters of this year, BYD's operating revenue amounted to 502.251 billion yuan, reflecting an 18.94 percent year-on-year increase, while the net profit reached 25.238 billion yuan, representing an 18.12 percent year-on-year rise.

2.2. The advancement of novel energy vehicles

In light of the recent scientific and technological revolution and industrial restructuring in China, the new energy automobile sector has entered a phase of accelerated growth. This advancement is attributed to the proactive research and development initiatives by enterprises in new energy vehicle products, coupled with robust support from China's fiscal and taxation policies. Consequently, the technical standards of the new energy vehicle industry have significantly improved, and the industrial framework has become increasingly systematic. Overall, China's new energy vehicle market exhibits a commendable trend of "double improvement" in both scale and quality. Particularly, in the context of achieving global "double carbon" objectives, the development of the new energy sector plays a crucial role in addressing global warming, glacier melting, and the reduction of severe greenhouse gas emissions.

The emergence of new energy vehicles has garnered significant global attention. Simultaneously, the implementation of various advantageous fiscal and tax policies for new energy vehicles has facilitated the ongoing expansion of China's new energy vehicle industry, resulting in a growing share of new energy vehicles in consumers' lives. The China Association of Small and Medium-sized Commercial Enterprises and Fong's Data Research Institute recently published survey data regarding the purchasing intentions of Chinese consumers in Chongqing for the second quarter of 2024. The study results indicate that the energy consumption of new domestic electric vehicles is steadily increasing, while consumer expectations about automobile functionalities are becoming increasingly diverse. The poll results indicate that over half of consumers, specifically 53.6%, are opting for new energy vehicles (including hybrids and pure electric), reflecting an increase of 5.9 percentage points from the preceding quarter. The share of consumers selecting gasoline vehicles is significantly lower at 36.2%, as new energy vehicles increasingly gain public trust and recognition.

2.3. Examination of the influence of government subsidies on BYD's financial performance

2.3.1. Impact of Government Subsidies on BYD Company's Sales

Between 2015 and 2023 [4], BYD sold 445,000,495,000,410,000,502,000,453,000,421,000,705,000, and 1.863 million units.3.024 million new energy cars. Over the past nine years, BYD's sales have consistently increased, achieving a peak growth rate of approximately 62.3% in 2023 compared to the same period in 2009. Upon reviewing the pertinent policies enacted by the state over the past four years, it is evident that the state is elevating the criteria for securing subsidies and diminishing the magnitude of such subsidies [5]. According to the Notice from the Development and Reform Commission, Ministry of Finance, and Ministry of Industry and Information Technology regarding the enhancement of the financial subsidy policy for the promotion and application of new energy vehicles (Caijian (2020) No. 86), in 2022, the subsidy standard for new energy vehicles will decrease by 30% compared to 2021. For urban public transport, road passenger transport, rental services (including online car services), environmental sanitation, urban logistics distribution, postal express delivery, civil aviation airports, and public service vehicles utilized by party and government agencies that meet specified criteria, the subsidy standard will be reduced by 20% relative to 2021. Nonetheless, due to the minor reduction and BYD's core technology facilitating timely enterprise transformation to manufacture high-standard new energy vehicles in accordance with the policy, the policy modification does not affect BYD.

In 2019, BYD experienced a decrease in sales of new energy vehicles. The substantial reduction of the state's subsidies for new energy vehicles in 2019, which decreased by 50%, has led to a downturn in sales across numerous new energy vehicle firms, including BYD Company. BYD's robust core technology enables it to effectively respond to legislative changes and secure substantial

subsidies. At this juncture, the corporation is significantly dependent on state subsidies, making it challenging to reintegrate into the market swiftly.

2.3.2. The influence of government subsidies on BYD's net profit

The government's subsidies for new energy vehicle enterprises are primarily categorized into two types: state-funded subsidies for promoting new energy vehicles and free subsidies from local governments to facilitate the establishment and operation of new energy enterprises. As these are government subsidies, they influence the everyday operations of automotive companies; thus, a thorough review of their effects will follow.

In 2016, BYD obtained 3,352.95 million yuan in national promotion subsidies and 710.939 million yuan in local government subsidies [6], amounting to a total of 4,063.889 million yuan, which represented 80.44% of BYD's net profit for that year. In 2016, the majority of the company's income originated from government subsidies. In a comparable analysis of 2017 and 2018, it is evident that the two categories of government subsidies amounted to 649.94777 million yuan in 2017, representing 159.83% of that year's net profit; in 2018, these subsidies totaled 683.0665 million yuan, constituting 245.74% of the annual net profit.

If BYD does not get subsidies in 2016, the company can still sustain profitability; but, if the same circumstances persist in 2017 and 2018, BYD will incur direct financial losses. BYD's current profits predominantly depend on government subsidies. The reduction of government subsidies will significantly affect the company. The foremost companies in the sector have already accomplished this, and one can infer the actions of other firms inside the overall industry.

The state aimed for a total reduction by the conclusion of 2020; but, due to the economic recession induced by the pandemic and the industry's failure to extricate itself from the subsidy dependency, it opted to prolong the subsidy until the end of 2022 [7]. The two-year extension of the subsidy can stabilize the decline mechanism, assist new energy vehicle companies in adapting to sustainable operations, and provide automotive enterprises with the opportunity to enhance their core competitiveness, reduce costs, and prepare for full market entry.

3. The importance and recommendations for the advancement of new energy vehicles

3.1. Significant Importance

The swift advancement of the worldwide economy and the persistent increase in population have rendered energy consumption and environmental issues increasingly significant, with the pollution and energy strain caused by conventional fuel automobiles being particularly noteworthy. Consequently, the advancement of new energy vehicles is crucial, as it pertains not only to the optimization of energy structures but also serves as a vital means to attain sustainable development. The promotion and utilization of new energy vehicles can mitigate the energy issue. Conventional fuel vehicles predominantly depend on oil resources; however, oil is a non-renewable resource with limited and unevenly distributed reserves. The persistent growth in worldwide automobile ownership is driving an escalation in oil consumption, hence intensifying the pressure on energy supplies. Conversely, new energy vehicles mostly employ clean energy sources such as electricity and hydrogen, which are abundant and renewable, hence diminishing reliance on conventional oil supplies and enhancing national energy security.

The decrease in exhaust emissions from modern energy cars substantially enhances environmental quality [8]. Conventional fuel vehicles emit significant quantities of deleterious gases, including carbon dioxide, carbon monoxide, and nitrogen oxides, along with pollutants like particulate matter, which inflict considerable harm on the atmospheric environment, leading to recurrent environmental issues such as haze and acid rain. Enhancing the substitution effect of new energy vehicles for

conventional fuel vehicles can significantly reduce carbon emissions associated with automobile usage. The predominant source of carbon emissions in the whole life cycle of conventional fuel cars is the usage phase, which constitutes over 70% of their total carbon emissions. In terms of comprehensive life cycle carbon emission assessment for an individual vehicle, the total life cycle carbon emissions of a new energy vehicle can decrease by 25% to 45% in comparison to those of a conventional fuel vehicle. In terms of emission reduction efficacy, the carbon emissions of electric vehicles in operation are approximately fifty percent of those produced by conventional fuel vehicles. Despite thermal power generation in China being 71% of total social power generation, the utilization of new energy cars remains lower in carbon emissions and more environmentally sustainable than gasoline vehicles.

The advancement of new energy vehicles has facilitated the transition and enhancement of the automotive sector. As new energy vehicle technology advances and the market expands, existing automobile manufacturers encounter both pressures and opportunities for change and enhancement. The research, development, and production of new energy vehicles necessitate advanced technical proficiency and innovative capabilities, thereby fostering technological advancement and industrial enhancement within the automobile sector. Conversely, the swift expansion of the new energy vehicle market presents a novel growth opportunity for automobile manufacturing firms, facilitating ongoing optimization and restructuring of the industrial framework [9].

The advancement of new energy vehicles holds substantial strategic importance [10]. In the realm of global climate change and energy transition, new energy vehicles have emerged as a critical sector for governmental competition in development. By robustly advancing the new energy vehicle sector, the nation may enhance its security and worldwide competitiveness, while also actively participating in global climate change governance and projecting the image of a responsible great power.

3.2. Recommendation

Initially, people will enhance innovation leadership, examine and implement significant scientific and technological initiatives for new energy vehicles, and pursue research in fundamental frontier domains such as novel power systems, advanced fuel cell structures, and intelligent driving operating systems and chips with a proactive approach.

Secondly, people will implement industrial innovation initiatives, concentrating on the advancement of essential technologies such all-solid-state batteries, novel chassis and designs, and autonomous driving systems.

Third, enhance low-carbon transition by prioritizing the advancement of hydrogen energy and fuel cell commercial cars, establishing hydrogen energy corridors, and developing critical emerging industries. Hydrogen energy and fuel cells will be advanced through extensive and thorough demonstration projects, achieving the objective of low-carbon energy transportation development.

Fourth, enhance openness and collaboration, foster close cooperation and mutual advancement between domestic and international automobile sectors, facilitate the integration of transnational industrial investment and commodity trade, and collectively ensure the seamless circulation, safety, and stability of the global industrial and supply chains.

4. Conclusion

In recent years, BYD has concentrated on the new energy vehicle sector, bolstered by substantial state funding and investment. The orientation of tax policy compels BYD enterprise to focus on both the expansion of "quantity" and the enhancement of "quality". Recent government announcements and BYD's annual report indicate that increasing the technical requirements for enterprises seeking to

benefit from the vehicle purchase tax reduction policy, along with enhancing catalogue management measures, will facilitate advancements and upgrades in BYD's new energy vehicle technology.

The rapid advancement of BYD and other new energy automotive firms in recent years is inextricably linked to the support of national fiscal and tax incentives. The advancement of new energy vehicles is a crucial method for mitigating carbon emissions. China promotes and facilitates the advancement of new energy vehicles via advantageous fiscal and tax policies, which is crucial for achieving the "double carbon" objective. In the future, addressing the gradual decline of fiscal and taxation policies necessitates the formulation of more pragmatic fiscal and taxation strategies to promote the sustainable development of the new energy vehicle industry, ensuring that new energy vehicles become the preferred mode of transportation for the populace is a subject requiring ongoing exploration and enhancement.

Authors Contribution

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

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