A Study on The Impact of New Energy Vehicle Subsidy Policies on BYD Company's Financial Performance

Zhuoyu Li *

School of Economics and Management, Hunan University of Science and Engineering, Yongzhou, 425199, China

* Corresponding Author Email: zhuoyuli68@gmail.com

Abstract. In recent years, the domestic economy has grown rapidly, people's living standards have been significantly improved, and cars have become a necessary means of travel for almost every family. However, with the sharp increase in automobile consumption, the harm to the environment is becoming more and more significant, and the green of the global ecological environment continues to pose a great threat, so the new energy vehicle product was born, catering to the theme of green and environmental protection, and has received widespread attention from consumers at home and abroad, and China has also put forward a number of subsidy policies since 2009 to encourage the development of the new energy vehicle industry, as an important breakthrough in China's industrial transformation and upgrading. Therefore, according to field research, the impact of new energy vehicle subsidy policies on the financial performance of car companies is of great significance. This paper attempts to explain the impact of the new energy vehicle subsidy policy on the financial performance of new energy vehicle enterprises over the years, and takes BYD, a leader in today's new energy vehicle companies, as the research object, and analyzes the impact of the subsidy policy from 2016 to 2023 on the financial performance of BYD Group in the same period.

Keywords: New Energy Vehicle Industry; China’s Subsidy Policy; Financial Performance; Indicator Analysis.

1. Introduction

As the largest developing country in the world today, China's economic development is rapid. China's construction is moving forward steadily, but at the same time the development is also facing many problems, the destruction of the natural environment, the excessive exploitation of natural resources is one of the particularly prominent problems, is not conducive to the sustainable development of China's economy, so the Party Central Committee attaches great importance to ecological related issues, has written the concept of sustainable development into the Party Constitution at the 17th National Congress of the Communist Party of China, and put forward the concept of ecological civilization construction at the 18th National Congress of the Communist Party of China, which highly reflects the Party Central Committee's commitment to environmental protection, ensuring that resources continue to provide supply for the economy attaches great importance [1]. In today's world, oil prices continue to rise, the global energy supply is tight, and the ecological environment problems are becoming increasingly acute and significant. Compared with traditional fuel vehicles, new energy vehicles have a different set of power systems, which provide power through batteries, or batteries and fuel. And with the continuous research and development of science and technology, a variety of new energy vehicles that consume less energy and are more environmentally friendly have also come into being. Therefore, attaching importance to the promotion of new energy vehicles will not only contribute to the long-term sustainable development of the national economy, but also help to protect the environment.

2. China's New Energy Vehicle Subsidy Policy

2.1. Policy Introduction Period (2009-2012)

In order to further enhance the supply of new energy vehicles, since January 2009, the Ministry of Science and Technology, the Ministry of Finance, the National Development and Reform Commission, and the Ministry of Industry and Information Technology jointly launched the "Ten Cities Thousand Vehicles Project", the main content of which is to provide financial subsidies for new energy vehicle companies, in three years, the development of ten cities per year, each city launched a thousand new energy vehicles to carry out demonstration operations, with financial subsidies as an incentive method, and finally achieve the goal of 10% of the automobile market share in 2012 in the operation scale of new energy vehicles. Since the launch of the "10 cities and 1,000 vehicles" project, by the end of 2012, the national hybrid vehicle market has reached 5,859 vehicles, and good progress has been made [2]. However, there are also some shortcomings at this stage: First, local financial subsidies are often more inclined to local enterprises, resulting in "local protection" behavior, which hinders the entry of foreign vehicles and restricts the market promotion of advanced technologies and industries to a certain extent. The embarrassment that BYD E6 has entered a number of environmental protection metropolises, including London and Hong Kong, but has never been able to be licensed in Beijing, is a prominent manifestation of this problem. The development of the demonstration cities of "10 cities and 1,000 vehicles" is uneven, and some cities are not open enough to foreign vehicles. Second, some key components, especially battery technology, still need to be improved, which cannot fully meet market demand. Third, infrastructure construction has become the biggest obstacle to the market promotion of new energy vehicles, especially pure electric vehicles [3]. Therefore, the subsidy policy at this time still needs to be further improved.

2.2. Policy Adjustment Period (2013 to Present)

On the basis of the good results achieved during the policy introduction period, in 2013, the Ministry of Finance issued the "Notice on Continuing to Promote the Application of New Energy Vehicles", requiring the application of new energy vehicles to continue to be promoted from 2013 to 2015. The document proposes to rely on urban promotion, focusing on the promotion of particulate matter in Beijing-Tianjin-Hebei, the Yangtze River Delta, the Pearl River Delta and other areas with heavy particulate matter control tasks, and the three-year cumulative promotion of new energy vehicles in demonstration cities, government procurement inclination and other conditions, by the Ministry of Finance, the Ministry of Science and Technology, the Ministry of Industry and Information Technology, the National Development and Reform Commission four ministries and commissions to review and determine the list of demonstration cities; The central government will give comprehensive incentives to demonstration cities, mainly for the construction of charging facilities [4]. At the same time, subsidies will be given to consumers to purchase new energy vehicles, that is, consumers will pay after deducting subsidies from the sales price, and the financial subsidy standard will be determined according to the basic price difference between new energy vehicles and similar traditional vehicles (considering the scale effect and technological progress declining year by year), and the central government will allocate subsidy funds to new energy vehicle manufacturers (the implementation of quarterly pre-allocation, annual liquidation), and refine the requirements for subsidized models (passenger cars according to the pure electric mileage to delineate the subsidy amount) [5]. On the whole, from 2009 to 2022, China's new energy vehicle purchase subsidy policy has been adjusted and improved more than ten times to achieve precise support, with the main characteristics as follows: First, adhere to the pure electric drive strategy, gradually shift the technical route of new energy vehicles from hybrid to pure electric drive, and strengthen the promotion and application of near-zero emission or zero-emission models [6]. The second is to highlight the development of technological innovation, guide the industry to strengthen the research and development of key core technologies of new energy vehicles, and gradually increase the requirements of relevant technical indicators such as power performance and energy consumption [7].

The third is to assess the comprehensive cost gap, reasonably adjust the subsidy standards for passenger cars and commercial vehicles and promote the promotion and application of high-quality products. The fourth is to strengthen the operation supervision and strengthen the supervision of the operation status of new energy vehicles, which not only improves the efficiency of vehicle use, but also strengthens vehicle safety early warning.

3. Company Description

3.1. BYD Overview

Founded in February 1995 and headquartered in Shenzhen, Guangdong Province, BYD's industries include electronics, automobiles, new energy and rail transit, and it has eight production bases in Shenzhen, Xi'an, Changsha, Changzhou, Fuzhou, Hefei, Jinan and Zhengzhou. The company has more than 220,000 employees, and its business spans four major industries: automobile, rail transit, new energy and electronics, and is listed in Hong Kong and Shenzhen, with revenue and market value exceeding 100 billion yuan. BYD is committed to promoting the sustainable development of human society with technological innovation and helping to achieve the goal of "carbon peak and carbon neutrality" [8]. On May 1, 2024, BYD released data showing that the sales of new energy vehicles in April 2024 reached 31,300 units, with a year-on-year increase of 23.24%.

3.2. BYD's Position in the Industry

BYD's new energy vehicle sales rank first in the industry and is one of the few automobile companies that have their own production lines and independent intellectual property rights from batteries to vehicles, BYD's new energy vehicle business occupies a core position in the national new energy vehicle market and is also a leading enterprise in China's automotive industry. Since its establishment in 1995, BYD's main business has been the R&D and production of mobile phone batteries. In 2002, with the increasing attention of countries around the world to the ecological environment, the market demand for automotive batteries has also been expanding, and major car companies have begun to enter the field of new energy vehicles, and then the company transformed into research and development of automotive batteries. In 2003, after the acquisition of Qinchuan Automobile, the company officially entered the automotive industry, after years of development, the company has occupied an important position in the domestic automotive industry. Since its establishment, BYD Automobile Co., Ltd. has mastered mature battery production and R&D capabilities, so the manufacturing of new energy vehicles has been regarded as the core goal of enterprise development. The company established an independent R&D center within three months of its establishment, invested a lot of personnel and funds to focus on the research and development of new energy vehicle technology, and harvested more than 100 patented technologies. The company's outstanding performance in the automotive field also further promoted the company's rapid development, and it was listed on the Shenzhen Stock Exchange in 2011. With the company's strong R&D integration strength in the field of new energy, BYD has risen rapidly in the new energy vehicle industry, and its brand influence has also made it a leader in the Chinese market, and BYD has become one of the most innovative cutting-edge brands in China. BYD Automobile Co., Ltd. relies on its super scientific and technological innovation capabilities and technical research and development team It has become a leader in the domestic new energy industry and occupies a certain position in the global new energy vehicle industry.

4. Impact of Subsidy Policy on BYD's Financial Performance based on the Financial Indicators

This section uses the financial indicator analysis method to analyze the financial performance indicators of BYD Auto Co., Ltd It is compared with the industry average, and the future trend and current situation of enterprise development are studied, and it is clear to show the operation status of

the enterprise [9]. According to the financial index data of BYD enterprises, the financial indicators of the company in the past eight years are deducted. In addition to the comparative analysis of the indicators after government subsidies, the impact of government subsidies on the financial performance of enterprises is discussed.

4.1. Operational Capacity

The operational capability reflects the operation and asset management level of the enterprise and can reflect the ownership of the enterprise The benefits that the assets bring to the business. A company's ability to repay its debts is also affected by its ability to operate. this paper When analyzing the operating capacity of BYD, the main indicators selected are as shown in Table 1.

Table 1. Operational capacity indicators of BYD from 2016 to 2023

Ratio	2016	2017	2018	2019	2020	2021	2022	2023
Inventory turnover	4.97	4.61	5.54	4.12	4.43	5.03	5.75	5.76
Accounts receivable turnover	3.27	2.26	2.57	2.74	3.68	5.58	11.30	11.96
Current asset turnover	1.56	1.17	2.98	1.15	1.43	1.56	2.08	2.22
Total asset turnover	0.79	0.66	0.70	0.66	0.79	0.87	1.07	1.03

As can be seen from Table 1, BYD's asset turnover rate from 2016 to 2023 showed a steady upward trend, indicating that its operating capacity was steadily improving. The inventory turnover ratio has hovered between 4-6 since 2016, reaching an eight-year low of 4.12 in 2019 and a high of 5.76 in 2023. Stimulated by the government's introduction of a large number of asset-related subsidy policies, BYD's new energy vehicle industry has built a large number of production parks in the early stage of development, and the growth rate of production capacity is greater than the growth of demand for new energy vehicle products. So, there is more inventory, and the inventory turnover rate is not high, which also means that the company's inventory occupies a large amount of capital, which is difficult to realize, the company's sales are difficult to increase, and the operating capacity is relatively poor. In terms of accounts receivable turnover, there has been a very obvious upward trend, from 3.27 in 2016 to 11.96 in 2023, which has nearly quadrupled, and has risen from 5.58 to 11.30 in the second year since 2021.

4.2. Profitability

As can be seen from Table 2 below, BYD's profitability indicators from 2016 to 2023 showed a downward trend and then an upward trend, among which the fluctuations in net profit margin and return on total assets were relatively flat, while the fluctuation of net asset yield was significantly larger, showing an exaggerated "W" trend. This is mainly because the subsidy policy at this time has entered the adjustment period, the subsidy amount has been reduced and the subsidy technical threshold has been raised [10]. The 2015 policy stipulates that in addition to fuel cell vehicles, the financial subsidies for other types of new energy vehicles are implemented as required, as follows: the subsidy in 2017-2018 will drop by 20% on the basis of 2016, and the subsidy in 2019-2020 will drop by 40% on the basis of 2016, so it has had a certain impact on BYD's profitability. It can be seen that BYD at this time still has a greater dependence on the government's financial subsidies.

Table 2. Profitability indicators of BYD from 2016 to 2023

Ratio	2016	2017	2018	2019	2020	2021	2022	2023
Net sales margin	5.3	4.64	2.73	1.66	3.82	1.80	4.18	5.20
Return on total assets	4.21	3.04	1.91	1.09	2.13	1.23	4.21	5.12
Return on net assets	12.91	7.76	4.96	2.62	7.43	3.73	16.14	24.40
Government subsidies (¥ billion)	0.71	1.28	2.07	1.48	1.68	1.88	1.92	2.05

4.3. Solvency

Solvency measures an enterprise's ability to repay debt, directly impacting financial risk and development, and informing future financial decisions. For short-term debt repayment, enterprises rely on liquidity, using indicators like the quick ratio and current ratio to assess this ability. The asset-liability ratio indicates how much of an enterprise's total assets are liabilities, reflecting its ability to repay long-term debts. A higher asset-liability ratio signifies better solvency. Understanding these ratios helps enterprises gauge their financial health and make informed decisions to mitigate risks and support sustainable growth.

Table 3. Solvency indicators of BYD from 2016 to 2023

		Current ratio	Quick ratio	Cash ratio	Working capital (¥ billion)	Gearing ratio	Government subsidies (¥ billion)
2016	Before	1	0.78	0.1	-7.8	0.61	0.71
	After	0.98	0.76	0.09	-8.5	0.62	
2017	Before	0.98	0.79	0.11	-11.7	0.68	1.27
	After	0.96	0.77	0.1	-12.3	0.69	
2018	Before	1	0.78	0.1	-7.8	0.61	2.07
	After	0.98	0.76	0.09	-8.5	0.62	
2019	Before	0.99	0.75	0.12	-19.5	0.68	1.48
	After	0.96	0.73	0.11	-21	0.69	
2020	Before	1.05	0.75	0.14	-18.7	0.68	1.69
	After	1.03	0.73	0.12	-20.3	0.69	
2021	Before	0.99	0.48	0.16	-9.9	0.65	2.26
	After	0.98	0.46	0.13	-11.2	0.66	
2022	Before	1.04	0.72	0.17	-12.3	0.75	1.92
	After	1.03	0.70	0.14	-14.3	0.76	
2023	Before	1.05	0.75	0.18	-11.2	0.78	2.04
	After	1.02	0.73	0.15	-13.2	0.79	

As can be seen from Table 3, the government's special subsidy for BYD's new energy vehicles first reached 2.073 billion yuan in 2018, compared with nearly 800 million yuan more than the previous year, which also helped make up for some of BYD's losses, making the working capital rise from -1.17 last year to -0.78. but in 2019, after the retreat of fiscal policy, it fell back to -1.95, a decrease of nearly three percent. After adjustment in 2020, the government subsidy rebounded, and rose to -0.99 in 2021 with further increases in financial subsidies, and further fell in 2022 and 2023. The debt-to-asset ratio has risen to 0.75 since 2022 and will further reach 0.78 in 2023, indicating that the proportion of liabilities in assets has further increased and financial risks have continued to rise. It can be seen that BYD is still more dependent on financial subsidies, and the solvency index is obviously affected by the increase or decrease of subsidies.

4.4. Growth Capacity

From Table 4 below, it can be seen that BYD's development capacity has shown a fluctuating upward trend in the past eight years, mainly because the new energy vehicle market policy changes rapidly. It takes a certain amount of time for enterprises to make transformation strategies according to policy changes. Among them, the growth rate of main business income has risen steadily during this period, hovering between 4% and 5% from 2016 to 2019. It has risen sharply to 22.59% in 20220, an increase of five times compared with the previous year, reaching the highest 96.19 in 2022, and halving to 42.13% in 23 years. The net profit growth rate is the indicator with the largest fluctuation range, which soared from 2.74% in the previous year to 162.27% in 2020, which shows that 2020 is a year for BYD to gain a lot in its operating business. But then it fell below -28.08% in 2021, and then soared to 445.86% in 2022, and finally returned to 80.72% in 2023. Compared with the first two,

the growth rate of total assets only took off in 2021, and then reached an eight-year maximum of 66.97% in 2022. Overall, BYD has a strong level of development capabilities, and has achieved a rapid rise in three indicators in 2020 and 2021, with strong growth. At the same time, it is accompanied by great instability, and there is still great uncertainty about whether it can develop stably in the face of the contraction of subsidy policies and the saturation of the new energy vehicle market

Table 4. Growth capacity indicators of BYD from 2016 to 2023

Ratio	2016	2017	2018	2019	2020	2021	2022	2023
Growth rate of main business income	4.97	4.61	5.54	4.12	22.59	38.02	96.19	42.03
Net profit growth rate	3.27	2.26	2.57	2.74	162.27	-28.08	445.86	80.72
Total asset growth rate	1.56	1.17	2.98	1.15	2.75	47.14	66.97	37.60

4.5. Summary

This section analyzes the financial performance of BYD Auto Co., Ltd. by using the financial indicator analysis method, and then compares the financial indicators of the enterprise in the past eight years with the indicators after deducting government subsidies, so as to better understand the impact of the company's financial performance receiving government subsidies. From the analysis, it can be seen that: (1) In terms of operating capacity, the company's accounts receivable turnover rate has been increasing year by year, indicating that the company has made full use of funds for business activities, but the other three indicators are still at a low level, indicating that the company's operating capacity is low and still needs to be further improved. (2) In terms of profitability, several of BYD's profitability indicators have begun to rise in 2020, although there have been occasional declines in the following years, but they are still on an upward trend all day, it can be seen that profitability is still poor, there is dependence on financial subsidies, and the profitability level is not durable. (3) In terms of solvency, the pressure on debt-related enterprises is relatively large, and they are still more dependent on government subsidies. (4) The development ability of enterprises is not very stable, and it is difficult to judge whether enterprises can develop steadily in the low level of financial subsidies and the increasingly saturated new energy vehicle market.

5. Conclusion

The government should strengthen the supervision of subsidies and grasp the intensity of financial subsidies At present, there are still more fraud and subsidy phenomena in the new energy vehicle market, and some enterprises regard subsidies as their main source of income, and do not consider how to cultivate their core competitiveness and optimize their industrial structure, which undoubtedly deprives them of the rights and interests of new energy automobile enterprises that need financial subsidies for development, which is not conducive to the sustainable and healthy development of the entire industry. After the appropriation, it is necessary to evaluate the economic benefits of the enterprise in a timely manner, so that the financial allocation is given to the outstanding enterprise and used in the real place. In addition to "give or not", but also "give well": like BYD in this article, there are many companies that are still too dependent on the benefits of financial subsidies, and the economic benefits increase with the increase of financial allocation, decrease and decrease, such companies, such industries are difficult to withstand the impact of the ever-changing market environment, so the government should be based on the existing regression policy, comprehensively measure the financial operation of an enterprise, and give appropriate, conducive to the development of the amount of financial funds, Promote the long-term healthy development of the entire industry.

New energy vehicle enterprises should optimize the capital structure of enterprises From the above analysis, it can be seen that in several indicators of solvency, BYD is lower than the industry average, the company does not have a strong solvency, and even faces a certain risk of debt repayment, the

company's asset-liability ratio has been at a high level for a long time, almost reaching the early warning value, so enterprises should adjust the capital structure in a timely manner. In addition to bank loans in financing, it can also try other financing methods, such as internal financing, equity financing, debt financing, etc., so that not only can the debt ratio be controlled, Moreover, it can allow enterprises to have a stronger ability to repay debts and avoid financial risks.

New energy vehicle enterprises should wisely allocate subsidy funds to enhance competitiveness. BYD should use subsidy funds effectively and not rely solely on them for producing and selling new energy vehicles. They need to acknowledge their actual operational capabilities and avoid overconfidence from financial subsidies, focusing on genuine corporate profitability and competition. They must actively respond to changing government subsidy policies and adjust strategies accordingly. With China's new energy subsidy policy in decline and nearing withdrawal, competition will depend on intrinsic company strength. Companies overly reliant on subsidies will falter, while those investing in R&D will gain market share. Therefore, BYD should increase R&D investments, particularly in integrating artificial intelligence with new energy vehicles, to enhance technological and intelligence levels, meet consumer needs, gain market recognition, and improve market share continuously.

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