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Impact of Carbon Peak Policy on the Valuation of Automobile Manufacturing Companies-- Take BYD Auto Manufacturing Company as an Example

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Abstract

This article is intended to reach peak carbon policy as the breakthrough point, to adopt new energy automotive industry is an important part of the carbon amount to peak strategy this conclusion, and with the company as the research object, by adopting division of the valuation method and price-to-sales ratio valuation method to estimate the company eventually concluded that carbon reach peak policy analysis on the influence of the automobile manufacturing company valuations and make relevant summary.

Keywords: carbon peak, BYD, company valuation, new energy vehicle

1. Introduction

In order to cope with climate change, China has put forward the goal of "striving for the peak of carbon dioxide emissions before 2030, and striving for the peak of carbon dioxide emissions before 2060" (Chang, W., Liu, B., Zhu, Y.-Y., et al.). Behind it is a big theme and a big industrial upgrading trend, which is the forerunner of many industrial changes in Our country, especially the new energy automobile industry.

1.1 Overview of Carbon Peak

The production and living practice of modern civilization will produce a large amount of carbon emissions, which will cause serious harm to the atmosphere environment. The reason why our country put forward the "carbon peak" target is to reduce carbon emissions and achieve harmony between man and nature as soon as possible. "Peak carbon" refers to the goal of achieving healthy and sustainable development of national economy while gradually decreasing carbon emissions after reaching the peak by means of industrial upgrading.

1.2 The Impact of the Four Industrial Chains

First, transportation. Automobile exhaust can cause serious harm to air quality.

Second, industry. Many industrial processes produce large amounts of carbon dioxide.

Third and fourth, heat and power generation respectively. Both are basic industries closely related to production and life. It is extremely important to control carbon emissions in these two industries.

We believe that another important general direction is emerging industries. Not only to increase the use of new energy from the energy end; It also includes corresponding productivity upgrades and technology upgrades. Although this in itself is the meaning of manufacturing upgrade, but in this context, we must pay attention to its development. A whole new industry that promotes productive efficiency.

1.3 Carbon Peak Brings New Energy Industry Fluctuations

New energy is an important topic, involving wind turbines, sunlight and new energy vehicles. The overall correction since 2020 also has a general trend factor. After the Spring Festival, the trading market disposed of the high quality assets with relatively large cumulative returns last year at the valuation level, and combined with the trading market mentality, the overall correction occurred.

At the same time, the adjustment of new energy itself also includes the adjustment of solar energy assets. There are certain downgrades and shuffling feasibility in the periodical layout of this industry. The recent pullback in

solar pv assets is also more indicative of this feature, so it will lead to significant changes in the medium term. As for photovoltaic and wind power generation technology such as fixed assets have yet to be adjusted at some time.

Another category is new energy vehicles, but the specific situation is also different. The adjustment of new energy vehicles is basically to go up beyond the market expectations, adjustment reflects more concerns about the valuation in the market as a whole. In fact, if people always compare the development history of the industry at a bad stage, they will naturally find that the current valuation is high (Zhang, L., 2021). Because many data in the first quarter of 2021 are several times more than in the general state, and this industrial adjustment is actually more of a performance of the valuation in the market, and gradually realized with the later industry trend, so it is still worth the expectation on value in the long term.

1.4 Research Purpose and Significance

The auto industry has long been a major contributor to energy consumption and greenhouse gas emissions. Therefore, in this carbon reduction campaign, the automobile industry bears the brunt, and new energy vehicles have become the vanguard of carbon reduction, which makes them enter the industrial transformation as a challenger, and try every means to save energy and reduce emissions. At the same time, when energy conservation and emission reduction has become a major goal of the entire industry, the market's evaluation system for auto companies has also begun to change. ESG(Environmental, Social, Governance) evaluation system with Environmental contribution, Social responsibility and corporate Governance structure as the core has entered the mainstream. Automobile is the main force of carbon reduction. In order to reach the expected 2030 carbon target of 11.6 billion tons, the industry must achieve a substantial replacement of new energy vehicles for fuel vehicles. In the context of "dual carbon", low carbon is not only to transform consumers' choice and purchase path, but also means that new energy vehicle enterprises need to reshape every link in the production process from a single link to a full link transformation to accelerate the process of carbon reduction, which is also in line with ESG's consistent requirements for environmental protection.

Than traditional cars, BYD's new energy products in both the cost and in the later on the maintenance costs are more formidable superiority, and quick charge, the charging pile thereof set device under the blessing of kinetic energy recovery technology, BYD car products in promoting efficiency, reduce the cost level has greater advantages. Let enterprises feel the unique charm of new energy. BYD has always been innovative in the field of new energy, so the price of its products can be described as "high quality and low price", long-term, professional product technology research and development team, effectively ensure the quality of products and late maintenance service. In the process of continuous innovation, the price of the product is far lower than that of the market competitors, and both new technology, black technology, intelligent and other elements.

Therefore, taking BYD company as the research object is more conducive to analyzing the impact of China's carbon peak policy on the valuation of automobile manufacturing companies, as well as relevant conclusions.

2. Two Case: BYD's "Carbon Peak" Action

In 2003, BYD announced its entry into the auto industry. Since 2008, BYD is proposed that the sun's rays, the energy storage and electric vehicles green ecological dream, get energy from absorbing, and storage to the use of the whole industrial chain link, to create a package of green ecological city life as a whole solution, and developed including sunlight, energy storage power station, all kinds of new products such as electric cars. As early as 2012, BYD has launched the urban public transportation electronic strategy and plan, and now it has gradually risen to the national development strategy, and formed the world consensus. The 2008 UN Global Weather Summit was held at THE UN headquarters in New York to discuss ways to tackle global warming. BYD also became the only car company in the world to be hired to attend and address the summit. In 2007, BYD introduced the 7+4 strategy at the Shanghai International Auto Show. Such as: the private cars, city bus, taxi, road buses, urban commercial transportation, urban construction and environmental protection seven routine applications such as cars, and logistics, port, airport, mine and so on four kind of special applications, a complete industrial chain + complete market economy strategy, will produce replaced by the local enterprise comprehensive utilization of transportation fuel. In 2006 Mexico'S C40 world Mayors summit, BYD put forward a proposal for the planet to cool 1℃, that is, through the use of motor pollution control, cloud rail cloud bus blocking way for the planet subtraction, for the welfare of future generations. In January 2021, BYD started carbon peak program research and development. In August of the same year, BYD announced that it would open the construction project of the first zero-carbon industrial park in Pingshan Station park, and established the first zero-carbon industrial park corporate headquarters among domestic auto brands. On November 1, 2021, the last two weeks of the sixth session of the UN's international climate conference held in Glasgow, Canada (COP6),

BYD holdings co., LTD., zero emissions all-electric buses were meeting for world leaders to determine the public official shuttle car and main conference exhibition car, brought the world visitors will travel service security conveniently zero emissions. COP6 BYD automobile group signed the memorandum of zero emissions, heavy vehicles in the international, the overall goal is to achieve zero emissions before 2030 medium and heavy truck sales accounted for thirty percent, in 2040, used to achieve zero discharge medium and heavy duty truck sales accounted for one hundred percent, and achieve zero carbon emissions in 2050 years. All medium and heavy trucks manufactured by BYD have taken the lead in achieving zero carbon emission, which will drive the development trend of zero emission medium and heavy vehicles around the world.

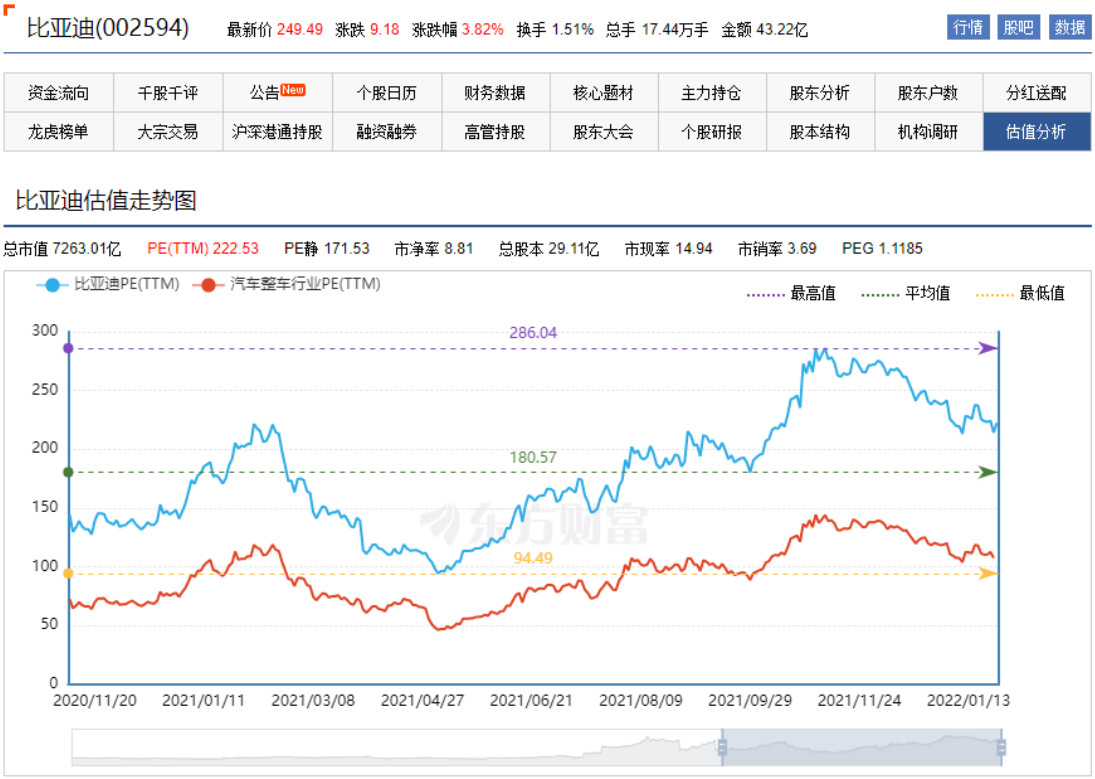
3. The Valuation Model Analysis of BYD

3.1 Valuation Model

Before the valuation of BYD, we must analyze key elements such as the industry to which BYD's different business segments belong, development stage and so on, and then decide the valuation model of different business segments on this basis.

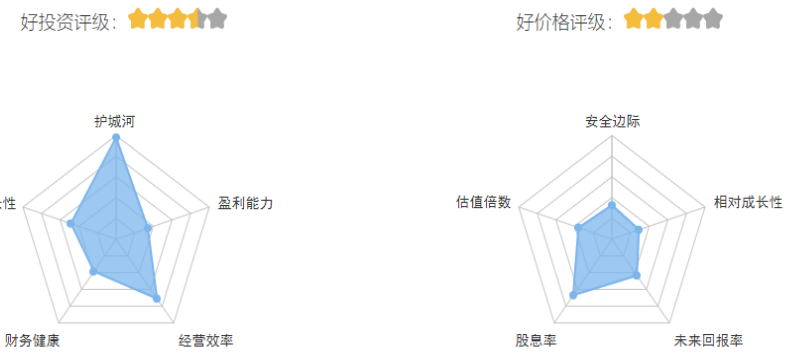
BYD's businesses include automobiles, semiconductors, mobile phone parts and assembly, rechargeable batteries and photovoltaics, rail transit and other businesses, according to BYD's 2021 semi-annual report.

The automobile industry is divided into clean energy passenger vehicles (including pure electric vehicles and hybrid vehicles), clean energy commercial vehicles (including pure electric buses, pure electric commercial and freight vehicles, pure electric forklifts, pure electric intelligent dump trucks, etc.), and traditional fuel vehicles. In terms of revenue structure, auto parts, auto-related electronics and other industries accounted for 5% of the total revenue, rechargeable batteries and photovoltaic products accounted for 8%, and mobile phone parts, assembly and other industries accounted for 40%.



财务分析	公告值	同比	环比	行业排名	行业均值	行业龙头股	龙头股该指标值	查看
净利润	24.43亿元	-28.43%	108.18%	5/9	36.53亿元	上汽集团	203.5亿元	历史变动> 行业排名>
净资产收益率	3.06%	-48.05%	104%	6/9	-0.48%	中国铁物	10.79%	历史变动> 行业排名>
扣非净利润	8.86亿元	-64.45%	140.44%	5/9	27.21亿元	上汽集团	180.17亿元	历史变动> 行业排名>
每股净资产	28.82元	38.03%	1.5%	1/9	9.54元	比亚迪	28.82元	历史变动> 行业排名>
每股收益	0.85元	-27.97%	107.32%	2/9	0.28元	上汽集团	1.76元	历史变动> 行业排名>
每股经营性现金流	11.14元	6.03%	229.38%	1/9	1.75元	比亚迪	11.14元	历史变动> 行业排名>
每股营业收入	50.75元	31.82%	59.75%	1/9	15.56元	比亚迪	50.75元	历史变动> 行业排名>
营业收入	1451.92亿元	38.25%	59.75%	2/9	1078.55亿元	上汽集团	5383.73亿元	历史变动> 行业排名>
销售毛利率	12.97%	-37.47%	1.65%	4/9	10%	海马汽车	19.85%	历史变动> 行业排名>

公告日期：2021-09-30



BYD released sales figures. The total monthly sales volume was 45,234 units, up 42% year-on-year / 40.4% month-on-month. In terms of new energy models, the sales volume of passenger vehicles was 25,662, with a year-on-year growth of 97.48%, including 16,114 pure electric models, 8,920 plug-in hybrids and 628 new energy commercial vehicles (Fei, Y.). Han shipped 8,177 units in April, and like the rest of our domestic ev manufacturers, is still ahead in terms of sales.

As BYD has many business sectors, and the industries and development stages of different sectors are obviously different. For example, new energy vehicles and other aspects involved are completely different industries and their current development stages are also different.

3.2 Valuation Model and Method

3.2.1 Segment Valuation

In this part, we adopt the principle of "segment valuation method", that is, we evaluate different business segments of BYD separately and then summarize them into the overall valuation of BYD.

According to BYD's different listed subjects (including the proposed spin-off of BYD Semiconductor) and business segments, we split BYD's business into the following segments and evaluate them according to different valuation methods (Ma, Y.-T.):

(1) New energy passenger car business, based on the valuation of market sales rate;

(2) Valuation of new energy commercial vehicle business based on market sales ratio;

(3) Conventional fuel vehicle business, valued at 0 (BYD is expected to exit this business soon);

(4) Power battery and energy storage battery business, based on the valuation of market sales rate;

(5) Fordi parts business, estimated at 0 (it is estimated that the business volume of external supply is small at present, and relevant revenue data has not been queried yet);

(6) BYD Electronics (mobile phone parts and assembly, electronic atomization products and other businesses), based on the forecast market value;

(7) BYD Semiconductor (power semiconductor, intelligent control IC, intelligent sensor, optoelectronic

semiconductor, semiconductor manufacturing and services, etc.), is to be listed on gem, and will be valued according to the forecast market value;

(8) Rail transit, photovoltaic and other businesses shall be estimated based on the estimated cumulative investment amount.

3.2.2 Price-to-Sales Ratio (PS) Valuation Method

For the business valuation based on the price-to-sales ratio (PS), based on a brief analysis of BYD's competitiveness and business development prospects, the PS value is predicted in combination with the PRICE-to-sales ratio of similar enterprises in the same industry, and the valuation is calculated based on the forecast 2022 operating revenue of the business.

Since the main purpose of this paper is to analyze the certainty of investment in BYD, rather than trying to prove the high elasticity or high return rate of investment in BYD, a conservative approach is adopted in the prediction of PS value. The price-to-sales ratio valuation method is an indirect valuation method, because the ultimate value of an enterprise comes from its profitability, so the long-term growth and profitability of the enterprise should be considered when adopting the price-to-sales ratio valuation method. The following uses the segment valuation method to evaluate each business segment of BYD in 2022.

4. BYD 2022 Valuation Analysis

4.1 Valuation of New Energy Passenger Vehicle Business

4.1.1 Core Competitiveness of BYD's New Energy Passenger Car Business

According to the published global sales data of new energy passenger vehicles, BYD ranked second only to Tesla in the global cumulative sales statistics of new energy vehicles from January to October 2021.

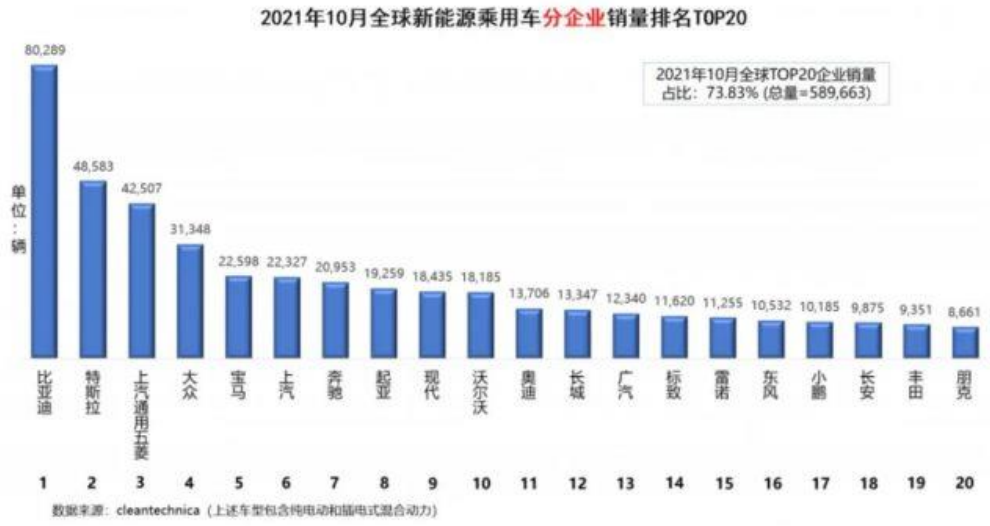


Figure 1. TOP20 global sales of new energy passenger vehicles by enterprises in October 2021

According to the above 2021 cumulative data, BYD new energy vehicle sales ranked second in the world; According to the monthly sales data in October 2021, BYD's sales ranked first in the world. Numbers are the language of God, and the sales figures above fully reflect BYD's position and competitive advantage in the global new energy vehicle industry.

From the point of view of core technology, BYD's blade battery, motor and electronic control technology, AS well as DMi platform and E platform 3.0, known as "the blue wave of the next generation pure electric car", all have outstanding technological competitiveness and leading advantages. From the perspective of product power, BYD passenger cars cover pure electric and super hybrid two series, including cars, SUVs and other models, the price range covers 80,000 yuan to 300,000 yuan, covering more than 90% of the market demand.

From the actual market performance, the demand for several models exceeds supply, and the sales volume is far

ahead of all competitors except Tesla. Comprehensive analysis of product competitiveness, product coverage, capacity, brand influence and other factors, I believe that BYD is very likely to become the global sales champion of new energy vehicles in 2022.

4.1.2 BYD New Energy Passenger Car Business Revenue Forecast in 2022

According to BYD's announcement of production and sales in November 2021, BYD sold 500,922 new energy passenger cars from January to November 2021, of which 90,121 were sold in November. It is estimated that BYD's cumulative sales of new energy passenger vehicles in 2021 will reach 600,000 units, among which the sales volume in December 2021 is forecast to exceed 100,000 units.

As BYD's new energy passenger vehicle sales are expected to exceed 100,000 units in December 2021, BYD's new energy vehicle sales are expected to reach 1.5 million units in 2022, considering reasonable sequential growth. Based on ASP (average selling price) of 150,000 yuan (unchanged from 2021 ASP estimate), BYD's revenue of new energy passenger vehicles in 2022 will reach 225 billion yuan.

BYD once announced in 2021 that the sales target of new energy vehicles in 2022 was 1.5 million, and then reduced the sales target to 1.2 million. Our analysis may be based on the consideration of expectation management, and intentionally lowered the sales target of new energy vehicles.

5. Summary of BYD Valuation Recommendations

Implement the strategy of carbon up to the peak in jinping comrade general secretary at the core of the central committee of the communist party of China in order to overall consideration both at home and abroad and the general situation and put forward the important strategic decision, is China's focus on ease the resources and environment restriction problems, to carry out the inevitable choice of sustainable development goals of the Chinese nation, is China's construction of human destiny community solemn declaration. Over the past decade, China's auto industry has been committed to developing cleaner and more environmentally friendly vehicle products to reduce various pollution emissions.

1. Vehicle emission standards are constantly upgraded

Now the country has been continuously updated five emission regulations, unified implementation of the national six A standards. Exhaust emissions from vehicles built according to national vi standards are already very low. It can be seen that China's automobile manufacturing industry has contributed to the continuous upgrading of emission standards.

Speed up the upgrading of automobile structure and vigorously eliminate old vehicles.

Now, China has started and implemented a three-year plan to win the battle against the blue sky, and put forward that the production and sales of new energy vehicles will achieve about 200,000 units, and the proportion of use in key areas will exceed 80%. At the same time, the government vigorously eliminated old models, and the implementation of the national standard operating diesel trucks with engines below three levels scrapped or updated in advance.

3. New Energy vehicles

From the Ministry of Science and Technology started our country 863 plan clean energy vehicle development plan, to China's new energy power vehicle promotion and application of subsidy planning, and then to promote the development of vehicle network, intelligent and electric vehicles, these policies have greatly promoted the development of China's clean energy vehicles from research to industrialization. At present, relevant state departments are promoting the construction of demonstration city clusters for the promotion and application of fuel cell vehicles.

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