

BYD Value Evaluation

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Abstract : BYD, a Chinese car brand founded in 1995, initially started with only 20 people. But until 2003, it had grown into the second largest rechargeable battery manufacturer in the world and established the BYD Motor Company in the same year. Its main production businesses include business cars and family cars.

Because BYD is a new type of car company that starts late and has a lower starting point, it mainly takes the production of low end household small car as its main business. So most of the domestic consumers have been positioning BYD as the low end market. However, BYD has been developing in the high-end market of the mid end market and electric vehicle in the past two years, with low starting point but rapid development.

BYD has transformed from an ordinary domestic automobile enterprise into a global electric electric giant. Electric vehicles and buses are exported to more than 170 countries and regions around the world. And more than 20 production bases have been established in the world, with a total area of more than 16 million square meters and about 200 thousand employees. The development of BYD has made us see the rapid development of Chinese economy and Chinese automobile enterprises. The share of domestic automobile in the global automobile market has gradually become bigger. At present, most of the consumers in China lack the scientific and effective evaluation of "BYD". This article is aimed at calculating the value of BYD by the way of value evaluation, and using scientific methods to tell consumers the value and status of BYD.

Key words: BYD; value; Production; Evaluation

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1 BYD profile and related business

1.1 Company profile

BYD Co., Ltd. (hereinafter referred to as BYD) is a high-tech enterprise listed in Hong Kong and Shenzhen. Its industrial chain includes it, automobiles, new energy and rail transit. BYD was founded in February 1995, starting from the manufacture of rechargeable batteries. In 2003, he entered the automotive field, and at the same time committed to the development and research of new energy industry. From the beginning of this century to now, the domestic automobile industry has developed rapidly. With the improvement of domestic per capita GDP and the rapid development of economy, the demand for automobiles is increasing, which brings excellent business opportunities to the development of domestic automobile enterprises. In 2009, the number one position in the global automobile industry has changed from Japan to China.

BYD has also set up industrial parks and factories in the United States, France, Hungary, Brazil, Japan, Ecuador and other countries. As a Chinese automobile enterprise spreading and developing in the world, BYD is the first and only automobile enterprise in China to enter into automobile power countries such as Europe, America and Japan. It has become a representative business card for "China Intelligent Manufacturing" to go international. In addition to new energy vehicles, BYD has also launched a variety of new energy products, such as solar power stations, energy storage power stations, electric forklifts and LEDs. BYD is also the first new energy enterprise in the world to be awarded the "UN special energy Award" by the United Nations.

2 Analysis of the company's business environment

2.1 PEST analysis of macro environment

The macro environment is what we call the general environment. The external environment is an important factor affecting the development of an enterprise, and it is also an unchangeable factor. PEST analysis method can objectively understand the current situation of BYD Company, so as to reflect the prospect and value of BYD.

2.2 Analysis of political environment

With the improvement of urbanization level, China's automobile industry has a very broad market space. From the current point of view, considering the per capita income, car ownership per thousand people and other indicators, China's car ownership level is still relatively low, in the future for a long time, in terms of demand, China's automobile industry still has a large market to explore. With the country's increasing emphasis on the new energy industry, energy conservation, environmental protection and automobile safety are the development direction of the automobile industry in the future. New energy is a competitive field for auto companies in the future. There is still a huge market to be developed in this field. BYD is the leader in the field of new energy vehicles. With the progress of science and technology, the state also encourages the automobile industry to develop in the direction of intelligence and green. The state guides the production of small displacement and low pollution products with policies. BYD is the executor and leader of this policy.

2.3 Economic environment analysis

In recent years, China's economic environment has been one of the best in the global economic environment. In the period of global economic storm, China is also the only big country that has not experienced economic retrogression, on the contrary, its economy is growing continuously. In recent years, the momentum of economic growth has become faster and faster. In terms of investment opportunities in the future, most banks and economists believe that China's current national income is stable growth, all walks of life are in the momentum of development, and China's market is suitable for investment.

2.4 Social environment analysis

Social environment is a comprehensive environment including population factors, residents' social culture, lifestyle, consumerism, cultural tradition and values. China's population base is large, and with the continuous development of

China's economy, the continuous improvement of people's living standards, and people's lifestyle has quietly changed. The absolute number of population determines that the expansion of China's automobile market has a broad space. It is more and more urgent to improve people's living standards and convenient travel conditions. The automobile industry will have a lot of things to do^[1].

2.5 Technical environment analysis

Environmental analysis refers to the social and technological changes, the impact of technological breakthroughs on the activities of enterprises, and the state's investment and key support for scientific and technological development. In the traditional automobile industry, Europe, the United States, Japan and other developed countries have very strong funds and mature key technologies. China has always been at a disadvantage in the competition. Huge financial subsidies and grant policies encourage Chinese enterprises to develop new energy vehicles. The technical advantages have brought a strong component to the new energy vehicle enterprises in China.

3 Financial analysis of BYD

3.1 Solvency analysis

Solvency analysis is an important indicator to analyze the solvency of an enterprise, which can measure the ability of an enterprise to repay the principal and interest of its due debts. Having proper solvency is not only the embodiment of the financial ability of an enterprise, but also the basic guarantee of safety. The stronger the solvency of an enterprise is, the better its financial condition is and the smaller its financial risk is.

3.1.1 Short term solvency

We present data on current assets, current liabilities and inventories of BYD and Great Wall Motors.

From the theoretical analysis, current liabilities and current assets are two closely related indicators. Through the comparison of the two kinds of data, we can roughly describe the short-term solvency and liquidation ability of an enterprise. The above two tables fully reflect the data. From 2013 to 2017, BYD's current assets and current liabilities have been growing, but the current assets have been higher than the current liabilities, and the two data maintain a certain ratio of growth. Great Wall Motor's current assets and current liabilities are higher than

Table 1. Build Your Dreams (BYD)

BYD	2013	2014	2015	2016	2017
current assets	17,012,245,000.00	40,733,096,000.00	27,579,704,000.00	26,433,693,000.00	32,350,296,000.00
current liabilities	9,787,913,000.00	20,601,749,000.00	16,163,250,000.00	14,603,368,000.00	20,935,969,000.00
stock	419,226,000.00	375,424,000.00	79,497,000.00	79,198,000.00	81,846,000.00

Table 2. Great Wall Motors

Great Wall Motors	2013	2014	2015	2016	2017
current assets	31,026,191,451.06	35,313,744,747.57	40,389,996,353.27	53,928,033,538.56	69,293,328,092.50
current liabilities	22,839,474,722.18	26,144,697,042.57	31,786,437,525.14	43,252,239,792.29	58,881,223,748.49
stock	2,763,890,772.66	3,470,386,550.65	4,119,805,909.61	6,061,138,217.68	5,574,771,949.63

Table 3. Current ratio and quick ratio between BYD and Great Wall

	2013	2014	2015	2016	2017
BYD current ratio	1.74	1.98	1.71	1.81	1.55
Current ratio of Great Wall Motors	1.36	1.36	1.27	1.25	1.18
BYD quick ratio	1.70	2.00	1.70	1.80	1.54
Great Wall Motors quick ratio	1.24	1.22	1.14	1.11	1.09

From 2013 to 2017, BYD's current ratio has been in a floating state, the highest is in 2014, its current ratio value is 1.98, the lowest is 2017, its current ratio value is 1.55, the floating range value is 0.43. From the perspective of current ratio, the current ratio of BYD is higher than that of Great Wall Motors, and the standard value of current ratio is 2 / 1. Obviously, the current rate of BYD is closer to the standard value than Great Wall Motors in the same industry, which indicates that the liquidity of BYD's assets is stronger than that of Great Wall Motors, and its short-term solvency is also stronger than that of Great Wall Motors^[2].

In terms of quick ratio, BYD's highest quick ratio value was 2.00 in 2014, the lowest quick ratio value was 1.54, and the floating range value was 0.46. Compared with Great Wall Motors in the same industry, the quick ratio is higher than Great Wall Motors. The standard value of quick ratio is 1 / 1. BYD's quick ratio is high, and the short-term debt repayment risk of enterprises is small. However, the company takes up too much capital in quick assets, which will greatly increase the opportunity cost of enterprise investment.

Through the analysis and comparison of the current

ratio and quick ratio of BYD, we can know that BYD has strong short-term solvency, but the company's quick assets occupy too much capital and the opportunity cost of enterprise investment is too large. Therefore, the enterprise should make corresponding adjustment to reduce the investment cost.

3.1.2 Long term solvency

The ability of an enterprise to bear all debts is called long-term solvency, which also includes the ability to guarantee the repayment of debts.

As can be seen from the above table, BYD's debt ratio is still relatively normal, basically maintained at about 55%, the lowest value appeared in 2016, the debt ratio was only 41%, and the highest debt ratio was 69% in 2013. But generally speaking, it is still relatively normal, with no more than 70%, which belongs to the normal and controllable range. Great Wall Motors in the same industry has a low debt ratio, which has been around 50%. Moreover, from 2013 to 2017, BYD's asset liability ratio has been declining, which proves that the company attaches importance to the adjustment of asset liability ratio

Table 4. Balance sheet of BYD and great wall (2013-2017)

	2013	2014	2015	2016	2017
BYD total assets	25,511,996,000.00	30,801,367,000.00	40,212,744,000.00	51,146,158,000.00	58,094,720,000.00
Total liabilities of BYD	17,712,891,000.00	19,787,347,000.00	24,036,350,000.00	20,830,579,000.00	27,846,721,000.00
Total assets of Great Wall	46,877,195,436.66	54,943,682,294.46	64,790,507,823.10	87,596,880,998.26	103,618,167,318.86
Total liabilities of Great Wall	21,177,218,449.91	23,939,785,242.51	29,137,302,318.68	42,448,670,774.99	57,206,515,788.43

Table 5. Balance sheet

	2013	2014	2015	2016	2017
BYD	69%	64%	60%	41%	48%
Great Wall Automobile	45%	44%	45%	48%	55%

The conclusion is that the average asset liability ratio of BYD Company is 56.4%, which belongs to the normal value. The enterprise has almost no financial risk, and is conducive to attract investors to invest and expand business.

3.2 Operation capacity analysis

Operating capacity, as the name implies, refers to the operating ability of an enterprise, that is, the ability of an enterprise to obtain profits by using various assets of the enterprise.

BYD showed a downward trend from 2013 to 2017, from 7.50 times to 5.43 times, and the speed of payment collection was becoming slower and slower. The annual turnover rate of accounts receivable of BYD Company is slightly low, which shows that the accounts receivable management of BYD Company is poor, and the enterprise's collection efficiency is low.

The inventory turnover rate of BYD from 2013 to 2017 was basically stable. Except that in 2015, the inventory turnover rate was 13.85 in total. Overall, the inventory

turnover rate of BYD remained unchanged. It can be seen that the liquidity of BYD is not very strong, except for the flash in the pan inventory turnover rate in 2015, its level value has been maintained at around 6.5.

From the above two indicators, we can see that BYD's payment collection efficiency is low, and the enterprise's liquidity still has room for improvement. The company should adjust and improve the collection efficiency, improve the inventory turnover rate, so as to improve the liquidity of the enterprise.

4. BYD's valuation process

4.1 Forecast of operating income and interest rate

BYD's growth rate of operating revenue is calculated based on the average growth rate of BYD's operating revenue from 13 to 17 years. The long-term loan interest rate and short-term loan interest rate of the company are obtained from the RMB loan interest rate of the Bank of China; the dividend payment rate is based on the formula, the dividend payment rate =

Table 6. Average inventory balance and operating income

	2013	2014	2015	2016	2017
Average inventory balance	7,782,692,500	9,099,434,500	5,776,686,000	16,564,494,500	18,625,621,500
business income	52,863,284,000	58,195,878,000	80,008,968,000	103,469,997,000	105,914,702,000

Table 7. Turnover rate of accounts receivable and inventory of BYD

	2013	2014	2015	2016	2017
Turnover rate of accounts receivable	7.50	5.43	2.27	3.26	2.26
Inventory turnover	6.80	6.40	13.85	6.25	5.69

Table 7. Turnover rate of accounts receivable and inventory of BYD

	2013	2014	2015	2016	2017
Turnover rate of accounts receivable	7.50	5.43	2.27	3.26	2.26
Inventory turnover	6.80	6.40	13.85	6.25	5.69

Table 8. Present value of Equity Cash Flow in high growth period unit: RMB10,000

	2017	2018	2019	2020	2021	2022
Equity Cash Flow	317,513.71	2,235.85	45,854.30	43,507.22	23,589.55	23,646.13
Present value of FCFE in growth period(9.58%)	188,497.64	1,129.21	49,048.40	35,416.13	20,892.15	84,722.22

dividend / net profit, which is calculated according to the average value of dividend payment rate in the three years from 2015 to 2017; the equity to profit ratio of minority shareholders = minority shareholders' equity / total assets, which is also based on 2015-2017 Fill in the average value of the ratio of minority shareholders' equity in three years.

4.2 Valuation analysis

Finally, the evaluation results of BYD are as follows:

Therefore, BYD Company value =
 present value of free cash flow in high growth period +
 present value of value in stable period =
 $188,497.64 + 1,129.21 + 49,048.40 + 35,416.13 + 20,892.15 + 84,722.22$
 $= 379,705.75$ (RMB10,000)

5 Evaluation summary

Through the value evaluation of BYD, it can be seen that different analysis models have different application forms. When doing value evaluation, we should make specific analysis on specific problems. BYD should

use BYD's value analysis method when it is wrong. Through calculation, this paper analyzes the assets and liabilities of enterprises by using current ratio and quick ratio. Then, in terms of value evaluation, this paper selects FCFE model to analyze. When using these FCFE models, various data are still relatively objective, but not completely accurate. The value prediction of this model is ideal, so it can only be used as a reference. Managers need to make their own subjective assessment of the internal operation of the enterprise. In addition, they should make effective decisions on the future economic forecast. Investors should also analyze the economic trend at that time^[3].

References

- [1] Rocco S, Elisa M, Riccardo S. Delphi-based change assessment in ecosystem service values to support strategic spatial planning in Italian landscapes[J]. *Ecological Indicators*. 2011(4):114-120
- [2] Nick F, Laura G. The uncertainty of valuation[J]. *Journal of Property Investment & Finance*. 2004 (6):55-60
- [3] Donald A. Budgeting for modern government[M]. New York: St. Martin's Press, Inc.1988.