Research on Debt Financing Strategy of New Energy Vehicle Enterprises: Taking BYD Company as an Example

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Abstract. With the rise of the new energy vehicle industry, the demand in the automotive market has increased dramatically. As a leading company in the new energy vehicle industry, Byd Company Limited (BYD) ranks among the top in the world in terms of sales and has good development prospects. However, there are still uncertainties in the recovery of the global economy, the normal operation of auto companies is affected. In recent years, BYD's debt costs are increasing year by year, but its debt capacity has not improved significantly. The rational use of working capital, optimization of debt structure, improvement of debt capacity, and prevention of debt risks are urgent tasks. This paper adopts the methods of literature review, case study and data analysis, based on the debt maturity structure theory, to analyze the debt structure, debt capacity and debt risk of BYD Company. It is of great significance for the current new energy vehicle enterprises to carry out debt financing.

Keywords: New Energy Vehicle Industry, Debt Financing Strategy, BYD Company.

1. Introduction

With the popularization of the concept of green economic development, the demand for new energy vehicles is increasing dramatically. China's new energy vehicle production and sales volume show that the sales revenue of new energy vehicles increased from 500 to 1.347 million from 2009 to 2020. The average annual growth rate between 2015 and 2020 is as high as 28%, and the sales of new energy vehicles continue to exceed the upper limit. In the past, the popularity of automobiles has brought about problems such as energy shortages and environmental pollution. Now, under the concept of green development, the field of new energy vehicles has gradually attracted people's attention [1, 2]. Generally speaking, new energy vehicle companies need to invest a lot in research and development of battery technology, but the invested funds cannot bring economic benefits to the company immediately. So it is difficult for external financing to bring returns in the short term. Rapid technological development and mismatched financing terms make it difficult for new energy vehicle companies to face financing issues. At present, the most urgent task for the development of new energy vehicle enterprises is to solve the capital problem and optimize the financing structure [3, 4]. With the development of China's bond market, various innovative bond varieties can meet the financing needs of enterprises, and debt financing is crucial for enterprises [5]. However, enterprises use various methods and channels for debt financing may lead different debt financing costs and risks [6]. Therefore, enterprises should not only effectively play the financial leverage effect on financing, but also prevent debt risks smoothly [7]. It is very important for companies to choose a reasonable debt financing strategy. When companies conduct external financing, they will be more inclined to debt financing considering the benefits of financial leverage and lower financing costs [4]. In debt financing, bank loans have high security and its application is convenient; commercial credit is conducive to the company's short-term working capital and expansion of production; corporate bonds have a wide range of transactions and strong liquidity; financial leasing realizes the unification of financing funds and physical assets, and the financing costs is low [7]. At present, with the transformation of the market economy, the preference on debt services has gradually changed from commercial credit and bank loans to diversified financing channels [8]. Congying Cui proposed that

in order to solve the problem of financing structure, it is necessary to rationally allocate its own funds and optimize the capital structure and financing decisions [9].

The theories about the maturity structure of debt have so far been divided into three schools: the contract hypothesis, the signaling hypothesis and the tax hypothesis. Among them, the contract hypothesis is further divided into four aspects: growth opportunity, free cash flow, asset maturity structure and company size. In terms of corporate growth opportunities, the choice of corporate debt maturity structure will be affected by external development opportunities, and short-term debt can avoid the problems of over-investment and under-investment [10-12]. In terms of free cash flow, Jensen proposed that the existence of free cash flow will increase the agency cost of enterprises, and short-term borrowing of foreign debt can reduce free cash flow and alleviate the agency problem within the enterprise [13]. In terms of asset maturity structure, Hart and Moore found that slow asset depreciation is accompanied by longer debt maturity, that is, companies should match asset longevity and debt maturity [14]. In terms of company size, due to the existence of information asymmetry, large companies have the advantage of issuing long-term debt with higher information transparency, lower bankruptcy risk and financing costs, while small companies are more inclined to use short-term debt [15, 16]. The signaling hypothesis school believes that high-quality companies tend to issue short-term debt, while low-quality companies prefer long-term debt [17]. The tax hypothesis school believes that companies facing higher effective tax rates will issue debt with longer maturities, taking into account the benefits of the debt tax shield [18, 19].

Modern capital structure theory believes that debt has a tax shield effect, and corporate borrowing is a positive signal, indicating that it has a high-growth project [20, 21]. In the latest research on debt maturity structure, in terms of short-term debt, Marco et al. showed that short-term debt can increase the motivation of enterprises to take risks, while long-term debt can slow down the motivation of enterprises to take risks [22]. Chenguang Shang found that high-ability managers are more inclined to use short-term debt, and this preference is magnified when the company has more opportunities for growth [23]. Research by Stefano Lugo showed that companies issue short-term debt in response to investor demand for short-term securities [24]. Xudong Fu et al. pointed out that the longer the incentive time for management, the shorter the debt maturity of the enterprise and the more inclined to issue bond financing [25]. In terms of long-term debt, Hui Chen et al. showed that debt maturities are cyclical. Generally speaking, companies with higher risk have longer debt maturities [26]. Seong K. Byun et al. found that corporate debt maturities in the United States have been rising over the past 20 years, and investors' demand for long-term bonds has gradually declined, resulting in large and medium-sized companies more inclined to use medium-term debt [27]. Liu Gan et al. pointed out that growth companies increase their reliance on bank debt and use less market debt when there are fewer valuable growth opportunities, higher asset volatility, lower bankruptcy costs and a low tax environment [28].

This paper adopts the methods of literature review, case study, data analysis and comparative analysis, based on the theory of debt maturity structure, and focuses on BYD's strategic goals in 2022 to conduct a detailed analysis on BYD's debt financing strategy. It draws the importance of BYD's debt structure optimization in order to maintain its competitive advantages. Then this paper analyzes BYD's debt structure, debt capacity and debt risks. Finally, the optimization strategy is proposed from the above three aspects, making it more feasible and effective.

The rest of the paper is organized as follows: In the second section, the company profile is described; In the third section, the debt policy is analyzed; In the fourth section, the corresponding measures are proposed for the existence of the debt policy; The last section introduces the conclusion of this paper.

2. Firm description

2.1. Current situation of BYD

In the first half year of 2022, the automobile industry was affected by factors such as the resurgence of COVID-19, severe international situation and shortage of chip supply, and production and sales generally declined. In this regard, the government has successively introduced subsidy policies to stimulate automobile consumption. In addition, under the global vision of green and low carbon, the market penetration rate of new energy vehicles has reached 21.6%, showing a good development trend. As a leader in the domestic new energy vehicle industry, BYD's main business is new energy vehicles. It also covers other fields, including batteries and electronic products and urban mass transit. BYD relies on technological innovation, so that its sales volume is firmly in the forefront of the world. Since there are still uncertainties in the global economic recovery, it still has to invest reasonably in technology research and development to maintain its competitive advantage in the field of new energy vehicles. Therefore, it is very important to study corporate debt financing strategies.

2.2. Financial condition of BYD

Table 1. BYD's financial information from 2018 to 2022 (amounts in ¥ 1 million)

	2018	2019	2020	2021	June 2022
Gross revenue	130,054.71	127,738.52	156,597.69	216,142.40	150,607.25
Total operating cost	128,365.82	125,615.18	149,010.37	212,602.34	145,564.78
Operating profit	4,241.76	2,312.29	7,085.77	4,631.99	4,622.12
Total profit	4,385.64	2,431.13	6,882.59	4,518.00	4,641.48
Net profit	3,556.19	2,118.86	6,013.96	3,967.27	3,933.14

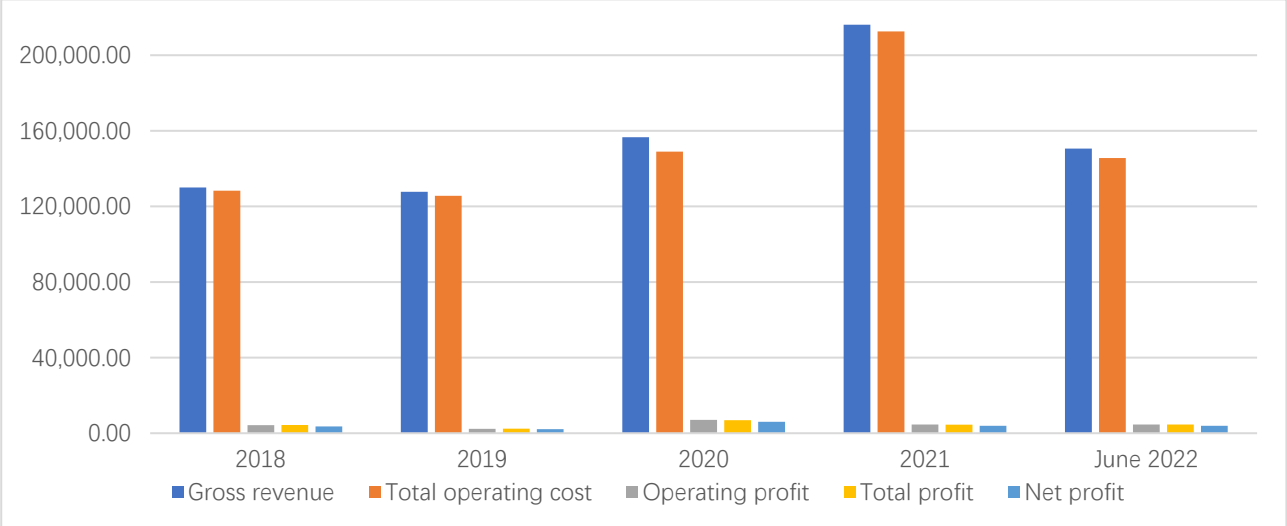

Figure 1. BYD's financial information from 2018 to 2022 (amounts in ¥ 1 million)

(Photo credit: Original)

As shown in Table 1 and Figure 1, BYD's gross revenue and total operating cost were on the rise between 2018 and 2021. By the end of June 2022, they exceed the levels of 2018 and 2019 and were close to the full-year amount in 2020. Profits fell sharply due to lower government subsidies for new energy vehicles in 2019. Sales of BYD's new energy vehicles increased and profits rose significantly in 2020, because the country vigorously supported the development of the new energy vehicle industry. In 2021, the epidemic kept resurging and the demand and supply of the automobile industry were under pressure, resulting in a sharp decrease in profits to the same level as the first half year of 2022. Although BYD's gross revenue was increasing from 2018 to 2022, its operating costs were

increasing year by year. Profits were constantly fluctuating due to national policies, repeated epidemics, etc. Therefore, it is uncertain whether it can maintain steady growth or not.

Table 2. Statistics on financing structure since the IPO

	Amount of money (amounts in ¥ 1 million)	Proportion (%)
Fundraising statistics since listing	78,088.13	100.00
Total direct financing	62,095.00	79.52
IPO	1,422.00	1.82
Equity Refinancing	14,473.00	18.53
Bond financing	46,200.00	59.16
Total indirect financing (Calculated as incremental liabilities)	15,993.13	20.48
Accumulated new short-term loans	382.45	0.49
Accumulated new long-term loans	15,610.69	19.99

Table 3. The amount of BYD's liabilities from 2018 to 2022 (amounts in ¥ 1 million)

	2018	2019	2020	2021	June 2022
Short-term loan	37,788.98	40,332.37	16,400.69	10,204.36	10,178.87
Notes payable and Accounts Payable	46,282.89	36,168.17	51,908.30	80,491.63	96,034.94
Advance payment	2.30	2.00	7.50	1.30	-
Long term loan	6,847.60	11,947.93	14,745.50	8,743.52	10,521.15
Bonds payable	7,076.78	9,968.56	8,880.46	2,046.44	-
Financial leasing	-	548.68	843.29	1,415.29	1,527.65
Total liability	133,877.10	133,040.17	136,563.41	191,535.94	239,702.62

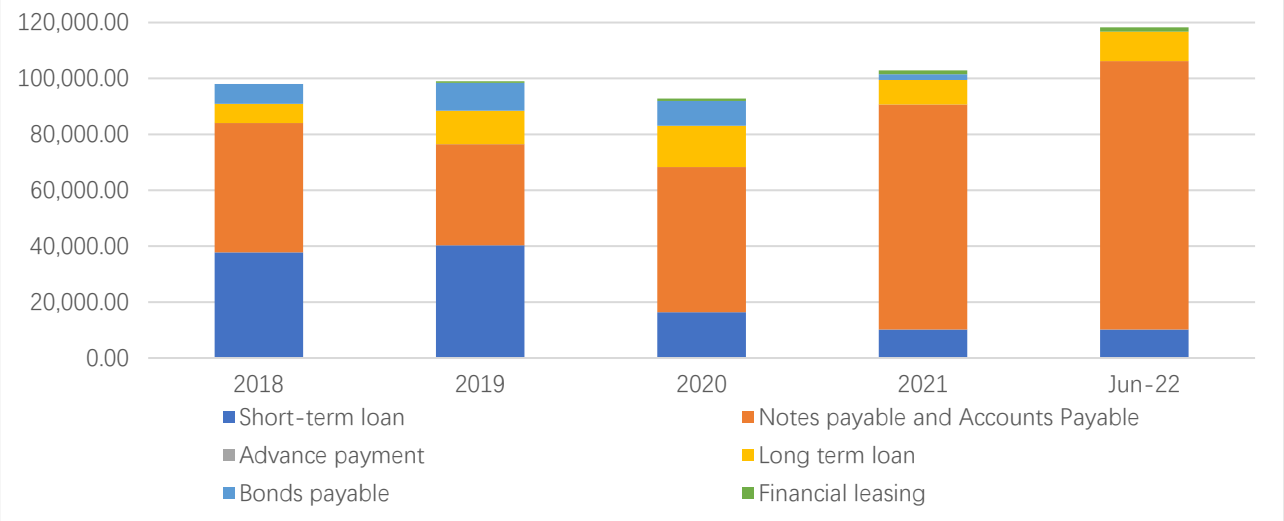

Figure 2. The amount of BYD's liabilities from 2018 to 2022 (amounts in ¥ 1 million)

(Photo credit: Original)

As shown in Table 2, BYD's direct financing and indirect financing have the characteristics of "eight-two structure", accounting for 79.52% and 20.48% respectively, reflecting the strong strength of the company and the high recognition of market players. In terms of the proportional relationship

between equity financing and debt financing, it shows the characteristics of "two-eight structure". This reflects that company is highly dependent on debt financing. As shown in Table 3 and Figure 2, the total corporate liabilities (including equity financing) have been on the rise in the past five years, reaching a historical peak at the end of June 2022, of which notes payable and accounts payable accounted for 40%. As shown in Figure 2, since 2018, the proportion of notes payable and accounts payable of enterprises in the total of the above types of liabilities has been increasing, while the proportion of short-term loans has continued to decrease. The proportion of long-term loans has remained stable, and the proportion of bonds payable has slightly increased and then dropped sharply afterwards.

In conclusion, BYD's debt financing is mainly based on commercial credit, indicating that it has strong bargaining power compared with suppliers in the industry, and is in a dominant position in the automotive industry or industrial supply chain. Commercial credit financing also shortens BYD's cash cycle and saves capital costs. At present, the company has flexibly adjusted the proportion of long-term borrowings and short-term borrowings. While appropriately increasing financial leasing, the proportion of bond financing has been greatly reduced, that is, by increasing operating liabilities and reducing financial liabilities, the scale of total liabilities remains stable. The above debt strategies are conducive to BYD's efficient use of debt funds, reducing capital costs. However, its commercial credit risk has also continued to increase. Although the risk of BYD's financial liabilities is low, the risk of operating liabilities is relatively high. This shows that the two are not well balanced. Once a short-term commercial credit problem occurs, it may cause the overall supply of suppliers to be cut off, thereby triggering a crisis in production and operation.

3. Analysis on the debt financing strategy of BYD

3.1. Analysis of debt financing structure

The types of BYD's debt financing include corporate bonds, financial leasing, commercial credit and bank credit. As shown in Table 4 and Figure 3, BYD mainly relies on commercial credit and bank loans. Among them, after declining in 2019, the proportion of commercial credit has increased significantly in the past three years, reaching ¥ 96,034,942,000 at the end of June 2022. The proportion of bank loans increased slightly in 2019, gradually decreased in the later period, and has recently stabilized at around 20 billion yuan. In the past five years, corporate bonds have been decreasing, and the balance in the first half of 2022 was zero. Since 2019, the method of financial leasing has been adopted and the amount has been increased.

BYD's current debt financing can be divided into operating liabilities (commercial credit) and financial liabilities (corporate bonds, financial leasing and bank loans). As shown in Figure 4, since 2019, BYD's operating liabilities have increased significantly, while financial liabilities have decreased significantly, and the proportion of operating liabilities have exceeded 80% by June 2022. It can be seen that BYD's debt financing is overly dependent on operating liabilities (commercial credit). Once a commercial credit problem occurs, it will not only have a negative impact on the corporate reputation, but also will not be conducive to subsequent commercial credit financing. Therefore, BYD needs to balance the proportion of debt financing of various natures and further optimize the existing debt structure.

Table 4. BYD's debt financing methods from 2018 to 2022 (amounts in ¥ 1 million)

	2018	2019	2020	2021	June 2022
Corporate bonds	7,076.78	9,968.56	8,880.46	2,046.44	-
Financial leasing	-	548.68	843.29	1,415.29	1,527.65
Commercial credit	46,285.19	36,170.17	51,915.80	80,492.93	96,034.94
Bank loan	44,636.58	52,280.30	31,146.19	18,947.88	20,700.02

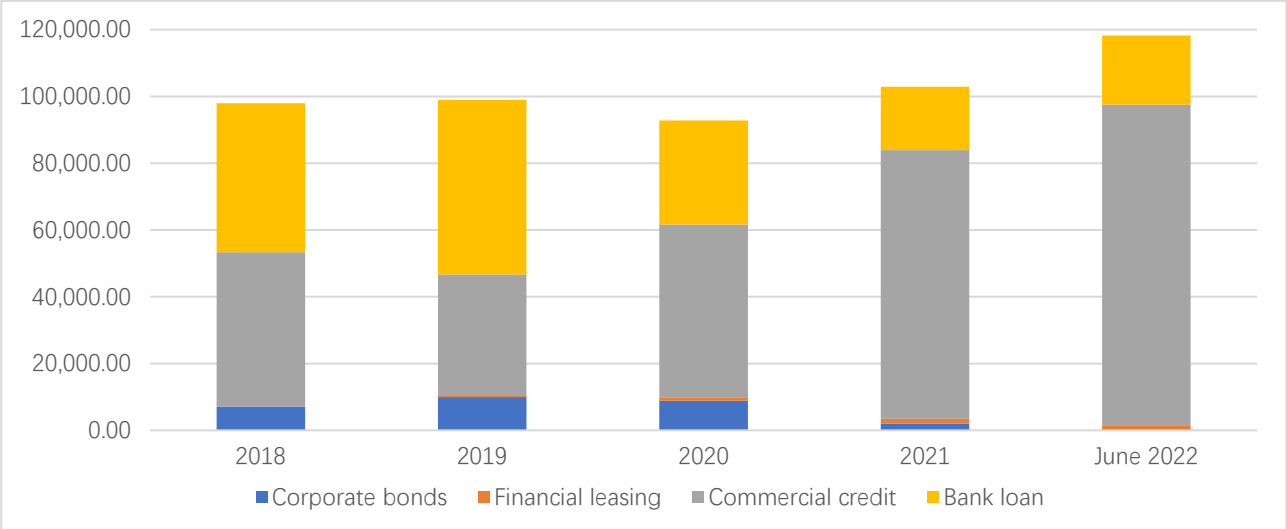

Figure 3. BYD's debt financing methods from 2018 to 2022 (amounts in ¥ 1 million)
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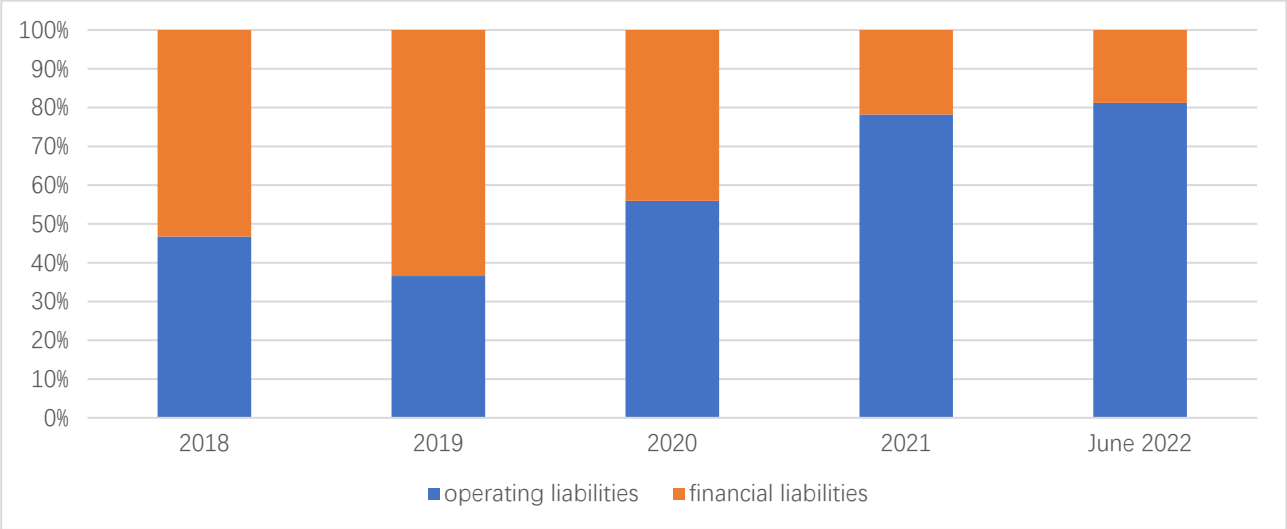

Figure 4. Proportion of BYD's debt financing types from 2018 to 2022 (%)
(Photo credit: Original)

BYD's short-term loans, commercial credit, long-term loans and financial leases ¥ 118,262,616,000 in total. The short-term loans and commercial credit, matured within 1 year, accounts for 8.61% and 81.20% respectively. The long-term loans and financial leases with the terms of more than 3 years, accounts for 10.19% (8.90% and 1.29%, respectively). The above commercial credits are notes payable and accounts payable, and most of them have a term of less than 6 months.

BYD's debt with a term of less than one year accounted for 89.81%. Figure 5 shows that since February 2016, BYD has issued 2 medium-term notes, 16 super short-term commercial paper and 4 asset-backed notes. Overall, BYD prefers short-term debt. In 2022, BYD's strategic decision is to deepen the research and development of new energy vehicle core technologies and expand new energy vehicle production capacity. In order to increase market share and competitiveness, BYD inevitably invests more funds into long-term projects, so the debt financing term should be inclined to long-term financing and the current high proportion of short-term financing is unreasonable. Considering that the cash flow from long-term investment is relatively slow and there is great pressure on the repayment of capital and interest in the short term, BYD should flexibly adjust the financing terms in accordance with its own strategy.

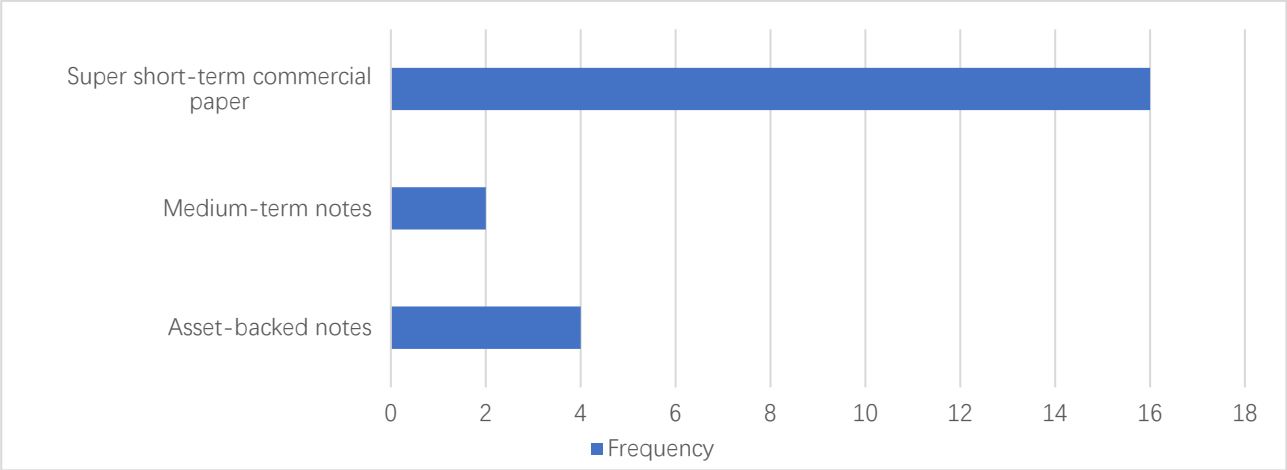

Figure 5. Issuance of BYD's interbank bond market in 2016-2022

(Photo credit: Original)

As shown in Table 5 and Figure 6, BYD's total interest-bearing liabilities have gradually decreased since 2019. Compared to 2019, affected by the epidemic in 2020 and the global economic downturn, BYD increased long-term loan and financial leasing and reduced short-term loan in order to reduce financing risks, resulting in a significant increase in the proportion of debt costs to 7.20%. In 2021, BYD's financial expenses and total interest-bearing debt were significantly reduced, because BYD turned to focus on commercial credit, which reduced financing costs on the whole and the proportion of debt costs was reduced to 5.05%. Overall, BYD's debt financing costs fluctuate greatly, and it is necessary to keep financing costs stable while controlling the scale of interest-bearing liabilities.

Table 5. 2018-2021 BYD debt financing cost analysis

	2018	2019	2020	2021
Financial expenses (amounts in ¥ 1 million)	2,997.10	3,014.03	3,762.61	1,786.93
Total interest-bearing debt* (amounts in ¥ 1 million)	59,195.99	71,544.98	52,282.39	35,393.02
Debt cost ratio (%)	5.06%	4.21%	7.20%	5.05%

* The total interest-bearing debt only includes short-term loans, long-term loans, non-current liabilities due within one year, bonds payable and lease liabilities.

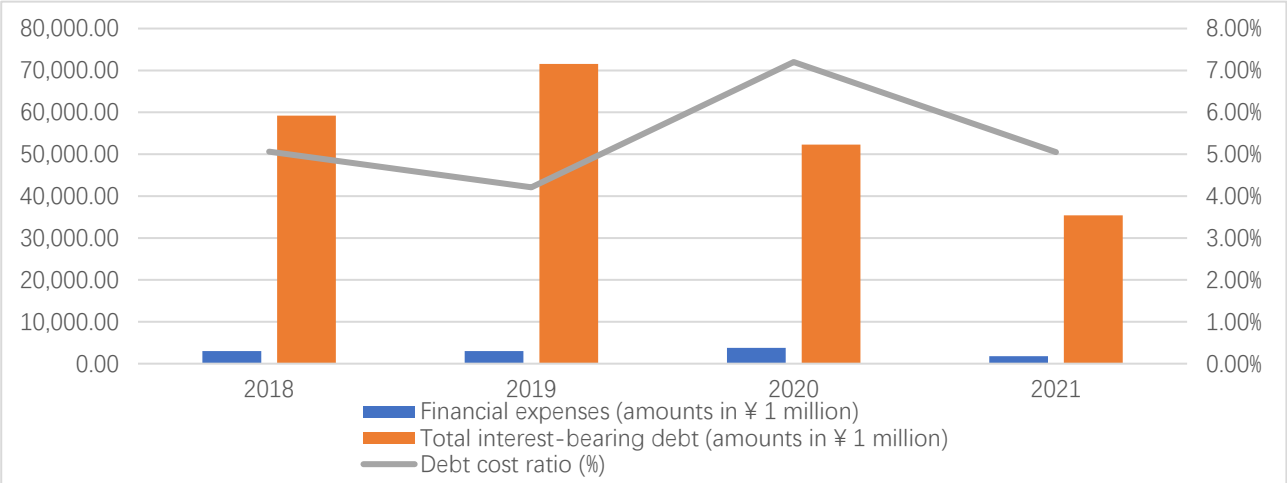

Figure 6. 2018-2021 BYD debt financing cost analysis

(Photo credit: Original)

In general, BYD's financing relies too much on commercial credit and short-term financing, and its debt cost ratio is relatively reasonable, but the costs are expected to rise because of the high asset-liability ratio and more technology research and development expenses. In terms of debt maturity matching for financing, BYD's short-term liabilities within one year account for 89.81%, which puts forward higher requirements for the company's financial management level, especially in terms of cash flow management and asset-liability ratio management. Moreover, factors such as financing methods, financing terms and financing costs should also be taken into account.

3.2. Analysis of debt paying ability

The current ratio reflects the ability of current assets to repay current liabilities, usually the ratio should reach 2. The quick ratio reflects the ability of the quick assets to realize the repayment of the current liabilities, and usually the ratio should reach 1. The cash ratio reflects the ability to pay matured debts with cash, and usually the ratio should reach 0.2. As shown in Table 6 and Figure 7, the average level of BYD's current ratio in 2018-2021 was around 1, and it dropped to 0.84 at the end of June 2022. The current ratio in the past five years was much lower than the normal level of 2. BYD's quick ratio was stable at 0.75 in 2018-2021 and has a slight decline. At the end of June 2022, it dropped significantly to 0.58. The quick ratio in the past five years was much less than the normal level of 1. From 2018 to 2021, BYD's cash ratio was on an upward trend, peaking at 0.33 in 2021. It fell to 0.21 at the end of June 2022 but still above 0.2. It can be seen that although BYD's cash ratio has been relatively reasonable in the past one and a half years, its current ratio and quick ratio are both at relatively low levels. It shows that BYD's asset realization ability is generally low and its short-term debt paying ability is weak.

Table 6. BYD's liquidity measures

	2018	2019	2020	2021	June 2022
Current ratio	0.99	0.99	1.05	0.97	0.84
Quick ratio	0.76	0.75	0.75	0.72	0.58
Cash ratio	0.11	0.12	0.14	0.33	0.21

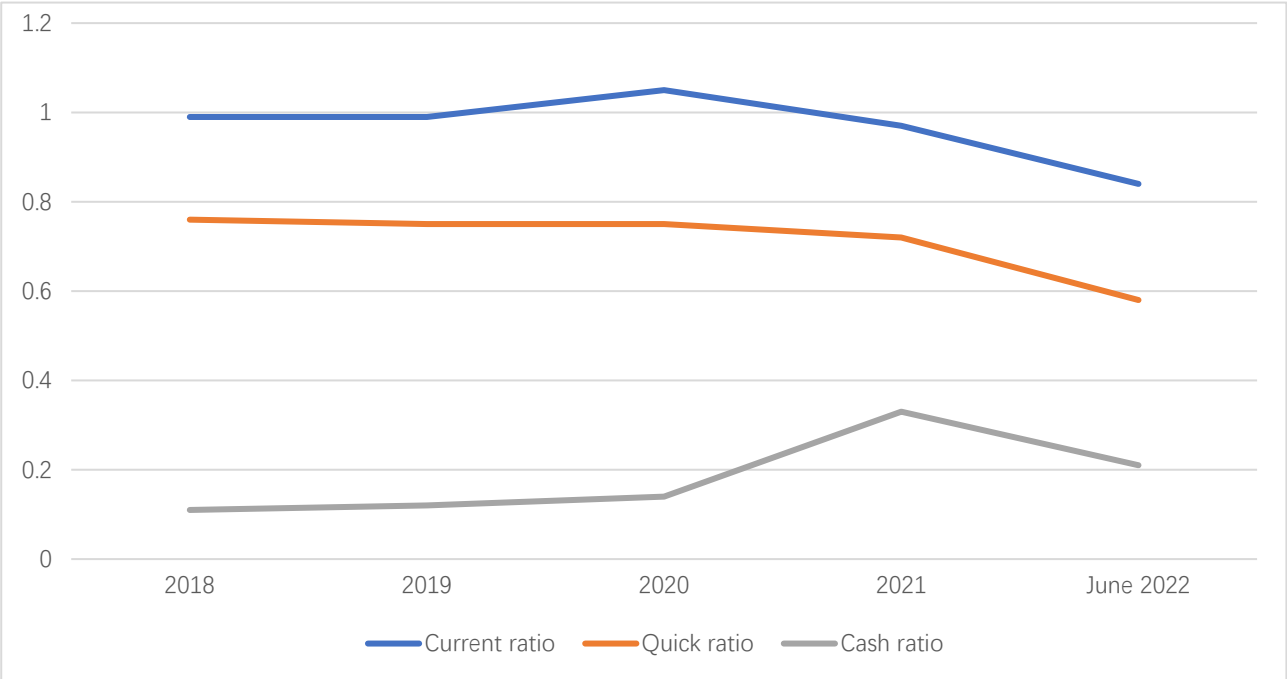

Figure 7. BYD's liquidity measures
(Photo credit: Original)

3.3. Risk analysis

(1) Operational risks

Operational risk is closely related to corporate debt repayment risk. As shown in Table 7 and Figure 8, BYD's ROE and cost profit margin fell to the lowest point of 2.62% and 1.71% respectively in 2019, and increased significantly to 7.43% and 4.10% in 2020. The reason is that the domestic epidemic control situation was generally better than that of foreign countries after the outbreak of the epidemic in 2020. BYD received more foreign purchase orders in 2020, and its total operating income and return on equity increased significantly. However, in the past one and a half year, foreign auto manufacturers have gradually improved their supply capacity, while the delivery of BYD's overseas orders has been affected by international shipping capacity. As a result, the total operating income has been affected, and the return on equity has dropped to 3.7%. Therefore, affected by factors such as repeated epidemics and insufficient supply and demand, it is difficult for BYD to obtain a relatively stable profit level, and the operating risk is relatively high.

Table 7. 2018-2022 BYD Profitability Measures

	2018	2019	2020	2021	June 2022
ROE (weighted) (%)	4.96	2.62	7.43	3.73	3.75
Cost and expense profit margin (%)	2.84	1.71	4.10	1.89	2.75

Figure 8. 2018-2022 BYD Profitability Measures

(Photo credit: Original)

(2) Refinancing risk

If the debt-to-equity ratio is too high, the risk to creditors is likely to rise. Usually, in order to ensure the smooth recovery of funds in the future, it is difficult for creditors to lend funds or give commercial credit. Even if the funds are lent, the interest rate may be increased or no cash discount will be given, which is not conducive to corporate refinancing or increases financing costs. BYD's asset-liability ratio is close to 70% and it is mainly commercial credit, reflecting the company's aggressive short-term and interest-free debt policy. In the face of Facing the development of the new energy industry, BYD has invested a lot of R&D funds. However, the current global economy is weak, the overly aggressive short-term and interest-free debt strategy and the long-term debt strategy adopted for R&D funds have brought about a large refinancing risk.

(3) Unbalanced term structure

In order to exert financial leverage, companies will choose to invest funds in high-yield and high-risk projects. Different projects have different time to invest funds and return income. It is necessary for enterprises to make a reasonable match between the duration of investment projects and the duration of debt financing. In recent years, BYD has mainly focused on short-term debt financing to meet liquidity needs, but its development strategy is mainly to develop the new energy vehicle industry, develop blade battery technology, DiLink 4.0 (5G) and other high-tech products and products, and increase production capacity expansion efforts. BYD's development strategy focuses on high-risk and high-yield long-term investments with a long payback period, which conflicts with its actual short-term debt strategy. If it frequently borrows new debts to repay old debts in order to repay short-term debts, it will increase the risk of short-term debt repayment, which is not conducive to the long-term development of the company. Therefore, BYD needs to reduce the proportion of short-term debt financing and reasonably readjust the debt maturity structure according to the development strategy and specific investment projects.

(4) Uncontrollable factors

There are many uncontrollable factors in the external environment, and BYD's main business is easily affected by the domestic and foreign economic environment. In 2022, the economic environment is unstable, the supply and demand sides of raw materials are under pressure at the same time, the prices of international bulk commodities fluctuate at a high level, and the rising prices of raw materials such as steel and plastic increase production costs and bring huge pressure on the automotive industry chain. Meanwhile, the competition in the new energy vehicle industry is fierce. In order to expand the market share, BYD needs to increase the investment in product research and development. If a large amount of financing is carried out under the condition of unstable corporate profitability, the financing risk will be further exacerbated. In addition, the country's strong support for the new energy vehicle industry seems to be beneficial to BYD's business development. However, if the country adjusts relevant support policies in the future, such as reducing the amount of subsidies, the company's financing term structure or channels need to be adjusted in time.

4. Suggestions

(1) Improve debt structure and match debt maturity

In terms of the types of debt, BYD prefers commercial credit financing. In terms of the nature of debt, most of BYD's current liabilities are operating liabilities. In terms of debt maturity, BYD's current debt is mostly short-term liquidity debt. According to the debt maturity structure theory, the debt term of an enterprise should match the service life of the assets. Large companies have the advantage of issuing long-term debts over small companies, and long-term debts have higher tax shield benefits. Specifically, BYD should increase the proportion of long-term debt, such as issuing long-term bonds or increasing the proportion of long-term loans in total liabilities. Then BYD's long-term R&D projects can obtain sufficient cash flow, that is, the duration of matching long-term assets and long-term debt. Secondly, BYD should reduce the use of commercial credit financing and increase the use of financial liabilities such as loans, bonds and financial leasing, so as to reduce commercial credit risk and balance the overall debt risk.

(2) Change the way of raising a loan and improve the debt paying ability

In terms of financing methods, BYD has preferred to use direct financing to obtain financing from the capital market since its listing. In terms of bond issuance, BYD is more inclined to issue super short-term commercial paper in the interbank market, and appropriately issue asset-backed securities and green bonds, and issue medium-term notes and long-term bonds very rarely. In general, BYD's bond financing does not account for a high proportion of its total liabilities, and it prefers to frequently issue super short-term commercial paper to make up for the liquidity gap. It is true that corporate R&D is subject to great uncertainty, and frequent use of short-term borrowing to solve liquidity problems can only solve urgent problems, not a long-term solution. Moreover, the transaction cost of frequent borrowing in the short term may even exceed the capital cost of long-term financing. By

flexibly issuing green bonds and medium-term notes, BYD can introduce medium and long-term funds to match the funding needs of existing long-term R&D projects. In terms of debt paying ability, BYD's current ratio and quick ratio are lower than normal levels. It should further improve its profitability, strengthen the management of maturity and realization of various assets, and ensure that cash inflows are sufficient to cover short-term debt repayment obligations. At the same time, strengthen inventory management to avoid inventory overstock and reduce liquidity, so as to reduce corporate debt and reduce debt repayment risk.

(3) Prevent debt risks and smooth debt costs

Apart from improving its debt structure and improving its debt paying ability, BYD must always focus on preventing debt risks in its daily operations. Although BYD has a high industry status in the domestic new energy vehicle industry, it can rely on a large amount of commercial credit for financing. However, BYD should be alert to the debt risks hidden behind excessive commercial credit liabilities. Specifically, BYD should focus on preventing risks caused by operational uncertainty. The uncertainty of the external environment makes BYD's operational risks higher, which further increases the risk of raising debts for its supply chain. BYD's overly aggressive short-term and interest-free debt policy also increases its refinancing risk and debt maturity risk. In this regard, BYD can adopt a flexible debt strategy, scientifically adjust the debt financing structure, reasonably determine the debt maturity structure, and smooth the cost of debt capital through debt structure optimization. Specifically, BYD can reduce substantial commercial borrowing and short-term borrowing, and dynamically adjust the ratio of long-term debt and short-term debt. At the same time, BYD can reasonably predict capital investment and return time based on market research and judgment, reducing the risk of debt default.

5. Conclusions

BYD is in a dominant position in the new energy vehicle industry. The company's financing method is mainly debt financing, in which commercial credit accounts for a large proportion and the financing cost is low. However, excessive short-term debt and weak solvency have led to higher debt risks for companies. Under the current economic situation, the choice of debt financing strategies for new energy vehicle companies is crucial. Through this paper, BYD's debt financing structure is unreasonable, the proportion of commercial credit liabilities and short-term liabilities is relatively high, and it prefers to frequently use super short-term commercial paper to make up for the liquidity gap. Furthermore, BYD's solvency is weak and its debt risk is high. Therefore, this paper argues that BYD and new energy vehicle companies should improve its debt structure and match the debt term; change the way of borrowing to improve its solvency; prevent debt risks and smooth the cost of debt; reduce the risk and cost of debt financing by choosing a reasonable debt financing strategy.

The contributions of this paper are as follows: In view of the current economic situation, combined with the relevant theories of debt maturity structure, this paper analyzes the debt financing of new energy automobile enterprises and proposes optimization measures, which provides a practical decision basis for the current new energy automobile enterprises to get rid of the debt financing dilemma. In addition, this paper also analyzes the debt financing structure, solvency and debt risk, which is more comprehensive than the analysis perspective of existing research, and provides a comprehensive reference for the debt financing of new energy vehicles.

The analysis in this paper still has some limitations. First of all, the scope of debt policy is relatively wide. This paper only considers the main debt financing methods of enterprises, and does not consider the passive liabilities inherent in enterprise operations, such as tax bearing and employee compensation. This paper also does not consider the company's potential liabilities through off-balance sheet and contingent liabilities related to litigation. Second, the analysis in this paper only considers factors such as financing structure, solvency and debt risk, and does not consider more factors that may affect debt financing strategies. It is hoped that in the future, the debt policy of enterprises can be analyzed from more angles, such as comparisons between companies or between

industries, avoiding the absoluteness of the analysis of individual companies and industries, and enriching the relevant theories of debt financing policies.

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