Research on the Impact of Green Bond Issuance in New Energy Automobile Industry-- Taking BYD Company as an Example

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Abstract. Green bonds are a cutting-edge financial tool that is becoming more and more significant in encouraging green development and investment in the environment. This paper will analyze the operational and financial impact on the company based on the BYD green bond case. From the view of weighted average return on net assets, long-term debt ratio and other indicators, it is found that green bonds can help the company to improve profits, but also bring more debt pressure. Overall green bonds are a good financing route for BYD, creating a diversified development path, broadening the investor base, and improving the green reputation and the company's financial stability. This paper further suggests optimizing the structure of the new energy green bond market, improving the regulatory system and enhancing investor education in order to promote the healthy development of this market.

Keywords: Green Bonds; BYD; Advantages and Disadvantages.

1. Introduction

As the problem of global climate change becomes increasingly serious, Governments and international organizations are actively seeking effective means to address this global challenge. Against this background, green bonds, as an innovative financial instrument, have gradually become the focus of attention in the global financial market because of their ability to directly serve environmental protection and sustainable development projects. However, the theoretical basis and practical experience of green bonds are still under constant improvement.

From the perspective of advantages, Huang Shenhui adopts a case study and argues that the issuance of green bonds has the effect of gaining the attention of the market and bringing a positive stock price effect to its listed subsidiaries, but the issuance of green bonds cannot improve the comprehensive financial benefits of private enterprises in the short term [1]. Wang Yao and Cao Chang believe that for the issuer, the issuance of bonds has a lower cost of capital, and its interest is a pre-tax expense, with a tax offset; and the bond investment risk is relatively low, and the investors' requirements for the rate of return are also low, which also reduces the cost of capital [2]. Tan Chao and Yang Wenying used empirical research, found that green bonds of corporate bank borrowing availability is higher, the advantages of low borrowing costs, so that small and medium-sized enterprises in the proportion of medium- and long-term borrowing to increase, to a certain extent, alleviate the debt covenant signed in the size of the problem in fact [3]. Wang Bo et al. through empirical analysis, found that due to the environmental governance costs, enterprises issuing green bonds will reduce the financial performance of the enterprise but will improve the environmental performance, and ultimately increase the sustainable performance of the enterprise [4]. Wang Hailin et al. argued that green bonds can incentivize enterprises to increase R&D investment and enhance the potential of technological competition while providing green financing for enterprises [5].

From the perspective of disadvantages, Li Junying and Li Yitong [6] argue that the development of green government bonds in China is still in the primary stage, started late, and is currently facing multiple challenges. These challenges include the fact that an independent green standard system and certification and assessment mechanism have not yet been established, the information disclosure system is not yet sound, there is a mismatch between benefits and costs and uneven geographical development, as well as a lack of incentive mechanisms. Therefore, the road to improving the green

government bond market is both long and challenging, requiring continuous efforts and improvements. Fan Yunpeng et al. used an empirical study and found that third-party certification has a significant negative impact on green bond credit spreads [7]. Hafner et al. pointed out that unclear policies, green financing costs, and information asymmetry are one of the factors hindering the development of green finance [8]. Developing relevant plans for green financing is a big challenge for regulators because it is not only about environmental issues, but also affects profitability and job market conditions [9]. Lebelle et al. showed that initiating green projects and financing them through green bonds is a risky investment. The market takes uncertainty into account and questions the sustainability of the project [10].

This paper will use BYD's green bond issuance as a case study, do a thorough analysis, explain the benefits and drawbacks of green bonds, and investigate the key influencing factors based on previous research. In order to offer a helpful resource for the advancement of green finance in China, and further promote green finance and sustainable development. This study can enrich and develop the existing financial and economic theories and provide new ideas and perspectives for research in related fields.

2. Overview of green Bonds and Issuance

2.1. Introduction to the Definition, Classification of Green Bonds

Green bonds are debt instruments used by issuers to raise funds to support environmentally friendly projects. Green bonds can be categorized using funds into project-related, asset-related and consolidated green bonds. They can also be categorized by market, which are public green bonds and private green bonds.

2.2. Green Bonds in the Global and Chinese Markets

Today, the global green bond market is expanding, with more and more governments, companies and financial institutions issuing green bonds, and the emergence of various international green bond certification standards and guidelines, such as Green Bond Principles and Green Bond Frameworks. investors are gradually increasing their awareness of environmental, social and governance factors, and becoming more willing to invest in bonds that meet environmental standards, causing the market for green bonds to expand. China is a somewhat latecomer to the international green bond market, with the U.S. and Europe leading the way, but the Chinese market is catching up quickly, driven by government departments promoting sustainable economic growth [11]. The Chinese government has supported the development of the green bond market through a variety of policy implementations, including tax incentives, interest rate subsidies, and issuance incentives. In 2015, the Fifth Plenary Session of the 18th CPC Central Committee for the first time included “green development” as one of the five development concepts, and it was also included for the first time in the 13th Five-Year Plan. In 2015, the Fifth Plenary Session of the 18th CPC Central Committee included “green development” as one of the five major development concepts for the first time, and “strengthening the construction of ecological civilization” for the first time in the 13th Five-Year Plan. The green bond market in China has been expanding quickly since 2016, while China's securities market has launched a green bond index to take a step closer to promoting market development. However, there is still room for improvement in terms of market standardization and transparency, and the market is gradually improving and maturing.

3. Impact Analysis of Green Bond Issuance: BYD as an Example

3.1. BYD's Green Bond Issuance

BYD is the largest private new energy vehicle manufacturer in China, and its sales of new energy vehicles are also at the forefront of the country. New energy cars also satisfy the public's growing

need for eco-friendly mobility and environmental preservation. BYD, as a company that started to issue green bonds earlier in China, demonstrates how the traditional automobile industry can use innovative financial means to realize sustainable development.

The emerging new energy vehicle sector is increasingly taking center stage in the global automotive industry's transition, as it plays a crucial role in the advancement of green bonds. Against this background, the issuance of green bonds by new energy automobile enterprises has not only become a new choice for corporate financing, but also an important initiative for enterprises to actively influence environmental policies and promote green development.

According to BYD's official website, BYD has issued two green bonds with a maturity of 5 years in recent years, both amounting to RMB 1 billion, with interest rates of 4.98% and 4.86% respectively, as shown in Table 1.

Table 1. BYD Green Bond Issuance

Bond Name	Release Date	Coupon Rate/%	Sum of Money(RMB)	Purpose of Funds
18 Yadi G1	12.18.2018	4.98	One billion	250 million was invested in the lithium iron phosphate construction project of Qinghai BYD Industry Co., Ltd, 80 million was invested in the battery parts project of Shanwei BYD Automobile Co., Ltd, 170 million was invested in the new energy bus parts and components manufacturing project of Wuhan BYD Automobile Co., Ltd, and the remaining 500 million was used to replenish the company's liquidity
19 Yadi G1	6.11.2019	4.86	One billion	0.7 billion invested in Baotou BYD Mining Vehicle Co., Ltd. energy battery production project, 150 million invested in Taiyuan BYD Automobile Co., Ltd. power battery assembly project, 280 million invested in Xi'an Zhongdi Lithium Battery Co., Ltd. power battery production project, and the remaining 500 million for the company's supplementary working capital

3.2. Beneficial Influence

This study finds that the coupon rates of “18 Yadi G1” and “19 Yadi G1” are relatively low compared with other bonds in the same period. As shown in Table 2, green bonds are the only two bonds with coupon rates lower than 5%, which relatively reduces the interest expense of enterprises. BYD proceeds with the issuing of green bonds directly through the complete green evaluation conducted by the NDRC, bypassing the involvement of an independent certifying agency, which saves this part of the consulting and certification fees, for the enterprise to effectively reduce the cost of financing, improve the efficiency of the issue [12].

Table 2. 2018-2019 Bond Financing

Bonds Name	Term/ years	Coupon Rate/%
18 Yadi 01	5	5.17
18 Yadi 02	4	5.75
18 Yadi G1	5	4.98
19 Yadi G1	5	4.86
19 Yadi Y1	2	6.20

This paper calculates the two financial indicators of net profit margin and weighted average return on net assets of BYD Company in 2017-2020. As shown in Figure 1, the two indicators of net profit margin and weighted average return on net assets did not immediately show an upward trend after the green bond issuance, and even declined. However, both figures have rebounded significantly since 2019. It is possible that this is due to the fact that a large amount of capital has just entered the various projects, and the benefits cannot be quickly reflected. So green bonds still have a relatively positive impact in terms of long-term corporate profitability.

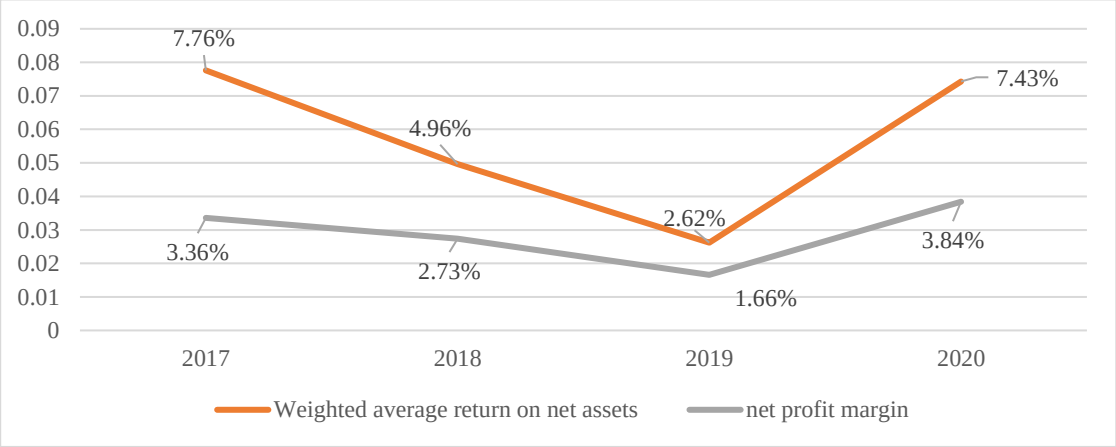

Fig 1. Changes in selected financial indicators, 2017-2020

3.3. Negative influence

Long-term debt ratio reflects the long-term solvency of enterprises by calculating the ratio of non-current liabilities to total assets. In Table 3, it can be found that the long-term debt ratio is a yearly upward trend, reflecting that the green bond does not bring an improvement to the long-term solvency of enterprises. For the short-term solvency, by comparing the quick ratio, the study finds that it is 62.09%, 67.79% and 67.81% in 2018, 2019 and 2020 respectively. It can be concluded that the quick ratio is almost no change, which shows that the company's short-term solvency is not improved, and the green bond does not help the short-term solvency of the enterprise. So green bonds are also very risky, once the policy, environmental protection industry development and other fluctuations, the price of green bonds may receive a greater impact, bringing market risk to investors.

Table 3. Selected solvency indicators 2017-2020

	2017	2018	2019	2020
Quick ratio	67.50%	62.09%	67.79%	67.81%
Long-term debt ratio	3.88%	5.12%	12.78%	14.99%

4. Discussion

Furthermore, apart from the influence of green bond issue on the financial components of the operation, other impacts are also reflected in the fact that through the issuance of these two green bonds, BYD has expanded new financing channels, access to long-term financing support, and provide stable financial support for the push of green projects. In the meantime, the advancement of green initiatives guarantees that new energy cars operate better and have advantages in quality, supply chain, independent technology and cost, and further adjusts and improves BYD's industrial layout and strategic planning, which has good social and economic benefits. During the issuance and survival period of the green bonds, BYD fulfills its obligation of information disclosure and independently discloses to the public information on the progress of its investment projects, the use of proceeds, and bond ratings, which to a certain extent indicates that the issuance of the green bonds has enabled BYD to gain the trust and support of consumers, earning it a certain degree of green reputation, helping the enterprise to establish a positive image of environmental protection and a

sense of social responsibility, and to enhance its brand image and market competitiveness. enterprise's brand image and market competitiveness. However, at present, China's information disclosure requirements for green bonds are not perfect enough, lacking unified disclosure standards and mandatory requirements, which causes an imbalance in information in the market, rendering it impossible for investors to completely comprehend the true impact of environmental protection and risk status of green bonds. In the case of BYD, for example, although it has disclosed information including listing announcement, interest payment announcement, tracking rating report, etc., there is still a lack of information to follow up on the progress of the implementation of various green projects, which makes investors question the implementation of the projects. This may have contributed to BYD's weakened solvency.

5. Conclusion

This article examines the effects of green bond issue on new energy automotive companies, such as BYD, and weighs the benefits and drawbacks of this financing approach. The study's primary finding is that cheap issuance costs are one benefit of green bonds, improving BYD's long-term profitability, enhancing the brand's green reputation, and attracting more investors. It provides diversified channels for green project financing and promotes the innovation and development of green financial products. And it has a direct impact on environmental protection and sustainable development, realizing a win-win situation for both economic and environmental benefits. The disadvantages of green bonds are mainly the risk of information asymmetry and the impact on the solvency of enterprises. At present, there is no clear requirement for the disclosure of information before the green house in China, which leads to certain difficulties for investors to obtain information and increases the investment risk.

According to the study, BYD's profit and long-term profitability are boosted by the issuance of green bonds, which means that BYD can prioritize green bonds in its future bond issuance and choice of financing methods to improve its financial stability. For the new energy industry, firstly, it can enrich the group of issuers more, including local government financing platforms as well as multinational companies. This diversification trend can help broaden financing channels, attract more social capital into the new energy sector, and accelerate technological innovation and industrial upgrading. Issuers with different backgrounds can design differentiated green bond products according to their own characteristics and needs to meet the diversified investment needs of the market. Second, government policy support for the new energy industry is the key to promoting the development of green bonds. Providing more tax incentives, financial subsidies, low-interest loans and other incentives can reduce the financing costs of new energy enterprises and increase their enthusiasm for issuing green bonds. Improving the information disclosure system is the basis for guaranteeing the fair and transparent operation of the green bond market in the energy-washing industry. By requiring issuers to disclose in detail the investment scale, environmental impact, expected benefits and other information of green projects, it helps investors to fully understand the project situation and make more rational investment decisions. At the same time, strengthening the supervision and assessment of third-party certification organizations ensures the authenticity and accuracy of the disclosed information and improves the credibility of the market.

References

[1] Huang Shenhui. Study on the Motivation and Benefits of Issuing Green Bonds by Private Enterprises in China--Taking Shenghong Technology as an Example. Jiangxi:Jiangxi University of Finance and Economics, 2023.

[2] Wang Yao, Cao Chang . Promoting the Development of Green Bonds. China Finance, 2015 (20) : 43-45.

[3] Tan Chao, Yang Wenying . Green Bond Issuance and Capital Allocation: Based on Debt Contract Perspective. FINANCE AND ACCOUNTING MONTHLY, 2022 (11) : 147-155.

[4] Wang Bo, Zhan Linsheng, Di Chaolun. Green bond premium effect, mechanism and sustainable performance. Nankai Journal (Philosophy and Social Science Edition),2024,(04):134-149.

[5] Wang Hailin, Chang Zhengwei, Chao Siming. Whether green bond financing can play the "catfish effect": the role of green bonds on the technological competitive potential of enterprises. Finance Theory & Practice,2024,(02):51-64.

[6] Li Junying, Li Yitong. Current Situation and Development Thinking of Green Government Bonds in China. FINANCE AND ACCOUNTING MONTHLY,2023,44(21):154-160.

[7] Fan Yunpeng,Liu Zhengnan,Wang Shucan. Impact of third-party certification on credit spreads of green bonds. Journal of Financial Development Research,2023,(12):11-21.

[8] Hafner, Sarah, et al. Closing the green finance gap–A systems perspective. Environmental Innovation and Societal Transitions 34 (2020): 26-60.

[9] Bhutta, Umair Saeed, et al. Green bonds for sustainable development: Review of literature on development and impact of green bonds. Technological Forecasting and Social Change 175 (2022): 121378.

[10] Lebelle, Martin, Souad Lajili Jarjir, and Syrine Sassi. Corporate green bond issuances: An international evidence. Journal of Risk and Financial Management 13.2 (2020): 25.

[11] Wang, Jiazhen, et al. "The market reaction to green bond issuance: Evidence from. China." Pacific-Basin Finance Journal, vol. 60, Apr. 2020,101294

[12] Lv Zhiyang. An analysis of BYD's green bond issuance drive and comprehensive impact[J]. Management and Technology of SME,2023,(20):182-184.