

Analysis of Financing Strategies for Power Battery Enterprises Under the Background of Green Finance: Taking CATL as an Example

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Abstract. Guided by the "dual carbon" goals, China's green finance system is becoming increasingly sophisticated, with diversified green finance instruments continuously providing financial support for the development of the new energy industry. As the core component of new energy vehicles, the rapid expansion of the power battery industry has generated substantial capital needs for leading enterprises, making traditional financing models increasingly inadequate for their development. This paper takes Contemporary Amperex Technology (CATL), the global leader in power batteries, as a case study. Relying on its publicly available financial and financing data from 2021 to 2025, the research employs literature review, case analysis, and data analysis methods. The study finds that CATL currently faces issues such as a low proportion of green financing, limited financing channels, insufficient utilization of new green finance instruments, and inadequate policy alignment. Taking into account industry characteristics and green finance policy directions, this paper proposes optimization paths including expanding the scale of green financing, diversifying financing channels, coordinating old and new financing models, and deeply aligning with supportive policies. The research conclusions can provide a reference for domestic power battery enterprises to optimize their financing strategies, facilitating the integrated development of green finance and the real economy.

Keywords: Green finance, CATL, Financing strategy, Power battery, dual carbon goals

1. Introduction

With the implementation of the carbon peak and carbon neutrality strategies, domestic green finance has entered a stage of standardized development, and financial resources continue to be tilted towards low-carbon manufacturing, clean energy, and other fields. The power battery industry has achieved rapid growth relying on the new energy vehicle and energy storage markets. The medium- and long-term capital needs for enterprise capacity expansion and technological research and development have risen significantly. Traditional financing methods are costly and cannot enjoy the dividends of green finance policies. The industry urgently needs to reconstruct its financing system.

From the perspective of research value, existing studies mostly focus on the relationship between green finance and ordinary manufacturing enterprises, with relatively few case studies on the special

financing of leading power battery enterprises. This paper can supplement the research content in subdivided industries. At the same time, CATL's financing difficulties are typical in the industry, and the research results can provide practical references for enterprises across the industry.

Upon reviewing relevant literature both domestically and internationally, it is evident that foreign scholars have verified the positive role of green finance in alleviating financing constraints for new energy enterprises [1, 2]. Domestic research, on the other hand, has primarily focused on the implementation effects of green finance policies and common industry issues, with a research gap remaining in the in-depth analysis of green financing strategies for industry leaders [3, 4]. Supported by the pecking order theory and trade-off theory, this paper utilizes public data from platforms such as Wind and Juchao Information and follows a logical structure of "theoretical groundwork — current situation analysis — problem identification — countermeasure proposal" to conduct research, striving to draw conclusions that are aligned with industry reality and practical.

2. Overview of green finance and related theories of corporate financing

2.1. Connotation and main tools of green finance

Green finance is a financial format with the core objectives of supporting ecological environmental protection, promoting low-carbon transformation, and managing environmental pollution. Different from traditional finance, its capital investment is strictly limited to green industries and low-carbon projects, achieving both economic and environmental benefits. Currently, the four most widely used green financing tools in China are green credit, green bonds, green funds, and green asset-backed securities (ABS). Among them, green credit, with its fast approval and mature implementation, is the most commonly used financing method for new energy enterprises; green bonds, which raise funds specifically for green projects and have a lower issuance interest rate than ordinary bonds, offer cost advantages; green funds, which primarily focus on equity investment, emphasize support for technological research and development and start-up projects; and green ABS, which can activate existing green assets, are suitable for enterprises with stable cash flow. These four types of instruments are respectively tailored to different stages of enterprise development and funding purposes [5].

2.2. Corporate financing theory

This study primarily relies on two classic financing theories: the pecking order theory and the trade-off theory. According to the pecking order theory, due to information asymmetry and differences in financing costs, corporate financing follows the order of "internal financing - equity financing - debt financing". Companies prefer to use their own funds first, then choose equity financing, and finally adopt debt financing, in order to reduce information disclosure costs and financial risks. The trade-off theory emphasizes that enterprises need to strike a balance between the tax shield benefits of debt financing and the costs of financial distress. Moderate debt can enhance corporate earnings through interest tax credits, but excessive debt can exacerbate debt service pressures and increase the risk of corporate bankruptcy. This theory provides the core theoretical basis for CATL to coordinate the proportion of equity and debt financing. The two theories complement each other and become an important yardstick for analyzing the rationality of corporate financing structure.

2.3. The mechanism by which green finance affects corporate financing

Green finance primarily influences corporate financing behavior through three major effects. The first is the cost effect. Green credit and green bonds, supported by national policies such as discounted interest rates and preferential interest rates, generally have lower comprehensive financing costs compared to traditional credit and ordinary bonds, which can directly reduce corporate financial expenses; The second factor is the policy effect. The national and local governments have introduced supporting policies such as subsidies, tax relief, and green channel approval for green financing. Enterprises that connect with green financial instruments can fully enjoy the policy dividends, indirectly optimizing their operating cash flow; The third is the signal effect. When enterprises engage in green financing and standardize the disclosure of green project information, they can send positive signals to the capital market and financial institutions, indicating their compliance with low-carbon practices and outstanding long-term development potential. This helps enhance the credit rating of the enterprise and its attractiveness for external financing, thereby broadening financing channels further [6].

3. Analysis of the current financing situation of CATL

3.1. Overall business overview of the enterprise

CATL was founded in 2011, with its main business covering the research, development, production, and sales of power batteries and energy storage batteries. Meanwhile, it has also expanded into upstream and downstream businesses such as battery recycling and battery leasing. Currently, it ranks firmly at the top of the global power battery industry. As shown in Table 1, by the end of 2025, the company's total asset size had reached 974.828 billion yuan, with annual operating income of 423.702 billion yuan and net profit attributable to shareholders of 72.201 billion yuan. Its operating scale and profitability rank first in the industry. In recent years, to meet the growing demand of the global new energy vehicle and energy storage market, the company has successively established production bases in Fujian, Sichuan, Jiangsu, Hungary, and other regions both domestically and internationally. Large-scale capacity expansion and cutting-edge technology research and development have brought continuous and large-scale capital demands, making financing activities an important part of the company's daily operations.

Table 1. Key accounting data and financial indicators of CATL in 2025 (thousand yuan)

Item	2025
Operating Revenue	423,701,834
Net Profit Attributable to Shareholders of the Listed Company	72,201,282
Net Profit Attributable to Shareholders of the Listed Company, Excluding Non-recurring Gains and Losses	64,507,864
Net Cash Flows from Operating Activities	133,219,982
Basic Earnings Per Share (Yuan/Share)	16.14
Diluted Earnings Per Share (Yuan/Share)	16.14
Weighted Average Return on Net Assets (ROE)	24.91%

Table 1. (continued)

Item	End of 2025
Total Assets	974,827,544
Net Assets Attributable to Shareholders of the Listed Company	337,107,747

Data source: CATL Annual Report 2025

3.2. Overall financing scale from 2021 to 2025

Based on corporate annual reports, private placement announcements, and bond issuance data, the overall financing scale of CATL has shown a trend of increasing year by year from 2021 to 2025. In terms of equity financing, the company completed a private placement of A shares worth RMB 44.87 billion in 2022, with all funds allocated to capacity expansion. In 2025, it raised RMB 32.484 billion through the listing of H shares, providing support for its overseas business expansion. From 2021 to 2025, the cumulative scale of corporate equity financing exceeded 77.3 billion yuan. In terms of debt financing, enterprises continued to issue ordinary bonds and apply for bank loans. In 2025, it is planned to register 10 billion yuan of ordinary bonds to supplement working capital, with a total of over 90 billion yuan in various debt financing over the five years. Overall, the total financing of enterprises from 2021 to 2025 exceeded 160 billion yuan, with funds mainly invested in three major areas: capacity expansion, technological research and development, and overseas expansion.

3.3. Financing methods and characteristics of financing structure

In terms of financing methods, CATL (Contemporary Amperex Technology) currently adopts a pattern of "equity financing + traditional debt financing as the mainstay, supplemented by green financing". Equity financing centers around A-share private placement and H-share IPO, with a cumulative scale exceeding RMB 136 billion; traditional debt includes short-term and long-term bank loans and ordinary corporate bonds, with long-term debt amounting to RMB 88.384 billion and short-term debt reaching RMB 40.319 billion by the end of 2025. Green financing centers around green credit, with several banks providing large-scale green credit facilities. In 2022, the company issued RMB 5 billion of green medium-term notes. However, on the whole, from 2021 to 2025, the proportion of green financing in the company's total financing was less than 8%, which is lower than the industry average, indicating that the financing structure still leans towards traditional models [7].

4. Problems in CATL's financing strategy under the background of green finance

4.1. The proportion of green financing is insufficient, and the financing structure leans towards traditional models

Currently, CATL's financing structure heavily relies on equity financing and traditional debt financing, with a small scale and low proportion of green financing, which has become a core issue. As a typical low-carbon manufacturing enterprise, the company's power battery and energy storage battery projects meet the green project identification standards. However, from 2021 to 2025, the proportion of green financing has been consistently below 8%, failing to fully leverage its green attributes to obtain low-cost funds. Over-reliance on equity financing tends to dilute the original

shareholders' equity, while the interest rates of traditional bank credit are generally higher than those of green credit. Long-term adoption of traditional financing methods will inflate the company's overall financial costs. This imbalanced financing structure not only wastes the company's green project resources but also does not align with the industry trend of financial resources shifting towards green industries in the context of the "dual carbon" goals [7].

4.2. The green financing channels are limited, and the utilization rate of new green financial instruments is low

In the current green financing system, CATL's green funding sources are highly concentrated in green credit and a small amount of green bonds, with new tools such as green funds and green ABS rarely being actively utilized. According to research data, domestic enterprises in the power battery and energy storage industry have already utilized green ABS to revitalize existing assets such as battery leasing and energy storage. CATL's joint venture, U-Energy, issued RMB 501 million of green ABS for power batteries in 2026, but the company itself did not directly engage in green ABS financing business. In the field of green funds, enterprises only participate in some industrial green funds through equity participation and have not independently initiated or utilized green funds to carry out equity-based green financing. The single green financing channel limits enterprises' ability to flexibly match financial instruments according to project cycles and capital purposes, greatly restricting financing flexibility.

4.3. The ability to coordinate policies and control costs is weak, and the policy dividends have not been fully unleashed

CATL's alignment with relevant supportive policies for green finance is insufficient. Many regions in China have introduced policies such as discounted interest, tax relief, and project subsidies for green bonds and green credit, but the company has not established a dedicated team to follow up on policy applications, missing out on some green special subsidies and tax benefits. On the other hand, the company's level of refinement in managing green financing costs is inadequate. Despite the inherent interest rate advantages of green bonds and green credit, due to irregular information disclosure of green projects and an imperfect ESG management system, the issuance interest rates of some of the company's green financing products are slightly higher than the average of leading green enterprises in the industry. At the same time, the company has not established a dynamic allocation mechanism between traditional financing and green financing, making it unable to flexibly switch financing methods according to changes in market interest rates, further limiting the space for cost reduction [8-10].

5. Suggestions for optimizing CATL's financing strategy in the context of green finance

5.1. Expanding the volume of green financing and gradually optimizing the overall financing structure

By releasing the company's ample green project reserves, people will steadily increase the proportion of green financing in total financing, gradually raising this ratio to 12% or above, aligning with the industry average. In new financing plans, people will prioritize the inclusion of qualified capacity expansion and technology research and development projects in the green project directory and give preference to green credit and green bonds as alternatives to some traditional

bank loans and ordinary bonds. Simultaneously, relying on the pecking order theory, people will reasonably control the frequency and scale of equity financing to avoid excessive dilution of equity, forming a healthy financing structure that is "based on internal financing, with green financing as the mainstay, and traditional financing as a supplement". People will leverage the low-cost advantage of green financing to continuously reduce comprehensive financial expenses.

5.2. Expanding diversified financing channels and making flexible use of new green financial instruments

Breaking the current single pattern of relying on credit and ordinary green bonds for green financing, people will comprehensively deploy four mainstream green financial instruments. Firstly, people will continue to expand the issuance scale of green bonds, and issue green technology innovation bonds and green medium-term notes in phases according to the needs of medium and long-term projects, securing long-term low-cost funds. Secondly, people will explore the green ABS financing model, relying on existing assets with stable cash flow such as battery leasing and energy storage operations, to issue green asset-backed securities, revitalize existing assets, and broaden short-term funding sources. Thirdly, people will proactively connect with national and provincial green industry funds and jointly launch special green funds with financial institutions and industry chain partners, focusing on equity financing for cutting-edge battery technology research and development projects, and enriching equity-based green financing channels [7].

5.3. Strengthening policy alignment and internal management to achieve cost reduction and efficiency improvement in financing

Firstly, a special working team will be established to sort out green financial subsidies and tax preferential policies from the national, Fujian provincial, and project implementation regions. Regular work will be carried out on green project application and green qualification certification to fully leverage policy dividends. Secondly, the green information disclosure and ESG management system will be improved. In accordance with regulatory requirements, the disclosure content of green project fund usage, environmental benefits, and other information will be refined to enhance the enterprise's green credit rating and further reduce the issuance and loan interest rates of green bonds and green credit. Finally, a dynamic financing allocation mechanism will be established to track the interest rate trends of traditional financing and green financing in real time. Based on project duration and capital costs, the two financing modes will be flexibly matched to achieve refined control of financing costs [9-11].

6. Conclusion

Based on the research background of green finance, this paper selects CATL as a case study in the power battery industry. It conducts a systematic analysis by combining the company's public financing data and credit information from financial institutions from 2021 to 2025. The study finds that, against the backdrop of rapid expansion of the industry scale, CATL's total financing has continued to grow. The funds are mainly invested in capacity expansion, technological research and development, and overseas expansion. However, there are obvious shortcomings in the company's financing strategy: firstly, the proportion of green financing is relatively low, and the overall financing structure leans towards traditional models; secondly, green financing channels are limited, and new tools such as green funds and green ABS are underutilized; thirdly, there is a lack of policy

alignment and cost control capabilities, which fails to fully leverage the cost-reducing and efficiency-enhancing effects of green finance. Combining relevant theories of green finance and industry policies, this paper proposes three major optimization directions: expanding the volume of green financing, broadening diversified green channels, and strengthening policy alignment and internal management, to help companies reconstruct a green financing system that is suitable for their own development.

This study has two significant limitations: Firstly, the study only selects CATL (Contemporary Amperex Technology) as a single case, which limits the sample coverage and the reference value of the research conclusions for small and medium-sized power battery enterprises. Secondly, some internal detailed financing data and specific income data of green projects are non-public information, which can only be analyzed based on public materials such as annual reports and announcements. It is impossible to conduct a deeper quantitative study on the marginal benefits of green financing. Additional analysis can be conducted in the future by combining more internal research data.

As the "dual carbon" strategy continues to be implemented, the domestic green finance market will further mature, and the types and scale of green finance instruments will continue to expand. Financial institutions will also increase their support for the new energy and low-carbon industries. For the power battery industry, green financing will gradually become the mainstream financing model, complementing traditional financing. For CATL, in the future, it can leverage its leading position in the industry to explore cross-border green financing models such as cross-border green bonds and international green funds, matching the capital needs of its global layout. In the long run, only by deeply integrating with green finance and continuously optimizing financing strategies can power battery enterprises maintain their financial advantages in fierce industry competition and promote the industry to achieve low-carbon, global, and high-quality development.

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