

Research on Financing Business of New Energy Enterprises Under the Background of Green Finance Policy: A Case Study of CATL

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Abstract: With the continuous development of the global economy, a series of environmental problems have been caused. All countries are trying to find a more environmentally friendly way to meet development, which has brought new energy industry. It can promote national energy independence, diversify future energy channels, reduce the burden of traditional energy and optimize the environment. At present, traditional resources such as oil and coal have been developed in large quantities. Factories emit a lot of harmful gases, causing air pollution, global warming and other problems. The result of these problems will even lead to the gradual extinction of the whole earth. It is urgent to solve environmental problems. Therefore, the state officially implemented the policy of green finance in 2016, which aims to continuously pay attention to environmental problems under the condition of ensuring the sustainable development of economy and require enterprises not to damage the environment in the process of production, otherwise they will bear corresponding responsibilities. For the moment, China's new energy industry still has a large capital gap and needs sufficient financial support. However, at present, new energy enterprises are generally faced with problems such as high financing cost, single financing channel and high financing risk. How to effectively solve the financing difficulties has become a problem that must be solved for the development of new energy industry. As an emerging scientific and technological enterprise in the early stage of the development of the new energy industry, CATL has a high demand for innovation and talents. At the same time, there is a great demand for power batteries in new energy

vehicles, so it needs sufficient financial support. This paper takes this enterprise as an example to look for books and documents related to financing by querying enterprise related materials, Analyze and summarize the financing status and problems of new energy enterprises and CATL, and put forward their own suggestions.

Keywords: New Energy Industry, Green Finance, Financing Mode, CATL

1. Introduction

1.1 Research Background

After the Industrial Revolution, social productivity was greatly improved, especially after World War II. People have created unprecedented economic achievements. However, while enjoying the rich material civilization, we gradually realized that this economic growth was to some extent at the cost of wasting resources and damaging the environment. So from the global academic community to governments and socio-economic organizations, they have all begun to explore the drawbacks of traditional economy, trying to transform the mode of economic development and take the path of sustainable development. Among numerous environmental issues, climate change caused by carbon dioxide emissions is a global concern. Since the 20th century, "Green Finance" has become an important topic in visits between heads of state and many high-level international conferences (such as the "G8+5" and the "G20 Green Finance Summit"), receiving extensive and in-depth research, and the consensus of human society is gradually deepening. At the same time, to implement the scientific outlook on development and achieve a harmonious society of "resource-saving and environmentally friendly", it is inevitable for

China to transform its economic development mode. The latest planning scheme is to establish and improve the green finance market system, formulate relevant policy guidance mechanisms, accelerate the innovation of green finance products, promote industrial optimization and upgrading through effective resource allocation, enhance the service level and guarantee mechanism of the green finance industry to cultivate and retain talents, strengthen social responsibility awareness, and achieve universal participation. From this, the development of green finance will finally become an inevitable requirement and strategic direction for China's sustainable economic development, whether it is external pressures from the international community or internal driving forces for domestic economic transformation.

According to the "Guidelines for Issuing Green Bonds" published by the government in December 2015, "the applicated scope of green bonds mainly includes projects such as clean and efficient energy utilization, energy development and utilization, circular economy development, water resource conservation and unconventional water resource development and utilization, low-carbon industries, etc." New energy enterprises, as the "leaders" mainly producing environmentally friendly energy, fully have the basic conditions to issue green bonds, and they also meet the "Catalogue of Green Bond Support Projects" stipulated by the country. With the unwavering policy support of promoting the new energy industry in the current country, new energy enterprises should actively seek green financial markets, broaden financing channels, issue green bonds, enhance their market competitiveness and promote industrial transformation and upgrading.

1.2 Research Meaning

The development of green finance requires us to constantly explore and research. To achieve a win-win situation for financial institutions' impact on the economy and society, we should explore how to rely on financial knowledge to support sustainable economic development, how to implement cooperation systems between the financial industry and green industry related departments and create new models and fields of green financing in China. Studying the intrinsic relationship between green finance and sustainable economic development have important theoretical and practical significance.

In terms of theoretical significance, most of the research conducted by scholars at home and abroad is based on the conclusion of dialectical development: sustainable economic development is the result of green finance, and green finance is an important prerequisite for sustainable economic development. This article provides mechanism principles for practical research by analyzing the internal mechanism of action to support this viewpoint.

For practical significance, implementing green finance not only means the trend of the times, but also significant economic benefits: firstly, some industries in the low-carbon economy, such as new energy and new technologies, can not only reduce carbon dioxide emissions when the technology improves, but also reduce enterprise costs to increase profits, combined with loose economic policies and appropriate tax incentives from the government. In the long run, green finance can bring good economic benefits, and financial institutions will also bring about the development of related industries, forming long-term investments and hidden income in the future; Secondly, under the sustainable development economy strongly supported and promoted by the government and media, if financial institutions can implement green finance, it will form a good reputation and even a certain brand effect in the whole society. This public awareness and reputation can be transformed into economic benefits under certain conditions.

What's more, the significance of financing for new energy enterprises lies in enabling them to innovate more effectively. Under current policies, what can promote the development of new energy enterprises is to come up with new things, such as power batteries - providing more innovative power for new energy vehicles, convenient and fast charging, etc. And the capital for research is financing. China's new energy vehicles are gradually rising. At the National People's Congress and Chinese People's Political Consultative Conference, carbon peak and carbon neutrality were modified into the Chinese government report for the first time, which shows that China's determination to develop new energy. With the support of the country, new energy enterprises can better raise funds, develop new products more efficiently, benefit the country and the people, and promote the development of new energy to another new level.

1.3 Research Contents

This article explores the impact of green finance policies on the financing business of new energy enterprises, identifies relevant issues and proposes reasonable suggestions. The article is divided into four parts:

The first part is the theoretical foundation, which provides a preliminary explanation and clarification of the concepts of green finance, "Sustainable Development", and basic theories related to financing, such as "MM Theory, Trade-off Theory, Agency Theory and Pecking Order Theory".

The second part introduces the current financing situation of new energy enterprises in China, briefly analyzes the financing situation and points out the problems existing in current enterprise financing.

The third part is a case analysis. The article first introduces the basic overview of CATL, taking CATL's financing process as an example, introduces CATL's financing methods in recent years, analyzes the financing efficiency of the enterprise, and analyzes the problems that occur in financing in conjunction with new energy enterprises, and elaborates on one's own views.

The fourth part is suggestions for financing strategies of new energy vehicle enterprises. Based on the actual situation of financing in CATL, the paper proposes countermeasures and suggestions on how to better carry out financing from three aspects: enterprise financing channels, enterprise technological innovation and enterprise strategic management.

1.4 Literature Review

After further comparison by scholars, it was found that the main service target of green finance is the environmental protection industry, which focuses on protecting the ecological environment, promoting sustainable economic development, and achieving the coordination between economic development and ecological environment protection [1,2]. From the macro perspective of developing green finance, scholars believe that the main goal of green finance is to reduce environmental costs in economic development. As a financial tool for transferring environmental risks, it plays a role in improving environmental quality [3]; From the micro perspective of developing green finance, experts point out that developing green finance is beneficial for enhancing the social

reputation of enterprises, supervising risk management, and achieving long-term development of enterprises [3]. In order to achieve the goal of green finance supporting environmentally friendly industries, commercial banks should incorporate environmental factors into the review process when issuing bank loans and provide loans to enterprises with a good environmental reputation (Anderson, 2016).

In China, green finance refers to economic activities aimed at supporting environmental improvement, addressing climate change, and efficient resource conservation. As a result of the coordinated development of the financial industry and environmental protection economy, green finance is the introduction of social funds into the clean industry to provide financial support for environmental protection (Deng, 2012 and Yu, 2016). Green finance refers to financial institutions not only considering economic benefits during the financing process, but also incorporating factors such as ecological environment and resource conservation into their audit scope (Liu and Liu, 2009). Financial institutions, as important entities in developing green finance, should reasonably assume environmental responsibilities. By supporting clean technology transformation and implementing proactive post loan management, the efficiency of financial institutions in assuming environmental responsibility can be improved (Liu and Wen, 2019). Commercial banks and other financial institutions should also continuously launch targeted green financial products to target customers through green innovation and use green innovative products to address environmental issues (Peng and Deng, 2017).

Green enterprises are mostly small and medium-sized enterprises with higher operational risks. Compared to long-term debt financing, short-term debt financing is more conducive to financial institutions recovering funds. Green enterprises are the biggest beneficiaries of green finance, but green finance can also provide financial support to other eligible social entities. The service providers of green finance are not singular, but diverse. It can not only provide financing support for enterprises to invest in green projects, but also provide financial support for governments and social welfare organizations (Berensmann and Lindenberg, 2016).

Enterprises with good reputation and credit for

green credit can obtain more financial loan funds, in which the proportion of long-term liabilities is higher. After the country vigorously promoted green finance, the proportion of new loans and long-term liabilities obtained by non-heavy polluting enterprises continued to increase, until they caught up with heavy polluting enterprises. This indicates that green credit reputation plays an important role in providing financial support to non-heavy polluting enterprises. Heavy polluting enterprises lack green credit reputation, leading to financial institutions raising credit thresholds for them (Zhou, 2017).

Based on the background of green finance, this article continues to delve into the issues between this background and the financing of new energy enterprises, such as the current situation of financing and the inappropriate methods of financing and puts forward its own opinions.

2. Theoretical Basis

2.1 Relevant Theories of Green Finance

2.1.1 Definition of Green Finance

Since the term 'Green Finance' was proposed, there have been disagreements regarding the concept of green finance, therefore a unified and comprehensive standard is needed. The main reason is that the national concepts of environmental protection, energy conservation and emission reduction, and resource recycling overlap with the definition of sustainable development. Therefore, many scholars often confuse the concept of green finance with concepts such as "sustainable development" finance and environmental finance. At present, only a small number of financial institutions and research institutions have a relatively clear understanding of the meaning of green finance. According to the search for global research on green finance, most of its definition no longer focuses on the pollution sources themselves, but on how to use money and resources more reasonably to address a series of harmful environmental issues such as global warming, environmental pollution, and resource scarcity.

From the perspective of a community with a shared future for mankind, environmental issues are currently given top priority in the definition of green finance, with the goal of perfectly integrating environmental protection concepts with financial products and closely monitoring the risks brought about by environmental changes. From this perspective, the service

scope of green finance mainly focuses on pollution prevention and control, climate change response measures, and the improvement of resource utilization efficiency. In the September 2016 G20 Green Finance Comprehensive Report, the meaning of green finance was defined as investment and financing activities that can generate environmental benefits to support sustainable development. These environmental benefits include reducing air, water, and soil pollution, lowering greenhouse gas emissions, improving resource efficiency, mitigating and adapting to climate change, and demonstrating their synergistic effects. The development of green finance requires consideration of environmental factors and planning within the enterprise to enhance the environmental risk awareness of financial institutions, promote environmentally friendly investment, and curb water production investment.

From the perspective of our country itself, "Green finance requires financial institutions to consider ecological protection as a basic requirement, and to prioritize risk issues in the process of investment and financing operations. It should be integrated into the daily business of banks in conjunction with ecological development related audits and focus on ecological environment protection and environmental pollution control while pursuing economic benefits, ultimately achieving sustainable economic development." The definition of green finance proposed by our country is the most complete, considering China's national conditions and socio-economic development status, while clarifying the purpose of vigorously promoting green finance in our country, and determining the key areas and project types that will support green finance in the future. The scope of providing green financial services has also been defined, including not only the investment and financing stages, but also risk management.

2.1.2 Definition of "Sustainable Development"

The concept of "sustainable development" was first put forward at the United Nations Seminar on Human Environment in 1972. One of the basic requirements of the Scientific Outlook on Development is to meet the needs of contemporary people without compromising the development of future generations to meet their own needs.

Representatives from various countries discussed and concluded that the purpose of

sustainable development is to ensure that various rights can be enjoyed in accordance with the law while maintaining normal living and protecting the world environment. Since this conference, the definition of "Sustainable Development" has emerged one after another, covering international, regional, local, and specific sector levels. In 1980, the International Union for Conservation of Nature's "Outline for the Conservation of World Natural Resources" stated: "It is necessary to study the fundamental relationships between nature, society, ecology, economy, and the use of natural resources to ensure global sustainable development." In 1981, Lester R. Brown proposed in his book "Building a Sustainable Society" that sustainable development can be achieved by controlling population growth, protecting the resource base, and developing renewable energy.

2.1.3 Sustainable Development Theory of Green Finance

The first proposer of the sustainable development theory of green finance in China was Bai Qinxian, who included two themes: "Green Financial Resources" and "Sustainable Development". In terms of green financial resources, he believed that green finance is a consumable resource. If China wants to achieve sustainable development of green finance, it first needs to gradually reduce information asymmetry, and secondly, it needs to find ways to reduce the cost of enterprise expenditures; In terms of sustainable development, combining the concept of sustainable development with the definition of green finance has expanded the scope of research on green finance and covered various external force majeure factors more comprehensively.

In my opinion, the theory of sustainable development of green finance is an emerging financial product that conforms to the current era. It not only focuses on how a country's resource allocation is at a certain point in time, but also uses a dynamic perspective to study how a country's green finance and economic activities interact and complement each other in long-term development.

2.2 Basic Theories related to Financing

2.2.1 MM Theory

The origin of the MM theory was explained and initially defined by Professor Modigliani and Miller from the United States in their article "Capital Structure, Corporate Finance, and

Capital" published in the American Economic Review in June 1958. This theory holds that "without considering corporate income tax, and with the same operational risk but only different capital structure, the market value of a company is independent of its capital structure. Later, the tax-free MM theory emerged, which suggests that corporate financing can be achieved through two methods: borrowing money from external sources and investing in shareholders. Under these two methods, there is no tax, and the cost paid by the company is the same. Therefore, the ratio of borrowing money to investment is not related to the value of the company. Finally, there is the MM theory with taxes. If there are taxes, interest expenses must be deducted before calculating income tax. The higher the interest expenses, the less income tax there will be, forming a tax shield. In this case, the premise is that borrowing money from outside is the same as the cost of shareholder investment, but shareholder investment cannot reduce taxes with interest expenses. Therefore, the enterprise will choose to borrow money first. If all the capital of the enterprise is obtained by borrowing money, the interest expenses will be maximized, that is, the final tax paid will be minimized, the profit will be maximized, and the enterprise value will also be maximized.

2.2.2 Trade-off Theory

In the MM theory with taxes mentioned above, we can use borrowing money to reinforce the tax shield. However, the more we borrow, the greater the leverage and the greater the risk for the enterprise. This makes it easy for the enterprise to have a broken funding chain and bankruptcy, which is the cost of financial distress. At this point, it is necessary to weigh whether borrowing more money will result in more interest tax benefits, or whether borrowing more money will cause greater financial distress costs? When the increment of the two is the same, it is the optimal capital structure.

2.2.3 Agency Theory

Agency theory refers to the separation of control and management rights in a company, where shareholders act as actual investors, but managers manage the company. This can lead to two problems: overinvestment and underinvestment. When there is overinvestment, that is, investing in projects with negative net present value, it is highly likely that there is a conflict of interest between managers and shareholders, or between shareholders and

creditors. At this point, companies usually fall into financial difficulties and need to repay money. If they invest, a large portion of the money earned will be used to repay creditors' interest, and shareholders will abandon the investment.

2.2.4 Pecking Order Theory

The theory of pecking order suggests that when a company has financing needs, based on the theory of information asymmetry and considering the existence of transaction costs, the order of selection should be internal financing, debt financing, and equity financing. Assuming information symmetry and no bankruptcy costs, when there is information asymmetry between external investors and internal managers of the company, investors cannot understand the actual situation and future trends of the company and can only calculate its future based on the current profitability of the company, which may include some gambling elements. Therefore, if the company adopts external financing methods, it will cause a decline in the company's value, so the company can only raise funds through channels such as issuing additional stocks. If the company has excess funds internally, it should first choose

internal financing. When a company must rely on external financing, the value of the company will not be reduced in our country if bonds unrelated to asymmetric information are issued, and vice versa. Therefore, bond financing has a higher priority than equity financing.

3. Current Situation Analysis and Existing Problems

3.1 Financing Status of New Energy Enterprises

The development of China's new energy industry has a very broad prospect. Currently, the country vigorously promotes new energy, so the demand for new energy among the people is gradually increasing. This means that investment in the new energy industry needs to keep up. According to the "Medium- and Long-Term Development Plan for Renewable Energy", China is expected to need energy investment of about 30 trillion yuan from 2006 to 2020. The clean energy that is beneficial to the environment requires approximately 3.5 trillion yuan, and China urgently needs a large amount of funds to support projects such as traditional energy extraction and new energy development.

Table 1. Medium- and Long-Term Financing Needs for Some Renewable Energy Sources in China (2006-2020)

New Energy Project	Target Capacity	Financing Demand (¥)
Hydroelectric Power Generation	300 million kilowatts	2.4 trillion
Biomass Power Generation	35 million kilowatts	270 billion
Wind Power Generation	50 million kilowatts	380 billion
Solar Power Generation	3.5 million kilowatts	260 billion

Data Source: Medium- and Long-term Development Plan for Renewable Energy

From the table above, we can see that the financing amount required for renewable energy in China is very high. This is because these industries are still in the initial stage, with a series of negative phenomena such as small production scale and shortage of enterprise funds. Moreover, the research and development costs required by these enterprises are huge, which requires a series of financing to support them. According to current national policies, these enterprises are likely to receive a large amount of financing support, but this is not a reason for them to squander funds at will. In the field of new energy enterprises, if they cannot develop advanced products, they will only be eliminated.

3.1.1 Characteristics of Financing Demand of New Energy Enterprises

The financing methods of new energy

enterprises in our country mainly rely on external financing, supplemented by internal financing. From 2016 to 2020, China's new energy enterprises no longer rely solely on foreign financing. As an emerging industry in the country, the new energy industry relies on the active policies of national green finance. However, it is still in the development stage and has weak profitability. The only ones with good returns are often the leading enterprises, resulting in overall low returns for new energy enterprises, which are in two extremes. The following table shows the capital structure of new energy listed companies in China in recent years.

From the table, we can see that for new energy enterprises, the main financing channel is external financing, accounting for over 65% of the total. However, compared to the research

results conducted by the former from 2009 to 2013, the proportion of external financing has decreased significantly. This indicates that new energy enterprises have achieved considerable returns under the active policies and coordination of the country, so they can rely more on their own internal financing to carry out research and development of new products and talent introduction; The proportion of major debt financing in external financing has exceeded

50%, reflecting that in the current financing strategies of new energy enterprises, seeking financing directly from investors is still the most direct and commonly used method. At present, according to the development trend of new energy enterprises, with more tangible assets and scientific research achievements, it is believed that bank credit financing will also be easier than before.

Table 2. List of Overall Capital Structure of New Energy Listed Companies in China from 2016 to 2020

Year	Internal Financing	External Financing	Debt Financing	Equity Financing
2016	33.846%	66.154%	54.935%	11.219%
2017	34.268%	65.732%	59.501%	6.231%
2018	33.407%	66.593%	62.557%	4.036%
2019	31.373%	68.627%	65.709%	2.918%
2020	32.634%	67.366%	61.330%	6.036%

Data Source: Self-made by consulting relevant data from the Wind database

3.1.2 Current Situation of Debt Financing of New Energy Enterprises

Table 3 shows the debt composition of China's new energy enterprises from 2016 to 2020, including the current liability ratio, interest bearing liability ratio, and interest free current liability ratio. From this, the demand for current liabilities by enterprises is very high, at over 48% (including interest free current liabilities), while the demand for interest bearing liabilities is relatively low, as it will increase the cost of the enterprise. For emerging new energy enterprises in our country, the time it takes for them to innovate products is relatively long,

coupled with the need to promote the developed products, which are tangible costs, while the time involved is intangible costs. If they choose interest bearing debt, it is unfriendly to small and medium-sized enterprises and may even increase a large part of unnecessary expenses, affecting their profits and even facing the risk of no money to repay. On the other hand, in terms of current liabilities, interest free current liabilities are the most popular, indicating that the national green finance policy provides very favorable conditions for the research and development of new energy enterprises.

Table 3. Debt Composition of Listed New Energy Companies in China from 2016 to 2020

Year	Current Liability Ratio	Interest Bearing Debt Ratio	Interest Free Current Liability Ratio
2016	79.26%	33.11%	56.76%
2017	80.04%	35.90%	54.71%
2018	78.34%	38.14%	51.22%
2019	76.71%	38.61%	50.34%
2020	77.94%	34.91%	48.03%

Data Source: Self-made by consulting relevant data from the Wind database

However, the ratio of interest-bearing liabilities in the table remains above 30%, which is not a small amount overall. Interest bearing liabilities consist of many small items, such as "short-term borrowings", "long-term borrowings", "payable bonds", "non-current liabilities due within one year", and so on. These are also essential for some small-scale new energy enterprises, but due to the uncertainty of their business prospects, the number of interest-bearing bonds provided by banks is relatively limited.

Another way for new energy enterprises to quickly raise funds is to issue bonds, but it is not

an easy task for emerging small and medium-sized new energy enterprises. From the figure below, we can see that the proportion of bond financing for new energy listed companies in China is very low. One of the reasons is that China has strict requirements for corporate bond issuance, and newly established companies cannot issue bonds without sufficient funds to go public; The second reason is that the scale of public market issuance in China is relatively backward, and it is also relatively unfriendly to small and medium-sized enterprises, resulting in a slow growth rate of the proportion of bonds.

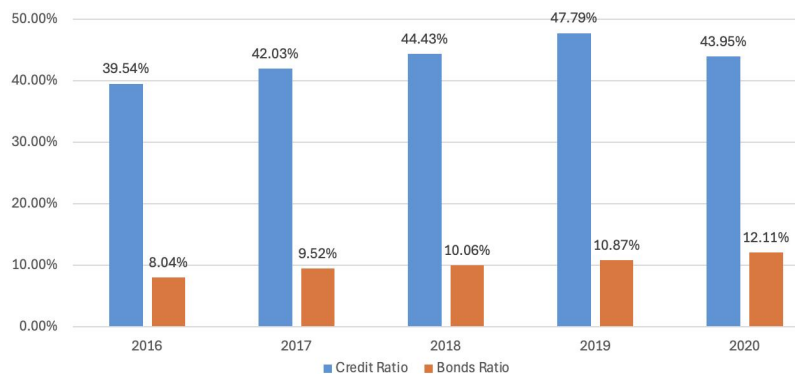


Figure 1. Debt Composition of China's New Energy Listed Companies from 2016 to 2020. Data Source: Self-Made by Consulting Relevant Data from the Wind Database

3.1.3 Current Situation of Equity Financing of New Energy Enterprises

In recent years, new energy enterprises have conducted equity financing of different scales in various forms, with a total financing amount of over 200 billion yuan. The main purpose of these funds is to invest in the research and development of new products, the search and introduction of high-tech talents, and other backup work. Between July 22, 2014 and June 12, 2015, influenced by the eighth bull market in China, some early established new energy enterprises seized this opportunity to issue bonds for financing and achieved remarkable results. Secondly, on July 21, 2014, the government issued the "Guiding Opinions on Accelerating the Promotion and Application of New Energy Vehicles", which is a great opportunity for many domestic new energy technology and automotive companies. Therefore, companies should seize the opportunity to raise funds and develop eye-catching new products in order to occupy a place in the new energy industry and obtain more financing opportunities. At the recently held 2022 National People's Congress and Chinese People's Political Consultative Conference, the country once again emphasized and expressed its firm determination to "peak carbon emissions and achieve carbon neutrality", which undoubtedly sent a positive signal to new energy enterprises. The country's standards for issuing stocks of new energy enterprises may be relaxed, and equity financing will become easier at that time.

3.1.4 Current Situation of Government Financial Subsidies for New Energy Enterprises

For new energy enterprises, in order to establish a foothold in the domestic market and even the world, financial support from the national government is essential, which is one of the macro conditions for the sustainable

development of enterprises and occupies half of the financing market. With the support of the national or local government, new energy enterprises in various industries will have a drive and spirit that is different from conventional financing. New energy technology enterprises will come up with emerging technologies that are beneficial to national development, and new energy vehicle enterprises will develop vehicles that are more suitable for ordinary people to drive. According to previous research reports, "the total amount of government subsidies included in the current profit and loss of some new energy enterprises from 2016 to 2020 reached 32.5 billion yuan, increasing at an average annual rate of 22%. The ratio of the subsidy impact on profit and loss to the current year's net profit has also been increasing year by year, and some enterprises even have several times the current year's net profit." This indicates that government subsidies not only have a significant impact on the development of enterprises, but also allow them to accumulate more funds for future development. Compared to other financing methods, government subsidies have almost no financing costs, making them very suitable for new energy enterprises. However, this cannot be a reason for enterprises to squander funds at will. Of course, government subsidies are not without their drawbacks, as their impact on profit and loss has a certain lag. Therefore, in recent years, government subsidies have shown a downward trend, and further research is needed on the impact on the future financing structure of new energy enterprises.

3.2 Existing Financing Problems of New Energy Enterprises

3.2.1 Large Scale of Corporate Debt

The demand for debt financing in new energy

enterprises is very high, but this is undoubtedly a double-edged sword for some immature new energy enterprises. Due to the long production cycle required for products manufactured by new energy enterprises, taking new energy vehicle enterprises as an example, developing new cars to mass production requires a significant amount of time and capital costs. Unless the enterprise has a particularly strong ability to seek financing, it cannot face monthly or even annual repayment pressure and will go bankrupt. Many new energy vehicle manufacturing enterprises in China have such precedents, and many enterprises even go bankrupt without producing a single car.

Taking Byton Automobile as a representative of bankrupt automobile companies as an example, the company only produced two concept cars in the early stage, and its advertising and employee operating costs were countless, far exceeding its research and development costs and manufacturing costs. Ultimately, this led to a large debt scale, no source of income, and could only declare bankruptcy. Even if such a company does well in advertising and has a good reputation, it will ultimately be in vain if it cannot provide substantial things for consumers to consider.

3.2.2 Low Efficiency of Enterprise Financing

From the analysis of the financing situation of relevant new energy enterprises, it can be seen that in recent years, the increase in funds used by China's new energy enterprises for research and development of new products has been slow, and the enterprises do not have enough funds for technology research and development, nor do they have enough funds to recruit high-tech talents. In the face of continuous sources of financing resources in other industries, China's new energy industry has stagnated. According to my speculation, the low financing efficiency of new energy vehicle companies is related to the industry's prospects, because the new energy industry is an industry that requires technological innovation. Investors will face more unknown factors when investing in the new energy industry than in other industries, such as whether investing in this enterprise can achieve results? Will the funds go down the drain? Whether new technologies can be successfully developed, etc. When investors have concerns about investment, it often leads to investment failure, which is one of the reasons for low financing efficiency.

Poor asset turnover is another reason for low financing efficiency. In recent years, the asset turnover rate of most new energy enterprises in China has been low, indicating that the total assets of the company have not been fully utilized. If investors find that the company lacks the ability to utilize assets during investment, they will not be convinced that the company will use the funds in a legitimate way, which will not help the company raise funds and cause difficulties in financing.

3.2.3 Lack of Reasonable Strategic Planning

Nowadays, the country vigorously promotes new energy, introduces policies to protect the new energy industry, provides large financial subsidies, tax incentives, etc. Therefore, some enterprises have taken advantage of the country's strategic dividends and have switched to the new energy industry, among which automobile manufacturing is the hottest, and even domestic new energy vehicle brands have emerged in recent years. Resulting in a situation where 'any enterprise can make cars'. However, at the same time, there are very few enterprises in China that manufacture power batteries and automotive motors, and blindly pursuing complete vehicle manufacturing seems somewhat inappropriate, resulting in a situation where the head is too big and the body is too small. Secondly, the new energy vehicle manufacturing industry is still far behind the traditional automobile manufacturing industry. From the perspective of consumers, emerging car manufacturers face many uncertainties, and many companies entering the field of new energy vehicle manufacturing are still in the exploratory stage of their own development. No one is willing to be a guinea pig for car manufacturers, and the problems that arise in the current market for emerging car manufacturers are endless, which cannot be generalized with the experience accumulated by those century old car manufacturers. For emerging domestic car manufacturers, they only seek rapid development and overtaking on the curve but lack clear long-term strategic planning. Some scholars believe that "the capital accumulation in the new energy vehicle manufacturing industry is too fast, and low-end products are facing serious overcapacity problems. New energy vehicle enterprises have absorbed a large amount of capital to achieve short-term expansion, but due to the lack of long-term development strategic planning and interest in technological innovation with

long-term benefits, the capital raised is often limited to meeting short-term expansion needs but lacks momentum.

3.2.4 Imperfect of Relevant Policies and Legal System

At present, the country lacks a relatively complete legal system for green finance, and has not yet formed a top-level design at the national legal level. Only a few departmental rules and regulations serve as references, without rigid binding force and enforcement. The lack of targeted green finance policies in practice cannot meet practical needs, such as the failure to implement financial subsidies, tax reductions, and fiscal benefits, which to some extent reduces the enthusiasm of enterprises to carry out financial business. The incomplete disclosure mechanism of green finance information has led to ineffective identification and evaluation of some investment projects. Regarding pre supervision and post responsibility, this is also a major weakness in the development of green finance.

3.2.5 Lack of New Energies Professionals and Technology

As is well known, there is a huge demand for talent in the emerging technology industry of new energy. However, China's new energy industry has just started, and there is a considerable shortage of talents who understand and master the professional knowledge of new energy technology in our country. Some talents even stay overseas for work after studying abroad, and the country also faces the risk of talent loss. The future risks of enterprises cannot be estimated, which makes some banks hesitant to provide green credit support for emerging technology projects. Some banks have not yet started green credit business and are in a wait-and-see state, so they cannot obtain research and development funds, which is also one of the financing problems.

4. Case Analysis of Financing in CATL

4.1 Introduction to CATL

CATL Co., Ltd. was established in 2011 and is one of the leading power battery manufacturers in China with international competitiveness. It focuses on the research and development, production, and sales of power battery systems and energy storage systems for new energy vehicles and is committed to providing first-class solutions for global new energy

applications. Its core technologies include the research and development and manufacturing capabilities of materials, cells, battery systems, battery recycling and secondary utilization in the power and energy battery fields. In 2017, the company's power lithium battery shipment volume was far ahead of the world, reaching 11.84GWh. It has established cooperative relationships with many mainstream domestic car companies and successfully occupied a place in the global market. It has also become the first lithium-ion power battery manufacturer in China to enter the supply chain of top international car companies.

4.2 Financing Process of CATL

CATL is a new energy technology enterprise, and the demand for funds is inevitable.

Based on the former research, I searched for financing data of CATL from 2019 to the first half of 2021 and found that its main financing methods include private equity financing, payable notes financing, bank loan financing, credit loans, and pledge loans, among other short-term loan financing. The funds raised by these financing companies are for the research and development of emerging technologies, the introduction of high-tech talents, and the collection of equipment required for enterprise division of labor factories. The funds raised by CATL in its IPO financing in 2018 will continue to be used to follow up on its "Huxi Lithium-ion Power Battery Production Base Project" and "CATL Power and Energy Storage Battery Research and Development Project", which will not be further elaborated here. At present, what CATL is mainly doing is to continue to strengthen the research on new varieties of power batteries based on its existing main business and core technology, so as to maintain constant competition with BYD, improve the company's technological progressiveness, steadily expand production capacity, and obtain a larger market share.

CATL has carried out financing for many times in history. In order to maintain the progressiveness of time, I selected the financing method adopted by the enterprise in the first half of 2019-2021.

4.2.1 Private Equity Financing

In June 2019, 20 companies including Wuhan Weineng Battery, Pioneer Intelligence, Xiangdao Travel, and Wanneng New Energy signed investment agreements with CATL. The total

scale of this financing reached 4.5 billion yuan. In February 2020, CATL signed investment agreements with several automotive industry investors, including FAW and Tesla. The total financing scale of this round is 20 billion yuan.

In March 2021, CATL launched another round of capital increase, with Hong Kong Central Depository and Clearing Corporation Limited adding an additional 7 billion yuan.

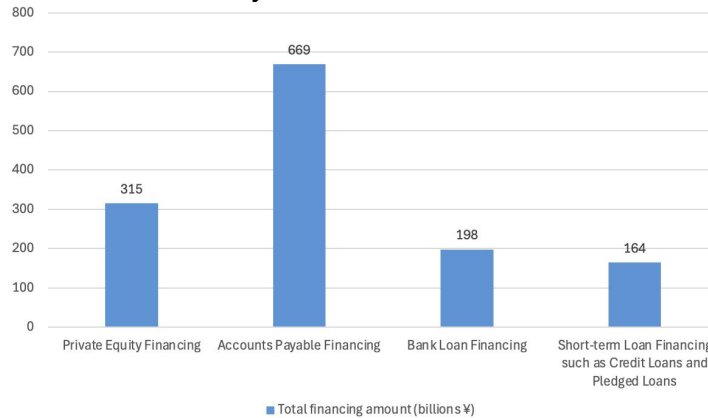


Figure 2. The Financing Process of CATL from 2019 to the First Half of 2021. Data Source: Self-Made based on the Annual Report Data of CATL from 2019 to the First Half of 2021.

4.2.2 Bill Financing

From 2019 to the first half of 2021, Ningde Times' annual payable note financing amounted

to RMB 174201.978 million, RMB 156365.895 million, and RMB 338500.338 million, respectively.

Table 4. CATL's Payable Notes Amount from 2019 to the First Half of 2021 (unit:ten thousand ¥)

Date	31/12/2019	31/12/2020	30/6/2021
Commercial Acceptance Bill	28,588.56	49,825.10	181,514.56
Bank Acceptance Bill	1,713,431.22	1,513,833.85	3,203,488.82
Total	1,742,019.78	1,563,658.95	3,385,003.38

Data Source: Self-made based on the annual report data of CATL.

4.2.3 Bank Loan Financing

At the end of 2019, the end of 2020, and the first half of 2021, CATL's long-term borrowings from banks amounted to 4,980,563,200 yuan, 6,068,163,300 yuan, and 87,015,993 yuan, respectively. The main sources of funding were loans from financial institutions such as China Development Bank, China Merchants Bank, and Industrial and Commercial Bank of China for its parent company and its expanded business, as well as for its subsidiaries.

adopted short-term loans such as pledged loans, guaranteed loans, and credit loans, with amounts of 2,125,646,700 yuan, 6,335,080,200 yuan, and 7,936,400,800 yuan, respectively.

Table 5. Long-term Borrowings from Banks by CATL from 2019 to the First Half of 2021

Date	Financing Amount (10 thousand ¥)
31/12/2019	498,056.32
31/12/2020	606,816.33
30/6/2021	870,159.93

Data Source: Self-made based on the annual report data of CATL

4.2.4 Credit Loan, Pledge Loan and Other Short-term Loan Financing

From 2019 to the first half of 2021, CATL

Table 6. CATL's Short-Term Loan Balance from 2019 to the First Half of 2021

Projects	31/12/2019	31/12/2020	30/6/2021
Pledged Loan	54,968.45	142,068.40	95,265.94
Guaranteed Loan	61,909.77	45,658.73	192,881.95
Credit Loan	88,215.45	372,016.43	404,486.07
Mortgage, Pledge and Guarantee Loans	7,471.01	73,764.46	101,006.12
Total	212,564.67	633,508.02	793,640.08

Data Source: Self-made based on the annual report data of CATL.

4.3 Financing Efficiency of CATL

From the above data results, it can be seen that

the cumulative financing amount of CATL has exceeded 134.6 billion yuan, but the financing amount is still insufficient to support CATL's

research and development of new products and internal operations and expansion work. In the nearly 11 years since its establishment, although CATL has accumulated losses of over 100 billion yuan, it still ranks among the top in terms of production and product delivery in the industry. At present, although CATL has achieved a balanced income and expenditure, the continuous R&D investment and huge manpower expenses have resulted in relatively low retained funds within the company. However, compared with the previously analyzed data, there has been a significant improvement in internal funds. For new energy technology companies like CATL, although financing efficiency is high, they cannot rely

solely on national subsidies and external financing. They still need to take control of financing opportunities in their own hands. According to a research report by Oriental Securities, power batteries are the trend of the future and will receive more attention from domestic and overseas car companies. In addition, CATL has made significant breakthroughs in overseas markets and its energy storage field has grown. Although the company's current financing is still mainly external financing, its performance growth as an industry leader is highly certain, and it is believed that it will be more favored by investors in the following years.

Table 7. CATL's Margin Trading and Securities Lending Details Data (Shenzhen Stock Exchange Target until March 2022) (unit: Ten Thousand ¥)

Date	Financing Balance	Financing Purchase Amount	Short Selling Amount	Securities Lending Amount	Balance of Financing and Securities Lending
2022.03.29	648933.02	23028.06	5.11	204.56	748531.43
2022.03.28	663751.46	57065.78	7.59	207.40	764754.19
2022.03.25	656550.10	24661.60	6.59	218.73	766369.73
2022.03.24	659286.50	31731.02	5.43	220.60	772676.81
2022.03.23	665210.59	25612.24	8.06	222.16	779687.93
2022.03.22	678448.54	44235.87	4.71	219.83	791219.23

Data Source: Self-made based on the Qianlong Zhihuiyun database.

Until the end of March 2022, the financing balance of CATL has decreased to about 6.5 billion yuan, and the overall financing and securities lending balance has decreased to about 7.5 billion yuan. From the financing amount of CATL over the years, its financing efficiency is constantly increasing, thanks to the country's strong promotion of new energy and active promotion of green finance. It is believed that with the continuous implementation of green finance policies, CATL's financing efficiency will continue to improve.

4.4 The Influence of Financing on CATL

By analyzing the above financing data, it can be preliminarily concluded that CATL's early financing process was not smooth, partly because the company is a new energy enterprise and belongs to the emerging technology industry. In the early days before the popularization of new energy vehicles, financing for enterprises was somewhat difficult, and investment companies were afraid that huge funds would be wasted without substantial innovation. Nowadays, the red headed documents issued by the government explicitly support the development of new energy, and the financing of

new energy has been significantly improved. My suggestion is to cooperate with major domestic investment enterprises and top domestic power battery manufacturers under the implementation of green finance policies by the country. The battery technology based on CATL has been preliminarily recognized by domestic and even foreign new energy vehicle companies, and the difficulty of financing is not high.

From 2018 to 2020, CATL has greatly increased its asset volume through equity financing, debt financing, and increasing minority shareholder equity. Continuing to raise funds undoubtedly continues to enhance its asset production. This indicates that CATL will have more funds for production and research and development work. In the era of urgent innovation in power batteries, as a leading enterprise in the industry, CATL will inevitably take the lead in the innovation of power batteries. Utilize these funds to collaborate with top foreign or domestic power battery and new energy vehicle manufacturers for research and development of new products, and then use their innovative products to cooperate with new energy vehicle companies to maximize profits. At the same time, financing funds are also extremely important for talent

introduction, and for high-tech industries, the demand for talent is extremely important. It is extremely important for companies to formulate policies to retain talent, which will inevitably consider a series of issues primarily related to employee salary levels. Overall, cooperation and talent are indispensable. Better financing is extremely important for enterprises to improve such systems. The country's determination to develop new energy is unwavering. With the implementation of the green finance carbon peak and carbon neutrality policy, it is believed that financing for a series of new energy enterprises represented by CATL will become easier; The just concluded two sessions have further confirmed this point. I believe that with the support of national policies, CATL will produce products that better cater to the times and the people.

5. Suggestions on Financing Strategies of New Energy Enterprises

From the above results analysis, it can be concluded that most new energy enterprises in China rely heavily on bills payable financing for financing. This depends on whether the enterprise has good development prospects and whether banks are willing to participate in financing activities for the enterprise. This requires enterprises to have a high level of control over the development of green finance policies, which means they need to adapt to the development trends of the new era and new policies; Private equity financing is also one of the important channels for companies to raise funds, and its principle is the same as that of notes payable financing.

Based on the above analysis results, I propose three suggestions from both micro and macro perspectives to discuss and solve the problem of financing difficulties for new energy enterprises.

5.1 Micro Level Recommendations

5.1.1 Broadening the Financing Channels of New Energy Enterprises

From the analysis above, we can see that the financing methods of new energy enterprises are relatively limited, and the solution to this problem requires joint negotiation between the national government and local governments, as well as between banks and enterprises, and between enterprises themselves. The government should introduce relevant laws, regulations, and corresponding suggestions for

new energy enterprises to meet their large-scale and diversified financing needs. By improving infrastructure and environmental construction, it can provide good production conditions for enterprises. We need to improve the public market issuance system and stock listing system for small and medium-sized as well as newly started new energy enterprises, to help them obtain financing more quickly. At the same time, attention should be paid to environmental protection issues in the production process of enterprises. If necessary, regulations should be introduced to limit the level of air pollution and surrounding environmental pollution of enterprises, effectively resolving the financing constraints faced by new energy enterprises.

Compared with external financing and other financing models, new energy enterprises should conduct financing in a more diversified and flexible manner, which can solve the problem of insufficient internal financing funds and avoid the interest and debt risks caused by excessive financing. In terms of short-term financing, newly started enterprises can seek angel investment, while small and medium-sized enterprises can obtain funds through short-term bank financing, such as using limit revolving credit agreements, which can legally allow banks to expand their credit limits to the maximum value; In terms of long-term financing, enterprises can adopt the method of issuing bonds. With the continuous improvement of national laws and regulations, it is believed that it will become easier for small and medium-sized enterprises to issue bonds. At the same time, enterprises can also use asset collateral to raise funds, especially for some overcapacity enterprises. This financing method can effectively reduce financing risks. Enterprises can also use Internet lending platforms, overseas capital financing, PPP (Public Private Partnership) financing and other new financing methods to raise funds to achieve the goal of reducing financing costs and accelerating capital turnover. In addition, in recent years, green debt and environmental debt have emerged, and one of the core competitiveness of the new energy industry is its ecological advantages such as green, environmental protection, energy conservation, and low-carbon. It can be said that it is a direct beneficiary of green finance policies. Therefore, new energy enterprises should pay special attention to green finance policies and utilize

their own advantages to expand green financing channels. For example, Huadian Fu New Energy Company securitized its green assets and used green finance policies to securitize the subsidy funds for renewable energy retained by the company, responding to national policies while solving its own financing difficulties. This approach is worth learning from for other new energy companies.

5.1.2 Enhancing the Innovation Ability of New Energy Enterprises

From the competitive situation of new energy enterprises, CATL and BYD are both power battery suppliers in the new energy vehicle industry. The two companies are in a competitive relationship with each other. BYD has successively launched multiple "black technologies" such as ternary lithium batteries, lithium iron phosphate batteries, and blade batteries, while CATL has only launched sodium batteries. If new energy vehicles do not undergo fundamental reforms, such as providing consumers with a different experience from gasoline vehicles, they will not be attractive and consumers will not pay, resulting in the inability of power battery companies to sell their products. The new energy field is not yet mature, and fuel vehicle companies are continuously making efforts to share the market with new energy companies. However, the research and development level of car companies has not changed.

According to the current market feedback, consumers are mainly concerned about battery life, charging time, and other issues. Enterprises must carry out technological innovation in this area in order to possibly take the lead in the industry. To forge iron, one must also be strong on their own. New energy enterprises can seek cooperation with foreign new energy enterprises and research and development institutions to enhance their product development and innovation capabilities, in order to truly establish themselves in the country and the world.

5.1.3 Strengthening the Internal Rectification of New Energy Enterprises

For new energy enterprises, the key factor for their development is not only seeking financing, but also having high-level technical talents, both of which are indispensable. Financing can provide innovative capital for enterprises, while technical talents provide the prerequisite conditions for innovation for enterprises. The reserve of talents is very necessary, and as the

leader of new energy technology enterprises, CATL should actively recruit talents. At the same time, the screening of talents also needs to be checked layer by layer, including the quality of personnel, work ability, salary level, and so on. Enterprises should establish their own management model, and having their own strategic planning is very important. Strategic planning is a prerequisite for enterprises to achieve their goals. Enterprises without clear strategic planning often pursue short-term benefits and neglect long-term development, resulting in relatively poor ability to cope with risks, changes, and even crises. Enterprises with good strategic planning have invisibly improved their status and enhanced their industry competitiveness. Only when the enterprise itself is excellent enough can it attract more investors to invest and obtain more financial support.

5.2 Macro Level Recommendations

5.2.1 Increasing Government Support

With the increase in the number of new energy enterprises in our country, existing policies are no longer sufficient to meet their development speed. The country should update targeted policies for new energy enterprises, such as providing appropriate tax incentives, reducing the financial burden of enterprises, increasing more internal funds, and obtaining more financing opportunities; Alternatively, appropriate economic subsidies can be provided, contracts can be signed to avoid a series of problems such as excessive and wasteful use of funds, and unclear destinations for funds.

Government subsidies are a prerequisite for research and innovation in new energy enterprises. Having funds before research and development, for some small and medium-sized enterprises, they have fewer channels for private financing, and bank financing can easily generate a large amount of interest, which can cause a certain degree of financial crisis for the enterprise. At this point, government funding is the best way for these enterprises to develop. The government's funds do not have a series of issues such as interest and credit. However, this does not mean that companies can use the country's money to do nothing. On the contrary, enterprises should pay more attention to technological innovation, increase research and development efforts, introduce more technical personnel, establish research funds, effectively and reasonably utilize government subsidies,

and fundamentally overcome the difficulties in financing strategies.

5.2.2 Strengthening the Supervision of New Energy Enterprises

The government should also consider the environmental impact of enterprises in relevant legislation. Some enterprises pursue production efficiency at the cost of damaging the environment during the research and development and production process, such as dumping industrial wastewater into the sea, discharging large amounts of toxic and harmful gases, and so on. The government should conduct strict supervision in this regard, and if companies that damage the environment are found, they need to be punished more severely. Secondly, if certain enterprises or banks provide financing to such enterprises, they should also be held jointly liable. Under this regulation, investment companies and banks are more cautious in assessing their green standards when financing target enterprise projects and investing more funds into the correct green industries.

Secondly, the entry threshold for the new energy industry should be raised. Nowadays, many companies want to take advantage of the national dividend period and transform into new energy enterprises, which may be suspected of deceiving government subsidies. Therefore, the entry requirements for China's new energy industry have increased from 19 to 28. Taking new energy vehicle companies as an example, before the regulations were introduced, many companies announced that they would engage in the manufacturing of new energy vehicles. However, currently, only NIO, Xiaopeng, and Ideal, the three major domestic new forces in car manufacturing, have emerged from the encirclement. The rest of the companies have successively declared bankruptcy, which has caused the government's subsidy funds to be in vain. So the country should increase regulatory efforts and improve capital utilization.

5.2.3 Optimizing the Financing Strategy of Enterprises

As new energy is currently one of the key projects vigorously promoted by the country, it is necessary to provide certain financial support for it. The development of new energy can bring a series of life benefits to the country and the people. Has made significant contributions to improving the environment and reducing carbon emissions. But companies and even countries should not endlessly support leading new energy

enterprises, even if they are very excellent. This inevitably creates a certain degree of dependence for the enterprise, thinking that there must be someone providing the funding chain behind it. This will lead to a significant decrease in the intensity and level of innovation of enterprises, so the country should have certain restrictions on the proportion of financing for new energy enterprises. In addition, enterprises should seek diversified financing channels, expand the proportion of financing, and not concentrate most of their funds on private equity or bill financing. Instead, they should diversify their financing.

6. Conclusion

In summary, new energy is a type of energy that can replace traditional energy to further meet human new needs. The world is accelerating the pace of new energy extraction and utilization, and China is no exception. Power batteries are the industry giants of the future new energy industry, closely related to the electric vehicle industry. They are the product of applying emerging new energy technologies to our daily lives and are also a new type of industry that we can study. This article mainly discusses the current financing model of new energy technology industry manufacturers based on CATL, a giant in the new energy technology industry, in order to observe the financing methods of the entire new energy industry in China; Secondly, an analysis was conducted on the problems and reasons that arise during the financing process of new energy technology enterprises, hoping to summarize the current difficulties faced by China's new energy industry, such as high barriers to bank loans, high commercial risks, single financing channels, and deficiencies in the management of enterprises themselves; Finally, some strategies were proposed to address the financing difficulties. CATL is a leading brand in the domestic new energy vehicle power battery manufacturing industry and is currently thriving. Other smaller enterprises with similar characteristics, such as BYD and SVAVO Energy, can be given more attention in order to look forward to the future of China's new energy power battery and even new energy vehicle industry. The main content and viewpoints of the article are summarized as follows:

Firstly, a preliminary introduction was made to the concept of green finance, and two concepts

of green finance were briefly introduced: the concept of "sustainable development" and the theory of sustainable development of green finance; And four theories of financing: MM theory, trade-off theory, agency theory, and priority financing theory.

Secondly, the current situation and existing problems of financing for new energy enterprises in China were elaborated. From the analysis of the article, financing for new energy enterprises in China is in its initial stage, and various industries are facing funding shortages. However, the country is vigorously promoting the new energy industry, and it is believed that the financing problem will soon improve. Next, the article will analyze the CATL as a case study. Although CATL has completed multiple rounds of financing with different financing methods, there is still great room for improvement. The article provides an overall analysis of the common problems in financing for new energy enterprises in China.

Finally, based on the actual situation of CATL's corporate financing, it is proposed to broaden the financing channels for new energy enterprises, enhance their innovation capabilities, and strengthen their internal rectification from both micro and macro perspectives; Strategies and suggestions for increasing government support, strengthening supervision of enterprises, and optimizing corporate financing strategies.

Due to my limited professional knowledge and time, there are some shortcomings in the case analysis and the combination of theory and practice in this paper, such as the difficulty in obtaining data, which makes the research not in-depth enough. I hope this article can provide some reference for the financing path of new energy enterprises in China.

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