



Advantages and Risk Management of Cross-border Investment and Financing under the Belt and Road Initiative

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Abstract. The "Belt and Road Initiative" has injected new impetus into global economic development and also brought new risks and opportunities for cross-border investment and financing of enterprises. Taking China General Nuclear Power Corporation (CGNPC) as an example, this paper uses PEST analysis method, SWOT analysis method, quantitative analysis method, etc., and focuses on the cross-border investment and financing projects of CGNPC under the "Belt and Road Initiative". In terms of advantages, the "Belt and Road Initiative" provides enterprises with a broader market space. As an important strategic enterprise of China, CGNPC invested in the Tanque Novo 180-megawatt wind power project in Brazil, which led 24 enterprises along the Chinese industrial chain to "go global" together, making significant contributions to the economic and social development and cultural exchanges between China and Brazil. However, due to the significant differences in politics, economy, society and culture among the countries along the "Belt and Road", enterprises face multiple challenges such as political risks, operational risks and financial risks. This paper will also conduct a specific analysis of the risks that CGNPC faces in cross-border investment and financing processes. Under the "Belt and Road Initiative", the opportunities and challenges of cross-border investment and financing for enterprises coexist. Through this research, it is hoped to help enterprises seize development opportunities and contribute to the healthy, stable and sustainable development of the "Belt and Road Initiative".

Keywords: Belt and Road Initiative, Cross-border, Investment and Financing.

1 Introduction

1.1 Research Background and Motivation

Since its introduction in 2013, the belt and road initiative has grown into one of the world's most influential platforms for international economic cooperation. By 2025,

China had signed cooperation agreements with more than 150 countries and international organizations, with a cumulative investment of more than trillion US dollars, covering key areas such as energy, transportation and digital trade [1]. Through diversified financing channels such as overseas foreign currency bonds, cross-border financial leasing and RMB special funds, the initiative has significantly promoted the expansion of cross-border investment and financing scale. Data show that as of June 2021, China's cross-border securities investment in "belt and road" countries reached 18.6 billion US dollars, an average annual increase of 5.2%; The process of RMB internationalization has accelerated, and the cross-border payment system (CIPS) covers more than 60 countries and regions, effectively reducing exchange rate risks and exchange costs.

However, most of the countries along the line are emerging markets, traditional risks (such as political turmoil, legal differences, exchange rate fluctuations) and emerging challenges (such as digital financial security, supply chain reconstruction) are intertwined, superimposed on external shocks such as geopolitical conflicts, so that cross-border investment and financing of enterprises are facing severe tests. Although the academic community has initially discussed the traditional risks, the systematic research on the opportunities and risks faced by enterprises under the background of "one belt and one road" is still insufficient, and the existing risk management framework is also difficult to cope with the dynamic compound risks.

Based on this, this study focuses on the following core issues: under the "belt and road" initiative, how can enterprises achieve a dynamic balance between "maximizing advantages" and "risk controllability" of cross-border investment and financing. The purpose is to help enterprises cope with the challenges of geopolitical fragmentation and supply chain reconstruction by refining the core advantage model and building a dynamic risk management path.

1.2 Literature Review

Cross-border investment and financing under the "belt and road" initiative is facing both opportunities and risks. Policy based financial institutions provide financial support for energy, infrastructure and other projects [2]. RMB internationalization significantly reduces exchange rate risk through cross-border payment systems (CIPS) and offshore bonds [3]. Chinese invested enterprises achieve the improvement of global competitiveness and the internationalization of Chinese standards through technology export [2]. However, companies still have many challenges to deal with. Policy changes and legal differences in the host country push up the cost of compliance, which needs to rely on legal due diligence and WTO mechanism [4]. Cross cultural management challenges can easily lead to efficiency losses, which need to be alleviated by localization teams and community cooperation [5]. Exchange rate fluctuations and exchange control require financial instruments to hedge risks [4]. Existing studies have proposed from a macro perspective that developing economies need to cope with investment review and geopolitical risks [6]. Through the integration of policy synergy (such as China Pakistan cooperation), financial tool innovation (RMB financing) and cultural integration, technology export (domestic equipment application) and efficient project management can reduce operational risks and enhance competitiveness [2,3].

The existing literature mostly focuses on risk research and macro policy, and lacks a systematic analysis of the "advantage risk" dynamic balance mechanism of specific cases, so this paper fills the theoretical gap through case studies.

1.3 Research Content and Significance

Combining qualitative and quantitative methods, this study selects Tanque novo wind power project in Brazil, an excellent case of cross-border investment and financing under the "belt and road" initiative, and uses SWOT, pest and financial statement analysis to deeply analyze the dynamic interaction mechanism of advantages and risks in cross-border investment and financing under the "belt and Road" initiative, so as to build a "advantage risk" two-dimensional management framework.

At the theoretical level, it breaks through the traditional static risk management paradigm and proposes a compound risk dynamic analysis model to fill the theoretical gap in the research of cross-border investment and financing of "one belt and one road". At the practical level, this study should refine replicable advantage strengthening and risk mitigation paths to help enterprises optimize international investment and financing decisions and reduce uncertainty, while providing a basis for countries along the route to improve cross-border investment and financing systems and enhance policy synergy. Finally, this study is committed to providing forward-looking and landing solutions for the high-quality development of "one belt and one road".

2 Results Analysis

2.1 SWOT Analysis

This paper selects the Tanque Novo wind power project of China General Nuclear Power Group in Brazil as a research case and adopts the SWOT analysis method, which is common in the research of enterprise influencing factors, to describe its strengths, weaknesses, opportunities and threats in four aspects.

According to Table 1, the Tanque Novo wind power project of China General Nuclear Power Group in Brazil has significant advantages in terms of technology, management, industrial chain driving and brand image, and is capable of providing clean energy for Brazil and promoting China-Brazil cooperation. However, the project also faces challenges such as cultural differences, policy adaptability, and market competition, as well as potential threats such as policy risks, exchange rate fluctuations, and social environmental impacts. Despite this, Brazil's energy transition demands and the deepening of China-Brazil cooperation have brought broad development opportunities to the project [7,8]. Overall, the opportunities outweigh the challenges and the project has broad prospects.

Table 1. SWOT Analysis of the Tanque Novo Wind Power Project in Brazil [7,8].

Strengths		Weaknesses	
➤	The wind turbine units from China are used, featuring mature technology and	➤	Building trust in the Brazilian market is slow, and offering specialized

high efficiency.		equipment services is challenging.	
➤	Brazil possesses significant potential for both onshore and offshore wind power generation.	➤	The project depends on policy backing and wind resources.
➤	The installed capacity of wind and solar energy is growing at a comparatively rapid rate.	➤	China and Pakistan are very different in terms of culture.
Opportunities		Threats	
➤	The need for wind energy is rising along with Brazil's new energy market.	➤	Changes in policies and regulations in Brazil.
➤	China-Pakistan collaboration has broadened and deepened the global market.	➤	Other businesses are gaining market share, and competition in the market has increased.
➤	The Brazilian government provides favorable policies and encourages the use of renewable energy.	➤	The profitability of the project could be impacted by changes in the Brazilian economy.

2.2 Risk Assessment

This article takes the Tanque Novo wind power project of China General Nuclear Power Group in Brazil as an example to analyze the financial risks in its cross-border investment and financing process. As shown in Table 2, through in-depth research on the financial statements of 2023 and 2024, the changing trends of assets, liabilities and owner's equity are identified, the underlying reasons are explored, such as the increase in monetary funds, the decrease in inventory, the growth of fixed assets, etc., and the impact of these changes on the financial position and risks of the enterprise is analyzed [9,10]. It aims to provide enterprises with a risk identification and management framework to facilitate their stable development.

Table 2. Balance sheet of the Tanque Novo wind power project [9,10].

Project	2023 Unit: 100 million yuan	2024 Unit: 100 million yuan
Monetary funds	157.4	190.4
Inventory	205.7	196.8
Other current assets	25.5	23.8
Total current assets	727.8	752.04
Fixed assets	2466.8	2653.8
Construction in progress	563.2	380.4
Intangible assets	54.4	52.7
Goodwill	4.1	4.1
Long-term deferred expenses	16.7	17.1
Total non-current assets	3424.6	3435.9
Total assets	4152.5	4187.94
Employee compensation payable	0.57	0.54
Taxes payable	11.4	16.8
Other payables	47.06	90.4
Total current liabilities	773.8	811.8

Long-term employee compensation payable	0.65	353.3
Estimated liabilities	65.5	67.6
Deferred income	22.3	22.1
Total non-current liabilities	1725.5	1693.5
Total liabilities	2499.4	2505.4
Equity capital	504.9	504.9
Capital reserve	107.9	107.9
Other comprehensive income	7.2	7.4
Surplus reserve	66.7	66.7
Undistributed profit	444.3	467.9
Total owner's equity attributable to the parent company	1132.3	1156.6
Total owner's equity	1653.03	1682.5

According to Table 2, China General Nuclear Power Group's asset size has been steadily growing, rising from 72.7 billion yuan to 75.2 billion yuan. The fundamental cause of this growth is the notable and substantial rise in monetary funds. Such expansion gives the business more flexibility for future investments and operations in addition to improving its cash and short-term debt-paying capacity. Additionally, non-current assets are trending upward. The decrease in inventory can be a sign that the business has reduced the amount of money it spends on inventory and enhanced inventory management. The rise in fixed assets, particularly the notable increase in construction in progress, suggests that the business is investing heavily in capital projects, perhaps to enhance production capacity, modernize machinery, or implement technical advancements. The company's investment in intellectual property rights, research and development, or brand building may be the cause of the rise in intangible assets [9,10].

Regarding the liability structure, Table 2 indicates that current liabilities climbed by 3.8 billion yuan, from 77.3 billion to 81.1 billion. Its rise could be attributed to short-term borrowing, inventory growth, or corporate expansion. The decrease in accounts payable suggests that the business is either speeding up supplier payments or enhancing supply chain management. The corporation may be employing long-term debt to finance its capital expenditures and business expansion, as seen by the rise in non-current liabilities, particularly the growth of long-term borrowings. Although long-term borrowing can offer a reliable source of funding, it will also raise the company's long-term financial load. The decrease in lease obligations can suggest that the business is streamlining its asset structure and cutting back on leasing-based asset purchase, which lowers financial leverage and risks [9,10].

According to Table 2's owner's equity analysis, the paid-in capital has not changed, suggesting that the business has not altered its share capital over the past two years. Between 2023 and 2024, undistributed profits rose by 2.3 billion yuan. With more profits staying within the business for reinvestment or distribution to shareholders, this growth suggests that the company's profitability has increased. In the meantime, the

business has successfully raised owner's equity while growing assets and reducing liabilities. The company's financial stability is indicated by the stability of its capital reserve and surplus reserve [9,10].

2.3 PEST Analysis

The Tanque Novo wind power project of China General Nuclear Power Group in Brazil has demonstrated its development environment and opportunities in Brazil through PEST analysis. This project is in line with Brazil's energy transition strategy, has received government support, and has become a model of China-Brazil cooperation. Economically, the project has an installed capacity of 180 megawatts, with an annual power generation of 720 million kilowatt-hours, meeting the electricity demands of 430,000 households. It also drives 24 Chinese enterprises to "go global", reducing costs and enhancing competitiveness. In society, the project creates a large number of jobs, promotes energy transition and environmental protection, and facilitates clean energy cooperation between China and Pakistan. In terms of technology, the project has 40 locally made wind turbine units, which were put into production 69 days early, showcasing China's technological might.

Political Factors. The Tanque Novo wind power project has garnered great backing from the Brazilian government, is in line with Brazil's energy transition policy, and has emerged as a successful example of China-Brazil energy cooperation, as indicated in Table 3. This paper has provided the "CGN Solution" to Brazil's energy transformation and economic growth, marking a significant accomplishment of the alignment between China's "Belt and Road Initiative" and Brazil's "reindustrialization" policy. To further assist the project with policy, the two nations inked a cooperation plan in 2024 [11]. The governor of Brazil's Bahia State, the Chinese ambassador to Brazil, and other high-ranking Chinese and Brazilian officials have all endorsed the initiative. According to the Brazilian Ministry of Mines and Energy, the project has also generated employment opportunities and encouraged the growth of the regional wind energy sector. Honors like the "Innovation Award for Brazilian Engineering Infrastructure" and the "Special Contribution Award for the Brazilian Wind Energy Industry" have also been given to it, indicating how highly the project is regarded by the Brazilian government and public.

Table 3. Political strategies related to the Belt and Road Initiative between China and Pakistan [11].

Policy Name	Policy content
Brazil's green reindustrialization strategy	The Brazilian government regards the development of clean energy as a priority for promoting economic transformation and upgrading, and is driving energy transition and the development of the wind energy industry.
Preferential tax policies to encourage renewable energy and hydrogen and ammonia production	Local governments in Brazil plan to introduce policies to reduce ICMS taxes and service taxes (IS) in order to encourage investment in renewable energy.
Land lease policy	The land of the Tanque Novo project is mostly leased.

The China-Pakistan "Belt and Road" cooperation policy	The local climate is dry and mostly sandy, and the land is barren and idle. By leasing it to the project for use, it brings stable income to the local residents. China has carried out energy cooperation with Brazil through the Belt and Road Initiative, promoted energy innovation cooperation between China and Brazil, and facilitated friendly exchanges between the two countries.
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Economic Factors. The Tanque Novo wind power project has 180 megawatts of installed capacity overall. According to projections, it will produce 720 million kilowatt-hours of electricity year, enough to power 430,000 Brazilian households and cut carbon dioxide emissions by 650,000 tons. More than 1,000 job opportunities will be produced throughout the project's building phase, supporting Bahia State's economic growth. 24 Chinese businesses were able to "go global" as a result of the project's effective integration into China's wind turbine industry chain, which decreased costs and improved worldwide competitiveness. By actively advancing energy transformation, a supportive market environment for renewable energy projects has been established through planning advice and policy assistance. Wind energy resources are abundant in the northeast, and the projects are highly competitive in the market. Brazil's investment environment is friendly to foreign capital. Projects are put into production 69 days ahead of schedule. This efficient project management not only reduces construction costs but also enhances the economic return rate of the projects [11].

Social Factors. During its building phase, the Tanque Novo wind power project reduced employment pressure, stimulated economic growth, and produced over 1,000 work possibilities for the community. It also stabilized employment by offering long-term operation and maintenance jobs after it went into production. In order to meet their social obligations, the project team actively works with the local community, promotes sustainable development, intends to establish a new foundation for energy science education and popularization, and arranges associated events. According to projections, the project will produce 720 million kilowatt-hours of electricity year, which will support 430,000 families, cut 650,000 tons of carbon dioxide emissions annually, and advance environmental preservation and Brazil's energy transition. Additionally, this project has effectively launched China's wind turbine industry chain, encouraging 24 Chinese businesses to "go global" and fostering collaboration and technology sharing between China and Pakistan in the clean energy sector. The CGN team has raised the standard of local infrastructure building and established a standard for Brazil by streamlining the construction plan [11].

Technical Factors. The largest blade wind turbine in South America is part of this project, which has 40 wind turbines made in China. It fully utilizes Brazil's plentiful wind resources and has excellent efficiency and stability. In order to increase project efficiency and guarantee that the project ranks among the best of its kind in Brazil in terms

of safety, quality, and timeliness, CGN implemented cutting-edge technology and improved the construction plan during the project. 24 Chinese industrial chain companies were successfully encouraged to "go global" together through the project, which covered topics including building, operation and maintenance, and equipment supply. This lowered prices and made Chinese wind power technology more competitive in the Brazilian market, setting the stage for later wind power projects of Chinese enterprises in Brazil. Furthermore, by streamlining the construction process and implementing creative techniques, the project team finished the construction and put it into production 69 days ahead of schedule, showcasing the technological application level and execution skills of Chinese businesses in international projects [11].

3 Discussion

This article mainly analyzes a case: China General Nuclear Power Corporation (CGNPC) has completed the commissioning of the Tanque Novo 180-megawatt wind power project in Brazil. Through SWOT analysis, PEST analysis, quantitative analysis, and risk assessment, this text have explored the strengths, weaknesses, opportunities, and threats of this case, and evaluated its economic benefits and risks. After the commissioning of the Tanque Novo 180-megawatt wind power project by CGNPC in Brazil, it is expected to generate 720 million kilowatt-hours of electricity annually, which can "light up" 430,000 Brazilian households, and reduce carbon dioxide emissions by 650,000 tons annually, equivalent to afforestation of 1,800 hectares of forest. During the construction period of the Tanque Novo 180-megawatt wind power project by CGNPC, more than 1,000 job opportunities were created for the local area, effectively contributing to the economic and social development and energy transformation and upgrading of Brazil. In contrast, the investment and financing risks include political risks, economic risks (such as exchange rate fluctuations), and legal risks (such as differences in laws among different countries). Cultural differences and the relatively poor financing environment are the main challenges. This research fills the gap in the "Belt and Road Initiative" where there is a lack of specific project tracking analysis, providing a reference for enterprises to respond to the call of the "Belt and Road" policy and create cross-border investment and financing projects.

3.1 Future Improvement Direction

This research has conducted an overall analysis of objective data through the enterprise financial reports. In the future, more first-hand data can be obtained through interviews and questionnaire surveys, especially the management data within the enterprises and the actual risk data during the project execution process, in order to improve the accuracy and depth of the analysis.

Future research can include more cases, covering different industries and regions, to enhance the representativeness and universality of the research. For example, cases of cross-border investment in different industries such as manufacturing and finance can be added for horizontal comparison. The quantitative analysis of each factor in the PEST analysis can also be conducted in greater depth. For instance, an index system can be constructed to quantify the impact of cultural differences on the integration of

mergers and acquisitions, or a model can be used to predict the impact of political risks on the project. Besides financial data analysis, more quantitative analysis methods such as risk models and scenario analysis can be introduced in future research to more comprehensively assess the risks of the project. For example, Monte Carlo simulation can be used to predict the financial performance of the project under different scenarios.

3.2 Research Contribution

Existing studies have shown that the success rate of cross-border mergers and acquisitions is generally low, mainly attributed to multiple factors such as cultural differences, difficulties in management integration, and the complexity of the legal environment. The reality of global uncertainty and the wave of anti-globalization has also added challenges and difficulties to the "Belt and Road Initiative" construction [12]. According to statistics from McKinsey, over 70% of cross-border mergers and acquisitions worldwide failed to achieve the expected value. Among them, the failure of cultural integration is the primary reason for the difficulty in realizing the synergy effect after the merger. The case of China General Nuclear Power Corporation (CGNPC) is highly consistent with these research conclusions. During its acquisition process, cultural differences and legal risks were clearly listed as the main disadvantages and threats. Specifically, cultural differences not only manifest in the differences in corporate organizational culture but also reflect at a deeper level in decision-making mechanisms, communication methods, and employee values. These differences often lead to friction and efficiency losses in the integration process after the merger. Moreover, the complexity of the legal environment, especially the foreign investment review system of the host country, labor regulations, and environmental protection standards, further increases the uncertainty and operational risks of the merger. Although cross-border mergers and acquisitions face many challenges, CGNPC, with its advantages in technology and management experience, combined with scientific analytical tools and risk management strategies, is expected to achieve the success of the merger in the complex international environment. This case not only provides valuable experience for other Chinese enterprises but also offers a new perspective for academic research on the success factors of cross-border mergers and acquisitions.

4 Conclusion

The Tanque Novo wind power project of China General Nuclear Power Group has promoted China-Brazil cooperation and facilitated Brazil's energy transition by introducing domestic wind turbine units, demonstrating the potential for technology output and market expansion under the Belt and Road Initiative. This study, through case studies and theoretical analysis, explores the opportunities and risks of cross-border investment and financing for enterprises under the background of the "Belt and Road Initiative", and draws on the experience of China General Nuclear Power Group in enhancing project competitiveness through technology output and industrial chain collaboration. The research emphasizes the importance of constructing a dynamic risk management framework, suggesting that enterprises integrate policy, financial and legal resources to cope

with the complex international environment and promote long-term sustainable development. Furthermore, the research fills the gap in project analysis in the field of cross-border investment and financing, enriches the theoretical content, and provides theoretical support for future research.

The Belt and Road Initiative provides policy support and a cooperation platform for enterprises' cross-border investment and financing. Enterprises should pay attention to the policies of countries along the routes, leverage their technological advantages, promote industrial upgrading, and enhance their international competitiveness. Meanwhile, a dynamic risk management system should be established, cultural integration and cross-cultural management should be emphasized, social responsibilities should be fulfilled, and a win-win situation should be achieved through sustainable development. Expand financing channels, utilize the internationalization of the RMB to reduce exchange rate risks, optimize project management, ensure efficient implementation, and promote the sustainable development of the Belt and Road Initiative.

This paper only selects one case for analysis, with a small sample size, which may not fully reflect the complexity and diversity of cross-border investment and financing. Moreover, the Tanque Novo Wind Power Project of China General Nuclear Power Group focuses only on the energy sector, and the analysis perspective is relatively single. Additionally, in the SWOT analysis process, this text initially believed that SWOT analysis mainly relies on qualitative analysis, and its results are often influenced by the subjective judgment of the analysts. Secondly, the SWOT model is a static analysis at a certain point in time and is difficult to capture the dynamic changes in the external environment. For example, the financial performance and long-term profitability of the Tanque Novo Wind Power Project of China General Nuclear Power Group in Brazil may change over time. This paper has not covered these dynamic changes. Finally, SWOT analysis discusses internal factors and external factors separately, but these factors are often interrelated in reality.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

References

1. Lu, M. F., Ouyang, W. J.: Research on the goal and realization path of financial power in socialist modern countries. *Journal of Xi'an University of Finance and Economics* **37**(01), 48-59 (2024)
2. Wang, Y.: Research on overseas infrastructure investment and financing guarantee of "the belt and road initiative". *International financing* (08), 14-17 (2017).
3. Joint research group of the international balance of payments Department of the State Administration of foreign exchange and the foreign exchange research center.: Economic exchanges between China and the "belt and road" are increasingly deepening, and foreign exchange research helps facilitate cross-border trade investment and financing activities. *China foreign exchange* (10), 48-49 (2023).

4. Shao, Z. Y.: China's Outward Investment: paving a new path for global cooperation. *International Business* (001), (2025).
5. Liu, Y. H., Song, X., Si, J. C.: The "belt and road" initiative and investment risks in countries along the route: risk aversion or risk resolution. *Economic and management review* (02), 123-135 (2024).
6. Yuan, Y.: There are obvious differences in the trend of cross-border investment. *Economic Daily* (004), (2023).
7. CGN's 180 MW Tanque Novo wind power project in Brazil was officially put into operation, <https://fund.eastmoney.com/a/202305312737679349.html>, Last accessed 2025/4/15.
8. Santos M.E.M, Singh J.H, Castro R, Santos H, Costa H.K.M, Santos E.M.: SWOT analysis of Brazilian energy policy: A comparative panel data analysis of the twenty largest economies. *Energy Policy* **191**, 114-172 (2024)
9. Full text of China General Nuclear Power Corporation 2023 Annual report, https://pdf.dfcfw.com/pdf/H2_AN202403271628310884_1.pdf?1711566276000.pdf, Last accessed 2025/4/15.
10. Full text of China General Nuclear Power Co., LTD.'s semi-annual Report for 2024, https://pdf.dfcfw.com/pdf/H2_AN202408211639382251_1.pdf?1724265002000.pdf, Last accessed 2025/4/15.
11. Annual power generation 720 million KWH CGN Brazil TN project officially put into operation, <https://newenergy.in-en.com/html/newenergy-2424026.shtml>, Last accessed 2025/4/15.
12. Tan, X. F., Yang, Y. H.: Financing for the Belt and Road Initiative: Current Situation, Challenges and Responses. *International Trade* (08), (2024)

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