

Original Paper

The Financing Principles of High Carbon Enterprises Green Development Based on Double Carbon Target in China—Take MYSE as an Example

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Abstract

The “double carbon target” puts forward new requirements for China’s energy structure adjustment. As a leader in offshore wind power equipment, MYSE is an active practitioner of the concept of “carbon neutrality”. The company has established a green growth path and is actively experimenting with various green financial instruments to meet its rapidly growing capital needs. This paper describes in detail the “double carbon goal” to promote the intelligent green development of MYSE, as well as the diversified financing strategy based on green development. Taking the company’s experience of issuing green notes, green bonds, listing on London Stock Exchange and obtaining the “Green economy mark” as examples, this paper analyzes the conditions and strategies of green financing for high-carbon enterprises, and deeply understands the mutual support and promotion relationship between green development and green finance of companies. Deeply understand the positive significance of innovative financing channels and the use of green financing tools for the company’s green development, and provide reference and inspiration for local high-carbon enterprises to actively use green financing tools.

Keywords

Double Carbon Target, Green Development, Financing Principles, Green financing

1. Introduction

On July 13, 2022, at 15:00 Beijing time and 08:00 GMT, with the hammer ringing of Chairman and CEO Zhang Chuanwei, Vice Chairman Shen Zhongmin and other executives, Mingyang Smart Energy Group Co., LTD. (hereinafter referred to as “Mingyang Smart”) was officially listed on the London Stock Exchange in the form of global Depositary Receipt GDR. Stock code MYSE.L. Mingyang

Intelligent thus became the first “A+L” private listed company since the China Securities Regulatory Commission launched the “China-Europe Connect” mechanism for the interconnection of depositary receipts of domestic and foreign stock exchanges in February 2022, and the first Chinese high-end wind power equipment manufacturer among the issuers of the London Stock Exchange.

At the listing ceremony of Mingyang Intelligence in London Stock Exchange, Chairman and CEO Zhang Chuanwei could not hide his inner excitement. The development goal of Mingyang Intelligent is to build on the current wind turbine manufacturer leader and a globally influential Chinese smart energy enterprise to become a full-life cycle renewable energy solution provider and an industry leader in providing integrated solutions for wind power, photovoltaic, energy storage and hydrogen. The listing is a largest-scale financing in the history of Mingyang Intelligent development, raising a total of 706,870,500 US dollars, which will help the company to promote the strategy of “becoming a global leader in clean energy intelligence and GSP”.

It is worth mentioning that after listing, Mingyang Intelligent was allowed to use the “Green economy mark” of the London Stock Exchange. Companies eligible for the mark need to meet the requirement that more than 50% of their annual revenue comes from products and services that contribute to the global green economy, specifically that more than 50% of their revenue comes from products and services that have a positive impact on the environment, rather than providing products and services in a more environmentally friendly way. The Green Economy Mark helps investors identify environmentally friendly businesses and invest their money in them. Julia Hoggett, CEO of the London Stock Exchange, said that the listing of Mingyang Smart GDR through the Shanghai-London Stock Connect marked London’s emergence as a true international financial center. It also reflects the importance of the London capital market in financing green growth and promoting sustainable development of the global economy, helping global investors to provide financial support to issuers transitioning to a low-carbon economy.

Zhang Chuanwei knows that the company’s financing ability depends on its operational strength, and the green development path established by the company needs green financial support. In the past 2021, the company has achieved a series of achievements are still vividly remembered. Mingyang Intelligent achieved the goal of the world’s largest market share and delivery of global offshore wind power, and its market value exceeded 70 billion yuan. In the face of the new opportunities brought by the “dual carbon goal” for the new energy industry, as a leader in offshore wind power equipment, Mingyang Intelligent has become an active practitioner of the concept of “carbon neutrality”. The company launched its first “Carbon neutral Report” and proactively published ESG reports. At the same time, the company actively tries a new model of green financing by expanding diversified financing channels to meet the rapidly growing capital needs in the process of green development. Following the issuance of green medium-term notes in 2018, it successfully issued the first green bond for industrial and commercial enterprises in Macao in 2021. So, how can Mingyang Intelligent flexibly use various financing methods, especially to actively try various innovative green financing tools to help the

company's development? What kind of financial effect does diversified financing bring to Mingyang Intelligent? These questions are worth exploring.

2. Company Background

2.1 Company Profile

Mingyang Smart Energy Group Co. LTD. (Stock abbreviation: Mingyang Smart, stock code: 601615), headquartered in Zhongshan City, Guangdong Province, was established in June 2006 and listed on the Shanghai Stock Exchange in January 2019. Mainly engaged in new energy high-end equipment manufacturing, new energy power station investment operation and intelligent management business. The company's main products are wind turbine manufacturing, wind power operation and fan operation and maintenance, photovoltaic high-efficiency cells and modules, building photovoltaic integration, new energy power plant EPC and distribution of electricity. At present, there are 13 production bases and more than 20 subsidiaries in the country. In 2021, the revenue of fans and accessories accounted for 94.22% of the company's operating income. According to Bloomberg New Energy finance data show that in 2021, Mingyang Intelligent in China's new wind power installed market share of 14%, up 4% year-on-year, ranked seventh in the global wind power manufacturers, is the world's third largest wind power machine manufacturer.

2.2 Corporate Ownership Structure

Mingyang Intelligence is a private listed company. Based on the total share capital of 1,956,326,712 shares at the end of 2021, Mr. Zhang Chuanwei, Ms. Wu Ling and Mr. Zhang Rui, as the actual controllers of the company, directly or indirectly hold 23.29% of the shares of Mingyang Intelligence and are the largest shareholders. Among the top ten shareholders of the company, in addition to the Shanghai-Hong Kong Stock Connect shares of the actual controller of the company and the Hong Kong Central Clearing Company Limited, the shareholding of other domestic non-state-owned legal persons accounted for 6.23%, and the state-owned legal person shares accounted for 2.02%.

2.3 Company Financial Condition

Taking the industry average of listed companies in the general equipment manufacturing industry listed in A shares and H shares as a reference system, the financial status of Mingyang Intelligent in 2021 is shown in Table 2-1 to 2-4. Table 2-1 uses current ratio and quick ratio as two indicators to reflect the company's short-term solvency, and uses the equity ratio to reflect the long-term solvency. As shown in Table 2-1, the short-term debt repayment index of Mingyang Intelligent is lower than the industry average, and the property rights ratio is higher than the industry average, which reflects the company's highly leveraged operation and relatively aggressive financial strategy.

Table 2-1 Mingyang Intelligent Solvency Analysis Table

	Current ratio	Quick ratio	Equity ratio
MYSE	1.1509	0.7500	1.7826
Industry average	2.6429	1.8604	1.1467

Data source: iFinD data.

Table 2-2 shows the profitability of Mingyang Intelligence, which is reflected by three indicators: gross profit margin on sales, net profit margin on sales and return on equity. As can be seen from Table 2-2, the sales gross profit margin of Mingyang Intelligent is slightly higher than the industry average, and the other two indicators that comprehensively reflect the profitability of Mingyang Intelligent reflect obvious competitive advantages.

Table 2-2 Mingyang Intelligent Profitability Analysis Table

Project	Sales gross margin (%)	Net profit margin on sales (%)	Return on equity (%)
MYSE	26.4914	19.6698	6.9958
Industry average	26.1412	6.8062	1.333

Data source: iFinD data.

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Industry average	26.1412	6.8062	1.333

Data source: iFinD data.

Table 2-4 reflects the operating capacity of Mingyang Intelligence through the two indicators of accounts receivable turnover and inventory turnover. It can be seen that the two indicators of Mingyang Intelligence are slightly lower than the industry average. The gap between the two indicators and the

industry average is mainly related to the company's products, industry status, customer groups and other factors.

Table 2-4 Mingyang Intelligent Operation Capacity Analysis Table

	Accounts receivable turnover rate(times)	Inventory turnover rate(times)
MYSE	1.0671	0.5196
Industry average	1.0996	0.7315

Data source: iFinD data.

Table 2-5 reflects the growth ability of Mingyang Intelligence in terms of the year-on-year growth rates of basic earnings per share, operating profit - operating profit, total profit - pre-tax profit. It can be found that Mingyang intelligence has obvious growth advantages compared with the average level of the industry.

Table 2-5 Mingyang Intelligent Growth Ability Analysis Table

Project	Year-over-year growth in basic earnings per share rate (%)	Operating profit growth rate (%)	Total profit before tax year-on-year growth rate (%)
MYSE	353.3333	361.8482	363.0616
Industry average	20.7176	46.7808	80.2181

Data source: iFinD data.

3. The Double Carbon Goal Promotes the Green Development of the Company

3.1 The Launch of the Carbon Neutral Report

On September 22, 2020, the proposal of the “double carbon goal” of “achieving carbon peak before 2030 and carbon neutrality before 2060” put forward new requirements for the adjustment of China's industrial structure and energy structure, bringing broader prospects for the development of renewable energy, and also bringing new development opportunities for Mingyang Intelligent, which takes offshore wind power equipment as its main business.

In 2021, Mingyang Intelligent proposed the slogan of “restructuring Mingyang” based on the major changes in the new energy industry to meet the new round of development of the new energy industry. In the first ESG report, Mingyang Intelligence proposed “adhering to green development”, taking “innovating clean energy for the benefit of human society” as the company's mission, and “being the leader of global clean energy intelligence and GSP” as the company's strategic positioning and vision,

in order to achieve “innovative development, coordinated development, green development, development and shared development”.

In April 2021, Mingyang Intelligence and Beijing Jianheng Certification Center (CGC) signed a strategic cooperation agreement, including green development, carbon neutral goals and other aspects of in-depth cooperation. Among them, the certification follows ISO14064-1 standard to verify the greenhouse gas emissions within the scope of Mingyang Intelligent’s 2020 operations, and continue to carry out in-depth cooperation in aspects including product carbon footprint, product EPD, green supply chain, green suppliers, enterprise ESG and international initiative support. On the basis of carbon inventory, on June 1, 2021, Mingyang Intelligent launched the industry’s first carbon neutral report, proposing the company’s “carbon neutral blueprint”, which will build the largest proportion of renewable energy supply system for the dual carbon goal, take sustainable development as the key to the company’s business strategy and future development, design and use the solution with the best environmental benefits and the lowest energy consumption. Provide low-carbon energy supply solutions as the basis for building the urban energy brain, and achieve the company’s operational control scope (Scope 1, Scope 2) by the end of 2023 [The GHG Protocol sets three “scopes” for greenhouse gas accounting and reporting, Scope 1 refers to direct GHG emissions from the business activities of the company; Scope 2 refers to indirect emissions from the energy purchased by the company; Scope 3 refers to all indirect emissions along the value chain of the company outside scope 2 Carbon neutral.

3.2 Implementation of Green Production

At present, Mingyang Intelligent and its two subsidiaries have obtained the environmental management system certification according to and implemented the Environmental Management System (ISO14001). In accordance with the standards of “plant intensification, harmless raw materials, clean production, waste resources, and low carbonization of energy”, the company builds a green factory for the whole life cycle of products. Mingyang Intelligent is the first batch of units in the country to voluntarily apply for the purchase of “green power certificate”, and achieved 100% green power consumption in Mingyang Industrial Park, the Group’s headquarters, in 2016. Thus obtained the “first green Certificate voluntary Subscription Certificate of Honor” and “Green electricity consumption Certificate”.

In terms of production, Mingyang Intelligent mainly draws on the production management mode of the automobile industry, realizes standardized and intelligent production through modular customization, and achieves energy saving, effective use of equipment resources and production sites. Reduce the emission of related pollutants by improving the utilization efficiency of raw materials, reduce production waste emissions by improving the production process of fan blades, reduce production noise by innovative product design, and reduce transportation energy consumption by improving product lightweight; In terms of waste disposal, the waste of various departments of the company is collected according to the three categories of recyclable, general and dangerous, and the production Department

is responsible for unified management, so as to achieve accurate classification and disposal of waste and regular cleaning and transportation. In terms of pollution prevention and control, the Ministry of Environmental Protection and Safety will cooperate with local environmental protection departments to strengthen the management of water, air and noise pollution. Strive to achieve the minimum impact on the environment in the whole process of production and operation, the most efficient use of resources.

3.3 Improved Environmental Performance

The rating of the company's environment, social responsibility and corporate governance according to the CSC ESG Index [CSC ESG rating is divided into 9 levels, of which AAA/AA/A/BBB is the leading level, BB/B/CCC is the average level, and CC/C is the lagging level.] After 2019, the environmental rating of Mingyang Intelligence has been upgraded from CC level to above B level, from backward level to average level, and significant environmental improvement has been achieved; Social responsibility performance has been at the leading level; ESG performance was a leader in 12 rating periods from April 2019 to January 2022, and was also average for the rest of the year. The company's overall environmental performance has improved, which will lay the foundation for the use of its green financial tools.

Table 3-2 ESG Rating of Mingyang Intelligence

Rate date	ESG rating	E rating	S rating	G rating
2022-04-30	BB	B	A	B
2022-01-31	BBB	BB	AA	BBB
2021-10-31	BBB	B	AA	BBB
2021-07-31	BBB	B	AA	BBB
2021-04-30	A	BB	AA	A
2021-01-31	A	BB	AAA	A
2020-10-31	A	BB	AAA	A
2020-07-31	A	BB	AAA	A
2020-04-30	A	BB	AAA	A
2020-01-31	A	B	AAA	BBB
2019-10-31	A	B	AAA	BBB
2019-07-31	A	B	AAA	BBB
2019-04-30	A	B	AAA	BBB
2019-01-31	BB	CC	A	BBB

Data source: iFinD data.

4. Diversified Financing Strategy Based on Green Development

4.1 The Funding Gap under the Rapid Growth Needs to Be Solved

The increasing awareness of environmental issues in the whole society has promoted the continuous growth of the demand for clean energy. Influenced by favorable policy factors such as the National Energy Administration's "13th Five-Year Plan for Wind Power Development" in 2016 and the "13th Five-Year Plan for Marine Economic Development of Guangdong Province" in 2017 to vigorously develop offshore wind power, the offshore wind power equipment manufacturing business engaged in by Mingyang Intelligent has developed rapidly. Since 2018, the operating income growth rate of Mingyang Intelligent has been maintained at more than 20%. Among them, affected by the decline of the national wind power central financial subsidy policy, the new installed capacity of domestic wind power has reached a record high, and the operating income growth rate of Mingyang Intelligent in 2020 has reached 114.02%.

High growth requires financial support. From 2017 to 2021, with the continuous development of Mingyang intelligent investment activities, the company's free cash flow was negative (as shown in Table 4-1), and the amount gap was more than one billion yuan, and even reached -3.94 billion yuan in 2019. Capital expenditure/depreciation and amortization and cash meet investment ratio also reflect the high level of capital investment, accompanied by insufficient cash to support investment. It shows that the operating cash flow of Mingyang Intelligent can not meet the needs of capital expenditure, and it needs to raise billions of external funds every year to make up for the funding gap. From Table 4-1, it can be seen that from 2017 to 2020, the company's financing intensity exceeded the investment scale of the year.

Figure 4-1 Cash Flow of Mingyang Intelligence from 2017 to 2021

	2021	2020	2019	2018	2017
Net cash flow from operating activities (ten thousand yuan)	539,753.94	363,075.41	575,526.42	27,632.34	129,258.31
Cash outflows generated by investment activities (ten thousand yuan)	-1,233,776.08	-396,005.35	-272,570.12	-176,339.81	-234,391.46
Cash inflows generated from fundraising activities (ten thousand yuan)	245,134.14	893,355.93	608,241.91	341,119.01	440,834.99
Corporate free cash Flow (yuan)	-1,727,639,018	-2,891,724,705	-3,940,118,288	-1,867,924,657	-1,297,663,797

Capital expenditures	8.33	5.63	5.15	4.82	7.19
Cash satisfaction ratio	0.64	0.40	1.63	0.20	1.06

Data source: iFinD data.

4.2 Development of Diversified Financing Channels

Since 2017, how has Mingyang Intelligent's annual financing amount of up to billions been obtained? What financial effect does the acquisition of these funds bring to the company? These are all questions worth discussing. Table 4-2 shows the direct and indirect financing situation of Mingyang Intelligence since 2017. In the two years before the A-share listing, the financing methods of the company mainly include long-term borrowing, medium-term notes and short-term borrowing, forming indirect financing and liabilities as the main source of funds. After the A-share listing in 2019, the financing channel of Mingyang Intelligent has changed to direct financing, of which equity financing constitutes the main source of funds.

Table 4-2 2017-2022 Mingyang Smart Domestic Direct Financing and Indirect Financing Situation

Year	direct financing(ten thousand yuan)		indirect financing(ten thousand yuan)		Total funds raised for the year
	Equity financing	Debt financing	Short-term borrowing	Long-term borrowing	
2022	200,000.00	--	--	--	200,000.00
2021	--	--	-5,053.24	-15,967.22	-21,020.45
2020	580,311.23	--	-122,563.51	74,991.85	532,739.57
2019	131,052.50	170,000.00	8,937.48	-25,733.92	284,256.06
2018	--	50,000.00	-7,656.00	--	42,344.00
2017	--	--	4,283.27	194,594.92	198,878.19
Total	911,363.73	220,000.00	-122,052.00	227,885.63	1,237,197.37

Data source: iFinD data.

On January 23, 2019, Mingyang Smart was listed on the Shanghai Stock Exchange with an issue price of 4.75 yuan/share. A total of 275.9 million shares were issued, raising 131,0525 million yuan. After deducting the issue fees, the actual raised funds were 123,53809 million yuan (as shown in Table 4-3).

Table 4-3 Mingyang Smart A-share IPO Financing Information

Listing date	2019-01-23	Issue price(yuan/share)	4.75
Issue P/E ratio (diluted)	18.36	Issue price-to-earning ratio (weighted)	22.96
Number of shares issued (ten thousand shares)	27,590.0000	Total funds raised (ten thousand yuan)	131,052.5000
Issuance expenses (ten thousand yuan)	7,514.4100	Actual funds raised (the thousand yuan)	123,538.0900
Outstanding shares subscribed by underwrites (ten thousand yuan)	59.1661	Oversubscribed(times)	664.79

Data source: iFinD data.

Mingyang Smart's A-share listing has broadened financing channels for the company. Table 4-4 shows the situation of Mingyang's direct financing at home and abroad since 2019. In terms of equity financing, in addition to IPO, the main method of non-public additional issuance is adopted. Among them, the non-public additional offering announced on November 20, 2020 is mainly for 30 domestic legal persons not associated with the company, 2 foreign institutional investors and 1 individual investor, and adopts the cash subscription method, the issue price is 14.02 yuan, and the equity capital of the company is 5.803 billion yuan through this non-public additional offering. On February 10, 2022, Mingyang Intelligent issued additional new shares to the company's controlling shareholder Nentou Group, which subscribed 147,928,994 shares of the company in cash at a price of 13.52 yuan per share, and Mingyang Intelligent raised about 2 billion yuan. Through this private placement, the shareholding ratio of the Group increased from 2.66% to 9.51%, becoming the largest shareholder of the company. In addition, Mingyang Smart issued convertible bonds with a scale of 1.7 billion yuan on December 13, 2019, and the issuance term is 6 years. Compared with other debt financing methods, convertible bonds pay interest with progressive interest rate. The coupon rate of the first phase is only 0.40%, which is much lower than other debt financing methods. The initial conversion price set by the convertible bond is 12.66 yuan/share, and the agreed conversion period starts from the first trading day after 6 months after the end of the issuance of the convertible bond. This share transfer pricing is only 0.02 yuan higher than the share price of 12.64 yuan/share on the issue announcement day, so it has a high expectation of share transfer. The convertible bonds issued on March 19, 2021 were due to mature ahead of schedule, when the conversion rate reached 99.70%, and the remaining 50,780 bonds triggered the redemption clause because the closing price of the 15 trading days was higher than 130% of the current conversion price, and the company implemented the redemption at a total price of 5,088,312.22 yuan.

Table 4-4 Mingyang Intelligent Domestic and Foreign Direct Financing Situation in 2019-2022

Date of announcement	Type of financing	of Issue object	Subscription method	Issue price	Financing amount
2022-02-10	Private secondary offering	Nentou Group (Controlling shareholder)	Cash subscription	13.52 (元)	200,000.00 (万元)
2021-07-13	Overseas green bond	Professional investor	Cash subscription	1000.00 (美元)	20,000.00 (万美元)
2020-11-20	Private secondary offering	There are 30 non-affiliated domestic legal persons, 2 overseas institutions and 1 individual investor	Cash subscription	14.02 (元)	580,311.23 (万元)
2019-12-13	Convertible bond	The public	Cash subscription	100.00 (元)	170,000.00 (万元)
2019-01-10	IPO	The public	Cash subscription	4.75 (元)	131,052.50 (万元)

Data source: Compiled according to iFinD database and company announcements.

4.3 Green Financing Strategy Exploration

4.3.1 A Preliminary Study on Domestic Green Bond Issuance

On August 31, 2016, the People's Bank of China, the Ministry of Finance and other seven ministries and commissions jointly issued the Guiding Opinions on Building a Green Financial System, which proposed for the first time to build a green financial system and support the green transformation of the economy through green credit, green bonds, green stock indexes and related products, green development funds, green insurance, carbon finance and other financial instruments and related policies.

With the support of relevant policies, Mingyang Intelligent began to actively explore green financing methods. On October 19, 2016, the China Interbank Market Dealers Association approved the registration of Green medium-term Notes of Mingyang Intelligent, and Mingyang Intelligent obtained a registration quota with a total validity of RMB 1 billion for 2 years.

Working capital for green industries or projects that aim to improve the environment, save and use resources efficiently, and combat climate change is usually raised through green notes. The issuance of this green medium-term note by the United Equator Environmental Assessment Co., Ltd. on April 23, 2018 with a pre-issue independent assessment certification report, to confirm that the company raised funds for the “clean energy” green industry project, that is, the procurement of raw materials and parts of wind turbines. With China Construction Bank as the main underwriter and bookkeeper, and China CITIC Bank as the co-main underwriter, the notes were issued by centralized bookkeeping and filing in order to obtain more favorable market pricing, that is, issue interest rate, and improve issuance efficiency. On May 2, 2018, the first green medium-term note of 2018 was successfully issued in China’s interbank bond market, with a total issue of RMB 500 million, a maturity of 3 years, a coupon rate of 6.10%(as shown in Table 4-5), and the main issue rating was AA.

Table 4-5 Mingyang Smart Domestic and Foreign Bond Issuance

Bond code	Bond abbreviation	Bond class	Issue date	Value date	Due date	Issue scale	Interest rate type	Coupon rate
	The year							
	2021							
MOXIB2108G	The first overseas green bond	Green bond	2021-12-06	2021-12-14	2024-12-14	2.00 Hundreds of millions of dollars	Fixed interest rate	1.60 %
113029.SH	Mingyang to bond	Convertible bond	2019-12-13	2019-12-16	2021-03-19	17.00 Hundred million yuan	Progressive interest rate	0.40 %
131800010.IB	18 Smart energy GN001	green Medium-term note	2018-04-27	2018-05-02	2021-05-02	5.00 Hundred million yuan	Fixed interest rate	6.10 %

Data source: Compiled according to iFinD database and company announcements.

4.3.2 Overseas Green Bond Issuance Test Waters

The China Securities Regulatory Commission's Guidance on Supporting the Development of Green Bonds, issued in March 2017, pointed out that green bonds are corporate bonds that use raised funds to support green industry projects. The scope of the so-called green industry projects includes energy conservation, pollution prevention and control, resource conservation and recycling, clean transportation, clean energy, ecological protection and adaptation to climate change and other green industries. Green bonds have the advantages of fast approval, convenient issuance and low financing cost, which has important practical significance for enterprises in the above industries to solve financing constraints and expand financing channels.

In December 2021, Mingyang Smart attempted to issue overseas green bonds for the first time. The green bond is issued by Ming Yang Smart Energy (BVI) Company Limited, an overseas subsidiary of Ming Yang Smart, with Bank of China Macau Branch acting as the global coordinator and exclusive green structure consultant, and Bank of China Guangdong Branch providing standby letter of credit with the main rating of AA. China (Macau) Financial Asset Exchange Co., LTD. (MOX) issued green bonds with a term of 3 years and a total size of \$200 million and listed them. The raised funds were returned to the mainland for the integration demonstration project of "fire wind and light storage research" in Tongliao, Inner Mongolia - Kailu 600,000 kW wind power project construction and related procurement expenditures. It is reported that after the completion of the project, the annual carbon dioxide emission reduction will be 469,900 tons, and the standard coal saving amount will be 173,300 tons, which has significant environmental benefits. As can be seen from Table 4-5, the green bond adopts a fixed interest rate payment method, and the coupon rate is only 1.60%. The offering, which is aimed at professional investors, was actively subscribed by investors in mainland China, Hong Kong, Macau and Europe with a maximum subscription of nearly three times.

Mingyang Intelligent chooses to issue green bonds in Macao this time, it needs to meet the relevant conditions for mainland non-financial enterprises to issue green bonds in Macao, among which the general conditions to be met for bond issuance include net profit after tax, operating cash flow, interest payment ability, net asset size, internal control and risk management status, credit status of the company, directors and shareholders. Bond financing fund use plan, etc. The conditions for the issuance of green bonds also include that the funds raised by the issuance of green bonds need to be used for green projects with carbon emission reduction benefits, and the green certification report of the project needs to be issued by a professional third-party organization. The issuance of overseas green bonds by the green certification body United Equator Environmental Assessment Co., Ltd. in accordance with the internationally accepted green bond standards to implement certification.

Mingyang Smart chose to issue green bonds in Macau, which also needs to comply with the relevant processes of mainland non-financial enterprises to issue green bonds in Macau. There are generally three modes of issuing green bonds in Macao. The first is to issue bonds directly overseas, that is, domestic enterprises as the main issuers do not need to guarantee, letter of credit and other credit

enhancement methods; The second is that a domestic enterprise provides guarantee to issue bonds overseas. In this mode, the subsidiary or branch of a domestic enterprise set up overseas is used as the main body of bond issuance, and the domestic company provides guarantee (or provides maintenance agreement) to the overseas subsidiary or branch. The issuing entity issues bonds overseas and the funds raised are returned to the domestic company. The third mode is that domestic banks provide standby letters of credit to increase the credit to issue bonds overseas. In this mode, subsidiaries or branches set up by domestic enterprises abroad should be the main issuers of bonds, and domestic banks should issue standby letters of credit to provide credit enhancement for bonds issued by foreign institutions. Mingyang Intelligent adopts the third bond issuance mode (as shown in Figure 4-2). On the basis of taking advantage of the higher transparency of the overseas bond market, relatively perfect operation mechanism and wider investor groups, it issues standby letters of credit through domestic banks as a guarantee, effectively reducing the company’s financing cost and obtaining obvious issue price advantages. The cost of the green bond issuance is significantly lower than the financing cost of the Green medium-term note in 2018.

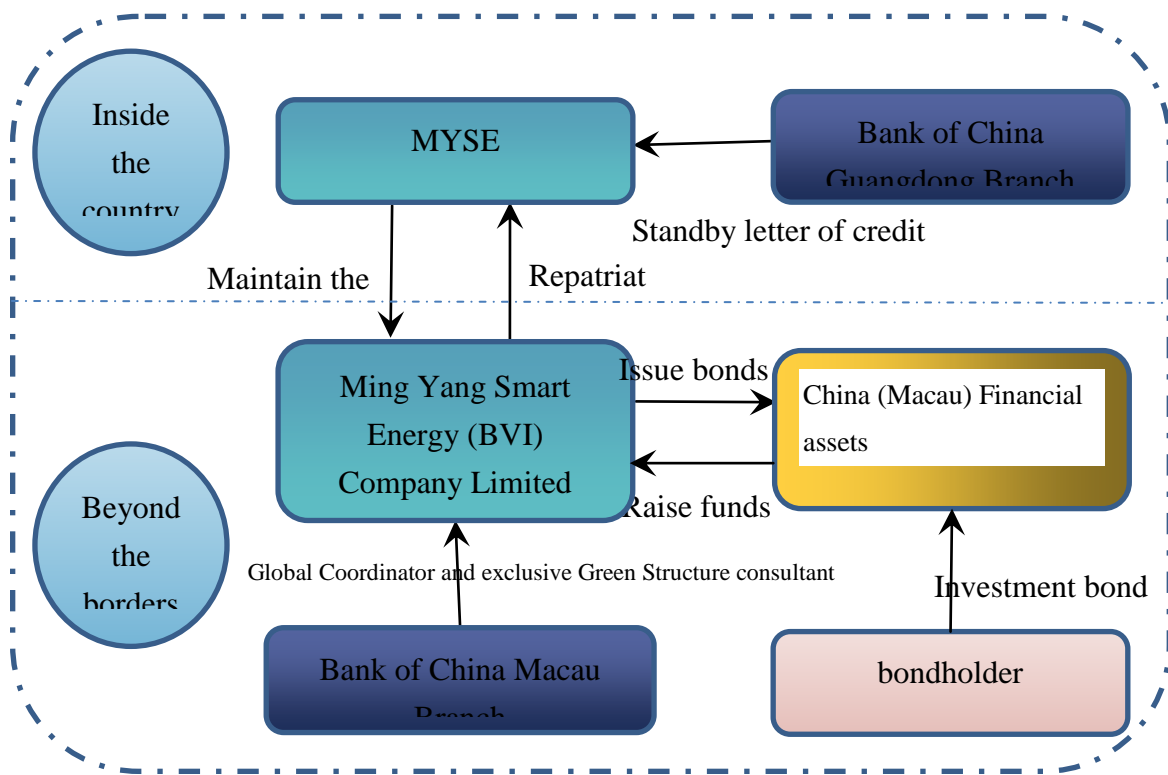


Figure 4-2 Mingyang Smart Overseas Green Bond Issuance Process

4.3.3 The “Green Economy Symbol” Has Been Obtained

Mingyang was officially listed on the London Stock Exchange in the form of Global Depository Receipts (GDRS) on July 13, 2022, raising \$706,87,500. This time to the London Stock Exchange

listing Mingyang Intelligence also passed the “green economy mark” audit. The mark focuses on whether the issuer has a “qualifying Green income”, according to FTSE Russell’s Green Revenues Classifications System (GRCS). Identify the company’s “products and services that directly have a positive environmental impact, as opposed to those that are delivered in a more environmentally friendly way”. Issuers applying for the “Green Economy Mark” are required to use the “Green Income Data Model” to examine and determine which micro-departments of the company their green income comes from, and on this basis provide the London Stock Exchange with the basic information of the company, the details of green income and the relevant information that needs to be disclosed publicly. It will be subject to a joint qualification review by a panel of the London Stock Exchange and FTSE Russell.

FTSE Russell’s Green income data model is based on its Green Income Classification System (GRCS), a comprehensive classification system for green products and services. When a company’s operating activities are identified as containing green revenue, they need to be traced back to one or more micro-sectors and aggregated at the company level. The Green Income Classification System (GRCS) was first created by FTSE Russell in 2013 to help investors and financial markets better identify companies whose products and services are transitioning to a low carbon economy, track their performance and encourage investors to put their capital to work in the “green economy”. The latest version of the Green income classification system, GRCS 2.0, was launched in 2020. The system takes a comprehensive look at the green economy from a bottom-up perspective, capturing products and services along the entire value chain that contribute to environmental goals such as climate change mitigation and adaptation, waste and pollution reduction, and circular economy and sustainable agriculture.

According to the composition of the operating revenue of Mingyang Intelligent in 2021 (as shown in Table 4-6), the sales revenue of fans and related accessories reached 25.247 billion yuan, accounting for 94.22%; The wind power generation income was 1.41 billion yuan, accounting for 5.26% of the total operating income; Other income accounted for only 0.5214%. Such a composition of operating income shows that the company’s income structure with wind turbine manufacturing as the main body and wind power generation as the supplement meets the requirements of the “green economy symbol” that green income accounts for more than 50%, so it can be recognized by overseas capital markets.

Table 4-6 The Composition of Intelligent Operating Income of Mingyang

industry-specific	subproduct	Operating income (Yuan)	Percentage of operating income
Fan and related accessories sales	1.5 MW-2.XMW	345,633,884.81	1.2898%
	3. XMW-5.XMW	14,129,119,250.18	52.7260%
	6. XM above	10,197,542,712.67	38.0544%

	Fan service related accessories	575,044,136.24	2.1459%
Wind farm power generation	Wind farm power generation	1,410,187,916.57	5.2624%
other	other	139,715,558.02	0.5214%
Total operating income		26,797,243,458.49	100%

Data source: Compiled according to the company's 2021 annual report.

4.4 Diversified Financing Strategy and Capital Structure Adjustment

Since 2017, with the continuous adjustment of Mingyang's intelligent financing strategy, the company's capital structure has also adjusted and evolved. In general, Mingyang Intelligent has been pursuing a high-leverage financial strategy, and its asset-liability ratio still reached the maximum in the past five years, close to 80%, after returning to A-shares in 2019 (see Table 4-7). Since then, as direct financing, especially equity financing, has gradually become the main financing method of the company, the asset-liability ratio has fallen below 70% for the first time in 10 years. The proportion of interest-bearing debt to total invested capital showed a significant downward trend in the five years from 2017 to 2021, and the company's debt repayment pressure has been effectively alleviated. The interest earned multiple generally shows an upward trend. As the operating income in 2021 has a year-on-year growth rate of 20.93%, the interest earned multiple in 2021 shows a leap-forward growth, which further improves the company's solvency.

Table 4-7 Capital Structure and Solvency of Mingyang Intelligence from 2017 to 2021

	2021	2020	2019	2018	2017
Asset-liability ratio (%)	69.92	70.78	79.56	78.11	77.74
Interest-bearing debt/fully invested capital (%)	25.21	30.09	52.42	54.52	53.67
Interest earned Multiple (EBIT/Interest expense)(times)	28.30	8.01	5.79	3.04	4.24

Data source: Compiled according to the company's 2021 annual report.

The soundness of capital structure is related to financial risk. Z-value scoring model is a classical early warning model used to predict the financial crisis of a company, which uses five indicators reflecting the company's financial status to predict the company's possible financial risks. Generally speaking, when the Z value is less than 1.81, it indicates that the company has greater financial risk and even potential bankruptcy crisis. According to the Z-value results of Mingyang Intelligence from 2017 to 2021, the company's financial situation has been in the most serious "worrying" situation. Of course,

from the perspective of the development trend of each year's data, the Z-value shows a significant upward trend year by year and is developing in a good direction. So, is the high debt financial structure of Mingyang Intelligent too aggressive, resulting in its financial situation is really worrying?

Table 4-8 The Z Value of Mingyang Intelligence from 2017 to 2021

	2021	2020	2019	2018	2017
z-value	1.57	1.35	0.96	0.52	0.40
Z-value - year-on-year increase or decrease (%)	0.22	0.39	0.44	0.12	-0.06
Factor breakdown:					
X1- Total working capital/Assets (%)	7.12	11.78	12.73	7.00	2.27
X2- Retained earnings/Total Assets (%)	9.54	5.75	3.82	3.10	1.39
X3- EBIT/Total Assets (%)	6.05	3.27	2.60	2.58	2.40
X4- Total Market Value of Common Stock Preference Shares (total market value)/ Total liabilities (%)	118.75	97.40	61.48	0.00	0.00
X5- Revenue/Total Assets (%)	44.16	43.50	30.24	30.91	27.71
Z-value result description	worr ying	worr ying	worr ying	worr ying	worr ying
annotation: $Z=0.012X_1+0.014X_2+0.033X_3+0.006X_4+0.00999X_5$					

Data source: iFinD database.

5. Conclusion and Suggestion

The development course of Mingyang Intelligent's rapid growth in performance and becoming an industry leader for more than ten years is also a history of continuous innovation in financing models and active use of capital markets to achieve capital appreciation. From listing in the United States to privatization, from borrowing financing to convertible bond issuance, from green notes to green bonds, from returning to A-shares to global depository receipt listing, from traditional capital sources to innovative green finance, from domestic green certification to the international "green economy symbol", Mingyang Intelligent has been actively exploring financing methods suitable for the current development model. And drive financing costs down. In the face of the new opportunities brought by the "double carbon goal" and the new challenges of policy decline, what kind of "financing way" will be used by the future Bright Sun Intelligent on the road of green development to deal with the new capital needs deserves our continuous attention.

It provides reference and inspiration for local high carbon enterprises to actively use green financing tools.

- 1) Develop a clear sustainability strategy: High-carbon enterprises should develop a clear sustainability strategy, including emission reduction targets, energy transition plans and environmental management measures. This will help demonstrate to investors and financial institutions that companies are actively responding to climate change and environmental issues.
- 2) Conduct environmental assessment and disclosure: High-carbon enterprises should conduct a comprehensive environmental assessment, identify key environmental risks and opportunities, and publicly disclose the results. These assessments can help companies identify areas of improvement and innovation, while also providing transparency to investors.
- 3) Find green finance partners: Partnerships with banks, funds and institutions that focus on green finance can provide more financing opportunities for high-carbon companies. These partners often have specialized environmental, social and governance (ESG) standards and are more willing to support sustainable development projects.
- 4) Explore green bonds and green loans: Green bonds and green loans are financing instruments to finance sustainable development projects. High-carbon enterprises can consider issuing green bonds to raise funds, or apply for green loans for the development of environmentally friendly projects.
- 5) Improve energy efficiency and emissions reduction: By adopting energy-saving measures, using clean energy and improving production processes, high-carbon enterprises can reduce energy consumption and emissions. These initiatives not only help meet environmental goals, but also reduce the cost of doing business and increase the potential to attract green investment.
- 6) Participation in carbon trading markets: Participation in carbon trading markets can help high-carbon enterprises manage and reduce carbon emissions, and provide them with additional sources of income. By purchasing carbon credits or participating in carbon offset programs, companies can sell the remaining carbon credits on the market.
- 7) Build partnerships: Work with other businesses, government agencies and ngos to advance sustainable development goals. Such partnerships can help high-carbon companies access more green financing opportunities and share best practices.

Reference

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Source: 2017-2022 Corporate Annual Report and ESG report.

Source: Shanghai Stock Exchange.

Data search: iFinD database.