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Study on the Influence of Horizontal M&A on Green Transformation of Iron and Steel Enterprises

-- Taking Baowu's M&A of Masteel as an Example

Xiuqing Zhao*

School of Business, Qingdao University of Technology, Qingdao 266520, China

*17660453593@163.com

Abstract

The "14th Five-Year Plan" period is a key period for steel enterprises to achieve low-carbon transformation, and the relevant state departments pointed out that it is necessary to continue to promote the green development process of steel enterprises and promote the green transformation of enterprises. Horizontal mergers and acquisitions can effectively reduce excess capacity of steel enterprises, help enterprises reduce emissions and increase efficiency, but its impact on the green transformation of enterprises is still unclear. Based on this, this paper takes Baowu's merger and acquisition of Masteel as an example to analyze and summarize the impact of horizontal merger and acquisition on enterprises' green transformation. It is found that by constructing a new development pattern, capacity replacement and technology integration, the horizontal merger and acquisition parties can significantly improve the economic and environmental performance of both parties, help enterprises to achieve green transformation, and provide practical guidance for other steel enterprises that need to achieve green transformation through horizontal merger and acquisition.

Keywords

Horizontal Merger and Acquisition; Iron and Steel Enterprises; Green Transformation.

1. Introduction

The "14th Five-Year Plan" period is a key period for China's iron and steel enterprises to achieve green and low-carbon transformation, and an important node for iron and steel enterprises to achieve high-quality development. In August 2023, the "Iron and Steel Industry steady Growth work Plan" issued by relevant state departments clearly pointed out that it is necessary to continue to promote the high-quality development process of iron and steel enterprises, cultivate leading enterprises, enhance industrial concentration, and help enterprises develop green. As an important business mode of enterprises, horizontal mergers and acquisitions play a significant role in promoting the emission reduction and efficiency increase of iron and steel enterprises [1], and effectively help enterprises to transform into green. Based on this, this paper takes Baowu's merger and acquisition of Masteel as an example to deeply discuss the significance and influence path of horizontal merger and acquisition on green transformation of iron and steel enterprises, in order to provide reference for iron and steel enterprises that need to realize green transformation through horizontal merger and acquisition.

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2. Overview of Horizontal Mergers and Acquisitions and Green Transformation of Iron and Steel Enterprises

The low-carbon transformation of iron and steel enterprises is influenced by both internal and external factors. External environmental regulations [2] and social trust level [3] will affect the process of green low-carbon transformation of iron and steel enterprises. However, as the main body of pollutant emission, the operation and management mode of enterprises is the key factor affecting their green transformation. Since the supply-side structural reform, horizontal mergers and acquisitions have become the main way for steel enterprises to reduce production capacity and achieve high-quality development [4]. Mergers and acquisitions within the same industry can give full play to the synergies of mergers and acquisitions and promote enterprises to achieve green and low-carbon transformation. Due to the differences in energy utilization rate among different enterprises, horizontal mergers and acquisitions of iron and steel enterprises can enable the party with high energy utilization rate to transfer its high-quality resources to the party with low energy utilization rate, optimize corporate resources, and effectively achieve low-carbon emission reduction [5]. Iron and steel enterprises effectively integrate the resources of both sides through horizontal mergers and acquisitions, improve the resource utilization rate of both sides through transferring technology and management resources, reduce excess capacity, and improve enterprise performance [6]. The existing researches on horizontal mergers and acquisitions of iron and steel enterprises focus on the influencing factors and the impact on economic performance, and lack of research on the environmental effects of horizontal mergers and acquisitions. "How can steel companies achieve green transformation through horizontal mergers and acquisitions?" At present, this problem is not clear, and it is difficult to provide practical guidance for horizontal mergers and acquisitions. Therefore, it is necessary for theoretical and practical research to explore the influence path of horizontal mergers and acquisitions on the green transformation of iron and steel enterprises.

3. Case Introduction

3.1. Enterprise Background

China Baowu Iron and Steel Group Co., LTD. (hereinafter referred to as "Baowu Group") was formed by the reorganization of Baosteel Group and Wuhan Iron and Steel Group in 2016, and was officially listed on December 1, 2016 (stock code: 600019).Baowu Group has always been to build a sound industrial ecosystem for the purpose of development, committed to build itself into a world-class steel enterprise, always "green" as the "background" of enterprise life, with practical actions to practice the "double carbon" goal, vigorously promote smart manufacturing, promote the green development of enterprises.

Maanshan Iron and Steel Group Co., LTD. (referred to as "Maanshan Iron and Steel Group"), listed on the Shanghai Stock Exchange in 1994 (stock code: 600808), is a diversified enterprise, its products cover plate belt, long material, wheel shaft three series.At present, Masteel Group, like Baowu Group, is in a critical period of high-quality development, committed to building an industrial pattern of strategic emerging industries, under the leadership of China Baowu, unswervingly practice the new development concept, and strive to achieve low-carbon transformation.

3.2. Motivation and Process of Merger and Acquisition

With the promotion of the overcapacity policy in 2016, the problem of overcapacity in the steel industry has been effectively solved, but there is still a large room for improvement in terms of industrial concentration, and Baowu Group has sounded the horn to sprint to the goal of

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"million tons of Baowu" in 2018. In order to further implement the supply-side structural reform, enhance industrial concentration, promote the green transformation and upgrading of enterprises, and enhance the comprehensive strength of enterprises, Baowu opened the merger and reorganization process of Masteel in 2019.

Baowu's acquisition of Masteel is a free transfer merger and acquisition. In this merger and acquisition event, Anhui Province's State-owned Assets Supervision and Administration Commission will transfer 51% of Masteel's shares to Baowu Group free of charge, and Baowu has achieved actual control of Masteel. On May 31, 2019, Baowu Group signed an equity transfer agreement with Anhui SASAC. On September 20, the transfer of equity completed the registration of industrial and commercial changes, and the merger was successfully concluded.

4. Case Analysis

4.1. Path Analysis for Enterprises to Realize Low-carbon Transformation Through Horizontal Mergers and Acquisitions

4.1.1. Build a Diversified Pattern and Promote Green Development

After the merger and acquisition, Baowu Group is committed to building a strategic layout of "one base and five yuan", that is, based on the steel manufacturing industry, new material industry, smart service industry, resources and environment industry, industrial park industry, industrial finance industry coordinated development, and solidly promote green development. After the merger and acquisition, Baowu insisted on leading the development of enterprises with technological innovation, and Masteel Group implemented the "base + technological innovation" model under the leadership of Baowu Group to accelerate the construction of innovation platform. The two sides vigorously promote the professional and regional platform construction work, continue to optimize the quality of enterprise resources, and constantly improve the level of green intelligent manufacturing. With the goal of building a world-class steel enterprise, Baowu Group has formulated and implemented low-carbon, high-quality, efficient and intelligent strategic plans, focused on the development of advanced manufacturing, focused on building a new industrial park, supported the construction of high-quality steel ecosystem, built an industrial chain cluster ecosystem, and strived to highlight the green connotation in steel manufacturing.

4.1.2. Actively Promote Capacity Replacement and Eliminate Excess Capacity

Capacity replacement is an important way for iron and steel enterprises to reduce excess capacity, replacing backward equipment into new equipment with high technical content and small environmental pollution. After the merger and reorganization, Baowu Group actively promoted the replacement of production capacity and optimized the industrial structure. For example, the smelting equipment of Anhui Changjiang Iron and Steel Co., LTD., a subsidiary of Masteel Group, was replaced with a 140-ton electric furnace steelmaking to replace the original two 40-ton converter, and the replaced new equipment improved the dust removal technology to achieve clean and large-scale production. The two sides have further upgraded and optimized technical equipment through capacity replacement. Compared with the crude equipment shutdown, the way of production capacity replacement is more conducive to the development of enterprises, reducing environmental pollution while production efficiency is also improved, helping enterprises to achieve green, low-carbon and sustainable high-quality development.

4.1.3. Integrate Environmental Protection Technologies to Accelerate Low-carbon Transformation

After the merger and acquisition of Baowu and Masteel, the two sides quickly integrated environmental protection and energy saving technologies, and actively practiced the

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mainstream values of ecological civilization with practical actions. After the merger, the two sides will further strengthen the construction of green mines, promote green production technology, and develop more low-carbon and environmentally friendly green products. At the same time, accelerate the pace of innovation, strive to improve the level of green research and development of enterprises, create green environmental protection industry, and promote the pace of green and low-carbon transformation of enterprises. After the merger, Baowu Group focused on the research and development of green product technology with high strength, high corrosion resistance and high efficiency, and made remarkable progress. Before the acquisition, Masteel Group already had mature M11 non-oriented silicon steel insulation coating technology. After the acquisition, on the basis of this, it carried out a research and development project of non-chromium environmental protection coating technology, and developed a new generation of Jipa-grade hot rolled ultra-high strength steel, which shortened the process flow, reduced energy consumption, energy saving and emission reduction in the manufacturing process, and achieved a win-win situation of economic and environmental benefits.

4.2. Impact of Horizontal Mergers and Acquisitions on Economic and Environmental Performance

After the merger and reorganization of Baowu and Masteel, the two sides actively promoted the merger and integration work, optimized the allocation of resources, realized the all-round coordination of technology and management, improved production efficiency while reducing pollutant emissions, and achieved significant economic and environmental benefits, providing effective help for the green transformation and upgrading of enterprises.

4.2.1. Analysis of Economic Performance

The synergistic effect of merger and acquisition is directly reflected in the financial statements. After the merger and reorganization of Baowu and Masteel, the economic benefits of both sides have been improved to a certain extent. Financial indicators can directly reflect the operating and financial status of an enterprise. Therefore, this paper selects representative indicators of profitability, solvency, operating capacity and development capacity to analyze return on equity, asset-liability ratio, total asset turnover ratio and net profit growth rate, and analyzes the impact of this merger on the economic performance of both parties. The specific indicators are shown in Table 1.

Table 1: Financial indicators and data of Baowu and Masteel from 2018 to 2022

		Return on equity	Asset-liability ratio	Turnover of total assets	Net profit growth rate
Baowu Group	The year	12.71%	43.53%	0.89	11.89%
	The year	7.05%	43.70%	0.86	-41.43%
	The year	7.03%	43.93%	0.82	1.05%
	The year	12.36%	44.61%	0.99	86.15%
	The year	6.33%	45.79%	0.94	-48.43%
Masteel Group	The year	22.68%	58.38%	1.10	43.94%
	The year	4.09%	64.27%	0.96	-81.02%
	The year	7.17%	59.60%	0.98	75.74%
	The year	17.44%	58.98%	1.32	168.95%
	The year	-2.77%	65.60%	1.09	-116.09%

First of all, in terms of return on equity, Baowu and Masteel saw a sharp decline in return on equity in 2019 and 2022, due to the overall downturn in the industry in 2019 and the downturn in the industry. The merger and reorganization of Baowu consumed a lot of assets, and Masteel

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had a lot of asset impairment. In 2022, due to the contraction of demand and supply impact, the cost of raw materials has risen sharply, resulting in a serious decline in profits. The steady increase in the value from 2019 to 2021 indicates that M&A has a positive impact on the profitability of both parties. Secondly, in terms of asset-liability ratio, although the value of Baowu shows an upward trend, it does not fluctuate much, lower than the average level of 60% of the industry, and the overall solvency is relatively stable. The overall high asset-liability ratio of Masteel is mainly due to the relatively high proportion of liabilities in the capital structure. On the whole, the merger and acquisition has not brought negative impact on the solvency of Masteel. Thirdly, in terms of total asset turnover, after the merger of Baowu and Masteel, the total asset turnover showed a downward trend and began to rise slightly in 2021, but the overall value was not much different from that of 2018, indicating that the operating capacity of Baowu and Masteel has been in a stable state. Finally, in terms of the growth rate of net profit, the value of 2019 and 2022 dropped sharply, mainly due to the influence of external factors, and the growth rate of net profit in the remaining years was in an upward trend, and the value increased greatly after 2019, indicating that the merger and acquisition had a positive impact on the development ability of both parties. Overall, the merger has a certain role in improving the economic performance of both sides.

4.2.2. Analysis of Environmental Performance

Baowu's merger and acquisition of Masteel is launched under the background of the government's all-out efforts to promote the low-carbon transformation of steel enterprises, and the merger and reorganization of Baowu is a bold attempt by steel enterprises to achieve green transformation through horizontal mergers and acquisitions. If this merger and reorganization has a significant effect on the environmental performance of both sides, it can provide an effective reference for other steel enterprises that want to achieve green transformation through horizontal mergers and acquisitions. Based on this, this paper constructs an index system for evaluating corporate environmental performance to analyze environmental performance and explore the impact of mergers and acquisitions on corporate environmental performance. The index system and data are shown in Table 2.

According to the above table, after the merger of the two parties, in terms of energy consumption, the comprehensive energy consumption per ton of steel and the new water consumption per ton of steel show a downward trend, indicating that the energy utilization efficiency of the enterprise has been improved. In terms of pollutant emissions, sulfur dioxide and nitrogen oxide emissions of both sides have fluctuated, but they have significantly increased compared with 2018, indicating that horizontal mergers and acquisitions have improved the green production level of both sides. In terms of environmental governance, compared with the amount before the merger in 2018, the environmental protection investment of the two sides increased significantly after the merger in 2019, indicating that the horizontal merger has further enhanced the environmental awareness of the two sides, mobilized more funds for environmental governance, and always implemented the concept of green development. On the whole, the merger has a positive impact on the environmental performance of both sides. The energy utilization rate of both sides has been further improved, the production of enterprises has become greener, and the green manufacturing level of both sides has been greatly improved, effectively promoting the green and low-carbon transformation of both sides.

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Table 2: Environmental indicators and data of Baowu and Masteel from 2018 to 2022

	Primary index	Secondary index	The year 2018	The year 2019	The year 2020	The year 2021	The year 2022
Baowu Group	Energy consumption	Energy consumption per ton of steel (kgce/t)	586	583	574	564	560
		New water consumption per ton of steel (m^3/t)	3.41	3.23	3.24	2.55	2.35
	Pollutant discharge	Sulfur dioxide Emissions (t)	29889	23667	20697	23079	23854
		Nitrogen oxide Emissions (t)	63894	55881	49802	53840	56391
	Environmental governance	Total investment in environmental protection (100 million yuan)	40.43	64.76	127.35	106.58	151.36
Masteel Group	Energy consumption	Energy consumption per ton of steel (kgce/t)	576.4	572.8	560.76	552.71	562.21
		New water consumption per ton of steel (m^3/t)	3.29	2.99	2.69	2.26	2.07
	Pollutant discharge	Sulfur dioxide Emissions (t)	7885	8,371	7992	5175	4297
		Nitrogen oxide Emissions (t)	21554	20343	18430	9362	6457
	Environmental governance	Total investment in environmental protection (100 million yuan)	2.44	3.78	30.11	20.62	40.30

5. Conclusion

By analyzing the typical case of Baowu's merger and acquisition of Masteel, this paper illustrates the effect path and performance impact of horizontal merger and acquisition on low-carbon transformation of steel enterprises. The study found that after horizontal mergers and acquisitions, iron and steel enterprises focused on the development concept of green and high quality, and focused on building a high-quality steel ecosystem. By rebuilding the development pattern, cross-regional capacity replacement, eliminating backward equipment, and integrating production and environmental protection technologies, the level of green intelligent manufacturing of enterprises has been greatly improved, achieving a win-win situation of economic and environmental benefits, and effectively promoting the green transformation and upgrading of enterprises. Therefore, in the key period of promoting the high-quality development of the steel industry, steel enterprises should actively seek opportunities for horizontal mergers and acquisitions, and timely seize the opportunity to implement mergers and acquisitions. Through horizontal mergers and acquisitions to achieve management, technology, finance and other aspects of the sharing, at the same time continue to increase research and development technology investment, environmental protection investment, the introduction of high-quality talents and advanced technology, and strive to improve the level of green intelligent manufacturing, actively build a green and low-carbon industrial chain, and

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constantly improve their comprehensive strength to achieve green and low-carbon sustainable development.

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