Research on Steel Industrial Restructuring in China based on SCP Framework

Xinxin Zhang
Economics College, Shandong Woman University, Jinan, 250000, China

Abstract: The steel industry has always been the pillar industry of China's economy. In recent years, the development of China's steel industry has been relatively poor. In order to enhance the competitiveness of China's steel industry and promote its long-term development, China's steel industry has been restructured. In the process of restructuring, SCP framework is used to complete the analysis and research of steel industrial restructuring, and also complete the analysis of the development status of China's steel industry, take the analysis results as the data basis for the restructuring. Compared with the restructuring mode, the cross-regional restructuring mode is selected as the steel industry restructuring mode. The SCP framework is used to analyze the performance of the steel industry, and the corresponding performance problems of the steel industry are obtained. Based on the above problems, the restructuring measures are set. The reorganization process is completed through government regulation and increasing the proportion of micro-enterprises. At this point, the analysis of China's steel industry restructuring based on the SCP framework is completed. The research content provides the corresponding theoretical support for the steel industry in the future and improves the structure of China's steel industry.

Keywords: SPC framework; Steel industry; Industrial restructuring; Status analysis

1. Introduction

The steel industry is an important part of China's economic industry. The development of steel industry plays an important role in China's economic construction, industrial reform and social construction. In the development of China's steel industry, a large number of management problems have gradually emerged, such as overproduction of steel, the unbalanced development of the steel industry, and the inefficiency of resource allocation and so on. In recent years, China's steel market demand has gradually decreased, so the steel industry cannot get good financial support, and steel exports decrease sharply [1-2]. The steel industry now faces greater challenges. In order to improve the competitiveness of China's steel industry, it is urgent to restructure the industry. In this study, SCP theory is used to analyze the restructuring of China's steel industry and put forward corresponding suggestions.

SCP theory is a theory of industrial organization analysis established by scholars of Harvard University. This theory, as an orthodox industrial organizational theory, is based on price theory, and empirical research as a means to analyze industries according to market structure, market behavior, and market performance, and builds a systematic analysis framework of market structure, market conduct, and market performance, and the analysis framework is referred to as the SCP framework [3]. This construction can be used to visualize the process of industrial restructuring, and set the restructuring structure suitable for the steel industry, providing theoretical support for the future development of the industry.

2. Analysis of the Development Status of China's steel Industry

As the key pillar industry in China's industrial structure, the steel industry occupies a large proportion in the northeast region of China, and most of its products are exported to developed countries such as Europe and the United States. At present, as a major steel country, China ranks among the forefront of the world. However, various indicators of the steel industry have fallen sharply year-on-year, and steel consumption has declined. Of which, the more serious situation is mainly reflected in the new real estate construction area decreased by 27.2% year-on-year, infrastructure construction investment (excluding electricity, heat, gas and water production and supply) decreased by 19.7% year-on-year, and the automotive industry demand decreased by 45.2% year-on-year, shipbuilding completions decreased by 27.3% year-on-year [4-5]. This has seriously affected the development of China's steel industry. In order to more intuitively reflect the development status of China's steel industry, the steel industry's steel export volume and growth in recent years are reflected in the form of a table, as follows.

Table 1. Steel exports volume and growth

Year	Steel exports vo-	Growth rate /%

	lume /tons	
2013	6234	11.9
2014	9378	50.5
2015	11240	19.9
2016	10849	-3.5
2017	7541	-30.5
2018	6934	-8.1
2019	9439	-7.3

According to the above data, the sharp decline in the export volume of steel industry in China has directly affected the normal development of China's steel industry. At present, China's steel industry mainly has the basic problems of poor concentration and low performance in terms of market structure. The more serious problems are the surplus and excessive energy consumption of China's steel industry and the problems of pollution. These problems directly affect the development of China's steel industry. Through the analysis results, it can be seen that China's steel industry restructuring is urgent.

3. Analysis of Steel Industry Restructuring in China based on SCP Framework

According to the above analysis results of China's steel industry, in this study, the SCP framework is used to analyze the restructuring process of China's steel industry and set the measures for China's steel industry restructuring.

3.1. Set the restructuring mode

In the process of industrial restructuring, the most important thing is the selection of restructuring methods. Through literature research, it can be seen that the current restructuring mode of Chin's steel industry is mainly composed of provincial restructuring, cross-regional restructuring, mergers and acquisitions of private enterprises and joint venture restructuring, but each mode has its own shortcomings. According to the development status of China's steel industry, the cross-regional restructuring mode is selected as the main restructuring control mode [6]. This mode is mainly used by large steel enterprises, and the use of this mode is encouraged by state-owned assets supervision and administration commission. Cross-regional restructuring, is a restructuring model that China's large steel companies must use. Using this model can increase the concentration of the steel industry and make China's steel industry have good international competitiveness. This restructuring model is the best way to solve the overcapacity.

According to the above analysis results, the cross-regional restructuring model is adopted as the restructuring method of China's steel industry. During the restructuring process, the local government's commanding ability is improved, so that the local government serves as the guide of the industry restructuring and assists the steel industry to complete the restructuring process.

3.2. Performance analysis of steel industry

According to SCP theory, the market structure analysis process of steel industry is set as the following relationship analysis process: the relationship between enterprises in the steel industry; the relationship between steel purchasing enterprises or consumers; the relationship between steel trading enterprises; the relationship between the existing steel sellers, steel buyers, and steel sellers and steel buyers who are entering or potentially entering the market [7]. Therefore, in this part, the market concentration and steel output of China's steel industry are analyzed. The specific data are shown as below.

Table 2. Market concentration and steel output of China's steel industry

Year	Market concentration	Market share	Steel output/ one hundred million tons
2014	16.54%	30.00%	8.23
2015	17.00%	30.50%	8.04
2016	18.54%	33.45%	8.08
2017	24.54%	37.81%	8.31
2018	24.14%	40.25%	9.28
2019	29.57%	41.01%	9.96

The concentration in the above data table is calculated by the formula, the specific formula is as follows:

$$CH_n = \sum_{i=1}^{n} \frac{A_i}{A} \quad (1)$$

In the above, CH_n is set as the industry concentration ratio of the enterprises with the largest output in the steel industry; n is set as the number of enterprises in the steel industry; A_i are set as the relevant data of steel production, steel sales amount, gross production value, number of employees or total assets of the i th companies in the steel industry; A is set as enterprise serial number, through this formula, the market concentration of steel industry in China in recent years is obtained. It can be seen from the above data that China's steel industry has higher market concentration and steel output, but combining this part of the data with that of Table 1, it shows that China's current steel export capacity is low. A large amount of steel cannot be exported, causing the problem of excess resources. At the same time, through analysis, it can be seen that the extraction and production of steel has high requirements for technical level. Steel companies that master cutting-edge technology occupy the market on a large scale. Steel companies with backward production technology have low market share due to technical obstacles. Therefore, the present stage presents the structural characteristics of concentration degree. In the face of huge international market profits, a large number of steel enterprises enter the international market, so the degree of competition is further enhanced.

3.3. Construct restructuring strategy

Based on the above analysis results, the corresponding countermeasures are put forward for the restructuring of China's steel industry. At present, China's steel manufacturing technology is relatively backward, only relying on a single enterprise to independently develop production technology optimization, so it is weak. In the process of optimization, funds, R&D teams, R&D cycles, and policy support should be given in time [8]. Some of the domestic steel enterprise groups with strong qualifications will be united to achieve common development. In the restructuring of the steel industry, the combination is not simply the sum of the number of enterprises. In this process, the most important thing is the complementary advantages among enterprises. At the same time, the government should give appropriate guidance in a timely manner, coordinate the relations between the various groups, and maximize the role of joint advantages between enterprises in a short period of time.

On the other hand, the government's support for the steel industry cannot only be reflected in the documents. How to combine industry restructuring with actual actions is currently the primary issue that needs to be studied in government assistance. The government often takes the joint venture or foreign brand as the main body in the restructuring of steel enterprises. The main reason for this is that the steel production quality of some private companies is low, the production technology is poor, and the market share is low. Although private enterprises have left a bad impression of quality, in recent years, China's private steel companies have made technological upgrades through many aspects and methods, and have made great progress in the quality of steel production. Their production results fully comply with international standards. In the government's regulation and control, we should increase support for small businesses in private enterprises and increase the proportion of small enterprises in the reorganization of China's steel enterprises.

4. Conclusions

Based on the SPC framework, this paper analyzes the market structure, market behavior and sales performance of China's steel industry. Due to time and capacity, many issues have not been studied in depth. For example, the status and competitiveness of China's steel industry in the international market and the development of the steel industry in various regions have not been clearly analyzed. In the future, the above problems should be further studied, providing a more comprehensive theoretical support for the reorganization of steel industry in China.

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