

# **China's State-owned Enterprises Development Under the Contracting System: The Case of Shougang Group**

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## **ABSTRACT**

Although the Contracting System, a stage in China enterprise reform, failed to provide the right approach to solve the problem of the relationship between the government and the state-owned enterprises (SOEs), it made Shougang Group unleash an extraordinary energy. This paper examines the reason why Shougang Group achieved striking performance under the Contracting System, which is different from most previous researchers. The reasons are mainly analyzed from scientific management, strict discipline and incentive systems, which are characteristics of Shougang and created by Shougang in the Contracting System period.

## **INTRODUCTION**

As one of the stages of China's State-owned enterprises (SOEs) reform, the Contracting System (chengbaozhi) have been studied by many scholars such as Yang, (1990), Byrd, (1991), Fan, (1994), Chen, (1995) and Gao, (1996). Now many years have passed since the practice of the Contracting System and it is briefly reexamined here in section 2 of this paper, from a historical perspective. Other than "the approach towards prosperity of the firm" (Yang, 1990), the Contracting System actually is not the right approach to solve the problem of the relationship between the government and the SOEs.

However, with several rare exceptions, a few SOEs with Shougang at the top, did achieve extraordinary success under the Contracting System. Section 3, 4 and 5 of this paper examines this issue in relation to a single case, Shougang Group, whose annual profit and tax payment surpassing all other industrial enterprises nationwide under the Contracting System. Why the Contracting System made Shougang unleash such a great energy so that it grown into one of the top 4 steel-makers in China, while in contrast, the number of loss-making SOEs and the amount of losses had increased over the years of the Contracting System? This is the main topic of the paper. Most analysis of Shougang has focused on the expanded autonomy given to Shougang and the strategies it practiced as the explanation. For example, Steinfield, (1998) observed that the company's success was an illusion based on the unique terms of its contract with the government which made failure impossible. Li, (2000) owed its performance to the combination of autonomy and a good management-labor relationship. Nolan, (2001) summarized that the military style leadership and its strategies of purchasing second-hand equipment, diversification and international operation contributed a lot to Shougang's achievements.

This paper argues differently. It asserted that a relatively higher degree of autonomy compared to other SOEs and political connections are only a small part of the reason. External favorable conditions cannot offer a sufficient reason for the outstanding achievement in Shougang. Section 3 introduces the conditions and development of Shougang under the Contracting System. Section 4 explores the real reasons for Shougang's success. Sections 5 explains the problems occurred and the ending of the Contracting System. And section 6 concludes the findings of this paper.

## **THE CONTRACTING SYSTEM**

It is well-known that since the end of 1978 the Chinese authorities have implemented a wide range of reforms of SOEs with the objective of improving economic efficiency. As one of the stages in SOEs reform, the Contracting System was adopted between 1981 and 1993, with the purpose of enhancing economic performance by practicing efficient management of the economically beneficial relationship between the state, the enterprises, and the staff and workers, although actually it was discontinued during the period of 1983-87 and substituted by profit taxes system. The Contracting System was based on the theory that ownership and management should be separated. The basic idea underpinning the system was firstly, to establish a kind of contractual relationship between the government and a SOE; Secondly, to sign an overall agreement between the government and a SOE; And thirdly, to guarantee the government revenue in a fixed term, instead of paying income tax, and also had to fulfill a few other obligations. Apart from these, the enterprise was supposed to have autonomy to manage its own business. With these three points as the basic idea, there were also three main provisions of the Contracting System: Profit-sharing scheme between the government and SOEs; Total wage bill control scheme for the employees and Contractual technology investment projects.

The motivation produced by the Contracting System was impressive. Enhanced decision-making power had strengthened enterprises' capacity for self-restraint, investment and development, and enabled them to take responsibility for their own profits and losses (Gao, 1996). As Lin, Fang, & Zhou, (2001) analyzed the lack of efficiency and the absence of vitality in a micro-management mechanism devoid of autonomy under the traditional economic system had both been remedied to a certain degree and so helped enterprises to behave more independently as enterprises should. However, the practice of the Contracting System caused many serious problems both for the state and within the enterprises, which are briefly concluded as the following.

(1) Damaging the government interest in revenue, because the determination of handed-over profit figure was based on previous performance rather than potentiality. The consequence was the total government revenue at the central government from the state-owned enterprises had been reduced continuously by 0.86 percent in 1987, 10.45 percent in 1988, and 17.5 percent in 1989(Yang, 1990).

(2) Infringing state assets caused by enterprises' short-term behavior due to pursuit of maximum annual profit (Gao 1996; Hassard, Sheehan, & Morris, 1999). A survey revealed that the erosion and dissipation of state assets between 1982 and 1992 totaled over RMB 500 million Yuan.

(3) Increasing in number of loss-making SOEs and the amount of losses due to SOEs' failing to complete the profit target. Being path-dependent, enterprises knew well they still could appeal to their supervisory government and have part or all of their shortfalls being met from bank loans and budgetary subsidies (Fan and Schaffer, 1990).

From the above, it could be seen that the Contracting System is not the right approach to solve the problem of the relationship between the government and the SOEs. However, Shougang's performance in the early and middle period of the Contracting System was outstanding and incredible. Why Shougang could achieve such good performance? The following first discusses the practice of the Contracting System in Shougang.

### SHOUGANG UNDER THE CONTRACTING SYSTEM

Shougang Group, one of the top four steel makers in China, was established in 1919. Now it is a large-scale integrated iron and steel plant as well as a trans-regional, transnational and trans-industrial Group. Actually, by the mid-1970s it was only China's eighth largest steel plant.

#### Shougang's development under the Contracting System

After 1979, Shougang experienced 15 years under the Contracting System, during which time great changes took place. It was the growth under the Contracting System that made Shougang one of the top four iron and steel enterprises in China and also one of the 20 largest steel producing firms in the world. Shougang's production of crude steel increased from 1.79 million tons in 1978 to 8.33 million tons in 1994 (table 1), around 10 percent per annum. The profit ratio has increased by about 20 percent for 8 successive years since 1979 (Yang, 1990) (table 2).

**Table 1: Comparison of Selected Statistics of Shougang in 1978 and 1994**

Statistics	1978	1994
Output of crude steel (million tons)	1.79	8.24
Output of steel products (million tons)	1.18	5.83
Average employees' income (yuan/month)	61.15	606
No. of joint ventures	0	65
No. of industries involved	2	18
No. of employees	110,000	260,000

Sources: Material from Shougang; Beijing Review (14-18 August 1992: 14-15)

**Table 2: Profits and Investments of Shougang 1978—1990**

	million yuan												
year	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Total profits and taxes	377	452	539	537	644	763	925	1114	1338	1593	1894	2258	2626
Annual growth rate %		19.9	19.2	-0.4	19.9	18.5	21.2	20.4	20.1	19.1	18.9	19.2	16.2
Profits and taxes handed over to the state	377	422	484	480	529	611	683	781	883	982	1093	1274	1487
Investment from the state	182	98	70	47	34	0	0	0	0	0	0	0	0

Sources: Shougang Reform Vol. 1; Li Jisheng 2000: p. 139.

### **The practice of Contracting System in Shougang**

Like all SOEs, before the reform, state organizations excised rigid control on Shougang and Shougang had no autonomy at all. In May 1979, Shougang was selected by the Chinese government as one of the pilot companies to experiment with the system of enterprise profit retention. It was from 1981 that the 15-year-long contract put into effect and the main contents were: Handed-over profit amount this year = last year's figure  $\times$  (1+0.072); Retained profit = accomplished profit – handed-over profit; Distribution ratio of retained profit = production development funds: welfare funds: employees' bonus = 6:2:2; State financial investment = 0; Total profit increase amount: payroll increase amount = 1:0.8 (Li, 2000).

### **REASON ANALYSIS FOR SHOUGANG'S SUCCESS**

It could not be denied that Shougang's Contracting System was supported by China's supreme authority and so enjoyed more autonomy as Steinfield (1998) analyzed, but it is only small part of the reason. In fact Shougang overcame some disadvantages that were common in most enterprises under the Contracting System and developed effective management by making best use of the conditions the Contracting System could offer.

#### **Scientific management**

According to Taylor (1985: 140), the following whole combination constitutes scientific management. "Science, not rule of thumb; Harmony, not discord, Cooperation, not individualism; Maximum output, in place of restricted output; The development of each man to his greatest efficiency and prosperity". Among these, the most basic principle is the first—"science, not rule of thumb", which according to him, means to "develop a science for the work of each person. This involves determining how the work can best be performed by experimenting with it, conducting motion and time studies, and often applying mathematical formulas." (Miner, 2002: 69).

From August 1980, Shougang began to introduce the operation standard and in 1981, based on the past data and international standard, Shougang established its own "post operation rules", "post operation methods" and "technical operation standards" to meet different technical requirement, so that the maximum output could be produced.

In order to make each man develop "to his greatest efficiency and prosperity", by doing motion and time studies, referring to past records and comparing advanced standard in other countries, in the late half of 1981, Shougang also determined the specific workman number for every post. While most of the standards referred to Nippon Steel Kimitsu Works, in some posts the standards were even higher. For example, in Nippon Steel Kimitsu Works, the following workman-number standard was practiced: for one sintering machine, 1.5 persons; for one group of furnace forefront workers, 15 persons and for one group of converter forefront workers, 9 persons. Shougang made it into 1.2 persons, 8 persons and 7 persons respectively (Li, 2000).

Iron and steel making is typical social production in which coordination is indispensable. As Henri Fayol stated "The various activities of an organization must be harmonized into a single whole, and that is the function of coordination... various departments work in harmony with each other, communicating as needed, rather than

operating in isolation as ends in themselves...” (Miner, 2002: 69). However, the practice of the Contracting System created a profit sharing groups between the government and the company, the director and the middle manager, the middle manager and a working team, and even the team leader and a worker. With this, there was a tendency to break down the existing organizations into small businesses or to manage them according to the rule of small business. Shougang overcame this disadvantage by attaching much importance to coordination and made the responsibility of coordination a part of the contract content.

Shougang’s Contracting System actually consisted of two faucets—the external contracting and the internal contracting. The first faucet—the external contracting was the correct handling of the economic relations between Shougang and Beijing City Government, while the second faucet—the internal contracting was the correct handling of the relations between the enterprise and the workers. This meant that within the enterprise, there was a pyramid-like Contracting System with the general business objectives at the top and the various economic and technical norms to be achieved by the production posts at the lowest level (figure 1).

To be exact, on every level of the contracting in the pyramid, there was not only contracting, but also some other contents, which was Shougang’s characteristic and famous “contracting, guaranteeing, and judging program” (bao, he fangan).

- Contracting(bao)—contracting to every post

The broad targets of the Corporation were divided into 20 categories including planning, technical, financial, equipment supply and maintenance, welfare and personnel work. These 20 categories were subdivided into 1325 detailed economic and technical tasks for plants and mines and 23126 posts. These tasks were further divided into 235684 targets for individual workers (Nolan, 2001).

- Guaranteeing(bao)—guaranteeing the coordination

In order that the production could go smoothly, the coordination of different divisions and departments and also of the related working shift must be guaranteed, so Shougang made guaranteeing of coordination a part of the contract by laying down a standard for every product (including unfinished product) in every post and every step of production. Only by reaching the standard at this step, production at next step would not be affected. For example, as far as the contract for the post of a steel making worker is concerned, there were 48 items, of which 9 items were index, 35 items were technical operation requirement, and 4 items were coordination tasks (Zhao, 1986: 99).

A case in point about the coordination-guaranteeing was the standard for the silicon inclusion. It is known that the silicon inclusion amount in the melted steel affects both iron making and steel making. Too high inclusion of silicon means more consumption of coke in pig iron making, so the cost of producing pig iron would be high. On the contrary, low inclusion of silicon means less scrap steel during steel making, and so the cost of producing crude steel would go high. Therefore, in the contract, the silicon inclusion in melted steel was settled between 0.4 percent and 0.7 percent and all the melted steel would be tested so that the production in iron-making and steel-making plant would not be affected, thus ensuring the coordination between different plants (Zhao, 1986).

**Figure 1: Pyramid-like Contracting System**



Source: Yiwei Jiang, 1983: 37.

- Judging(he)—judging the actual performance

Judge the practice on every post according to the contract, and rewarding and penalty would be decided.

### **Strict discipline**

Henry Fayol concluded that “discipline is a condition for effective operation of business. It consists of obedience, application, energy, behavior, and outward marks of respect, all given on the basis of some formal or informal employment contract between the individual and the firm”. ((Miner, 2002: 66)

The technological and coordinative characteristics of the steel industry decide that a mistake by a single individual can lead to large loss of whole output. Under the Contracting System, Shougang was famous for its highly disciplined management which was embodied in “Twelve Rules about Strict Enforcement of Regulations in Shougang”. The “Twelve Rules” were summarized into “three one hundred percent system” and it became a symbol of Shougang’s strict discipline introduced by Shougang’s General Manager and Party secretary at the time—Zhou Guanwu. Under this system, every employee had to obey regulations “one hundred percent”. Any violation of the regulations had to be recorded and reported “one hundred percent”. Violators were deprived of their bonus “one hundred percent”, no matter whether the violation had caused damages or not. In order to strengthen the management for violations, it was regulated that any violation must be recorded, reported and analyzed.

The strict discipline did not just apply to workers, but also to cadres. Shougang in 1983-84 alone, over 200 leading cadres, one half of the total were removed from their post (Nolan, 2001). From 1978 to 1990, 678 of cadres

at and above the level of subordinate plant and division management were either demoted (643) or dismissed entirely (35), amounting almost 10 percent of the total (Xu and Liu, 1992). If production targets were not fulfilled for 3 months, the work of the senior staff was examined and those considered responsible were removed.

The counterpart of the strict discipline at Shougang was that the average income for employees at the plant was relatively high compared with other enterprises. The detailed wage conditions would be discussed in the incentive system below.

## **Incentive system**

### ***Wage and bonus***

#### (1) The payment of duty and post wages

In order to encourage employees to study their line of work and its technologies and to fulfill their responsibilities thoroughly, Shougang restructured its wage system by assigning duty wages to cadres and post wages to workers (Du, 1992). The duty wage was determined according to the duty of the cadre, with duty standards subdivided into several grades. The posts were likewise subdivided into various grades. Pay was differentiated by duty and grade.

#### (2) The floating wage system

Each year, 30% of the staff and workers could enjoy the floating wage if the enterprise fulfilled the production plans (Shougang Reform, vol. 1, 1992: 517). The 30% were those who could carry out the tasks, reach the economic or technical norms originally set, and pass the technical tests. If they could continuously do these in the following 3 years, the floating wage would become the regular wage; otherwise, it would be canceled. Because the floating wage was subject to change within the three year period, it provided an incentive to the worker to strive for it in the first year, to make progress in the second year and to put forth even greater effort during the third year. The system proved truly effective in providing the workers with incentive.

#### (3) Bonus

Bonus was an important part of Shougang employees' income and it consisted of two parts: monthly bonus which was allocated in relation to the monthly evaluation of employees' performance and yearly bonus which was related to the overall performance of the whole enterprise. In deciding the bonus, priorities were given to those workers who were engaged in major production, in direct production and in the forefront of production. The actual bonus of workers in the same unit were calculated according to the importance of their production posts, the relative importance of their economic responsibilities, the complexity of the techniques they use, the intensity of their labor and their actual labor productivity. In this way, the bonus of each unit and each individual varied according to the development of production and the changing economic results, as well as the relative dedication of each to their tasks in production.

Generally speaking, the bonus level was high in Shougang. For instance, the average bonus in 1979 was equivalent to 2.5 times the monthly pay, in 1980 it was 3 times, and in 1981 it was 3.6 times as large. In 1984 it was 4.72 times the average monthly pay. (Du, 1992). With the high bonus, average total income per worker at Shougang was also high. In 1993 it was 5946 yuan, 27 percent above the average total wages in the manufacturing sector in

Beijing (4671 yuan) (China Statistical Yearbook, 1994: 122, 366-9).

***“The employees are the base” concept***

(1) Employees’ participation in management

Staff and Employees’ Representative Congress in Shougang (“Congress” in short) played an important role in management. In November 1988, it became the highest authority in Shougang (Shougang Staff and Employees’ Representative Congress Measures, 1988: 652). In the “Congress Measures”, the following contents were provided.

Employees’ participation in management was realized through Congress, which would be held once a year. Congress representatives were selected directly from employees and for every 100 employees, there was 1 representative. Congress had three important rights. First was the right to discuss and decide Shougang’s significant policies. Second was the right to select members of the Corporation Plant Committee, which was the standing organization of Congress, and the Corporation vice General Manager. Since Third was the right to warn the Chairman of the Plant Committee and the General Manager whenever necessary.

In order to make Congress function well and make every employee’s voice be heard, there came a rule that in Shougang, all the important policies were to be discussed for one month by all employees, during which everyone was encouraged to present ideas which were then collected and presented to Congress. In September 1983, when the 1984 operating plan was put forward, 12,000 opinions were submitted in one week (Du, 1992). In 1990, altogether 5,700 opinions from employees were adopted and brought economic benefit of 295 million yuan (Shougang Reform, vol. 1, 1992: 609).

(2) Training programs for employees

Shougang attached great importance to training its employees and regarded it as an important means to improve productivity. From 1978 to 1990, more than 85 percent of its staff participated in different training programs. The number of employees who took more than twenty annual study hour training course rose from 17,700 in 1978 to 232,000 in 1990.

Special training programs were set up for cadres to improve management at different levels. From 1984 to 1987, 95 percent of the 11,000 chiefs at workshop level participated in full-time out-of-work training for one or two weeks. During the period from 1980 to 1985, 34,000 cadres of subordinate plants and divisions participated five times each per year in different training programs and 11,000 workshop level cadres participated four times annually in different training programs. (Nolan, 2001)

Besides the effective management mentioned above, Shougang adopted a series of strategies. For example, it optimized steel-making business and improving production technologies by upgrading existing equipment and purchasing second-hand equipment from abroad, so that it saved a large sum of money in investment. It was one of the large SOEs which, early in the 80s, practiced diversification and overseas expansion strategy in China. It diversified into machine building, shipping, mining, electronics, service industry and real estate, etc. and it invested in several big overseas projects. These strategies contributed to Shougang’s high growth of profits, but also at the same time, created some problems, which is discussed in the following part.

## **PROBLEMS AND THE ENDING OF THE CONTRACTING SYSTEM IN SHOUGANG**

Despite its achievements, the Contracting System ended in 1995 with the ending of the 15-year contract. This, on one hand was the necessary result of the nationwide tendency, and on the other, there were also some problems in Shougang itself, esp. in the last several years of the Contracting System.

### **Short-term behavior**

The unusually long term of its contract with the state did not make Shougang immune from the problem of short term behavior (Hassard et al. 1999). Although the policy of “repairing and renovating rather than replacing” and the policy of “purchasing second-hand equipment from international market” bring quick returns to boost short-term profitability, the equipment soon became outdated and further strengthened its characteristic of low value-added products. Internal material (1) shows that even after some adjustment measures, high value-added products accounted for only 12 percent of total steel products in Shougang in 1996. The poor product quality made it the lowest in steel product price among the 4 largest steel makers in China in 1996, with a contrast of higher cost (Internal material 2).

### **Financial difficulties**

With much retained profit left from previous years, Shougang began its large investment. However, it lacked a clear investment strategy. According to the internal material (Internal material 3), from April 1985 to December 1994, Shougang invested into 96 projects of 15 industries outside of Shougang, amounting to RMB 2.89 billion yuan. Although the investment was in various forms, the profit returned was so little that it almost equaled to zero compared with such a large sum of investment, and so was the return-on-investment. It also shows that many big investment projects began simultaneously. In October 1992, Shougang invested US\$20 million to purchase 51 percent of the shares of a steel trading Corporation in Hong Kong, Tung Wing Steel Ltd. Two month later, in December of the same year, it purchased the Hierro iron mine in Peru with another US\$ 120 million –allegedly twice the price offered by the next highest international bidder. The direct result was that from 1993, Shougang began to experience severe financial difficulties and caused a shortage of investment for the key pieces of technological innovation which the corporation's core steelmaking business urgently needed.

On the other hand, although Shougang's actual profits increased at an annual rate of 20 percent for many years, its remittance to the state only increased at an annual rate of 7.2 percent per year. In this sense, Shougang benefited more from the Contracting System than the state. In addition, in February 1995, Zhou Beifang, the chief executive of a Shougang subsidiary in Hong Kong and also Zhou Guanwu's son, was arrested on corruption charges. This year happened to be the last year of the 15-year contract in Shougang, when actually most of the SOEs had abandoned the Contracting System. Thus the Contracting System also ended in Shougang, which “marked the end of an extraordinary epoch in Shougang's history” (Nolan, 2001: 643).

## CONCLUSION

As a case study, this paper examines Shougang Group—one of the top 4 steel works in China by analyzing the reasons why it could achieve extraordinary success under the Contracting System, although the practice of which proved unsuccessful in most SOEs.

Firstly, scientific management not only made the development of each man to his greatest efficiency and prosperity possible, but also overcome the disadvantage of overlooking coordination. As a part of the scientific management, the “contracting, guaranteeing and judging program” created by Shougang under the Contracting System still works well today. Its highly disciplinarian style of management constituted the second reason, which actually guaranteed the practice of scientific management. In this part, the famous “three one hundred percent system” was mentioned. The counterpart of the strict discipline was its incentive system, which was the third reason analyzed in this paper. These three reasons were all closely related to the Contracting System and in the meanwhile co-related each other. Generally speaking, Shougang’s leadership exercised the autonomy granted by the state in a highly effective way, radically altering its method of operation in the planned economic times. Instead of blindly carrying out the orders of higher authorities, it responded highly effectively to the opportunities offered by the increasing demand for steel and the increased decision-making power. It made full use of the advantages offered by the Contracting System and overcame many disadvantages that easily caused by the practice of the Contracting System. Through its efforts to grow and modernize, Shougang developed from a state plant to a modern corporation, although Shougang also experienced some problems such as short-term behavior, financial difficulties and corruption crime in the management.

As soon as the Contracting System was removed, Shougang became as much of a focal point for criticism of the Contracting System as it had once been for its praise. However, even the ending of the Contracting System nationwide should not obscure the real achievements in Shougang and the effective management practiced in Shougang. After all, it is through the period of the Contracting System that Shougang grows one of steel giants in China and furthermore, some of the management is still in good effect today.

## REFERENCES

- Byrd, W. A. (1991). Contracting responsibility systems in Chinese state-owned industry: a preliminary assessment. In N. Campbell (Eds.), *Advances in Chinese industrial studies*, vol.2: 7-35. JAL Press Inc., London.
- Chen, D.R. (1995). *Chinese firms between hierarchy and market: the Contract Management Responsibility System in China*. St. Martin's Press, New York.
- Du, P. R. (1992). Motivating workers in a large state-owned enterprise: capital Iron and Steel Corporation (Shougang). In Totten George & Zhou Shulian (Eds.), *China's economic reform: administering the introduction of the market mechanism*: 87-97. Westview Press, Stockholm.
- Fan, Q. M. (1994). State-owned Enterprise Reform in China: Incentives and Environment. In Fan Q. M. & Nolan, P. (Eds.), *China's economic*

- reforms: the costs and benefits of incrementalism*: 137-156. St. Martin's Press, New York.
- Fan, Q. M. and Schaffer M. E. (1990). *Taxation and enterprise profitability in Chinese industry*. London School of Economics, London.
- Gao, S. Q. (1996). *China's Economic Reform*. St. Martin's Press, New York.
- Hassard, J. Sheehan, J. & Morris, J. (1999). Enterprise reform in post-Deng China. *International Studies of Management & Organization*, Vol. 29 Issue 3, Fall 1999: 54-83.
- Internal material 1: Shougang Group (SG). June 30, 1998. The reform agendas of the Shougang group (In Chinese).
- Internal material 2: April 3, 1997. Main problems Shougang is faced during the reform (In Chinese).
- Internal material 3: December 7, 1995. An auditing report about the investment activities in Shougang (In Chinese).
- Jiang, Y. W. (1983). *Studies on Shougang Corporation management and administration*. China Finance and Economy Press, Beijing (In Chinese).
- Li J. S. (2000). *China SOE management—labor relationship*. Ochanomizusyobo Press, Tokyo (In Japanese).
- Lin, J. Y., Fang, C. & Zhou, L. (2001). *State-owned enterprise reform in China*. The Chinese university Press, Hong Kong.
- Miner, J. B. (2002). *Organizational behavior: foundations, theories, and analysis*. Oxford University Press, Oxford.
- Nolan, P. (2001). *China and the global business revolution*. Palgrave, New York.
- Nolan, P. & Godfrey, Y. (2001). Large firms and catch-up in a transitional economy: the case of Shougang Group in China. *Economics of Planning*, 34: 159-178.
- Shougang Staff and Employees' Representative Congress Measures, (1988), in Editorial Commission of Shougang Reform (Eds.), *Shougang Reform*, vol. 1 652-657. Beijing Press, Beijing (In Chinese).
- Shougang Reform*, vol. 1 & 2 (1992). Editorial Commission . Beijing Press, Beijing (In Chinese).
- Shu Z. J. Shougang on the road to transnational operation. *Beijing Review*, Oct. 4-10,1993: 17-22.
- Steinfeild, E. S. (1998). *Forging reform in China: the fate of state-owned industry*. Cambridge University press, Cambridge.
- Tang Y. K. (2002). Shougang is turning green. *Beijing Review* July 25, 2002: 15-19.
- Taylor F. W. (1985). *The principles of scientific management*. Hive Publishing Corporation, Easton.
- Wang, Z. R. (1993). *Zhou Guanwu and Shougang: recording of reform in Shougang*. Hundred Flowers Art Press, Tianjin (In Chinese).
- Xiao, F. T. (2003). *The reformation, adjustment and development of China's state-owned enterprises*. Economics and Science Press, Beijing (In Chinese).
- Xu, R. Z. & Liu, P. Q. (1992). Contracting system in Shougang: inducing public ownership in everyone. In Editorial Commission of Shougang Reform (Eds.) *Shougang reform*, Vol. 1: 199-204. Beijing Press, Beijing (In Chinese).
- Yang, P. X. (1990). *The Contracting System, the approach towards prosperity of the firm*. China Economic Press, Beijing (In Chinese).
- Zhao, Y. J. (1986). The basic practice of the Contracting System in Shougang. In Shougang Research & Development Center (Eds.), *The Contracting System in Shougang*: 88-107. Economy Management Press, Beijing (In Chinese).