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# The Nature, Features and Governance of State-owned Energy Enterprises

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## Abstract

The state-owned energy enterprise, in essence, is a kind of contractual arrangement. In order to maximize national interests, the state delegates executives to operate business in the energy sector by combining energy resources with other resources through a series of contracts. Yet the features of state-owned energy enterprises, such as monopoly, negative externalities, strong asset specificity and high opportunism risks, could give rise to some negative impacts. So, in order to avoid negative impacts, improve governance efficiency and achieve harmony between man and nature, we should improve government regulation system, establish a more efficient board, implement a reasonable operator incentive system, and revise the supervision and constraint mechanisms.

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*Keywords:* negative externality; asset specificity; corporate governance

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## 1. Introduction

As the basic industry of national economy, the energy industry has played a very important part in the social and economic development. So do Chinese state-owned energy enterprises (SOEEs). They assume heavy responsibilities for guaranteeing the energy safety and supporting the economic development. However, many accidents have taken place in recent years, such as the loss China Aviation Oil suffered, the cadmium pollution to Beijiang River and Xiangjiang River, the lead poisoning involving children in Fengxiang and Wugang. Maybe people have to concern about the corporate governance of Chinese SOEEs. And for those reasons we write this paper which consists of 4 parts. The first part is to explore the nature of SOEEs. The second part is to analyse their features. The third part is to put forward some suggestions to their corporate governance. The last part is the concluding remarks.

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## 2. The Nature of State-owned Energy Enterprises

The nature of the firm can be broadly classified into two theories: transaction cost theory and contract theory. Transaction cost theory considers the firm as an alternative to the market (Coase, 1937). They believe that a firm is a particular type of social institution that can improve the efficiency of transactions (Spulber, 2009). While contract theory points out that the nature of the firm is a contractual relationship to restrict the behaviour of traders (Alchian, 1984), as “nexus for a complex set of voluntary contracts among customers, workers, managers and suppliers” (Jensen and Meckling, 1976). Therefore, we could say that contract theory analyzes the firm from the perspective of relationship; transaction cost theory explains the firm from the standpoint of purpose that is to save transaction costs. And we believe that the firm is an economic unit (or organization) which operates business for its own interests by combining a lot of economic resources (including human and physical resources) through a series of contracts (including market contracts and non-market contracts).

State-owned enterprises (SOEs) are enterprises which are invested and controlled by the state. Their business scopes are characterized by strategy, usually covering energy resources, post and telecommunications, main transportations, etc. SOEs come into being in various countries due to the comprehensive effect of many factors, such as market failure, regulatory defects, social objectives, etc. During the period of planned economy, SOEs are considered to be “community units”, which undertake a variety of functions, for example, production, social security, social welfare and social management (Liu, 1995). Zhang and He (1996) further point out that the rigid boundary is unique for SOEs. However, after the economic reform, most social burdens of SOEs are removed. So they can focus on the goal of making profit. Even so, SOEs still take on many responsibilities, because they can be used as tools and means to intervene in the economy, as policies and measures to deal with the issue of market failure in the public interests (Huang and Yu, 2006). So we believe that the nature of SOEs is a kind of contractual arrangement. In order to maximize national interests, the state delegates executives to operate business by combining many resources (economic resources and political resources) through a series of contracts.

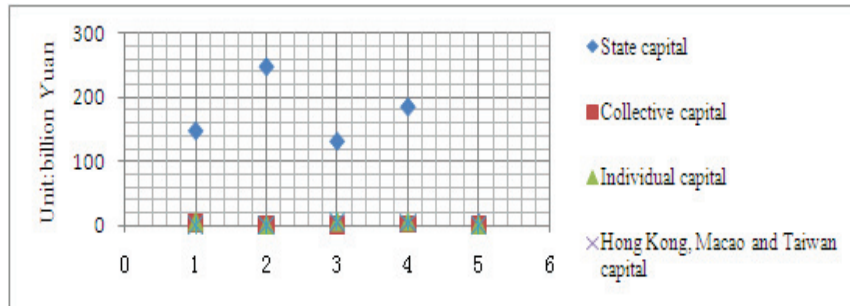
SOEEs refer to SOEs in the energy sector such as coal, electricity, oil, natural gas and renewable energy. They have contributed to the realization of strategies for energy development (stable energy supply, energy security). The formation of large SOEEs can strengthen competitive power in international energy market and reduce negative externalities in energy production process. The energy industry is characterized by natural monopoly, externality and public product (Lin, 2009), which leads to indiscriminate mining, etc. If the energy enterprises are nationalized, environmental protection and energy saving could be carried out more effectively. SOEEs are important part of SOEs; their nature is largely determined by that of SOEs. We believe that SOEEs is a kind of contractual arrangement too. In order to maximize national interests, the state will delegate executives to operate business in the energy sector by combining energy resources with other resources through a series of contracts.

## 3. Features of State-owned Energy Enterprises

SOEEs develop in their own unique ways. So they have the following features:

(1) Monopoly and conglomerate. Statistics show that the proportion of national capital in the energy industry is higher than 90%, even up to 99% in some industries, such as oil and gas industry, gas production and supply industry (as shown in figure 1). These features can be viewed from three aspects. (a) Oil and natural gas industry is characterized by oligopoly. For example the exploration, extracting and marketing of oil and natural gas are exclusively controlled by the three large SOEEs (Sinopec, Petro China and CNOOC). (b) Natural monopoly is typical of the power industry. Five independent power producers such as China Datang Group, monopolize the power production industry of China while State

Grid Corporation of China and China Southern Power Grid Company control its supply. In 2008 the national capital of China's large power, heating production and supply enterprises was 184.828 billion Yuan, much larger than other kinds of capital. (c) Conglomerate is the development trend of coal enterprises. The state capital in the large-scale coal enterprises in 2008 was 147.326 billion Yuan, yet the total value of private capital, foreign capital, Hong Kong and Macao capital was less than 6.2 billion Yuan. Besides, Chinese coal industry would be dominated by large state-owned coal enterprise groups (Shenhua Group, etc.) in the future.



Data sources: China Industrial Statistical Yearbook in 2008. The number “1” in horizontal axis represents the coal mining industry; the number “2” represents the petroleum and natural gas exploitation industry; the number “3” represents the oil processing, nuclear fuel processing industry; the number “4” represents the electric power, heat power production and supply industry; the number “5” represents the gas production and supply industry.

Figure 1: The Capital Structure of Chinese SOEES

(2) Strong asset specificity. Compared to other enterprises, SOEES are featured by strong asset specificity. Asset specificity refers to the extent to which the investments made to support a particular transaction have a higher value to that transaction than they would have if they were redeployed for any other purpose (Williamson, 1999i). And it is mainly indicated in the following 5 aspects. (a) Site specificity. The distribution of energy resources plays a decisive role in selecting mining production sites of SOEES, such as the selection of oil wells, mine. (b) Physical asset specificity. The energy industry needs to be furnished with lots of sophisticated facilities such as power generator which could only be applied in this field. And such a fact leads to high barriers to entry for the energy industry. (c) Human asset specificity. SOEES also need tremendous human capital, professionals for instance. (d) Special asset specificity. In order to improve the technical level, SOEES demand enormous special investment which is exclusive for the energy industry. For example, China Guodian Corporation invested over 22 billion Yuan in Da Gangshan Hydropower project in 2009 (2009 Guodian Corporation annual report, p. 81, 2010). (e) Brand asset specificity. More often than not, Petro China is a well-known brand just in the petroleum industry rather than in electricity, food or other fields.

(3) Much negative externalities. Though negative externalities can partly be reduced, if energy enterprises were nationalized, but in comparison to other industries, they are still troubled more intensively and frequently by negative externalities. If income or the cost of an economic activity judging from a social point of view are inconsistent with income or the cost judging from the perspective of private or business, so called the economic activity has an externality. And if social cost of an economic activity exceeds the private cost, then the negative externality comes into being. Negative externalities of SOEES mainly refer to negative externalities of production, such as coal mining. They can be divided into five categories: damage to workers, harm to the public, the ecological impact, the climate impact and landscape impact (Lin, 2009). In addition, on the one hand, part of negative externalities of SOEES is public externalities, that are non-depletable externalities. The public externality has some characteristics

of public goods, such as non-competitive and non-exclusive. The cost to eliminate public negative externality is high. On the other hand, part of negative externalities of SOEEs also belongs to intergenerational negative externalities, such as resource depletion, the greenhouse effect and so on. Their harm could have to be borne by future generations.

(4)High opportunism risks. Compared to other enterprises, SOEEs more frequently give rise to higher risks of opportunism. Opportunism refers to the pursuit of self-interest by trick (Williamson, 1999ii). Opportunism risks confronting by SOEEs include the following 4 aspects. (a)The “free rider” behavior due to collective action. For example, minority shareholders can enjoy with ease the benefits from the supervision by major shareholder over operators. (b)The “hold-up” because of asset specificity. The strong asset specificity of SOEEs will lead to much transpose and exit costs, increasing the risk of “hold-up” by others. (c)The “adverse selection” on account of information asymmetry. The most typical case is that when selecting directors and other senior staff investors are kept outside from the information on the candidate and that when people cannot discover the aptitude and ability of potential agents, so that the one who although with poor quality, asks for a lower price will probably be selected. (d)The “moral hazard” based on information asymmetry. It mainly falls into two types: firstly, after the signing of the contract SOEEs may raise product price and reduce output to erode consumer surplus by virtue of their monopoly position; secondly, the national interest are grabbed by SOEEs, taking advantage of information asymmetry. The existence of dual or multiple principal-agent relationships in SOEEs often leads to higher moral hazard risks such as insider control and corporate tunneling effect too.

#### **4. The Governance of State-owned Energy Enterprises**

As mentioned above, in consequence of monopoly, strong asset specificity, negative externalities and opportunism risks, SOEEs may give rise to some negative outcomes. Monopoly would lead to high product price, underproduction, and resource waste so that consumers’ need couldn’t be satisfied and the whole social welfare is under no circumstance to be improved. The increasing in “hold-up” risks would result from strong asset specificity. Negative externalities could beget market failure, over-exploitation of resources, environmental pollution, and the erosion of consumer surplus by monopoly enterprises. And the harm to national interests may originates from the opportunistic behaviour. To avoid these negative consequences, we insist that special governance mechanism should be adopted to manage SOEEs.

(1) Improving the government regulation system. The monopoly and negative externalities of SOEEs will lead to market failure, which requires a perfect government regulation system. The government should improve the government regulation system in both regulators and content. (a)Regulators are supposed to include government and industry associations. And the former is supposed to establish an independent regulatory agency so that government regulation and policy-making are no longer carried out just by one party and regulatory agency can make decision independently. It is also high time to remove the duties of policy-making and regulation from the SOEEs. To carry out self-regulation in the industry, the industry associations are expected to come into being. Automatic regulation by government agencies and self-regulation by industry associations is bound to improve regulatory effects (Wang, 2007). (b)Concerning content are the four following aspects: firstly, to intensify the competition among energy companies and to improve the efficiency of the energy industry the entering of new investors and new enterprises to the energy industry is a must; secondly, the government should improve environmental protection laws and regulations in the energy sector to reduce negative externalities which are caused during energy exploration, production and consumption; thirdly, resources saving standards, technological innovation, resource-waste sanction are indispensable; and finally, the government should implement incentive price regulation, encourage enterprises to improve efficiency and reduce costs.

(2) Establishing a more efficient board. The board of directors of SOEES should play two major roles: supervisor and consulter. It monitors the behaviour of senior management to maximize the overall interests of stakeholders as well as supports and assists them to improve the efficiency and effectiveness of corporate governance, etc. And an efficient board could be established through the enhancing of constitution, knowledge, motivation and evaluation. (a) The board of directors of SOEES should be composed of representatives of various stakeholders. In addition to representatives of national investors and business executives, it should be composed of representatives of public interest. For example, environmental protection departments should have the right to send representatives to the board because environmental protection agencies are able to give reasonable suggestions and make more qualified monitor when the project involves serious negative externalities. Workers selected by the workers congress should also play a role in the board. And more than half of the seats should be allotted to the independent directors. (b) Board members are required to master various but complementary expertises to meet the strategic needs faced by SOEES while standardized board member selection procedure is expected eagerly. Except those candidates with political background or those with management experience in the energy subsidiary, young candidates with rich management experience in the non-political, non-energy sectors also should be potential directors. (c) Board members should be motivated to ensure that interests of directors are in harmony with interests of SOEES. (d) To improve the work efficiency of the board, SASAC should evaluate the performance of the board of SOEES and SASAC could turn to the self-evaluation taken by the board in New Zealand for help (the chairman of the board evaluates the performance of other directors while other directors evaluate that of the chairman).

(3) Implementing a reasonable incentive system for operators. The implementation of a reasonable incentive system aims to ensure that interests of operator should be consistent with overall interests of stakeholders, to stimulate the desire of operators to succeed while a large average income gap between executives and employees is held at the bay, to reduce negative externalities. Often the incentive system for SOEES' operators is comprised of monetary incentive and non-monetary one, both of which come into effect when the standard performance evaluation system is adopted. In turn the former consist of salary, modest job consumption and welfare while the latter is subdivided into job promotion, stock options and honours. In addition, performance assessment of operators should pay attention to all relevant factors of the general welfare, such as environmental protection and technological development.

(4) Revising the supervision and constraint mechanisms. Due to the high risks of opportunism, to be put forward are the multiple supervision and constraint mechanisms which fall into the horizontal and vertical types. (a) The horizontal supervision and constraint mechanism touches upon three factors. Firstly, the regulatory role of independent directors should be played fully. Secondly, the independent regulatory ability of board of supervisors is to be enhanced. Independent supervisors are must to obtain the internal checks and balances. SASAC should endow employees with more power as supervisors because as company's staff they are well-informed and more observant of the firm and are helpful to the board of supervisors in taking and making timely preventive measures or punitive decisions. Thirdly, discipline inspection and supervision, financial audit supervision, democratic supervision of workers in SOEES are required to play their role of ensuring the standardized operation of enterprises. (b) The vertical supervision and constraint mechanisms are also indispensable for SOEES. It also involves three aspects: the supervision of SASAC over enterprise groups, enterprise groups' supervision over listed companies and other companies, and the self-regulation of listed companies and other companies. While the supervision from the SASAC concentrates mainly on asset, such as to ensure the safety of and the appreciation of the state-owned asset as well as to restructure and dispose and to prevent the loss of state assets, the supervision from enterprise groups mainly refers to financial supervision and regulation, watching over operation asset operation and reviewing financial statements.

## 5. Concluding Remarks

SOEES bear the heavy responsibility for guaranteeing the energy safety and supporting the economic development. However, they are prone to cause many negative externalities during their production process, so the governance of SOEES is crucial. SOEES, in essence, are a kind of contractual arrangement. However, Chinese SOEES are characterized by monopoly, strong asset specificity, many negative externalities and high opportunism risks which could give rise to some negative consequences such as resources waste, market failure.

To avoid these serious consequences, we believe that special governance mechanism which falls into the following four parts should be adopted to manage SOEES. (1) Government regulation system which involves both regulators and content is supposed to be improved. (2) A more efficient board is a must which could be improved through constitution, knowledge, motivation, evaluation. (3) It is high time to establish a reasonable incentive system for operator. And all relevant factors of the general welfare such as environmental protection and technological advance should also reference for the performance assessment of SOEES. (4) The lateral and vertical supervision and restraint mechanisms are expected eagerly for a long time. We hope through these efforts we could improve the management efficiency of SOEES, promote market-oriented reform of the energy industry and realize the harmonious development between man and nature. We also hope that other scholars can make more and better proposals.

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