ISCTE Business School
Instituto Universitário de Lisboa

Governance of Diversified Strategic Business Units: the Case of a Large Chinese Chemical Company

JIAO Jinsong

Thesis submitted as partial requirement for the conferral of

Doctor of Management

Supervisor:

Professor José Paulo Esperança, Full Professor, ISCTE University Institute of Lisbon

Co-supervisor:

Professor MA Yongkai, Professor, University of Electronic Science and Technology of China, School of Management and Economics

April, 2013

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Declaration

I declare that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university and that to the best of my knowledge it does not contain any material previously published or written by another person except where due reference is made in the text.

Signed  Date _____

Name: _____

作者申明

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Abstract

Building upon previous research of domestic and overseas modern corporate governance, this study is focussed on state-owned enterprises with diversified operations. The case of the chemical firm Luzhou North Chemical Industry Co., Ltd., illustrates the general operation types and the management and control model adopted by a large industrial group, covering institutional, structural and resources governance. Based on the background and reality of diversified strategic business units (SBUs) of Luzhou North Chemical Industry Co. Ltd., this study discusses the challenges brought about by diversified SBU strategic development. Following this analysis, the study proposes a management and control model in the cellulose derivative industrial and organosilicon industrial value chains.

Key words: Corporate governance, group management and control, strategic business unit (SBU)

JEL: L22,M12

Resumo

Com base na anterior investigação, nacional e internacional sobre a moderna governação empresarial, este estudo está centrado em empresas estatais com actividades diversificadas. O caso da empresa química Luzhou North Chemical Industry Co., Ltd., ilustra os vários tipos de operações e modelo de controlo adoptado por um grande grupo industrial, incluindo dimensões de governação institucionais, estruturais e de recursos. Com base na análise da experiência e realidade das SBU (unidades estratégicas de negócio) da Luzhou North Chemical Industry Co. Ltd., este estudo discute os desafios colocados pelo desenvolvimento estratégico de SBUs diversificadas. Na sequência desta análise, este estudo propõe um modelo de gestão e controlo das cadeias de valor industriais dos derivados de celulose e de compostos de silício orgânico.

Key words: Governação empresarial, gestão e controlo de grupos, unidades estratégicas de negócios (SBU)

JEL: L22,M12

Acknowledgements

I was privileged to enter UESTC School of Management and study for the Doctor in Business Administration under the guidance of Professor José Paulo Esperança and Professor Li Shiming. I am impressed by their profound erudition, rigorous scholarship, refined manners, virtues and professionalism, which will always inspire and encourage me to continually pursue my study and career in the future. During the preparation of this study, I was greatly supported by them, all the way from topic selection, draft preparation, revision to study finalization. They took time from their busy work schedule to modify my study conscientiously and meticulously. From them I have learned a lot, not only on how to be a good scholar, but also a good person. I would like to express heartfelt thanks to them, especially Professor José Paulo Esperança, who came from Portugal to help me with this study by giving valuable instructions and comments, and to my colleagues from the Strategic Management Team of UESTC School of Economy and Management for their help and support.

I would also like to thank my colleagues, who have helped me a lot during the preparation of this study. Last but not least, I would like to give special thanks to my family, whose support and dedication have always been my most powerful backing.

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Chatper 1: Introduction

1.1 Research background

1.1.1 Context

As China is a socialist country, the public sector is the bulk of the Chinese economy with state owned enterprises (SOEs) as the backbone of national economy. Statistics from Almanac of China compiled by the National Bureau of Statistics of China show that the total turnover of SOEs increased from 4055 billion yuan in 2000 to 14663 billion yuan in 2009, a growth of 3.6 times. Total sales by SOEs accounts for 37% - 46% of GDP, with an absolute leadership in certain critical and backbone industries (including water management, energy resources, transportation, post and telecommunication and other basic industries; metallurgy and chemical and other raw material industries; automobile, mechanic, electronic, petro-chemical and other backbone industries). SOEs are committed to maintaining the independence of the Chinese economy and social stability, developing the economy and increasing national cohesion.

In the early stages of the planning economy period, SOEs only served as the basic production organizations to carry out governmental instructions and could not be regarded as modern enterprises. In order to increase the production capacity, the Central Government has never stopped its efforts in the governance of SOEs, which has been gone through two main development stages, i.e. focusing on “power transferring” from 1956 to 1993, and focusing on corporatization reform since 1993. In the 1980s, in order to deal with laid-off problems appearing along with SOE reform, many enterprises joined the so-called tertiary industry as they diversified their activities. With the rapid development of the Chinese economy in 1990s, SOEs have raised a large amount of capital by listing in the stock exchange after going through shareholding reform. Attracted by easy access to capital and low-cost expansion, many SOEs started to invest in new fields to form large-sized SOE groups in order to achieve a high level of diversification. However, the expansion and diversification of SOEs originated significant governance problems, because many SOEs developed too fast in the early period to make strategic resource planning and select a suitable governance model. In diversified operations, especially non-related diversified operations, the definition of a proper governance and

development model for each subsidiary or branch under the same SOE group has become a practical problem for such SOE groups for the following reasons: (i) unfamiliarity with the new industries; (ii) no management talent and experience in the relevant field; (iii) unfamiliarity with the production process of different industries and position in the industrial value chain; (iv) different human resource placement, knowledge structures, industrial position and market prospect in different industries.

With the deepening of reform and opening up and acceleration of globalization, China, as a rising economy, plays a more and more important role in the global economy. However, governance problems of SOEs in the socialist economic system of China have emerged. Under the current condition of carrying out diversified strategies by SOEs, how to choose a proper governance model and in which way the company shall be governed for the purpose of forming a scientific and systematic management and control model for corporate groups have become urgent problems which need to be dealt with by Chinese enterprises and have gradually become the key issues in the development of these enterprises.

1.1.2 Theoretical background

Since the 1980s, the continuous occurrence of governance problems and increase of competition pressure in the context of globalization have led to corporate governance reform aiming at tackling the more and more complicated and serious governance problems. Corporate governance has become a worldwide critical subject integrating jurisprudence, economics and management, becoming the focus of heated discussion for years. But up until today, no fixed and unified answer has been formed in the essays on corporate governance theory. The only consensus that has been reached is that there is no fixed and unified corporate governance model in the world and none of the existing models can be called as the best governance mode. At the same time, exploration and study on corporate model in different countries varies as well. The United States emphasizes on studying how to keep operation efficiency and allocate interests between shareholders and managers on the basis of “separation of ownership from managerial authority”. Between the 1950s and the 1980s, Japan followed a corporate governance structure and operation mode of “main bank – cross-shareholding – lifetime employment” and “wage system based on seniority”. However, in the 1990s, the Japanese economy came into stagnation. So a debate over the Japanese economic system was started, focusing on the re-evaluation of the governance structure of Japanese corporations and at the same time corporate governance structure reform has been highlighted. “Insider Control” has

become a serious problem in the Former Soviet Union and Eastern European countries, which has become another focal point in corporate governance.

The governance system for Chinese corporations has the characteristics of “taking over and innovation” and “testing each step before taking it” since its formation. Due to these two practices, namely, “taking over and innovation” and “testing each step before taking it”, there is no clear objective in the formation and development of Chinese corporate governance system, and this affects the formation of an effective governance system for Chinese corporations and their operational efficiency. In a short period of time, there is no mature corporate governance model which could be formed or directly used or copied by corporations in China, a country still in a transitional stage. The reasons are many, including the variety and dynamic nature of corporate governance problems and the governance methodologies, specialization and complexity of the Chinese economy in the transitional period, etc. Therefore, it is an important task for Chinese government and enterprises to study and establish a corporate governance model suitable for Chinese corporations to fit a diversified strategic development, which is a necessary requirement and important means to improve the Chinese market economy system and to promote a healthy development of the Chinese corporate system and capital market. The study of the governance model of SOEs in diversified development strategies has become an urgent task for the Chinese government and corporations. Because of their important stake of the Chinese economy, SOEs serve as a model for other Chinese corporations. Under the circumstance of SOEs’ expansion and diversification, the study of the corporate governance model for SOEs in diversified strategies, such as which governance structure shall be chosen and which governance model shall be followed when implementing a diversification strategy, has not been paid enough attention.

Therefore, in the context of diversification and corporate governance, the most controversial and difficult topics in this field in the world include getting to know about and tackling corporate governance problems and establishing and improving a corporate governance system in accordance with the current condition of each country by learning from developed western countries. Even the United States, Britain and some other developed countries which developed the most complete corporate governance systems earlier and more rapidly, these topics are still hotly discussed. Study on innovation of corporate governance model is still of great importance for the theoretic diversity and dynamic nature of corporate governance. In response to corporate governance problems and corporate governance problems of SOEs and diversified strategies, focusing on SBU governance problems, governance model

and governance performance of state-owned chemical industry groups, taking Luzhou North Chemical Industry Co., Ltd as an example, and combining industrial characteristics of each corporation and its industrial chain value, this study puts forward a corporate governance management and control model for corporations carrying out diversified SBU strategies and methods to optimize such management and control model.

1.2 Content and structure of the research

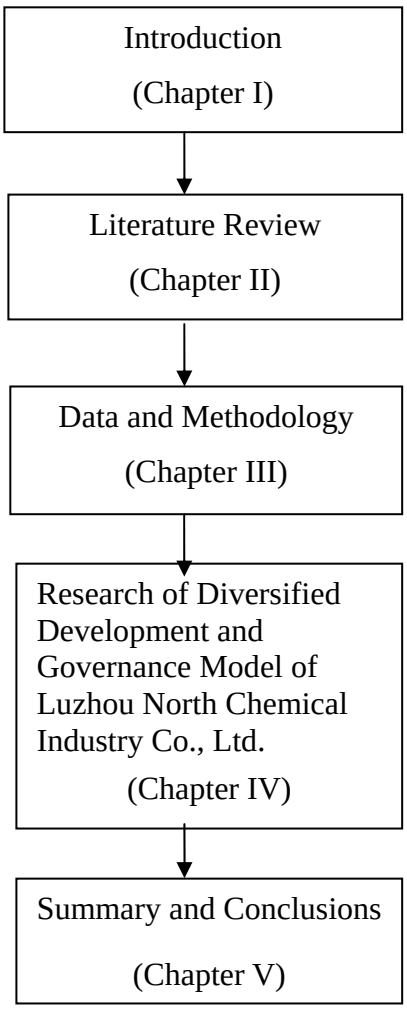
This research combines relevant theories with an actual case study of a company, covering the following three aspects:

First, theory about a corporate governance model for diversified corporate groups will be discussed. In diversified corporate groups, there are businesses covering various industries. Resources consumed by corporations in diversified corporate groups and capabilities of such corporations vary, so these subsidiary companies engage in different segments and hold different positions in the value chain of their specific industries. Because the corporate governance model for diversified corporate groups is very complex, this study discusses the corporate governance model from the perspective of an SBU, combining systemic and structural resource allocation and putting forward an SBU governance model based on strategic target, resource capacity and position in the industrial value chain.

This study analyzes the chemical industry based on a real example (Luzhou North Chemical Industry Co., Ltd.), discussing general operation status, governance and control model and performance of the chemical industry. Study on the detailed designs for different SBU governance models and analysis and comparison of governance performance for different SBU governance models will be based on different resource capacity, strategic objectives, segments in the industrial value chain and development phase of different businesses.

Finally, this study addresses the overall strategic governance model based on system governance, structural governance and resource governance by taking the example of Luzhou North Chemical Industry Co., Ltd. Based on the analysis of the background and reality of diversified SBUs of Luzhou North Chemical Industry Co., Ltd, this research will discuss the challenges brought about by diversified SBUs strategic development and management and control model in the cellulose derivative and DMC value chains.

In accordance with its goals, the study is structured as follows:



1.3 Features and main innovation of the research

The main features and innovation of the research include:

(1) Innovation on the study perspective: This research addresses the corporate governance challenges of diversified SOEs, with a focus on the chemical industry and discusses the management and control model of enterprises in the context of diversified strategies from the perspective of corporate governance.

(2) Diversified SBUs strategy is analyzed, bringing forward a SBU governance model based on strategic targets, resource capacity and industrial value chain through a detailed case study.

(3) A third contribution is given by the innovation of the governance management and control model for the chemical industry and corporations carrying out diversified strategies.

Chatper 2: Overview of Domestic and Foreign Research

With t governance and control of diversified chemical corporations as the main subject, this research is focused on the corporate governance model of a specific state-owned chemical company with diversified strategic business units. Therefore, the literature review that follows is based on these themes.

This chapter presents an overview of modern debate of corporate governance and the corporate governance of domestic and foreign enterprises that carry out diversified operations. Previous research on contemporary corporate governance os focused on modern corporate governance connotation, corporate governance theory (principal-agent theory, transaction cost theory and ownership theory) and studies on corporate governance of China; and the review of studies on diversified businesses focus on connotation, determinants and performance of diversified operations. The overview of recent literature will help readers to learn about the corporate governance theories, especially the corporate governance of SOEs and the development process of diversified operations, which serve as the theoretic basis and foundation for the study of corporate governance of SOEs carrying out diversified strategies.

2.1 Overview of modern corporate governance

2.1.1 Connotation of modern corporate governance

Following the pioneering study of Berle and Means (1932), corporate governance has attracted much attention from researchers, but the concept of “corporate governance” has not been mentioned in the economic literature until the early 1980s (Zheng, 1998). Williamson coined the concept of “Governance Structure” in 1975. Chinese scholars have translated “Corporate Governance” into different ways, and there are various versions in the domestic literature. Scholars have different understanding of corporate governance since it has been put forward. In the research report of the World Bank, corporate governance is defined as a set of tools and mechanisms, which could be used by shareholders to influence managers in order to maximize shareholders’ value, or by fixed income claimants (such as bankers and employees) to control equity agency costs (Tenev and Zhang, 2002). Tirole (2001) holds that the basic agency problem shows that a possible role for corporate governance is to tackle with adverse

selection and moral hazard, and then he points out that selecting a competent manager who will be responsive to the investors is the objective of a good corporate governance structure.

Unlike Tirole and Tenev and Zhang, who focus on designing and implementing a mechanism to control managerial behavior based on separation of ownership from management, Cochran and Wartick (1988) and Blair (1995) take corporate right of control into consideration and such rights are deemed as corporate governance. In accordance with Cochran and Wartick (1988), corporate governance deals with the specific problems arising from the interaction among high-level management personnel, shareholders, board of directors and other stakeholders, focusing on who should benefit from corporate decisions. Blair (1995) further defined corporate governance as a set of legal, cultural and system arrangements of corporate rights of control or residual claim, and those arrangements determining corporate objectives, control rights executants, control conditions, control methods and distribution of risks and benefits among different members in the corporation.

Zingales (2000) defined corporate governance as a set of conditions which affect the results of afterward bargaining on quasi rents among various corporate relationships by following the “governance system” proposed by Williamson (1985). Shleifer and Vishny (1997) hold that corporate governance refers to a collective name for all kinds of methods to invest in due time and obtain reasonable return by providers of capital.

In conclusion, with the exception of Shleifer and Vishny (1997) and Zingales (2000) most definitions of corporate governance are relatively general. However, there are at least two schools of thought on corporate governance that can be found in the current corporate governance literature: one is represented by the economist Tirole, who emphasizes the design and implementation of governance mechanisms in the corporate control market and incentive contracts; and a second school that is represented by Cochran and Wartick (1988) and Blair (1995), who emphasize the arrangement of corporate control rights and define corporate governance as an equity arrangement of residual control rights and residual claim. Disagreements on the definition of corporate governance leads to arguments on whether corporate governance should be oriented by shareholder value or stakeholder value in the theoretical study and practice of corporate governance.

2.1.2 Theoretical foundations of corporate governance

Research on corporate governance can be divided into two schools based on the market transaction contract theory put forward by Coase (1937): one school is focused on agency by

agreement and was developed by Jensen and Meckling (1976) and Holmstrom (1979), among others,. based on complete contract theory; and the other school is the transaction cost theory and ownership theory developed by Williamson (1985) and Hart (1986 and 1995) based on incomplete contracts theory. Agency by agreement theory, transaction cost theory and ownership theory are the theoretical bases for the study of corporate governance.

(I) Agency by agreement theory

In the groundbreaking essay on agency theory written by Jensen and Meckling (1976), interest conflict between owners and managers is defined as the agency problem in corporations. They also point out that interest conflict between owners and managers generates agency cost, and the settlement of agency problems or the curbing of agency costs should be based on the definition of internal incentive problems in a company. Therefore, agency costs and incentive problems are the main topics in the study on corporate governance. The standard agency by agreement model was developed by Holmstrom (1979) by supplementing the analyzing framework of standard agency by agreement model, which serves as the theoretic basis for the design of the managerial compensation incentive mechanism. Fama and Jensen (1983) hold that the prosperity of a company is achieved by separating decision-making management from residual risk undertaking in order to optimize economic risks allocation of a company. In conclusion, the study on corporate governance based on agency by agreement theory emphasizes the relieving of agency problems between owners and managers, reducing agency cost in order to coordinate interest conflict between owners and managers through corporate governance structure and governance mechanisms to make managers' behavior in compliance with shareholders' interest as much as possible and optimize shareholder's value.

(II) Transaction costs theory

Transaction cost theory was firstly put forward by Coase (1937) and then improved by Wiliamson (1985). Coase (1937) points out the difference in transaction mechanisms between enterprises and market in his essay – *The Nature of the Firm*. Resources in market transaction are allocated based on price, while resources in enterprise transactions are allocated by executive decisions. The existence of a company is explained by the existence of significant transaction costs. When market transaction costs equal the inside transaction cost, in order to reduce transaction cost, the enterprise can internalize the transaction becoming more efficient than the market. Corporate management incurs management costs. The larger the enterprise, the higher the management costs. When costs saved by expansion of internalizing marketing transaction equals to the increase of management cost, the scale of this company reaches an

equilibrium point. The study serves as the theoretic basis for reducing internal transaction costs. Wiliamson (1985) introduces three benchmarks to measure transaction attributes in his influential work – *the Economic Institutions of Capitalism*, i.e. asset specificity, transaction frequency and uncertainty. He focuses on asset specificity which greatly expands Coase's transaction cost thought, and due to this academic achievement, he becomes an epitomizer in "transaction cost economics". Logic in transaction cost economics is to deem each transaction as a different contract with different attributes which needs different governance structure or system arrangements due to the difference in attributes of each contract in order to minimize transaction costs.

(III) Property theory

Grossman and Hart (1986), Hart and Moore (1990) and Hart (1995) established the ownership theory based on incomplete contracts. The ownership theory is proposed because there are some defects in transaction cost economics, namely, there is no clear explanation of integrated cost and benefit, and it is difficult to explain the scale of a company. In the ownership theory, residual control right over the asset is defined as the corporate proprietary right, emphasizing the benefits to the merging party and cost to the merged party brought about by residual control right, with a logical mathematic model (i.e. GHM model), in which the enterprise boundary is determined by property structure. Based on this, enterprise integration is put forward. Research logic for property theory can be summarized as: contracts between enterprises which have specific investment are incomplete and will affect prior relationship specificity investments; therefore, a certain optimized property structure should be designed to guarantee a maximum integrated output.

2.1.3 Corporate governance of China

Since the reform and opening up, Chinese scholars have undertaken a thorough research on corporate governance based on the main corporate governance theories. Qian(1995) holds that corporate governance structure is a set of system arrangements, which is used to coordinate relationships among group investors, managers and staff who are of great interest to the company, and to obtain economic benefits from such alliance. Hu (1999) holds that corporate governance (i.e. corporate governance structure) is a set of systems and methods used by directors and senior officers to manage and control a company for the sake of shareholders, supporters, customers, suppliers and financial institutions providing indirect financing. Wu(1994) holds that corporate governance structure refers to an organizational structure

composed of owners, board of directors and senior executives, namely, senior officers. The three parties form a check and balance relationship. In this structure, owners entrust their assets to the board of directors; the board of directors is the uppermost decision organ of the company, which can hire, reward, punish and dismiss senior officers; and senior officers are under the coordination of the board of directors, serving as the executive structure under the leadership of the board of directors and being responsible for the operation of the company within authorized scope of the board of directors. Zhang(1998) holds that corporate governance structure is a mechanism to settle all kinds of agency problems in the joint-stock company. Corporate governance defines the relationship among owners of different elements in the company, especially by the way of allocating residual claim and control right through explicit and implicit contracts to affect the relationship between entrepreneurs and investors. Liu(2006) holds that corporate governance refers to related parties (i.e. parties to the contract, including shareholders, creditors, managers, employees, government and other stakeholders), pursuant to provisions in the contract (system), execute their rights on the operation activities of senior officers, such as determining development direction, hiring and monitoring managers and promptly disclosing the correct information. Lin(1995) point out that the corporate governance structure refers to a set of arrangements adopted by owners to monitor and control the operation and performance of a company. They hold that corporate governance structure mentioned by people in most cases actually refers to direct management or internal governance structure of the company. However, as for the company, indirect control or external governance realized through market competition is of greater importance.

2.1.4 Overview of corporate governance theories

In accordance with the above analysis on corporate governance literature, it is clear that the definitions of corporate governance diverge, but there are still some similarities among them. In accordance with different patterns, the above definitions can be categorized into the following four categories: (1) defining corporate governance based on the problems to be settled, such as Cochran and Wartick (1988) who hold that agency problem is the main problem to be settled through corporate governance. (2) defining corporate governance based on system or contract arrangements, such as Blair (1995), Lin(1995), Zhang(1998) and Liu(2006), who define corporate governance as a set of systems or contract arrangements. (3) defining corporate governance based on corporate governance practices, such as Shleifer and Vishny (1997) and Zingales (2000) who hold that corporate governance works through certain

operational mechanisms. (4) defining corporate governance based on check and balance of powers, such as Wu(2000) and other Chinese scholars, who hold that corporate governance is a kind of check and balance relationship among owners, board of directors and senior officers.

As the basic theories for corporate governance, agency by agreement theory, transaction cost theory and property theory focus on the efficiency of company systems, enterprises' governance problems can be looked at from three different perspectives. Based on the different analyzing premises and frameworks, these three theories aim at the same corporate governance objective, i.e. to protect shareholder's interest and to maximize shareholder's value. These three theories provide strong support for the "shareholder's interest goes first" theory which is the mainstream theory in corporate governance study in western countries and serves as the theoretical starting point and basis for exploration and study on corporate governance of Chinese scholars as well. Chinese scholars mainly study the corporate governance structure of Chinese companies since the reform and opening up, especially focusing on internal power structure and system design. However, corporate governance in different strategic choice implemented in the development process of an enterprise and management and control model for the subordinate companies which have become the critical problems to be resolved by Chinese enterprises at present are less addressed.

2.2 Corporate governance of SOEs

2.2.1 Corporate governance of foreign SOEs

Rapid development of foreign SOEs starts from the great depression of 1930s and lasts until the 1980s. Since the middle and late 1980s, western countries like the Unites States, Britain, France, Germany, Italy, Spain, etc. carried out privatization reform on SOEs in a large scale. After going through several periods of nationalization and privatization, instead of vanishing from western countries, SOEs still exist in several industries regarded as strategic. The trend for privatization always followed each large nationalization wave, and each privatization stage was resisted by many people as well. Even today, western scholars and politicians argue about whether SOEs should exist. We found that there is a general rule in western countries: in depression periods, with left wing parties at the helm, governments take the initiative to intervene in the economy which leads to a rapid development of SOEs; and when this intervention becomes ineffective or the economy goes into the stable development period, or the governments are in need of covering budget deficits, with the election of right

wing parties, a new privatization wav may be triggered. Generally speaking, the trend toward privatization appears in the SOE reform of most countries. Since the global financial crisis, SOE reform of each country shows some new trends. Recently, instead of reforming the ownership, the American government reduces the amount and scale of SOEs as much as possible to reduce costs and improve efficiency. Since the sub-prime loan crisis, partial nationalization emerges in American and the American government strengthened its regulation of SOEs. The recent SOE reform in Japan, especially the reform of special legal person of central level led to a considerable reduction of SOEs, which lessened the government's financial burden, improved the operational efficiency of SOEs and restrained collusion of officials and merchants and other types of corruption. SOE reform in European countries reached its climax from 1993 to 2000, and gradually got into the closing period now. At present, state-owned economy in Britain, France, Germany and Italy has undergone great changes, with its share in the national gross domestic product (GDP) fallng to less than 10%, in which the state-owned sector of the economy of Britain accounts for the lowest proportion. In the emerging industrial countries, Singapore carried out SOE reform by selling equities of SOEs and other privatization measures to raise a large amount of money, which was used in the development of SOEs in the high technology sector and transformed the SOEs into high-tech type to realize structural reform of SOEs by government funds support. Since 1998, South Korea started its fifth privatization reform by carrying on total privatization and privatization reform in stages in many government-funded companies. Since 2008, South Korean government has privatized several state-owned financial enterprises. Privatization reform of SOEs in Brazil reached climax in the late 1990s. It has accomplished privatization reform of SOEs in most sectors now and the reform went into a deeper level, namely, adjustment of certain sectors and enterprises.

In the continuous reform of SOEs, a different governance model emerged. The most typical three corporate governance models in the world, i.e. corporate governance models of SOEs of America, Germany and Japan vary a lot. Corporate governance structure of American companies is composed of shareholder's meeting and board of directors without any board of supervisors, in which the board of directors, mainly composed of external directors, is not only the decision-making organ but supervision organ as well. And corporate governance structure of Japanese companies is composed of board of directors and board of supervisors which coexist under the shareholder's meeting with no superior to subordinate relationship. Former heads of business divisions or or factories who have gone through long-term review and

selection usually assume the position of director. But in the corporate governance structure of German companies, the board of supervisors and the board of directors are in a superior to subordinate relationship. In this type of corporate governance structure, the board of supervisors is set up under the shareholders' meeting, in which the former is responsible for and reports to the latter; and the board of directors is set up under the board of supervisors, in which the former is responsible for and reports to the latter.

SOEs from western countries only account for a small share of the national GDP and employment; therefore, western scholars focus on the study on reasonableness of SOE's existence and the causes for the corporate governance problems that they face. Laffont and Tirole (1993) and Sappington and Stiglitz (1987) hold that regional externality or distribution problems of SOEs are a matter of concern in areas with monopolistic advantages, but private enterprises which pursue profit maximization ignore such externalities and distribution. A politician with an interest in the common good can improve the efficiency of an enterprise by controlling its decisions. The works of Shaprio and Willig (1990), Kikeri and Nellis (1992) and Boyoko, Shleifer and Vishny (1995) show that SOEs are less efficient, leading to losses of treasury funds. Since people assume that SOEs are less efficient, under the pressure of reducing public budget deficits, in the last few decades, the privatization of SOEs was usually adopted. Boyoko (1995) holds that privatization is an effective measure to restrain the corruption of government officials by using SOEs to seek personal interests, and privatization of different form will improve the efficiency of former SOEs.

However, other studies have shed doubts on the benefits of SOEs privatization. A case study of privatization of Estonian companies by Jones and Mygind (1990) shows that privatization does not necessarily lead to an optimized ownership structure. A study of the 1997 privatization of Ukrainian companies by Estrin and Rosevear (1999) also observed that the privatization of Ukrainian companies did not improve efficiency or realized the expected restructuring; therefore, they concluded that ownership is not related to the performance of a company. Analysis on radical reforms of the Soviet Union and Eastern European countries of 1970s and 1980s by Masahi ko Aoki and Qian(1995) showed that in the transitional period, the collapse and entire retreat of central planning departments lead to a void of power. Under such circumstances, operators and former managers obtained ownership and complete controlling rights over the enterprises.

2.2.2 Corporate governance of Chinese SOEs

(I) History of corporate governance of Chinese SOEs

During the last five decades, the establishment and reform of Chinese SOEs has gone through six stages: (i) establishment of SOEs from 1947 to 1958. China simply followed the management model of SOEs of the Soviet Union, which was not efficient, as expected; (ii) the Great Leap Forward period and the Great Cultural Revolution period from 1958 to 1978. Under the unstable political environment and unsuitable economic system, Chinese SOEs didn't find a suitable management model; (iii) decentralization of power and profit orientation period from 1978 to 1986. The establishment of a system whereby enterprises paid taxes plus a percentage of profits from 1984 to 1986, still neglected na eficiente modelo f ownership and control rights within Chinese SOEs; (iv) enterprise contracting period from 1986 to 1993. Corporate governance reform faced problems due to insider control and the absence of an effective supervision mechanism; (v) in 1993, a modern enterprise system was put forward in the third session of the fourteenth assembly of CPC and the *Company Law of the People's Republic of China* was issued later as the legal guarantee of system building.

Since then, Chinese enterprises have evolved towards the establishment of a modern enterprise system. In the modern enterprise system reform of SOEs, scholars have paid more and more attention to governance problems of SOEs, because the study of SOEs' governance covers almost all problems in corporate governance. Discussion of such problems can be summarized in three aspects, namely: property rights reform, policy burden and multiple objectives, and governance mechanism of SOEs.

(II) Property rights reform of Chinese SOEs

Property rights refer to the total rights existing in or above any object, including proprietary right, right of possession, use right, control right, income right and disposition right. In modern enterprises, property rights are usually separated. Effective execution of those rights depends on theier clear division and specification. Corporate governance structure and mechanism of developed western countries is relatively complete with clear division and reasonable allocation of each property rights, so execution of such rights is relatively sufficient and effective, and allocation of resources is of relatively high efficiency. Although SOEs have become modern enterprises, they retain specific characteristics. The division of power and function of SOE's property rights is unclear, because the ownership of SOEs is spread among citizens, government, operators and staff. Who will perform the ownership rights, who will

control the company, who will appropriate the economic rents generated are still under debate. Therefore, each power and function of SOE's property rights can not be executed effectively causing an overall loss of efficiency for SOEs. Many powers and functions of SOE's property rights (such as ownership, rent appropriation and disposition rights) are executed by government officials who are entitled with residual control over the SOEs without being entitled to any residual claim. The government or government officials are not fully motivated to execute such control rights. Because owners of SOE's control rights, of each level, lack sufficient motivation and restraint, agency and moral hazard problems in SOEs are serious, leading to a significant loss of value of state-owned assets. Reform of the property rights of Chinese SOEs has been carried out recently, and Chinese scholars have also made a series of studies on the effectiveness of those reforms.

In the reform of property rights of SOEs, the reduction of state-held shares is one of the most critical issues, leading to property rights problems in the corporate governance of SOEs. In terms of reforming the property rights, Chen(2001) hold that the reduction of state-held shares shall be based on protection of the investors's, otherwise it will be harmful to corporate governance and improvement of a company's performance. Xu(2003) found that, in listed companies, the identity of the largest shareholder has a significant impact in the company's performance, shareholding structure and governance effectiveness. Both company value and earnings are greater if the state is not the largest shareholder. Operations are more flexible and corporate governance is more effective, because senior managers receive more internal and external supervision and motivation than companies whose largest shareholder is the state. Therefore, they tend to delay the reduction of state-held shares. At the same time, they also point out that reducing state ownership does not necessarily mean privatization. Because the difference in the corporate governance performance of companies whose largest shareholder is the state and those whose largest shareholder is not the state-owned legal person is not very obvious, and this provides a new thinking for the methods of reducing state ownership. Shao(2003), studied the relationship between shareholding structure and corporate governance, suggesting that a moderately concentrated shareholding structure and corporate governance mechanism with relatively concentrated control by large shareholders could be the best option for corporate governance reform of China. Wang(2004) hold that large private shareholders could play na importante role in monitoring managers so that the investors' interests were efficiently protected. Instead of reducing state-held shares aimlessly, it should aim at developing large shareholders with supervision functions. Feng(2004) addresses governances

problems of listed Chinese companies based on the dual agency by agreement theory. He put forward that strategic private investors, institutional investors or foreign investors could be introduced to change the shareholding structure in order to reduce agency cost of the first type (operator's agency cost) and independent board of directors management committee could be set up to reduce agency cost of the second type (i.e. large shareholders expropriating small shareholders). Li(2005) holds that the adjustment of state-held shares should start from the listed company with worst performance in order to avoid the expected negative soft budgetary restraining effect caused by state-held shares in such companies. Tian(2005) found that the relationship between amount of state-held shares and company's performance is in an asymmetric U type, in which the left side is higher and the right side is lower. He therefore put forward that the reduction of state-held shares should avoid the bottom value trap of U curve. Sun(2006) holds that check and balance among shareholders is of no interest to the efficiency of listed companies, therefore low concentration degree of shares and improvement of check and balance efficiency should not be overly addressed in equity allocation. Based on the study on agency cost in the electronic and electric product industry, Li(2007) proposed that agency costs could be reduced by the multiple reform of property rights and improvement of monitoring mechanism on investment and debt.

(III) Policy burden and multiple objectives in corporate governance of SOEs

SOEs play a different role in different countries in different historic periods, but their basic function or role remains unchanged. SOEs are usually used as a means to implement political and economic policies by the government, and to some extent, they are the extension of government functions. SOEs assume certain political responsibilities, social responsibilities and economic responsibilities. They do not only perform an organizing and guiding function for each industry, but also serve as a means to implement macroeconomic control policies. In addition, they support the national finances as well, which is critical to the safety and stability of a country. But at the same time, as ordinary enterprises, SOEs pursue self-interest, in which profits are needed to realize specific economic objectives. What's more, the SOE is also a special enterprise (Jin, 1999) with public or policy character. SOEs with special positions and roles in the national economy appear for the sake of public need and assume public responsibilities. They serve as the main means to carry out national financial functions and macroeconomic control function and to maintain social stability.

Therefore, SOEs have dual objectives. In the first place, the SOE is an enterprise, which means that the prime objective for SOEs is to make profits in order to occupy a standing place

in the competitive product market. Only profits can guarantee the sustainability of SOEs. But at the same time, SOEs are owned by the state or invested by the government, which means that they pursue public objectives, i.e. SOEs are owned and controlled by the people. Therefore, SOEs, especially SOEs in natural monopoly, commonwealth or pioneering industries have to assume many social or public responsibilities.

In terms of corporate governance of China, many scholars have made in-depth study on the policy burden and multiple objectives of SOEs. Lin(2001) firstly put forward the opinion of eliminating SOE's policy burden. They hold that the basis for reform of SOEs is the elimination of national (social and strategic) policy burden. A second study on the negative influence of SOE's policy burden shows that under the circumstance of asymmetric information, policy burden will increase moral hazard and lead to lower efficiency. When competition in the market reaches a certain degree, policy burden will inevitably bring about soft budgetary restraints. If a SOE assumes policy burden, depriving the enterprise's production rights, this is a sub-optimal system arrangement. Liu(2004) holds that "only one large shareholder" is not the most critical explanation for the governance inefficiency of SOEs and a more convincible explanation is the execution efficiency of state-owned property right powers and functions, and the lack of external governance of state-owned property rights leads to a low execution efficiency of property right powers and functions. Li(2006) found that in multiple agency objectives, enterprise performance will be optimized only when non-compatibility and non-consistent problems of agency objectives are solved. Moreover, they also proposed that agent entrust problems should be addressed while addressing the agent incentive problems. Zeng Q. and Chen(2006) observed that state-owned companies hire more employees than companies which are not owned by the state. Redundant employees and higher pay rate increase labor costs of state-owned companies by comparison with privately owned companies. Li(2006) hold that if we consider the subsidies and other advantages in obtaining all kinds of important resources provided by the government to SOEs, the low efficiency of SOEs is not compensated by the social objectives they pursue.

(IV) Governance mechanism of Chinese SOEs

The ultimate objective for corporate governance is promoting company's value and bringing wealth for investors. And the detailed objective for corporate governance is improving decision-making capability and efficiency of the company, enhancing sustainable development capability and reducing transaction and agency costs. Corporate governance is targeted for operators. Therefore, corporate governance mechanism can be defined as a series of measures,

means or countermeasures adopted by corporate governance subject toward operators in order to improve decision-making capability and efficiency of the company, reduce transaction cost and agency cost and enhance company's value. The corporate governance mechanism consists of internal and external governance mechanism. Internal governance mechanism includes allocation of company's control right, selection and motivation mechanism for operators and contractual system restraining mechanism; while the external governance mechanism includes claims bounded, market discipline and media restraining mechanisms.

Many Chinese scholars have studied the governance mechanism of SOEs. Sun(2001) analyzed the roles of agency rights competition and animus acquisition governance mechanism in corporate governance of SOEs. He put forward that under the circumstance that nominal owners (all citizens) do not have the right to suggest replacing managers and government authorities do not have residual claim, managers could easily bribe officials in the government authorities or organizational department to hold their post. Therefore, agency competition only plays a limited role in the corporate governance of SOEs. Zhang(1998) also observed that because government authorities only have the control right without any residual claim and loss of control right over the SOEs is not compensable, it is difficult for share controllers of SOEs to agree to transfer SOEs' control right. Therefore, roles of animus take-over in corporate governance of listed SOEs are rather limited. Liu(2004) analyzed the relationship among the share of state ownership, selection of operators and redundant staff and then pointed out that the fact that the state is the "single large shareholder" is not a critical explanation for the low efficiency of SOE's governance. In addition, Chen(2001), Xu(2003), Tian(2005) and other scholars have studied the shareholder structure of SOEs, but they have come to different conclusions. Study on governance of board of directors of listed Chinese companies made by Li(2003) shows that the board of directors of listed Chinese companies, especially for those which were former SOEs is still under great influence of executive management with some technical limitations and improvement requirements. A study of the boards of directors of listed Chinese companies made by Pu and Liu(2004) shows that the combination of chairman and general manager is negatively correlated with performance. Wang(2006) show that the proportion of independent directors is positively correlated with performance, and that specialization, political relations and management background is unrelated with a company's performance, but their reputation can improve a company's performance substantially. Wang(2003) found that listed Chinese firms are financed mostly by equity, with low levels of debt. Higher leverage can strengthen corporate governance and increase the market value of a

company. Wei(2008) shows that listed Chinese companies prefer equity financing, which is an unusual pecking order and may harm the market value of the listed companies.

2.2.3 Review of governance of state-owned enterprise

In western countries, SOEs still haven't disappeared after several periods of nationalization and privatization and still exist in the most important industries despite of the predominant trend for privatization. This fact may be regarded as evidence of the rationality of SOEs in capitalist countries, at least to some extent. With variable weights in the domestic economies, from country to country, SOEs still play an indispensable role in each country as a crucial component of the state economy. Although there is a continuous debate whether the existence of SOEs is efficient, with many scholars holding a negative view, it is undeniable that SOEs can duly serve as an important part in the national macro-control when there are market fluctuations and failures.

The SOEs in China, a socialist country where public ownership predominates, existed as government departments for a considerable time, neglecting the basic requirement of clear property rights as well as precise definition of authority and responsibility. Managers had to face a policy burden and diversified objectives for a long time. The actual development of SOEs in China started after the Reform and Opening-up, and several Chinese scholars have identified property rights reform, policy burden and diversified objectives as the main challenges faced by Chinese SOEs. However, those researchers often limit their analysis to governance theories developed for companies based in western countries. This view may be too mechanistic as the scholars merely transplant factors such as property rights, stock rights, agency costs, corporate management and financing. This approach is too narrow, as it lacks a systematic and complete perspective required to understand companies with a diferente background, institutional framework and managerial experience. Therefore, an in-depth and comprehensive research based on corporate business governance and starting from corporate business is still lacking.

2.3 Specificity of diversified operations

2.3.1 Connotation of diversified operations

Gort(1962) defines diversification as the heterogeneity of enterprises' products in different markets; Ansoff(1965) holds that diversification is the action of new product entering into the

new market; Rumelt(1974) considers that diversification is the degree of spread for the enterprises' products and services and is a kind of portfolio at the corporate level; and Su(2004) regards diversification as a series of cross-products and inter-trade expanding operating-activities like acquisition, merger, restructuring and managerial taking over in the both related or unrelated industries, led by the enterprise to take full advantage of the current resources to accelerate its growing up. All of this implies that the expression diversity has two basic meanings: as an action, it refers to the enterprises' entering new business areas; while as a status, it means the fact that the enterprises are involved in multiple business areas. Therefore, it can be concluded that diversification refers to the enterprise's behavior to expand its boundary by entering into new businesses and markets with the ownership of part or all of the production and operation capital.

The new businesses and markets in the definition above do not have to be completely out of the cross-elasticity with the current business; otherwise, it is not possible to define the degree and category of diversity in the real world. As a matter of fact, diversification is usually defined by the fact that the new business differs from the current one to some extent (Montgomeryet, 1988; Chatterjee and Wernerfelt, 1991). Wrigley (1970) is the earliest scholar who made a distinction among the types of enterprises' diversification strategy: he based the distinction on Specialization Ration (SR) and divided the types into professional strategy, main-focus-on strategy and relative diversification strategy. Nevertheless, RumeIt (1974) considered it unreasonable to base the distinction on a sole indicator of SR, with an improperly limited distinction and without a fully correct classification of the strategy types for those enterprises with complex operation scope. As a result, Rumelt (1974) forwarded a division of the enterprises' strategy into four types, namely professional diversification, main-focus-on diversification, relative diversification and unrelated diversification on the basis of SR, Relativity Ratio (RR) and Vertical-integration Ratio (VR).

The research above made a relatively clear definition for the diversification strategy and pointed out its two basic meanings as an action and as a status. Meanwhile, the scholars made the corresponding distinction for the types of the diversification strategy. Consequently, they gradually formed the four widely-accepted types of diversification strategy in the current academia: concentrically diversified strategy, horizontally diversified strategy, vertically diversified strategy and overall diversified strategy.

2.3.2 Rationale for diversified operations

The motives for diversification have been grounded on a set of factors. Several western scholars have explained the reasons for enterprises' diversification based on their respective study field:

(I) Motives based on the enterprises' external pressure

(1) Market power theory. Edwards (1955), who made a fundamental contribution in this field, pointed out: in contrast with traditional monopolies, the competitive position of diversified enterprises depends both on their relative position in the specific market, and on their production scope and the position in markets of other products. The diversified enterprises also differ a lot from the traditional monopolies in terms of the operation decision when utilizing, expanding and protecting their market power. Building upon Edwards' analysis, more recent scholars suggested that diversified enterprises can obtain market power through three modes: (a) Cross-subsidization, which means that the diversified enterprise can use its profits from one market to subsidize or support predatory pricing in another market; (b) Co-restraint, which means that when realizing the symbiotic relation in multiple products markets, the competing diversified enterprises will intentionally reduce their competition in these markets so to establish a collusion to some degree; (c) Reciprocal exchange, which means that those large diversified group companies do the purchase with each other so to form an exclusive circle protected from the relatively small competitors. All in all, those economists supporting the market power theory are mainly focused on the results of diversification instead of regarding them as the major motive for diversification.

(2) Market-risk-spreading theory. Initially the theory was mainly used to analyze the optimal risk-income portfolio in securities investment, which involves how to efficiently combine the various assets with different risks and profits so to reduce the investment risk with the same expected profits. More recent scholars used this theory to explain the reason why diversified operations can spread risks. For them, the essence of diversified operations is the investment in business or industries of different returns and risks. There exist systematic risks and non-systematic risks in each company's operations that can not be spread with the portfolio. By contrast, the non-systematic risks are industry- specific and can be spread by investors' multi-industrial portfolio: diversified operations reduce the company's operation risk.

(II) Rationale based on internal reasons

(1) Agency by agreement theory. During the 1980s, a vast corporate takeover wave took

place leading to an explosive transformation of corporate governance and control. In order to explain the phenomenon, a large number of studies was undertaken to analyze the enterprises' diversification motive on the basis of agent by agreement theory. According to this theory, the diversification motive emerges mainly from the managers' risk aversion and managers' drive for diversifying their private profits. Muller (1969) summarizes that the earliest scholar who employed the basic idea of agent by agreement theory to analyze the enterprises' diversification motive believed that the managers may deviate from the optimal investment volume for their own interest, resulting in the problem of over-investment, while through diversification of the investments, the managers could reduce the operational risk, as in contrast with ordinary investors, managers stand with a relatively high exit cost. Amihud and Lev (1981) pointed out that in contrast with ordinary investors, managers usually hold a large number of assets which are not able to be diversified like the company's stock and options of certain percentage, and they will confront the risk of unemployment once there occurs operating crisis like bankruptcy. Furthermore, this will also damage their reputation and undermine their future income, and all of these offer adequate incentives for managers to diversify the company so to minimize such kind of risks. Jensen (1986) adopted free cash flow theory to explain the occurrence of enterprises' diversification. He believed that managers can obtain more private benefits by running a deeply diversified enterprise, and he said: "acquisition is a way for the managers to use the cash flow instead of giving it to the investors as dividends. Those enterprises with surplus debit capacity and large amount of residual cash flow are more likely to do mergers and acquisitions of low or even negative return.

(2) Surplus resources theory. This theory was firstly proposed by Penrose (1959) who explained that during the enterprises' daily operations, there will continually remain certain underutilized resources which provide space for the enterprises' further expansion and diversification which again produce new underutilized resources for the next expansion. Teece (1980) believed: the precondition for the surplus resources leading to diversified operations is an effective market in which the enterprises can sell those surplus resources, as simplex enterprises are more effective than those diversified ones, and the initial diversification derives from the employment of the current technological equipment, managerial resources as well as purchase and sale resources. Also, the diversified operation can take advantage of intangible assets such as the enterprise's brand and image to enter the market quickly so to reduce its marketing expenses.

In addition to the aforementioned theories, some scholars have also proposed the

economies of scope theory which can be incorporated into the Surplus resources theory as their basic understanding of the enterprises' diversification motive is the same despite the expression and research point of view is different, as both of them base the understanding on how to make the best of enterprises' surplus resources.

(3) Internal market theory. The economist Coase (1937) suggested that the internal market theory was based on the transaction cost theory, considering that when doing external transactions, companies usually have to bear relatively high costs because of information asymmetries. By contrast, when they internalize transactions, enterprises can enjoy a more efficient resource allocation and significantly-reduced transaction costs due to the relatively comprehensive information more easily to be obtained in internal market. Diversified enterprises exchange capital, products and talents among different businesses so to form an internal market which provides conditions for low-cost financing and effectively solves the problem of insufficient investment so that enterprises can seize more investment chances of positive net present value to enhance the corporate value.

2.3.3 Performance of diversified operations

Early studies held that enterprises can enhance value through diversification. Weston (1970) believed that "comparing to the enterprises' resources allocation by external capital markets, internal funding is more efficient. As a result, the large diversified enterprise can allocate the resources with higher efficiency, and those comprehensive large enterprises enjoy a higher performance than those specialized enterprises as the internal market resulting from diversification strategy can reduce the problem of insufficient investment described by Myers (1977).

Lamont and Anderson (1985) discovered that the performance of enterprises who adopt a hybrid model for diversification is not significantly different from that of enterprises who adopt the other two models. Amit and Livnat (1988) found that with a relatively low yield rate, the pure financial diversification in the unrelated diversification strategy enjoys a smaller operating risk, more stable cash flow and higher debt level. Yu(2005) found that while leading to significant profits, the diversified operation also involves considerable cost which would erode the corporate interests with the deepening of the diversification and then weaken the company's profitability. Recent studies showed that when the diversification cost exceeds its benefit, there arises a phenomenon of "diversification discount" and the improvement of the degree of the enterprise's specialization can increase the corporate value. Lang and Stulz (1994) found that

the average Tobin's Q of the specialized enterprises is 40% higher than the sample average. Berger and Ofek (1995) realized: there exists 13%-15% diversification discount for those cross-industry diversified enterprises and that value loss results from the over-investment and cross-industry operation.

However, some scholars considered that the so-called "diversification discount" may come from the selection bias of study sample, the poor timeliness of enterprise's decision and the periodical scale diseconomy in the production. CamPa and Kedia (2002) found that before diversification, the enterprise generally held a lower value than the specialized ones already, so once the selection bias of sample is removed and the endogenous factor affecting diversification decision is controlled, the phenomenon of "diversification discount" disappears and some samples even showed a phenomenon of "diversification premium". By building a dynamic match-search model, Matsusaka (2001) found that the diversification decision is consistent with the principle of value maximization, and CEOs give up the specialized operation so to achieve their unique organization and management capability and find better investment opportunities. Yet, the corporate value may be damaged due to the CEO's decision being affected by poor timeliness during that course. Gomes and Livdan's (2004) dynamic operation strategy also indicates that the diversification decision and the enterprises' intrinsic properties are closely bound up. Once the production scale is too large and the marginal output drops, the enterprise necessarily will seek new investment opportunities, and at this time, the diversified operation is usually accompanied by the reduction of enterprise value, yet it ultimately can enhance the enterprise value with the improvement of each business unit's productivity. Yao(2004) and other scholars found that although the degree of diversification is not significantly correlated with the enterprise's return on equity (ROE), it does hold a remarkable negative correlation with return on assets (ROA). The studies also indicate that the increasing degree of diversification correlates to the diminishing assets' marginal benefit, but the shareholders' gains can remain the at the same level thanks to the financial leverage and internal capital market obtained through the implementation of a diversification strategy.

Comparing to foreign enterprises, especially from the US, the research documentations on Chinese enterprises' diversified operation issues are very few, and strictly speaking, the normative research on Chinese enterprises' diversified operation started in the end of the 1990s. Up to now, the articles employing relatively normative research methods to analyze the problems of Chinese enterprises' diversified operations can be counted on one's fingers and those documentations largely followed the research paradigm on foreign enterprises'

diversification, focusing on the empirical test of "correlation between diversification and corporate value".

Liu(1997) analyzed the impact of diversified operations on the business performance in Chinese listed companies. He suggested that there exists no significant correlation between the degree of diversification and the corporate return on assets as well as corporate asset-liability ratio. He also made a brief analysis of the motives for diversification by Chinese enterprises and identified four main types: (i) employees in governments and SOEs are in a relatively intense pursuit of corporate survival and stability; (ii) the exploration of new business directions; (iii) search for settle-down assistance and endowment for the employees and their families; (iv) compliance to instructions from the superiors and taking over companies with difficulties. Similarly to Liu Li's studies, Li Ling and Zhao Yugang's made a thorough investigation for the overall diversification situation in Chinese listed companies, discussed the diversification motives in Chinese enterprises and diversification's impact on corporate performance, and found that the profitability of listed companies' core business was a critical factor affecting the diversification decision

Zhu(1999) and Su(2004)'s empirical test results showed that when viewed as a whole, there exists no remarkable causal relationship between the diversification and business performance. Further comparative analysis showed that the corporate debt levels are not significantly affected by diversification, and comparing to the simplex enterprises, the diversified enterprises hold more concentrated profitability indicators, which suggests that diversification can reduce the business risk for the enterprises and moderate fluctuations in the corporate profitability level. Su(2004) pointed out that there is an obvious diversification premium in the listed companies. Further analysis showed that listed companies of high value exhibit higher diversification, and listed companies with low degree of dependence on the external capital market are also more diversified. Therefore, it can be concluded that the reason why there exists a diversification premium in the listed companies is that the companies with favorable business performance are more inclined to take diversification operation strategy.

Jin, Chen(2002) and other scholars made the studies and found: in the real world, factors like the match degree between the corporate peculiarities and the business area as well as the competition status may influence the achievements of enterprises' diversification, while the diversification itself is neutral as an operational strategy. Their studies also showed that the existence of non-circulating stock, especially that of state-owned stock, can restrain the enterprises' diversified operation, which leads to motives of business diversification mainly

from the pressure to increase business achievement and the pursuit of high return on investment.

2.3.4 Review of the diversified operations

Diversification refers to the enterprises' behavior to expand their boundary by entering into new businesses and markets with the ownership of part or all of the production and operation capital. According to Rumelt (1974) there are four types of diversification, namely professional diversification, main-focus-on diversification, relative diversification and unrelated diversification. The studies on the motive for the diversified operations are conducted from two aspects: one is based on the enterprises' external pressure while the other is based on their internal motives. The former one bases the analysis on market power theory and market-risk-spreading theory, pointing out that the enterprises with diversified operations can obtain "market power" through three ways of cross-subsidization, co-restraint and "reciprocal exchange", and diversification can reduce the corporate risk; while the latter one bases the analysis on agency by agreement theory, surplus resources theory and internal market theory, among which the agency by agreement theory suggests that the agent has adequate incentives to carry out diversification to avert the risks. The surplus resources theory explains that enterprises are willing to implement diversification because they have surplus resources, and internal market theory regards diversification as a way of reducing the transaction cost by internalizing enough information.

After all the enterprises' intentions of implementing diversification are to improve the corporate performance, and when carrying out the studies on the relationship between diversification and performance, the scholars found that there exists not only "diversification discount" but also "diversification premium" due to diversification. Gomes and Livdan (2004) suggested that the diversification decision and the enterprises' intrinsic properties are closely bound up. The research on the relationship between Chinese enterprises' diversification and performance mainly follows the foreign paradigm, focusing on the empirical test of "correlation between diversification and corporate value, and currently the research about Chinese enterprises' diversification is still scarce and at an early stage.

2.4 Summary

By reviewing the relevant literature, corporate governance can be understood as a kind of

system arrangement including a set of formal and informal, internal and external system and mechanism which are expected to coordinate the relationship between the enterprise and all stakeholders so to make sure that the corporate decisions are rational and all corporate interests are protected. As the theoretical basis for the research of corporate governance, agent theory, transaction cost theory and property rights theory serve as a theoretical tool for further study of corporate governance. When it comes to SOEs, those in foreign countries, especially those in developed countries witnessed a development peak from 1930s to 1980s, while in recent decades, the SOEs' share of the local economies has shown a continuous downward trend. At the same time, scholars have focused their studies of the governance of SOEs on the rationality of existence and property rights reform, largely ignoring the governance model of SOEs and the governance and administrative control model under the SOEs' various strategies. Chinese SOEs differ quite a lot from their peers from developed countries in terms of both their share of national GDP and their strategic importance. Research of corporate governance in Chinese SOEs mainly emphasized the corporate property rights reform, SOEs' policy burden and their diversified objectives, with those focusing on governance model of SOEs being few and far between

In recent years, Chinese SOEs have also showed a trend of gradual diversification, and the theoretical research of diversification operation mainly follows the paradigm in foreign countries, starting the analysis from two aspects: the motive for diversification and relationship between diversification and corporate performance. In China, the research is mainly based on and developed from the relationship between listed companies' diversification and their corporate value, largely ignoring the governance issues of SOEs under the diversification strategy, especially the administrative control issues between the group companies and their affiliates. This study takes Lu Zhou North Chemical Co., Ltd. as the study case to research governance and administrative control model of SOEs under the diversification strategy selection so to offer a reference for the governance and administrative control model in the chemical industry and other diversified SOEs, and provide a brand new perspective for the development and improvement of corporate governance theory.

Chatper 3: Research Methodology

3.1 Theoretical foundations

Corporate governance is not only a product of the formation and development of corporate systems, but also an inevitable problem brought by the “economic man” hypothesis, information asymmetry, incomplete contracts and other practical conditions. For corporate governance, the key method is to employ a series of arrangements including institutional and non-institutional mechanisms to manage and control the company or its divisions. As a result, this study is theoretically based on the theory of modern enterprise, information economics, institutional economics, and other contemporary economic theories. In particular, the theory of the modern enterprise takes companies as its major objects and is mainly committed to disclose the development rules of corporate systems and to study the causes and resolutions of issues related to corporate governance, while the information economics and institutional economics focus on the contract forms and effects in case of information asymmetry and the internal mechanism and realization approaches of institutional evolution and transformation. (QUOTATIONS NEEDED)

According to the literature review in the previous chapter, current studies on the corporate governance of state-owned enterprises concentrate on property rights reform in enterprise and the rationality for the existence of state-owned enterprises. However, few studies take special aim at the internal problems of state-owned enterprises. As enterprises continue to develop and external competition grows fiercer, the market presents signs of a new turn of acquisition and expansion, and many large-size enterprises are prone to undertake diversification strategies. In this new context, how do enterprises control and manage their diversified subsidiaries? Do they apply the same method or take different measures according to local features? Is there a general management & control mode for all the cases? … Therefore, managers face various challenges and problems.

Scholars propose different methodologies to address the corporate governance of state-owned enterprises. Researcher Lin, et al. (1997) stated that it was the shortage of external competition, not the property system, that generated the problems related to state-owned enterprises. So, they suggested that the reform should remove various policy encumbrances on

enterprises, enhance the budget constraints, and provide the development of a competitive market place, by which the profit margin can work as a real index reflecting the operating performance of enterprise. Grasping ample information was the only way for governments representing the owners of state-owned enterprises to supervise the operating activities of enterprises. On this basis, as the practices of enterprise development went further and deeper, we would summarize the internal governance structure more suitable for Chinese stated-owned enterprises and make continuous institutional innovation so as to improve the governance structure of those enterprises in a constant manner. Based on the analysis and synthesis of relevant research findings, Qiu(2000) proposed the methods to cope with the “owner absence” in the governance structure of state-owned enterprises and the ideas for incentives and restraints establishment. He stated that when state-owned enterprises built up a modern enterprise system featuring in corporate governance structure, they should not only adopt the cross-holding strategy among corporations but also actively construct and improve the market mechanism of fair competition along with establishing reasonable incentives and restraints, so that the operating activities of managers can be under effective control and supervision. Ouyang(2003) stated that the corporate governance structure of state-owned enterprises had internal personnel control and non-administrative personnel control, so this structure should be improved by transforming the management system of state-owned assets, adjusting the shareholding structures of these enterprises, and intensifying the inspiration and supervision of managerial personnel. Bai(2005) contributed to the improvement of the governance structure of state-owned enterprises, focusing on the governance structure framework, shareholding structure and design, establishment of supervision mechanism and the executive and management systems. To improve the governance structure framework he supports the need to assign contributors as well as supervisors. As to the shareholding structure and design, firms should give priority to gender and other diversification and encourage employees and the managerial personnel to hold shares of their enterprises. For the establishment of supervision mechanisms, he supported a supervision system composed of three levels: Board of Directors, Board of Supervisors, and an external supervision system. Furthermore, the independence of the board of directors should be implemented.

For the discussion of the governance structure of state-owned enterprises, Wei(2001) pointed out that it's necessary to handle relations with both superiors and inferiors. The governance structure of state-owned enterprises involves the relations with the administrative departments of state-owned assets, which is the relation with superiors. He believed the

relations with superiors are a key factor in the governance structure of state-owned enterprises, directly affecting the completeness of governance structure of these enterprises. The aforesaid relations with the inferiors refer to the relations between investing companies and invested companies. In a view of China's experience in corporate governance, the loss of state-owned assets is mainly attributed to that the invested companies are beyond the control of investing companies. Therefore, the relations with the inferiors are the major concern for state-owned enterprises to improve the corporate governance structure. Meng(2007) stated according to different regulatory positioning, State-owned Assets Supervision and Administration Commission might choose the governance mode centering on Shareholders' Meeting, Board of Directors, or Board of Supervisors. However, for a particular wholly state-owned enterprise, the selection of governance mode should consider the functions of the company, the parent - subsidiary relationship, and the nature of its engaged industry, so as to promote the effectiveness of corporate governance.

Based on the above mentioned literature contributions, this study discusses the management and control modes adopted by diversified state-owned enterprises over their subsidiaries, including the following dimensions.

(1) Clearly identify the management & control responsibilities of the parent company over its subsidiaries, and maintain an adequate balance between power centralization and decentralization. Properly divide the property right of state-owned enterprises and the decision-making authority of the Board of Directors, based on the principle of whether or not a change of property rights is involved. As the shareholder of subsidiaries, the state-owned parent company should, on one hand, endeavor to keep effective constraints for property rights, which regulates the operating activities of subsidiaries to meet the benefits of shareholders; on the other, it should maintain relative independence of all the subsidiaries as per relevant laws, which allows the full play of the independent operation by these subsidiaries. Since there is relatively large flexibility in the allocation of concentration and distribution powers for parent – subsidiaries relations, it is generally believed that the division of decision authority for operating activities lies in whether or not change of property right is involved.

(2) Establish the structural framework of the parent company with organic integration of power centralization and decentralization. A sound operating organization is usually required for dealing with the management and control relations between the parent company and its subsidiaries. Worldwide, stated-owned parent companies take many measures to establish and promote an organic structure. When further developing the authorities of functional

departments at the headquarters, they strengthen the coordination between state-owned parent companies and their branches or subsidiaries, by establishing organizations and building up mechanisms for efficient communication and coordination.

(3) Reinforce the financial supervision and control over all the subsidiaries and establish a sound reporting system. The parent company in different countries attaches much importance to the financial supervision and control over subsidiaries. To meet the requirements of the parent company, the subsidiaries must submit financial statements on a regular basis, reporting their programming and plans related to key decisions such as investment and financing. In addition, specific reporting systems should be built up to maintain the monitoring and control over the operations of subsidiaries.

(4) The parent company controls most human resource management decisions made at the subsidiary level. The state-owned parent company is also entitled to designate members of the subsidiaries' Boards of Directors, recommend or appoint their directors and General Managers, review and approve the appointment and dismissal of important leaders including the Chairman of the Board and the General Manager. Major managerial personnel of the subsidiaries are a significant resource for the whole company. Therefore, in order to ensure that all subsidiaries implement the development strategies formulated by the parent company, it is necessary that key human resource indecisions involving the subsidiaries are undertaken at the head quarter's level.

(5) Build up performance appraisal and award & punishment systems to enhance high levels of motivation. In a bottom-up framework, the subsidiaries propose specific indicators for performance appraisal that are then negotiated with the parent company who makes the final choice of appraisal indicators and criteria. The performance appraisal should then be performed on a regular basis and reports should be sent to the parent company. High performing subsidiaries should be rewarded, while poor performers should be helped to analyze the causes of such outcome as well as identifying ideas that may rectify those bad results in the future and adopt countermeasures that tackle the problems. The build up of a "closed-loop" performance management system plays a key role in establishing the incentives and constraints for operators.

Combining the five above corporate governance dimensions, this study carries out further discussion on the control and management mode of state-owned enterprises with diversified SBUs, and seeks an appropriate structure for the group companies including institutions, structure and resource allocation. At the same time, the management & control mode suitable for the SBUs of diversified group companies will be based on strategic targets, resources and

strength and the industrial value chain. This study is focused on Luzhou North Chemical Industry Co., Ltd. (LNCC) a key player in the Chinese chemical industry, addressing the management & control modes. Next, a special attention is given to its management & control performance. Finally, lessons from the LNCC case will be drawn regarding the conditions of the chemical industry, the implementation of a diversification strategy and the governance challenges faced by state-owned enterprises.

3.2 Data sources and collection

3.2.1 Data sources

This study is focused on the governance mode of diversified SBUs from LNCC and is based on company reports and other specific data sources. Luzhou North Chemical Industry Co., Ltd. belongs to China North Industries Group Corporation and exists as a comprehensive large-size enterprise, holding the right to engage in foreign trade. This company was initially established in Gongxian County, Henan Province and moved to Gaoba Township, Luzhou City, Sichuan Province in 1938. It covers an area of 434 hectares and boasts assets totaling 3 billion yuan. More than 5,000 people work in the company, including over 1,100 professionals and technicians. LNCC has 4 scientific research and production departments directly under its management, 26 subsidiaries in wholly-owned, holding or joint stock systems, and a technology center which was branded as Sichuan Provincial Enterprise Technology Center in 2004. Its major operations include the production and marketing of fiber derivatives (i.e. nitrocotton, methylcellulose, hydroxypropyl methyl cellulose, sodium carboxymethylcellulose, ethyecellulose and hydroxyethylcellulose), alkali series (caustic soda, chloride methane, chlorinated polypropylene), DMC and its downstream products, automotive fuel tank, civil explosives, explosion composite panels, casting resin, nail gunpowder, pesticides, printing ink and other products. The company has acquired the certification of ISO9001：2000 quality management system for all its products, and its vocational safety and health system has achieved the certification of GB/T28001-2001.The company is the largest nitrocotton producer in the world and the largest producer of methylcellulose products in China.

In order to reflect the real conditions of this company and guarantee the rigour and scientific nature of this study, we collected a great amount of documents & data covering every aspect of the production and operation of the entire company. This includes the financial conditions of LNCC in recent years, the distribution of the subsidiaries, position and prospects

in the diversified activities, features and operating modes of the engaged industries, industrial value chains of different products, output of all the SBUs in recent years, profits, and corporate governance modes. LNCC selects three modes namely investment management mode, strategic management mode and operation management mode, adapted to its different subsidiaries. The specific mode is selected based on the role of each subsidiary in the general strategy of the company (strategic core, strategic focus and strategic affiliation), importance of its operations (marketable attraction and relative edges), development stage (initial stage, growing stage and mature stage), relationship with the resources controlled by the company (capital, human resources, technologies, brands, client resources etc.), the extent of product diversification, distribution of business sectors and other factors. Furthermore, this study also collects the materials and data about the functional orientation of parent-subsidiaries under different governance modes, functional orientation of parent-subsidiaries with different control factors and the specific orientation of the organizations of this company under different governance modes.

3.2.2 Data collection

More specifically, the collected data includes:

(1) Reports on historical facts of LNCC as well as its subsidiaries, distribution of those subsidiaries and LNCC's share holding status in all the subsidiaries: Through the above data collection, this study identifies the relations between Luzhou North Chemical Industry and its subsidiaries, and explores the possible historical factors affecting its governance mode. According to the learned holding status in all of its subsidiaries, it is clear to see the subsidiaries' right of speech and the control of the parent company, which serves as the basis for the current governance mode adjustment and new mode establishment.

(2) As for the governance modes adopted by LNCC for all of its subsidiaries, this involves the allocation of different governance modes to different subsidiaries as along with indicators affecting such allocation, for example, structure of property rights, market position, and competitiveness. These data reflect current governance conditions of the company and the concerns for corporate governance.

(3) Major operation products, value chain of engaged industry, value distribution at different links along the value chain, positions of company products in the entire industrial value chain and their dependence on the links back and in front of them: In a view of industrial value chain, this study analyzes the market position of the company's products. This plays an

important role in strategy selection and helps further determine the importance of product's market positioning in the development of the company. Then, we can discuss the degree and mode of governance for the subsidiaries related to such products.

(4) Operating data of the subsidiaries: This includes product varieties, market size of engaged industry, sales, market share and profit rate. Analysis on such data helps to learn the contribution of subsidiaries to the parent company, get an insight on the key sectors and key products for future development, and identify the subsidiaries requiring more attention, so as to design and create the governance structure and management & control mode suitable for long-term development of these subsidiaries. At the same time, this study makes a comparative analysis of the financial statements before and after the transformation of governance mode, which is allows us to shed light on the general advantages and disadvantages of different governance modes.

(5) Product chain planning of the company for different products, future development plans, targets, etc. This helps to learn the potential development orientation of the enterprise, so as to provide some reference for establishing the management & control mode of the company according to the features of engaged industry.

The materials above provide great convenience for the sake of research on the governance mode of enterprises with diversified strategic units. They not only helps us to analyze the governance mode suitable for enterprises in a theoretical view, but also promotes the mutual verification of practical development and theories for corporate governance. On one hand, these materials allow us to learn the history and present status of the entire enterprise, and analyze the evolution of governance structure and mode in the development of enterprises, so as to provide basic data for the selection of strategy and governance mode of the enterprises. On the other, this study includes the statistical analysis of these data to learn the impact of the governance mode on enterprise performance, providing useful insights for the selection of a governance mode.

3.3 Methodology

We started by reviewing the theoretical and empirical literature on corporate governance, with a focus on state-owned enterprises, including contributions from economics, management science, corporate finance and other disciplines, in a multidisciplinary manner. Secondly, the theoretical analysis and the field study on the governance structure of state-owned enterprises

brings together the theoretical analysis and the analytical study of the governance structure and mode of a large diversified company. Thirdly, we take a broader look at the chemical industry and the governance mode of diversified SBUs of LNCC. At last, instructive thinking, methods and policy suggestions are provided for the governance structure and mode of state-owned enterprises and prospects of future development are predicted. In a word, different methodologies and tools are applied for different research content:

(1) Theoretical synthesis refers to classifying, abstracting and synthesizing the observed research findings based on pervious literature. Domestic and overseas scholars have made theoretical and practical studies on corporate governance and reached many agreements. However, due to different research angles and methodologies, there are many different understandings and frequent disputes on various fundamental issues of corporate governance at the theoretical level. As a result, the theoretical synthesis, to classify, abstract and synthesize previous research findings, seeks the goal of contributing to the development of theories on corporate governance. This study also refers to the studies of other scholars to carry out the research on the governance issues of a specific enterprise.

(2) The normative analysis aims at making logistic deduction and analysis on the premises of certain assumptions. Based on investigating and synthesizing the research findings on corporate governance, normative analysis is applied to further study the general and special characteristics of corporate governance, as well as the essences and systematic analysis of corporate governance. In this way, this study carries out further discussion on the management & control mode of enterprises selecting a diversification strategy.

(3) Case study: This study takes LNCC, a very complex company, as the single case under observation. In the context of diversified SBU strategy of LNCC, this study analyzes a series of challenges and opportunities faced by the company, and it also analyzes the governance modes of different engaged industrial value chain (fiber derivatives and DMC) of subsidiaries under a diversification strategy, and evaluates the advantages and disadvantages of the governance mode. On this basis, the objectives of strategic management and the adjustments to future governance modes are proposed.

Chatper 4: Strategic Development and Governance Model of LNCC as a Diversified Company

4.1 Analysis of group management and control model

4.1.1 Group versus company management

Group management is an important challenge that many groups inevitably face when entering the scale expansion stage. It is a significant transformation when management must evolve from company to group management. However, many groups currently are under the state of "being called groups but carrying out a company management style". Failure to realize this transformation will seriously restrict further development of an enterprise. Group management is the management model adopted where product variety is diversified, business is decentralized, more multi-industry (multi-major industry) business diversification comes out and there is significant investment abroad and international cooperation. Differences between company and group management are shown in Table 4-1.

Table 4- 1 Differences between group and company management

Company management	Group management
Undertaking much office management	Focusing on property rights management
Overall control over manpower, money and material (over process)	Property rights representative management, financial monitoring, auditing supervision (over two aspects: standard establishment and result evaluation)
Administrative order type (administrative power link)	Property right link type
Simple operation under vertical hierarchy (rule of man and arbitrariness)	Operation under vertical and horizontal agreement (rule of law and seriousness)

Group management is based on proper classification and power decentralization. With an expanded scale, a group company shall not and can not micro manage its subsidiaries. As the financing/investment center, information integration center and the brand culture center, it plays an important role in support and monitoring; Subsidiaries directly deal with operations and function as profit centers, so they must have operation initiative. The purpose of this structure is to take advantage of the group's competitive strengths, create better benefits and achieve co-existence and co-prosperity. The parent company and its subsidiaries shall support

each other at work. The group has the power to supervise operations and management of the subsidiary and the decision-making power in significant operating activities while the major operating and management powers are delegated to the subsidiaries. The group company safeguards development of its subsidiaries. To put it simple, the group company makes rules (establish systems and specify procedures for handling affairs), controls key points (investment, assets management and grasping the development strategy), sets up standards (establishing indicators and systems of performance appraisal), evaluates results (supervision and evaluation), and takes the appraisal results as one of the main basis for selecting and recruiting cadres, so that the group can manage its subsidiaries with proficiency.

4.1.2 Group governance management and control

The determination of the management and control model for a group company is a complex process, as it involves three main layers: firstly, the determination of the narrow-sensed management model, which refers to the management and control model by which the HQ manages its subordinate enterprises; secondly, the broad-sensed management and control model, which not only includes the broad-sensed, specific management and control model, but also includes the determination of the corporate governance structure, rule definition and separation of duties of HQ and subordinate companies, selection of specific form of company organizational structure (line function, business division, matrix, subsidiary and multi-center network), management and control pattern for important resources of the group (such as management and control system for manpower, money and equipment) and establishment of a performance management system; thirdly, consideration of some important external factors associated with the management and control model, with business strategic objectives, HR management, workflow system and management information system involved.

With regard to the classification of group management and control models, currently, the theory circle and practice circle have not reached a consensus yet. Moreover, classification of management and control models is diversified, and the main classifications are as follows:

In this study entitled *Comparison in Management and Control Models Adopted by Large Enterprise Groups and Power Allocation of HQs*, Wang and Zhang (2005) classify the management and control models into three types: financial management and control, strategic management and control and operation management and control. On that basis, some scholars further divide the strategic management and control in the middle into “strategic implementation” and “strategic guidance”, and the former lays particular stress on power

centralization while the latter on power decentralization. Ge and Xu(1999) from Zhejiang University puts forward four kinds of parent-subsidiary management and control models: capital control, administration control, participation control and platform control. According to this study entitled *Study on Parent-Subsidiary Management Model and Management Control within the Group,* parent-subsidiary management models can be theoretically divided into centralized, decentralized and jointly centralized-and-decentralized management model. The parent-subsidiary management model shall be inserted in the management control by the parent over the subsidiary. Establishment of various effective management systems shall be embarked from five aspects, namely performance, limits of power, finance, staffing and information.

Williamson (1985), studied power centralization and decentralization of an organization from the organization system view point. He divided the organizational system of internal company management into three basic types, namely the U structure (Unitary Structure), H structure (Holding Structure) and M structure (Multidivisional Structure). U structure is a functional organizational structure with high centralization of power; H structure is a holding company structure with business diversification; M structure, the outcome of development and evolvement of both U and H structure, is a large company structure combining power decentralization and power centralization and further emphasizing overall effects.

There are some other classifications. Although the names are different, the contents are largely identical with minor differences. The classification methods based on three or four types are widely acknowledged. The classification method based on three types refers to the organization of group management and control along three basic dimensions: financial, strategic and operating control; the classification method based on four types refers to the financial, strategic, operating and functional control dimensions.

Operational management and control: HQ manages almost everything, from formulation to implementation of strategic planning. To ensure strategic implementation and achievement of objectives, the functional management of the group is highly centralized. For example, personnel management not only covers formulation of personnel system and policy for the entire group, but also covers selection, appointment and dismissal of secondary management teams and the business backbone of each subordinate company. In groups implementing such management and control model, each subordinate company must have high business relevance. In order to ensure that HQ can make correct decisions, cope with and solve various problems, the functional officials in the HQ must be numerous and the scale of HQ must be large.

Strategic management and control: Currently, most group companies all around the world

are adopting or evolving to this management and control model. Group HQ is in charge of financial and assets operations and overall strategic planning of the group while each subordinate enterprise (or business division) formulates its own business strategic planning, and puts forwards resource budgets required to achieve the planning objective. HQ takes charge of examination and approval of plans submitted by subordinate enterprises and gives suggestions with added value, approves the budget of the subordinate enterprise and hands over to such subordinate enterprise for implementation. In groups implementing this management and control model, each subordinate company must also have high business relevance. In order to ensure achievement of objectives of subordinate enterprises and maximum benefit of the overall group, scale of the group HQ is not very large, but HQ focuses on overall balance and improvement of comprehensive benefits, such as balance in resource demands of enterprises, coordination of conflicts among subordinate enterprises, implementation of "borderless corporate culture", fostering of senior executives, brand management, sharing of experience of best practice, etc.

Financial management and control: Group HQ only takes charge of financial and assets operating, financial planning, investment decision of the group and monitoring, as well as merger and acquisition of external enterprises. Each subordinate enterprise has its own yearly financial objective, and it only has to achieve such financial objective. In groups implementing this management and control model, each subordinate company may have quite small business relevance. HQ is mainly in charge of assets operation, so the functional staff of HQ is relatively small and most officials are financial experts.

It is thus clear that operation management and control and financial management and control are two extremes of centralization and decentralization, and the strategic management control is in the middle. Nevertheless, some companies, based on their actual situation and for the purpose of ease of management and control, further divide the strategic management and control in the middle into "strategic implementation" and "strategic guidance", and the former lays particular stress on power centralization while the latter on power decentralization. Merits and demerits of different management and control models are as follows:

Operation management and control:

Merits	■ The parent company pays full attention to business development of the subsidiary. ■ Since functional departments of the parent company have controlling relationship with counterparts of the subsidiary and the controlling distance is short, the parent company can obtain information concerning business operation of the subsidiary, can feed back and carry out control timely, so control is intensive.

	■ Business operation of the subsidiary is directly supported by the parent company which can effectively allocate resources of various subsidiaries and coordinate activities of various subsidiaries. ■ This model produces very good management and control effects for enterprises at the early stage and with not very sound management systems or newly established subsidiaries.
Demerits	■ Integration of assets and operation of the parent-subsidiary leads to unclear property relations, and risks borne by the parent increase. ■ Improper handling of the sensitive relationship between power centralization and decentralization leads to weakening of harmony and coherence of the entire group. ■ More often than not, subsidiaries only pay attention to immediate interests, and there is a lack of long-term incentives for subsidiaries. ■ Since management departments are set in a repeated manner and there are many management lines, functional departments of parent and subsidiary argue back and forth over trifles. ■ Along with constant expansion of subsidiaries, workload of corresponding functional departments of HQ gradually increases, and it is getting harder and harder for HQ to effectively manage and examine subsidiaries. Work efficiency drops after expansion to some extent, and existing benefits weaken or are even offset after a period of time.

Strategic management and control:

Merits	■ Mechanism of the parent is that decision is separated from implementation and property right operation is separated from product operation. Clear goals of both parent and subsidiary help achieve incentives towards the subsidiary. ■ Property relation between the parent and subsidiary is clear, and risks borne by the parent are restricted to the amount of contribution for the subsidiary. ■ The parent concentrates on strategic decisions and resource deployment and controls the overall development direction of the subsidiary via decision-making control, which is in favor of giving play to HQ's advantages. ■ With a relatively flat organizational structure, decision-making links can be reduced and decision-making efficiency and adaptability to changes can be significantly improved, being in favor of achievement of fast copy type scale expansion of the single enterprise. ■ This management model applies to subsidiaries which have entered the mature stage, have complete management systems, and clear strategic planning and strategic management, and need to react to market changes quickly.
Demerits	■ The parent has a large staff, and the administrative levels are numerous. ■ The degree of timeliness and smoothness of information feedback affects the adequacy of strategic decisions. ■ Poor implementation of strategic management coordination affects the relationship between the parent and its subsidiary. ■ The combination of the flat organizational structure and corresponding decision-making process and parent-subsidiary governance system is the precondition of giving full play to management and control.

Financial management and control:

Merits	■ Parent and subsidiary have clear property rights, and the subsidiary is called the fully independent economic entity. ■ Investment mechanism of the parent is flexible and effective. The parent can increase its stake if the subsidiary is successful and can quit if the subsidiary‘s performance is weak, so investment risks borne by the parent can be effectively controlled. ■ Since the parent can fully concentrate on capital operation and overall control, conflicts between the parent and subsidiary can be reduced.
Demerits	■ The controlling distance is too long, and information feedback is not smooth. ■ Information of the parent and subsidiary is asymmetrical, and it is hard to implement effective control. ■ Control by the inside manager de facto easily happens. ■ Objectives of parent and subsidiary are prone to be different, which goes against giving play to HQ’s advantages.

4.1.3 Influencing factors of group governance management and control model

For multi-layer groups, vertically organized, sub groups at different layers face different levels of management and control. For groups with several business segments, horizontally organized, different business segments or subsidiaries have different levels of management and control as well. The selection of the power centralization and decentralization relationship and management and control model best suitable for a specific group is considered from the following three factors.

(1) Demand degree. Whether the group needs to carry out centralized management over subordinate enterprises shall be judged based on the group HQ’s strategic requirements for subordinate enterprises. Power shall not be centralized or decentralized just for its own sake. Power centralization and decentralization per se are means rather than objectives, and they both aim at efficiency.

(2) Degree of management and control. Whether the group is capable of carrying out centralized management or decentralized management over subordinate enterprises shall be judged based on the resources available to the group HQ. If the group HQ wants to centralize power but is not capable of doing so, the decentralization effects are more positive.

(3) Degree of rationality. Whether the group HQ shall carry out centralized management or decentralized management over subordinate enterprises shall be judged based on the stage of self-development of such subordinate enterprises. Subordinate enterprises at the early stage need more support, coordination and guidance, so power centralization is to the benefit of their survival and development; subordinate enterprises at the mature stage have strong self-operating ability, so decentralization is much conducive to giving full play to the

subsidiary's potential.

Scale of management and control judgment as indicated in Table 4-2 is based on combination of the above three aspects. The corresponding point of each influencing factor can be determined by assessing the actual situation of an enterprise, judgment of management and control model can be made by totaling all points and comparing the resulting total point with the reference interval.

Table 4- 2 Scale of management and control model judgment

Factor Point	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Development stage	Start-up stage (relatively small scale, regional concentration, single business and simple organization)					Growth stage (scale expands rapidly, business tends to be complex and organization expands gradually)					Mature stage (relatively large scale, multi-point layout and complex business)				
Company scale	Small scale (small staff and low assets, simple organization and relatively small scale)							Large scale (large staff and assets, complex organization and large scale)							
Company	Unification (single business, or small differences among business units)							Diversification (diversified business, and large differences among business units)							
Regional layout	Single-location (activities concentrated in one area)							Multi-location (activities spread by different sites)							
Business relevancy	High business relevancy among business units (collaboration and cooperation of business units required for business operation)							Low business relevancy among business units (a business unit can complete the production and service rendering process independently)							
Management ability	Relatively low management ability of HQ (incapable of effectively guiding and supervising each business unit)							High management ability of HQ (capable of effectively guiding and supervising each business unit)							
Level of informatizatio	Low level of informatization (poor ability in information collection and processing)							High level of informatization (good ability in information collection and processing)							
Corporate	Centralized culture (HQ with authority and decision with unity)							Decentralized culture (business units with high initiative, decision-making speed pursued)							

Operation management and control		Strategic management and control		Financial management and control
8~40	41~47	48~80	81~87	88~120

Since enterprise groups develop and change constantly, values of some indicators will be different. As far as the management and control adopted by an enterprise group is concerned,

perfection of the parent-subsidiary system shall be based on rationalization of property relation, and hidden dangers left over by the original systems shall be gradually eliminated. Only by analyzing factors in Table 4-2 in a comprehensive manner can a group company decide the management and control model suitable for the subsidiary. Along with increase in business lines and establishment of several business divisions gradually, the management skills and the informatization of HQ must improve accordingly, leading to the build up of an appropriate management and control model.

4.2 Diversified SBU strategic development in LNCC

4.2.1 History and development of LNCC

Subordinate to China North Industries Group Corporation, Luzhou North Chemical Industry Co., Ltd. was initially founded in Gongxian County, Henan Province in 1933, and then moved to Luzhou City, Sichuan Province in 1938. It was renamed as Luzhou Chemical Plant in 1953, reorganized into Luzhou North Chemical Industry Co., Ltd. (hereinafter referred to as LNCC) in 2001, and was reformed and divided in 2004, with research and manufacture of military products solely owned by the state and civil product-based business restructured, and the parent-subsidiary system of co-existence of various economic sectors is formed accordingly.

Since its establishment 77 years ago, the company has evolved along with the economic development of the new China and transformed into a key civil-military integrated security forces company led by “one military business and two civil businesses” from a fire chemical enterprise engaged in scientific research and production of chemical warfare agent, and its civil product business evolved from relatively single varieties including civil nitro cotton and ethyl cellulose into business diversification mainly producing cellulose derivative and DMC, secondarily producing chlor-alkali, chloride methane, chlorinated polypropylene, car fuel tanks, packing materials and other products. Now it is the domestic largest cellulose ether- product R&D and production base. Sichuan Nitrocell Co., Ltd., a holding company of LNCC, is the largest nitro-cotton producer and supplier in the world and was listed at the Shenzhen Stock Exchange in 2008.

The 77-year-old development history carries unremitting efforts and seeking of several generations. In particular, since the Third Plenary Session of the 11th CPC Central Committee held in 1978, the company went through formidable exploration and adaptive transition in such

aspects as ideology, operating mechanisms, management process and work habits. It mainly experienced the restorative development stage at the early stage of reform and opening up, the consecutive ten-year loss period from the late 1980s to the late 1990s, the period from the late 1990s when a series of internal reforms were carried out from the distribution system to foster larger productivity, the hard institutional innovation period from 2004 when military enterprises were reformed and the period from 2008 when corporate governance structure and product structure were significantly improved and adjusted. These stages and periods represent general rules of self development of state-owned enterprises and inevitable outcomes produced by interaction of policy factors, with universality and inherent particularity. In such stages, especially the "Tenth Five-Year Plan" period and the "Eleventh Five-Year Plan" period, the company seized historic opportunities provided by "military product XXX project, military enterprise reform and Western Development", stuck to the development strategy of "development based on military products and boosted by domestic products", closely focused on object location of yielding further development of the military products business while expanding and diversifying the leading and dominant civil products business, transforming the enterprise into a "domestic first-class and internationally known" enterprise and the R&D and production base of high-tech-based propellant. By means of accelerating institutional innovation, changing operation mechanism, accelerating adjustment of industrial structure, the company has achieved obvious improvements in the scale of operation and economic benefits, and the civil product business developed rapidly, with sales revenue soaring from 258 million yuan in 2000 to 2294 million yuan (nitro cotton included in both periods) in 2010. The proportion of sales revenue contributed by civil product business grew from 86% in 2000 to 93% in 2010. Annual taxes exceeded 100 million yuan, and the living standards of employees improved significantly.

Looking back into the nearly 30-year development history of civil product business, the company mainly experienced the following several important periods. In the early 1980s, the company had successively constructed several production lines of CMC sodium, nitromethane and miniature automotive fuel tanks, and established the second research institute engaging in research and development of civil products, laying the foundation for new civil products in such areas as cellulose ester products, ether products, synthetic chemicals, machining operation and industrial explosive materials, and widely expanded the market and achieved good economic benefits. At the early stage of the "Tenth Five-Year Plan" period in the 21st century, the company started to implement division and restructuring reform for both military and civil

product businesses. It firstly conducted diversified equity transformation for the industrial explosives branch and founded an industrial explosive company, taking the first step in reform of property rights system and investment diversification. After the implementation of the operation mechanism, the product structure was further adjusted, but the development of the civil product business still depended on limited funds accumulated in a rolling forward way, and economies of scale remained elusive for most civil products. Product quality was poor and competitiveness remained weak. In order to develop the civil product business and expand and diversify the leading and dominant civil product business, at the end of “Tenth Five-Year Plan” period and in the beginning of the “Eleventh Five-Year Plan” period, the company fulfilled its potential by internal reform and sought for expansion and acquisition outside to take the initiative in revitalizing stock assets and fostering assets increment. With the capital operation as the link and based on purposes such as resource integration, industrial chain perfection and acquisition of advanced management, technology, market and funds, after working with state-owned, private and foreign companies to establish subsidiaries, the company finally achieved a significant investment diversification, Its joint ventures include Sichuan Nitrocell Co., Ltd., Gansu North Santai Chemical Co., Ltd., Luzhou North Dadong Chemical Co., Ltd., Hercules Tianpu Chemicals Company Limited and Sichuan Guifeng DMC Materials Co., Ltd. Broad cooperation brought fundamental changes to assets structure of the company and helped the company achieving market expansion and resource integration, as well as realization of complementary advantages and the win-win goal. In 2008, according to provisions of the new *Company Law* and relevant requirements of the group company, the company began to implement the pilot project of regulating the corporate governance structure, and implemented classified management and control models of operating management, strategic management and control and investment management for civil product-based subsidiaries, further regulated the parent-subsidiary management and control operating mechanism and strengthened operation management and control by the company towards the leading and dominant civil products. The company was always committed to optimization and adjustment of industrial structure. At the beginning of the “Eleventh Five-Year Plan ”period, as backward development of DMC industry required a large amount of imports to balance supply and demand while foreign DMC industry insisted blockade on new techniques and the DMC industry is one of industries encouraged by the State, the company, in combination with its own technical advantages and industrial foundation in methane chloride industry, plus its high-quality and large-scale chlor-alkali products, grasped the opportunity to enter DMC area for expansion and development of downstream products with high technology and added value, as well as

formation of chlor-alkali product industrial chain. In 2006, the company cooperated with North Technology and Sichuan Dadong to build the 100,000t/a DMC project, and the 30,000t/a DMC production line of Phase I has been constructed and put into operation in 2009 while the 70,000t/a DMC technical innovation and expansion project of Phase II is expected to be constructed and put into operation in 2012. Implementation of the said project further pushed forward the diversified reform. After the construction of the project, sales revenue of about 1 billion yuan and profits of about 200 million yuan can be achieved, and the project will become the new milestone in the history of civil product business, playing a fundamental role in the industrialization and long-term development of the company.

4.2.2 Development opportunities and challenges of LNCC

LNCC, formerly known as Luzhou Chemical Industry Co., Ltd, was originated in 1933, and in 1938 was relocated from Henan Province to Sichuan Province. While developing through vicissitudes along with the forwarding pace of People's Republic of China, the Company has made a historical contribution to the modernization of national defense and the chemical industry. Today, it is a national key military-supporting industry with more than 5000 employees, over 20% of which are professional technicians; and it comprises one research institution, one R&D center, one engineer design institute and over twenty companies, both exclusively-founded and joint ones, forming a complete system integrating scientific research and development, design, production, marketing, services quality assurance, placing the Company among the ten largest chemical manufacturing enterprises in Sichuan Province and making it one of the provincial corporate technologies centers.

For the past few years, guided by the policy of "development based on military products and boosted by civil products", supported by the construction platform of Western Chemical Center, empowered by its military technical and human resources advantages, and through efforts of reform intensification, management enforcement, technical innovation and asset restructuring, LNCC has been striving to establish a fine chemical production base in Western China, and has achieved very positive results. For 5 years since its foundation, LNCC witnessed a quadruple growth of total sales, and in 2006, the Company yielded a turnover of 1.45 billion yuan with a profit of 75 million yuan, bringing corresponding income increase to employees at the same time, which explains that the Company has succeed in its historical breakthrough from common survival to common development.

Between 1980 and 1990, a period with great difficulties for the military industry, LNCC

suffered continuous losses, for the whole 10 years. Due to the sharp reduction of military orders, plus the long-standing concepts, regime and mechanism formed in the period of planned economy, the Company found itself trapped in great difficulties for its production and business development. In front of various challenges and extreme external uncertainties, LNCC determined a working concept: reform to reach sustainability, achieve progress by development, and provide employees benefits by progress. Afterwards, it defined a "siege breakthrough" strategy to follow: seize the historic opportunities provided by military industry reform and Western Development, set greater economic output, business mechanism conversion and human resources strength increase as efforts targets, realize the transition from survival issues focused model to development issues focused model, enhance employees quality, corporate quality and corporate core competitive force, and make the Company a modern, credible and harmonious enterprise.

LNCC has set the concept of operating company with business assets and expanding company by market economic means, in other words, it would sell remnant assets while investing in new assets, strive to make maximum output from any input, and focus efforts on higher service efficiency and benefits of assets, which is guided by an efficiency and benefits oriented principle and targeted to dynamic assets and maximum benefits. In order to address prominent problems like loose management and unavailability of standards, LNCC decided a management concept of "No Details No Success" to follow, so that the management in all areas could transform from an extensive type to an intensive one. LNCC also deepened the reform in operation, distribution and human resources aspects, set the return on equity as the major index, and established a performance assessment and evaluation system with good combination of adequate incentives and effective restrictions. With regards to the development model and research and development, LNCC made some positive attempts of innovation. Finally, through the efforts in a short time of just two years, LNCC was able to curb the economic slumping trend, with the production and business starting to take a beneficial cycle. In the first year of new century, LNCC eventually broke through out of the loss siege, and embraced a dawn of hope for development and growth.

Under the ever increasing products pressure of competition and survival arising with China's accession to World Trade Organization (WTO), LNCC began to clear and define its development concepts following the principle of achieving something by changing nothing, and guided by these concepts, it strived to unleash its advantages of those internationally leading technologies with proprietary intellectual property rights in product of sheet nitro

cotton, new process for acid removal and MC etherification process and set the civil products of cellulose derivatives series and DMC series as the main future development objectives , based on the existing industry, which enables the Company to fulfill potential by reform inside while seeking for expansion opportunities outside, and to acquire its core competitive force and new economic growth point, so as to lay a good foundation for a fast yet beneficial development. In a word, LNCC succeeded to seize the opportunities and began to enjoy a series of featured products with market competitive power.

(1) Nitro cotton is the featured product bearing corporate technological advantages of LNCC. Having engaged in nitro cotton production for over 50 years, LNCC enjoys great independent development capability for techniques and technologies. The existing production lines of refined cotton and nitro cotton now can yield products of higher quality and require less labor as well as manufacturing costs after the safety and technical reform, with the production capability increasing from less than 10,000t/a to 25,000t/a, and the process technologies been improved to be of internationally leading level, which provide conditions for production expansion of nitro cotton.

(2) MC together with its derivatives has been widely used in industries like construction materials, paint, medical care and food etc. with a fair fast development in the last 20 years. Having been doing research on and producing MC together with its derivatives since 1980s, LNCC managed to launch an MC production line of 1,400t/a. During the Tenth Five Year development period, LNCC intensified efforts to conduct process analysis for technical breakthrough in MC production, and brought in a new proprietary technology to the MC production line, with a leading quality at the world level. With the increasing demand for MC products in both Chinese and international markets, the products will enjoy a brilliant prospect of development.

As for other civil products with certain advantages, LNCC actively sought for new economic growth opportunities while preserving its profitability, the corporate development requirements and technological strength. With the self-raised funds, LNCC was able to make capability enhancement and technical reform on production lines of chlor-alkali, carboxymethyl cellulose sodium and mini-car fuel tank. As methane chloride is a key raw material in the production of MC and the DMC Project under construction, LNCC upgraded the production line of trichloromethane so that the production capacity expanded from 3,800t/a to 11,000t/a, and all monochloromethane, dichloromethane and trichloromethane could be produced simultaneously. The mini-car fuel tank production line enjoyed an increase of

single-shift based annual production capacity from 120,000 to 250,000 sets. In a word, the technological upgrade was very effective in generating new growth opportunities, and the economic performance was also improved.

After all, it is a significant limitation that the Company's development is bound by its own accumulation in a rolling forward way. Thus, the Company shall attract outside investors and raise development-required funds through diversified channels, so as to find a short cut to quickly develop and expand the civil products area. In recent years, LNCC has taken several bold and beneficial attempts to diversify the investment, having achieved an win-win outcome in cooperation with other raysing outside equity to co-finance its development requirements.

With its chlorine resources arising from the chlor-alkali production, LNCC managed to launch a joint-stock chloroacetic acid production line of 3,000t/a with social human beings, who enjoy the market advantages. Through such kind of cooperation, the Company improved its management level, lowered the operation cost, and introduced the management concepts and mechanism of market economy, which promoted the employees' ideology and conceptual changes leading to higher work efficiency. After the production took off, the new line generated profits of 1.9 million yuan in the first year, and the pay-back was achieved in 15 months. In 2006, the total sales reached 5,000 tons with profits of 4 million yuan, a very positive economic performance.

In 2006, the production and sales volume of the Nitro Cotton Company, which is a joint venture between LNCC and Xi'an Huian Company, reached 51,000 tons, jumping up to the top of nitro cotton manufacturers in the world. By such superior assets restructuring, the resources effectively met market needs, and the Nitro Cotton Company became leading world player in whar regards brand recognition, quality and after sales services.

In order to enhance the production capacity and increase the variety of carboxymethyl cellulose sodium, LNCC established a joint-venture to produce carboxymethyl cellulose sodium with a capacity of 5,000t/a with Chongqing Qiaofeng Industry Company,. LNCC managed to effectively integrate the market resources, satisfy high-end, medium-end and low-end customers demands and explore the products market space, with the production and sales volume increasing from less than 1,000 tons to 4,600 tons in 2006, and output value as well as sales revenue increasing by 285% and 384% respectively from the period before the new joint venture.

In 2003, LNCC launched a joint-venture for MC production with annual yield of 3,000 tons with Jiangsu Feixiang Group. And in 2005, in order to expand in foreign markets LNCC

created a joint-venture, Temple Hercules Chemical Company, with American Hercules. The cooperation with American Hercules facilitated the improvement of MC quality adopting the leading manufacturing technologies enjoyed by a foreign company, led to the advancement of management concepts on corporate development, and provided access to foreign markets through the foreign company's global marketing platform. At present, Temple Hercules Chemical has become the largest MC manufacturer in Asia with an annual output of 21,000 tons, 60% of which being sold on the global market.

LNCC has been striving to break all barriers to cooperate with enterprises through joint-ventures in both China and worldwide, and has established a total of 7 joint ventures. All civil products programs were structured as corporate juridical persons following the requirements of modern enterprise system so as to involve in the market competition as a competitor directly. Through such joint-stock cooperation and assets restructuring, the Company managed to raise a large amount of private capital, sold non operational assets, expanded the business, and enhanced the international competitive force of products. At present, with the coverage of civil products production it expanded from neighbor areas to Yangtze River Delta and Northwestern area. The industrial cluster has been accelerated, and the financial resources, cohesive force and strength of the Company improved as well, laying a solid foundation for the Company's sustainable development.

4.2.3 SBU for diversified development of LNCC

(1) Connotation, characteristics and advantages of SBU

SBU stands for Strategic Business Unit, which refers to a unit composed of a group of similar business activities in a company. It is generally believed the SBU was a concept coined by Igor Ansoff. For the definition of SBU, Kaplan said (Kaplan and Norton,2001), "even though different departments and business divisions (SBU) in a company may compete in different markets, serve different customer groups, and/or follow different strategies, their strategies are made in the same frame and their competition in different markets is for a synergetic value within the company " (Kaplan and Norton, 2001). For Kotler (1991), the SUB is featured by the following three points: First, it is an aggregated unit of one independent business or several correlated businesses, and can be separated from other businesses of the company as it is independent from other business and functional departments. Second, it has its own competitors; namely, it competes with the existing and potential rivals in its own business area. Third, it is led by a manager, who is responsible for strategic planning and economic

performance as well as to control most factors influencing profitability. The person in charge of the SBU, usually served by a deputy president from parent company, is well authorized to decide the strategic objectives together with realization approaches of that SUB and control all necessary resources for those objectives; he/she is also responsible for the organizational performance of the SUB. In Zhao Degui's opinion (2004), as an organization, the SBU enjoys two major advantages. First, it is able to optimize the corporate organizational model so as to facilitate the realization of corporate strategic objectives. With SBUs, the company's management force can move down and flat management structure arises accordingly, so that the managers in original strategic business units become operators and face the market competition pressure directly. Second, it is able to optimize the internal resources distribution so as to identify the core competitive strengths. On one hand, it not only facilitates the comprehensive utilization of both tangible and intangible resources of the company, but also helps to avoid any unmeaning resources loss due to horizontal competition by integrating and combining those similar business activities into a SBU. On the other hand, the competitive situation of each SBU can be analyzed with tools like the product life cycle and BCG growth-share matrix before classifying each SUB as Stars, Cash Cows, Question Marks or Dogs, so as to decide corresponding support type for each SBU-development, maintenance, harvest or abandonment. By doing so, the company can improve the efficiency of resources allocation and make sure that limited resources are fully used for maximum output. In addition, by setting SBUs, the company can enjoy greater crisis identification ability and speed and break through the bottle necks of traditional organizational structure.

(2) Diversified strategic development with SBU of LNCC

As a typical state-owned company, LNCC development benefited from the progress of China's Reform and Opening-Up as well as the Reform of State-owned Companies, evolving from a simplex chemical company to a diversified group enterprise by getting through the difficulties of reform and seizing opportunities in new conditions. Especially, after a period of reform which helped it tide over difficulties and adapt to the dramatic changes in external environment, LNCC started to experience another period, from the end of 20th century till now, when corresponding countermeasures were adopted, corporate development strategies were re-defined, the "development based on military products and boosted by civil products" model began to take its shape, and finally the company managed to get rid of hardships and take off for rapid development, embracing a brand new situation. Through continuous business exploration by internal growth encouragement, or external merger and acquisition as well as joint-stock

cooperation, or combination of both, LNCC gradually embarked on the path of diversified development, and its diversified industrial structure began to take its shape as well. Today, LNCC has become a diversified group enterprise with cellulose ether together with its derivatives as well as DMC as the main products complemented by other various related products, a real diversified development model. However, during the diversified development, more and more business areas and business units were explored, a sheer expansion took place, and the number of shareholding companies and subsidiaries was greater and greater, all of which necessarily brought the Company many challenges like how to cope with the complexity of property relations and ownership structure, the difficulties in balancing resources allocation and corporate management, and inconsistencies among different cultures. In order to meet these challenges, LNCC introduced the governance model of SBU and got to tidy up its internal system and mechanism. When corporate size is expanded to a certain degree, the management levels within a company will increase, and efficiency of information delivery and handling thus will be influenced by administrative system of functional management. Moreover, the huge management system will also bring great organizing and management costs. So, in order to make the company flexible enough to adapt to the constant changing conditions in external markets, it is a best idea for the company to establish an internal market by introducing internal market mechanisms that help the internal corporate management to be more efficient. In this way, the subordinate departments will be more independent and have to confront the market directly, so that their economic behavior will be exposed to the automatic control and adjustment of that “invisible hand” of the market, and the flow of corporate resources will be adjusted to those department or companies in a more efficient manner. As a result, the company can reduce its organizing and management cost, speed up its response as a whole, and enjoy higher organizational efficiency. As an extension of internal market, the partially marketized SBU won’t bring excessive trading expense due to the existence of internal corporate authority. With this strategic governance model of SBU based on diversification, LNCC performs better than both those large-scale bureaucratic enterprises and the amorphous market.

4.3 Governance challenges arising from diversified SBU strategic development of LNCC

4.3.1 Challenges related to system and property rights

For enterprise groups, the property relations together with the corporate governance

structure derived from property relations are a key factor in the definition of the management and control model. Based on the holding company, equity participation and cooperation relations, the relationship between the enterprise group and its subordinate companies can be divided into three levels: close relationship, relatively-close relationship and loose relationship, with the enterprise group being always the center. The selected management and control mode is based on these three types of property relations. (1) Close relationship - fully holding company, wholly-owned subsidiaries (branches) and relative holding company; in this case the enterprise group integrates the fully holding company and wholly-owned subsidiaries (branches), while management and control are based on the corporate governance structure. In general, the enterprise group will centralize either operational management and control, strategic management and control, or financial management and control over the fully holding company or wholly-owned subsidiaries (branches) as determined by the industrial strategy and corporate culture. (2) Relatively-close relationship-joint-stock company; occurs when the enterprise group is in a joint-stock or relative holding relationship with a company only in a certain investment area, and use senior executives to manage and control the joint-stock company or relative holding company. In this case, management and control are focused on investment returns, and the most common management and control model is financial management and control. (3) Loose relationship-companies in contractual cooperation with the enterprise group. In this case, the property relations and organizational structure of the enterprise group of these companies are more diverse, as specified by the agreements. Therefore, in the case of loose relationship there is no specific management and control model of the business units.

During the diversified SBU strategic development, how to select a governance structure as well as management and control model which are suitable for the corporate development with the current system and property relations has been a burning question. Another challenge facing companies is how to govern the subordinate companies when property relations are clear, yet responsibilities definition is vague.

4.3.2 Challenges related to system and incentives

The implementation of diversified SBU strategy also involves challenges related to mechanism and incentives. First, if the person in charge of incentive and discipline mechanism selection is not well defined and supporting system for him/her to perform the power fails to be complete and perfect as well. Without clear definition on his/her authority over each SBU,

some departments and subsidiaries will get selection power beyond their scope, and the person in charge of selection will lack support to perform the power, which results in lack for assurance of full responsibilities realization, with excuses and disputes inevitably arising. Therefore, to perfect the incentive and discipline mechanism, the person in charge of incentive and discipline mechanism selection together with supporting mechanism for him/her to perform responsibilities must be well defined.

Second, the support failure between incentive mechanism and discipline mechanism makes it difficult for both to achieve good results. Incentive mechanism and discipline mechanism shall support each other to function to the greatest extent. An incentive mechanism alone can not prevent operators from committing fraud; neither can a discipline mechanism alone stimulate the operators to create excessive value for state-owned property. This is also the significant challenge that LNCC is confronting.

Moreover, the defect in selection mechanism for operators makes it difficult for the incentive mechanism and discipline mechanism to exert its effect. So far, instead of being selected by the capital owners who are actually risk bearers in operators market, the factory directors and managers in more than 85% of state-owned companies have been appointed by government administrative departments and organizational divisions of CPC(SOURCE). However, those government officers are powered with selection responsibilities on one hand, yet on the other hand, they are not responsible for selection results, which explains that they won't take the great initiative to seek for and pick out the one with greatest talent. In that case, any incentive mechanism, however perfect it is, may fail to work to make the operator appointed, one of low quality unfortunately, achieve any extraordinary results based on his/her own ability. What's more, as the operator appointed is unable to avoid the responsibilities beyond his/her own ability by refusal to be in office or resignation when they are passively selected beyond their own choice, they will be transferred to another post at worst if his/her operation fails, taking no corresponding responsibilities.

4.3.3 Challenges related to resources and coordination

The implementation of diversified SBU strategy involves problems related to strategic cooperation, effectiveness of resources allocation and profit distribution between the parent company and its subsidiaries. Another challenge related to resources and coordination confronting the parent company and subsidiaries is how to allocate resources to parent company and its subsidiaries in a so positive way that the profit development can be driven as a

whole, instead of the situation where the subsidiaries pursue their own profit maximization in ways that may hinder the development of the enterprise group.

First, as the core operation unit of the group, the parent company usually will base the profit distribution on the collective interests of the group so as to have resources reasonably allocated and factors optimally structured, which is helpful to increase the group's collective advantages and comprehensive capability. The measures taken by the parent company doubtlessly are beneficial for the collective interests of the group, yet at the same time, subsidiaries have their own objectives of optimized interests, which explains that subsidiaries may take some measures that are against the collective interests of the company as a whole; for example, they may increase costs, provide false information about accounts and profits, and blindly intensify the investment efforts, to achieve their own objectives.

Moreover, for a long-term operation strategy, the parent company may set up subsidiaries to develop certain business and transfer its own operation risk for the purpose of rising profits. However, we should also understand that these subsidiaries will bring the parent company considerably bigger operation costs as well as business and management expenses; it is also important to take notice that all debts and other liabilities of the subsidiaries arising before the merger and acquisition will exert great impact on the group's interests as well.

4.4 Strategic governance of LNCC based on the industry value chain

4.4.1 Analysis of the value chain and governance management & control of the cellulose ether plant

4.4.1.1 Analysis on the cellulose ether industrial chain

LNCC is mainly engaged in the production and marketing of fiber derivatives (i.e. nitrocotton, methylcellulose, hydroxypropyl methyl cellulose, sodium carboxymethylcellulose, ethyecellulose and hydroxyethylcellulose), chlor-alkali series (caustic soda, chloride methane and chlorinated polypropylene), DMC and its downstream products: automotive fuel tank, civil explosives, explosion composite panels, casting resin, nail gunpowder, pesticide, printing ink and other products. The company is the largest nitrocotton producer in the world and the largest producer for the methylcellulose products in China. Part of the chlor-alkali series of products are used as raw materials of DMC products and the fiber derivatives which can be divided into two categories: cellulose ether and cellulose ester (mainly for military use, no further analysis

herein in light of confidentiality).

The governance management & control model of key SBU will be based on cellulose ether and DMC. The cellulose ether industrial chain of LNCC is shown in the following figure:

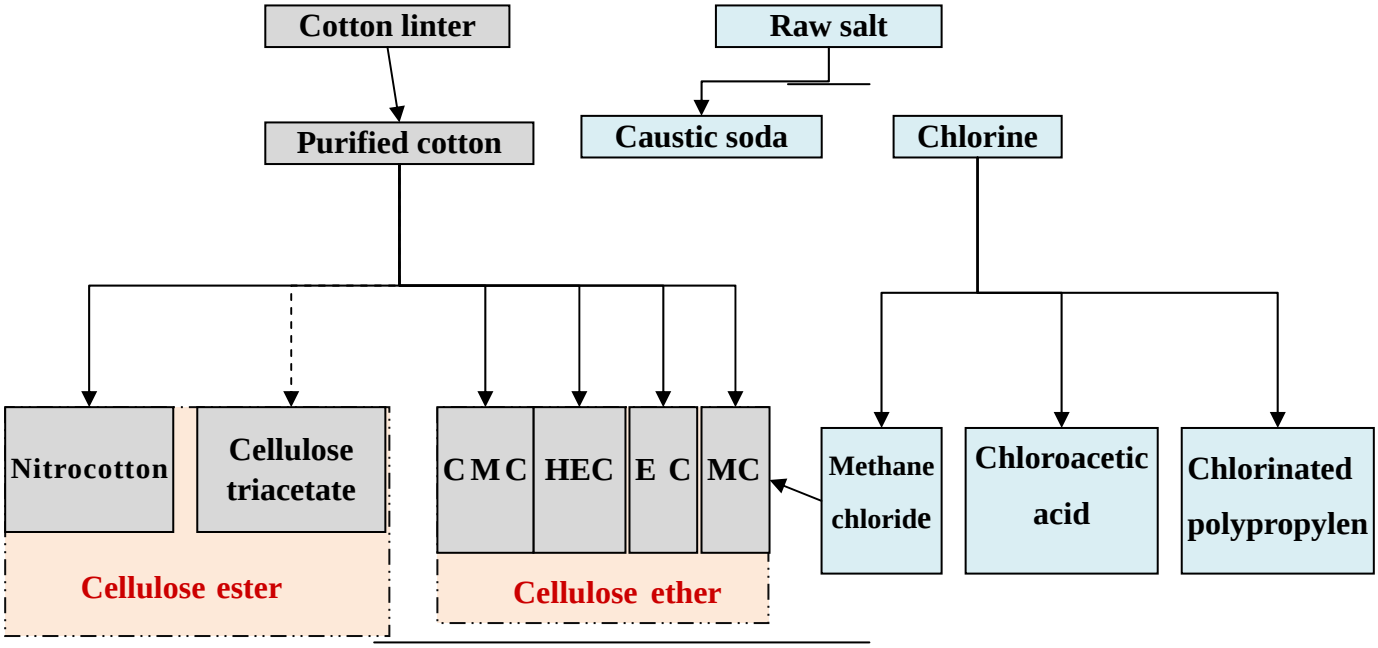


Figure 4- 1 Industrial chain of LNCC of fiber derivatives

Figure 4-1 shows the two main categories of fiber derivatives produced by LNCC can be divided: cellulose ester and ether, the latter are produced and operated by three subsidiaries and one R&D center. Raw materials for the production of the MC and carboxyethyl cellulose include methane chloride and chloroacetic acid, which derived one product chain of chlor-alkali. Caustic soda and chlorine are generated through electrolysis and dissolution of raw salt, thus, the output shall be moderate due to the usage of chlorine with higher risk for raw material. The Company adheres to the principle of sodium hydroxide capacity controlled by chlorine consumption, and the usage of supporting caustic soda with the rest which are mainly exported. For the byproducts of hydrogen, one part is directly filled and exported, while another is used as a heat source and remains to be further developed. The downstream products of chloride include methane chloride, chloroacetic acid and chlorinated polypropylene. The product chain of chlor-alkali is not the main products of the Company, but the one carried out with the industrial chains of fiber derivatives and DMC in a supporting manner.

4.4.1.2 Ability analysis on subsidiaries of the cellulose ether industry

The current production subsidiaries of the cellulose ether are shown in the table below:

Table 4- 3 Producers of cellulose ether products

S/N	Company name	Total assets (10,000 yuan)	No. of employees	Scope of business	Production capacity (ton)	Type of business:		
							Parent companies	Share (%)
1	Luzhou North Chemical Industry Co., Ltd.			EC	300			
2	Luzhou Northdadong Chemicals Co., Ltd.	9133.55	78	HEC and derivative	3000	Diversified company	Luzhou North Chemical Industry Co., Ltd.	50
							Sichuan Dadong Power Co., Ltd.	50
3	Luzhou North Qiaofeng Chemical Co., Ltd.	5679.33	262	CMC sodium, etc.	5000	Diversified company	Luzhou North Development Investment Co., Ltd.	90
							Chongqing Qiaofeng Industry Co., Ltd.	10
							Luzhou North Technology Co., Ltd.	49
4	Hercules Tianpu Chemicals Company Limited	52960.81	456	Production and Marketing of MC	16000	Diversified company	Luzhou North Chemical Industry Co., Ltd.	40
							Yuanchu Haiwai Co., Ltd.	40
							Jiangsu Feixiang Chemicals Co., Ltd.	20

As most patents of the cellulose ether products owned abroad currently, the technology of the Company has not led to a patent application yet. In addition to the carboxyethyl cellulose, production technologies of the other three products have reached high international standards as

the ethyl and hydroxy ethyl cellulose met a high technical threshold and low production costs, although marketing skills are still scarce. The cellulose ether industrial products of LNCC and their domestic market situation are shown in the following Table 4-4:

Table 4- 4 The existing cellulose ether industrial products of LNCC and their domestic market situation

Name of product	Unit	I. Product status						II. Analysis of domestic market situation			
		2009			2010			2009		2010	
		Production capacity	Sales volume	Market share	Production capacity	Sales volume	Market share	Production capacity	Sales volume	Production capacity	Sales volume
CMC	ton	6500	4051	3.12%	6500	4552	3.25%	230000	130000	235000	140000
MC and its derivatives	ton	15300	10166	10.39% (Dom)	15300	9896	10.30% (Dom)	127000	29350	127000	32020
Hydroxyeth-yl cellulose	ton	3000	135	5.00%	3000	606	20.20%	9500	2700	9500	3000
Methylcellulose	ton	240	166	79.05%	240	202	80.80%	500	210	500	250

It can be seen from the above table that the market share of ethyl cellulose of the Company reached up to 80%, which proves that the Company is the main supplier of ethyl cellulose domestically. The sales volume of hydroxyethyl cellulose produced by the Company achieved rapid growth with an increase of market share from 5% in 2009 to around 20% in 2010. Despite of high market share, the production capacity and market of ethyl cellulose and hydroxyethyl cellulose are narrow. Although CMC and MC got a relatively lower market shares, their production capacity and sales volumes of the Company are large.

For different cellulose ether products, the specific output, sales, profits and other information are as follows:

Hydroxy ethyl cellulose. The hydroxy ethyl cellulose is mainly used as additives in emulsion paint (environment-friendly water-based paint), cosmetics, daily chemical products, oil drilling (commonly used in foreign countries other than China due to cost saving, only for special oil fields use), medicine (which is exposed to the higher threshold and admission difficulty). This product is at the market promotion stage, with large profit margins. The Company built a 3,000t/a production line during the Eleventh Five-Year Plan. As the annual output at home and abroad are respectively about 5,000 tons and more than 100,000 tons, and that production capacity was only 100 tons in 2009, the Company shall now focus on product development, technology improvement and scale expansion. The products are mainly produced by Luzhou Northdadong Chemical Co., Ltd.:

Table 4- 5 Operating date of Luzhou Northdadong Chemical Co., Ltd.

Index	Unit	2006	2007	2008	2009	2010
Sales	10,000 yuan		-	-	355	1,596
Total profit	10,000 yuan	449	-71	152	-1,353	-2,044
Total assets	10,000 yuan	8,172	10,051	8,521	9,508	8,965
Employee	Person	65	77	80	79	78
Output of HEC	Ton				517	662

Arboxymethyl cellulose. This important additive for food, cosmetics and oil drilling has been produced since the 1980's. Due to rapid expansion of private enterprises, at the expense of state owned firms, the market is currently saturated. The domestic demand of about 200,000 tons is mainly produced by 845 Plant and LNCC. With an annual output of 5,000 tons, low added value, high cost, fierce market competition and low profits, the product of LNCC will be further developed during the Twelfth-Five-Year Plan to meet a strong demand. LNCC has invested 90 million to build a new 11,500t/a production line to replace its obsolete production line and improve competitiveness. CMC are mainly produced by Luzhou North Qiaofeng Chemical Co．，Ltd. Its specific operating data are shown as follows:

Table 4- 6 Operating data of Luzhou North Qiaofeng Chemical Co., Ltd.

Index	Unit	2006	2007	2008	2009	2010
Sales	10,000 yuan	7,582	7,821	10,161	5,696	6,848
Total profit	10,000 yuan	-116	-74	-249	-393	-451
Total assets	10,000 yuan	5,397	6,378	6,105	4,428	5,047
Employee	Person	351	342	341	247	188
Out put of CMC	Ton	5,503	5,629	5,750	4,100	4,621

Methylcellulose. The methylcellulose production was upgraded in 2000 with an annual output up to 5,000t/a in cooperation with Hercules Incorporated, from an initial capacity of 1,400t/a. Currently the largest producer in China, it is second only to Japan, in Asia. Owing to the 10,000t/a production line, it achieved a total output of 16,000 tons based upon a 2006 joint venture. The production is located in Luzhou and Zhangjiagang, Jiangsu with different processes, in which that in Luzhou's production area is better. The enterprises involved in the production of this product include many civil enterprises with output of less than 5,000t/a, 2-3 enterprises including LNCC larger than 10,000t/a and 5 enterprises in the 5,000t/a range. The operating data of Hercules Tianpu Chemicals Company Limited are shown as follows:

Table 4- 7 Hercules Tianpu Chemicals Company Limited

Index	Unit	2006	2007	2008	2009	2010
Sales	10,000 yuan	16,788	35,194	38,611	30,608	28,005
Total profit	10,000 yuan	1,803	1,913	1,451	-671	-1,264
Total assets	10,000 yuan	40,890	53,775	54,467	49,199	48,751
Employee	Person	369	433	486	374	355
Output of MC	Ton	6,050	11,425	12,514	9,567	10,135

4.4.1.3 Analysis on the management & control model of the cellulose ether subsidiaries

Various management & control models represent the different levels of centralization in the company. The kind of management & control model that is adopted by the company depends on the correct judgment of the internal and external environment faced by its resource capabilities and development strategy. For enterprises in different industries, various evaluation methods and criteria shall be adopted to assess and select the company's management & control model. In this study, the management & control models of the cellulose ether subsidiaries of LNCC are comprehensively analyzed through relevant influencing factors (including business development stage, enterprise scale, business development strategy, business distribution, resources, management abilities of the group's HQ, informatization level and enterprise culture). All of them have an impact on the selection of enterprise group's management & control model of power centralization and decentralization. The production SBUs' management & control models of the HEC and derivatives, CMC and MC are specifically analyzed since the EC is produced by the technical section directly subordinated to the group company and no corresponding subsidiary has been built. Details are as follows:

1. Business development stage. The management & control models in the enterprise group are very different at each development stage. When the company starts a new business or moves into a new field, the ability, enterprise scale, even market position of the HQ in terms of this business are relatively weak. Thus, a centralized management model may be preferred to concentrate the limited power, which is beneficial to centralize resources and improve the overall competitiveness and risk avoidance ability. Then, it gradually decentralizes power as the enterprise group expands and matures. In particular, Luzhou Northdadong Chemical Co., Ltd. is now responsible for the production of the HEC, which is in a stage of rapid economic development due to the establishment of new production lines. The CMC enjoys a stable production, but faces market saturation and great competition; while the MC has more mature production contributing to its stable development.

2. Enterprise scale. Traditional theory in favor of power centralization (SOURCE) suggests that centralized management shall be adopted at an early stage, as small scale since requires rational allocation for maximum utilization of limited resources and integration of comprehensive competitiveness. Along with the gradual expansion of enterprise scale, the number of decisions rises while coordination, communication and control become more complex requiring a gradual decentralization, step by step. As the ability of the group's HQ to cope with the enterprise's expansion is limited, and the HQ shall focuses on core coordination issues due to growth in number of industry and business decentralization is warranted. The scale of the HEC's production enterprise, Luzhou Northdadong Chemical Co., Ltd., is rapidly expanding; CMC's production enterprise, Luzhou North Qiaofeng Chemical Co., Ltd., is larger and stable with high output; that of the MC's production enterprise, Hercules Tianpu Chemicals Company Limited (the largest producer of the MC in China), is also very large.

3. Business development strategy. Strategy refers to the overall planning of the enterprise development, having an impact on all activities, in which management is guided by the strategic objectives. Therefore, selection of the management & control model can not be carried out without the group's strategic guidance and each model is effective only with well defined strategy. For instance, when an expansion strategy is implemented, overseas markets developed by subsidiaries shall be encouraged rather than overemphasized power centralization, so as to form a number of new economic and profit growth units with larger degree of power decentralization within the group; for tightening strategy, high centralization of power must be emphasized; for stabilization strategy, the group's HQ shall strictly control the investment and financing decisions, but appropriately separate the power related to operation efficiency of capital; for the mixed strategy, it is necessary to carry out different management models towards each subsidiary. The differences in specific strategies adopted at a certain stage shall be supported by various management & control models of power centralization and decentralization. The business development strategy plays an important role in selection of the management & control model due to different development levels and competitiveness of each business involved by the enterprise group. The integration development strategy with power centralization highly required by the enterprise will gradually turn into diversification strategy due to the increase in the number of business areas involved, contributing to the changing of management & control model to power decentralization. Focusing on the development of the HEC and MC with subsidiaries at the stage of stable expansion, the expansion development strategy is adopted by LNCC.

4. Business distribution. Generally speaking, the management & control model of power centralization shall be preferred if the member enterprises are located in a single area, since it is good for the management and control of the HQ; while power decentralization shall be preferred if the distribution area is wide, even involving foreign countries. The companies of LNCC cellulose ether industry are closely located.

5. Resources relevance. Resources relevance refers to the association degree between the resources mastered by the group's HQ and the business operated by its subordinate companies, which can be usually adjusted in line with the correlation between raw materials and their products. The model of power centralization shall be adopted if it is higher (for example, as upstream and downstream relationship has been formed between raw materials and products) so as to enhance the market competitiveness of the enterprise group. By contrast, it will be less likely to adopt the model of power centralization if it is lower (the products are unrelated or cross-industrial). For the cellulose ether industry, the relevancy is extremely high with relatively consistent demand in raw materials.

6. Management abilities of the group's HQ. Different enterprises enjoy various management levels. For the HQ, its management abilities are mainly reflected in personnel structure and quality, management skills, capabilities of assessment, motivation and information communication, etc. The management level is also different at each stage of development. Generally speaking, it is lower at the early stage of the enterprise's development, the management & control model of power centralization is more efficient, so as to effectively achieve the overall goals of the enterprise. If the model of power decentralization is adopted in the case of low management ability, the enterprise will be out of control easily. At the mature stage of development, the power decentralization can be carried out to a great extent upon the relatively complete system, higher management level of the HQ's personnel, experienced management and well-trained personnel. The management abilities are so important that the existing human resources may not be fully utilized or the enterprise may face a slow growth due to insufficient human resources that have been neglected during the selection of management & control model, As an established state-owned chemical enterprise, LNCC enjoys a relatively complete and mature management system but lacks management & control experience towards the subsidiaries.

7. Informatization level. In the fierce competition environment, information is particularly important, and can even determine its survival. For the group's HQ, information serves as the basis to make rational decisions and permit a quick reaction to environmental changes.

Therefore, the level of the group's internal and external information understood by the HQ is an important factor to measure the competitiveness of the enterprise. However, information resources in any enterprise are relatively decentralized with a higher degree based on the greater scale of the enterprise and more diversified industry. The informatization technology is helpful to improve power centralization and decentralization. High informatization is more beneficial to carry out the management & control of the HQ and incline to the model of power centralization towards enterprise group at early stage of development. Though LNCC is still in a relatively immature stage of development, the HQ holds abundant information resources of all subsidiaries due to the short spatial distance between the group and its subsidiaries.

8. Enterprise culture. The enterprise culture plays guidance and dominance roles in value orientation and behavior of employees, thus affecting operation efficiency of the enterprise. Therefore, the status of the enterprise culture shall be fully considered when the management & control model of the enterprise group is selected. The unified enterprise culture is beneficial to the management & control, since the differences in subculture may be formed or have been formed by the large number of member companies in the long term operation and management may greatly reduce the efficiency of power centralization management, even leading to the management failure. Fortunately, the culture constructions of the majority of enterprise groups within the system transformed from the stated-owned ones have been similar along time, the subculture cannot form cultural conflict and has small effect on the management model of power centralization. As a state-owned chemical enterprise, LNCC enjoys a distinctive and relatively homogeneous culture.

According to the above mentioned analysis on influencing factors of group management & control model and all subsidiaries of the cellulose ether industry, the appropriate ones for each subsidiary can be selected. In 2008, the management & control models of subsidiaries were initially adjusted by the Company. The strategic management model was carried out in Hercules Tianpu Chemicals Company Limited and Luzhou Northdadong Chemical Co., Ltd. while the operation management model was implemented in Luzhou North Qiaofeng Chemical Co., Ltd. The management & control models of all subsidiaries were defined and readjusted in accordance with the analysis of the eight influencing factors and indicators (including development stage, enterprise scale and strategy, business distribution, business relevance, management capabilities, informatization degree and enterprise culture), that is, the operation management model for Luzhou Northdadong Chemical Co., Ltd. and Luzhou North Qiaofeng Chemical Co., Ltd., and the strategic management model for Hercules Tianpu Chemicals

Company Limited.

4.4.2 Analysis on the DMC industrial value chain and its governance management & control

4.4.2.1 Analysis on the DMC industrial chain

Based on the forms, the DMC materials can be divided into four categories: silicon oil (silicone grease, emulsion and surfactant), silicon rubber (HTV and liquid silicone rubber), silicon resin and silane coupling agent (chemical reagents of DMC), which are widely used in various fields of daily life, such as keyboards' conductive keys of computers, mobile phones and all kinds of electrical equipment, contact lenses, swimming goggles and cap, children's pacifier, adhesives for glass wall of high-rise buildings, medical artificial organs, leather, finishing agent for superior fabric, etc. Due to the specificity of DMC, it is also used in the electrical and electronic, construction, chemical, textile, light industry, medical and other industries, as coating protection materials for optical fiber, encapsulation of electronic components, plastic encapsulation of coating protection and semiconductor devices, electrical connection devices for electronics, heat-conducting medium and damping suspension oil for instrument.

The DMC industrial chain is shown in the following figure:

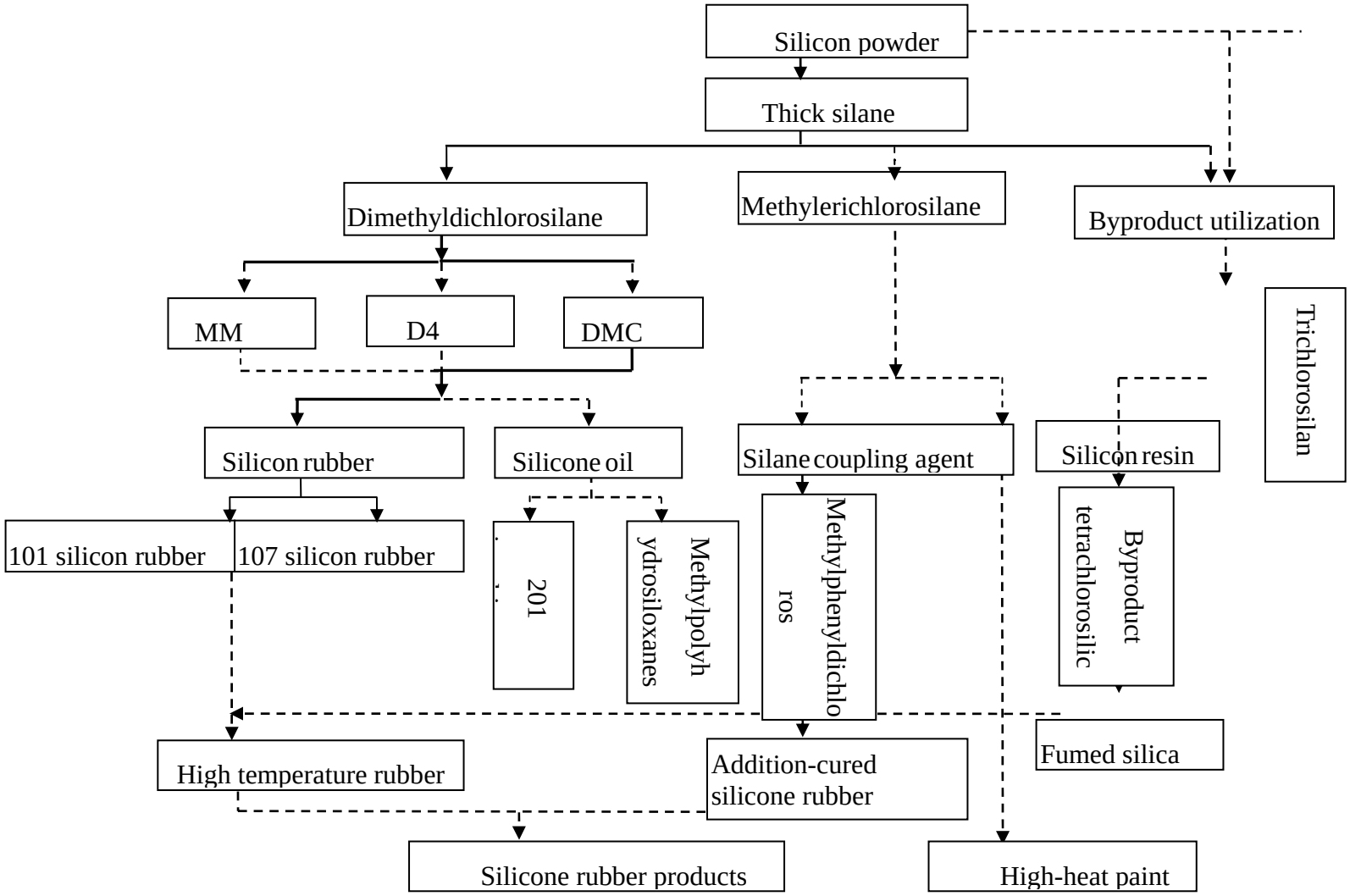


Figure 4- 2 DMC industrial chain

Figure 4-2 shows the key projects to be developed by LNCC in the coming years with solid lines representing the existing products of the Company. The enterprise has been put into production for only a short time with main products of DMC monomer (DMC) and (110 and 107) silicon rubber. For the whole DMC industry, it enjoys characteristics of (1) relatively centralized monomer, a wide variety of downstream products; (2) monomer with barriers, long-winded deep processing, a monopolistic position yielding above normal profits. The technical barriers of the DMC industry lie in the monomer production, specifically, including complex and long production processes, great investment and high barriers to entry. As new high-grade materials with extensive use, the utilization of DMC materials in China are far from universal, in particular, there are more than 10,000 grades of DMC materials in the world with around 5,000 actually supplied in the market, while over 1,000 grades in China with about 500 actually circulated ones, accounting for only 10% of those in the world. Therefore, the DMC industry has large space in varieties development which indicates the rapid growth in demand in the future at a higher level upon China's steady economic growth at home and abroad. Though being at the initial stage of production, the DMC industry will rapidly develop in the future as the key industry and field developed by LNCC. On the occasion, there will be a number of SBUs, and the selection of management & control models for all subsidiaries will become an important issue to be solved by LNCC.

Currently, Sichuan Province Guifeng DMC Materials Co., Ltd. is the only DMC producer of LNCC. Since the chlor-alkali product chain of LNCC is carried out with the DMC (key industry) and **c**ellulose derivatives in a supporting manner, the chlor-alkali industry is the other one involved by the Company along with the development of the DMC. The product chain of the chlor-alkali is shown in the figure below:

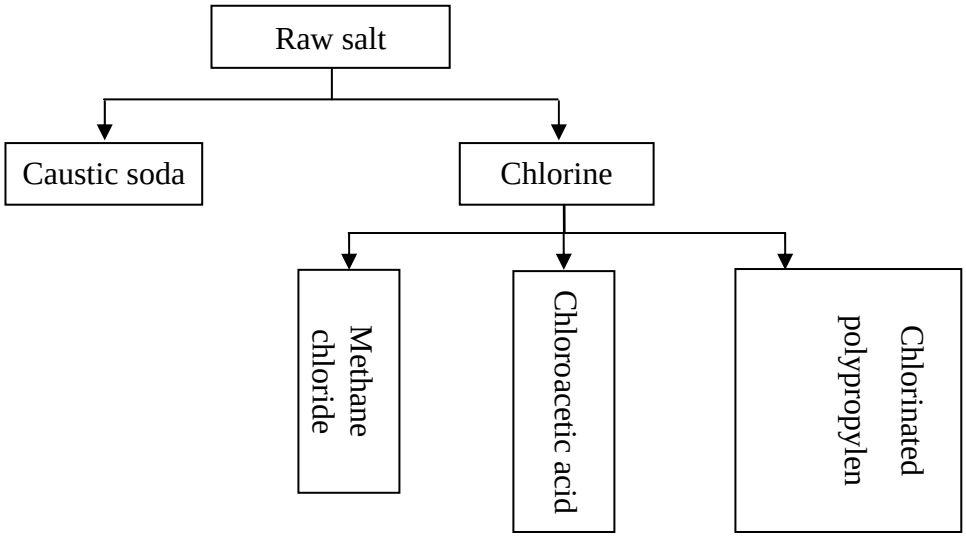


Figure 4- 3 Chlor-alkali product chain

In the product chain of chlor-alkali, the caustic soda and chlorine will be generated through electrolysis and dissolution of raw salt, thus, the output shall be moderate due to the usage of chlorine with higher risk for raw material. The Company adheres to the principle of sodium hydroxide capacity controlled by chlorine consumption, and the usage of supporting caustic soda with the rest which are mainly exported. For the byproducts of hydrogen, one part is directly filled and exported, while another is used as heat source and remains to be further developed. The downstream products of chloride include the methane chloride, chloroacetic acid and chlorinated polypropylene. The product chain of chlor-alkali is not the main products of the Company, but the one carried out with other two industrial chains (fiber derivatives and DMC) in a supporting manner.

4.4.2.2 Analysis of capacity and management & control model of DMC and chlor-alkali industrial companies

The first DMC production line with output of 30,000 tons was built by LNCC at the end of 2008. Domestic DMC products are mainly produced by three enterprises including LNCC, which is the only production line in the southwest of China but with a small scale and weak competitiveness. However, since DMC is an army-civilian combination product, the country has given full support during construction. As a result, the market prospecta are quite favorable.

In the chlor-alkali industry, LNCC owns a chloroacetic acid production line with annual output of 6,000 tons, 3,000-4,000 of which are applied to produce CMC. Consequently, the surplus is plentiful and the market is promising with narrow scale but high profits. Downstream products include barium chloride and barium hydroxide, basic chemicals which have high yield but low value. It is expected that a complete industrial chain will be formed to use by-products effectively. Chloroacetic acid is also used as raw material for Carboxy Methyl Cellulose. Chlorinated polypropylene, the best of civil products with little investment but high profit, currently enjoys a 30% market share and has good future prospects. However, some technological challenges remain and this business faces some dependency as the raw materials are mostly imported from Korea and the existence of several intermediaries has led to rising prices of raw materials. Therefore, the company wants to master degradation technology to eliminate the intermediary enterprises. LNCC is willing to reduce the volatility of raw material costs by enhancing cooperation and long term contracts with suppliers.

The following table contains a list of enterprises producing DMC and chlor-alkali of LNCC, including business conditions:

Table 4- 8 DMC and chlor-alkali producers

S/N	Company name	Total assets (10,000 yuan)	No. of employees	Scope of Business	Production capacity (ton)	Type of Business:		
							Shareholders	Share (%)
1	Sichuan Province Guifeng DMC Materials Co., Ltd.	86553.01	483	DMC intermediate and material, chlor-alkali chemicals and chloride methane	30000	Diversified company	Luzhou North Chemical Industry Co., Ltd.	70
							Luzhou North Technology Co., Ltd.	30
2	Gansu North Santai Chemical Co., Ltd.	33842.7	246	Chemical products and raw materials and packing materials thereof		Diversified company	Luzhou North Chemical Industry Co., Ltd.	40
							Gansu Yinguang Chemical Industry Group Co., Ltd.	30
							Baiyin Yinzhu Power Group Co., Ltd.	26
3	Luzhou North Plastic Chemicals Co., Ltd.	2093.05	91	Chlorinated polypropylene hydrocarbon series		Diversified company	Luzhou North Chemical Industry Co., Ltd.	30
							Four people including Dong Wubin, Chen Yaoyi, etc.	70
4	Luzhou Development Alkali Industry Co., Ltd.	3357	259	Chlor-alkali products		Diversified company	Luzhou North Development Investment Co., Ltd.	70
							Luzhou North Technology Co., Ltd.	30
5	Luzhou Hepu Chemical Co., Ltd.	835.86	48	Chloroacetic acid and hydrochloric acid		Diversified company	Luzhou North Development Investment Co., Ltd.	52
							Natural person	48

In consideration of the factors influenced by the management and control model, Sichuan Province Guifeng DMC Materials Co., Ltd. is an important SBU for LNCC to focus on DMC products in the future. It is currently in the initial stage of development with small scale, and the subsidiary's management experience is still weak. Therefore, Sichuan Province Guifeng DMC Materials Co., Ltd. and Luzhou Development Alkali Industry Co., Ltd. currently adopt operation management type management and control model, while Gansu North Santai Chemical Co., Ltd., Luzhou Hepu Chemical Co., Ltd. and Luzhou North Plastic Chemicals Co., Ltd. are not the key developing enterprises in LNCC. These enterprises are in the mature stage of development and all subsidiaries own a rich experience in management and good management capability, hence, strategic management type management and control model is applied.

4.4.3 Management and control model of other subsidiaries of LNCC

As a diversified development group, LNCC also covers the following industries besides cellulose ether industrial chain and DMC industrial chain mentioned above:

(1) Automotive fuel tank. LNCC started to manufacture automotive fuel tanks in 1980s, having become the largest miniature metal automotive fuel tank producer in China with three production lines located in Luzhou's headquarters, Qingdao and Liuzhou. The output in 2009 was 760,000 units and in 2010 achieved 1 million units. Plastic automotive fuel tanks are widely used abroad, while only medium and high-grade cars use them in China. Metal fuel tanks still have considerable market potential but developing towards plastic fuel tanks. SGMV and CHANGAN are the main customers. LNCC rents local plant on the basis of automotive production base location for production, so as to reduce production and transportation costs. The company owns certain technological advantages in raw material procurement and production, so the business can still generate profits. Automotive fuel tanks are not part of the company's core products, but at the current production and sales level, this product enjoys a high market share and generates a strong profitability. Meanwhile, the auto industry is promising; it is expected that domestic automobile production will reach about 20,000,000 by 2020. As an objective point of the profit, production and sales of fuel tanks provide financial support for the development of other industries of LNCC.

(2) Explosion composite panels. Explosion composite panels are produced by Yibin North Xin'an Composite Materials Co., Ltd. Metal composite material has lower cost than general steel material but can perform the same task - future materials will be more and more of this

type. Costs are greatly influenced by the price of stainless steel. Metal composite material belongs to new materials, having favorable market prospects. Since the company is involved at an early stage and has certain technical base, this material enjoys large development potential and has the potential to be the future cash cow of the company.

In addition to the two products above, the company produces a variety of other products. Subsidiaries of the other products and business data are as follows:

Table 4- 9 Subsidiaries and business data

S/N	Company name	Total assets (10,000 yuan)	No. of employees	Scope of Business	Production capacity (ton)	Type of Business:		
							Shareholders	Share (%)
1	Yibin North Chuan'an Chemical Co., Ltd.	16820.33	1065	Military products, chemical materials and chemical products		Sole Proprietorship company	Luzhou North Chemical Industry Co., Ltd.	100
2	Yibin North Xin'an Composite Materials Co., Ltd.		2	Metal composite materials, chemical equipment and mechanical equipment		Diversified company	Luzhou North Chemical Industry Co., Ltd.	51
							Yibin North Chuan'an Chemical Co., Ltd.	49
3	Yibin Chuan'an Hi-tech Pesticide Co., Ltd.	2239	118	Pesticides, herbicides and chemical materials		Diversified company	Yibin North Chuan'an Chemical Co., Ltd.	74
4	Yibin North Chuan'an Machinery Co., Ltd.	640	80	Steel doors and hoists		Diversified company	Yibin North Chuan'an Chemical Co., Ltd.	20
5	Yibin Yingkeer Printing Ink Co., Ltd.	257	16	Printing ink series		Diversified company	Yibin North Chuan'an Chemical Co., Ltd.	67
6	Dongguan Beiri Printing Ink Co., Ltd.	616	36	Printing ink series		Diversified company	Yibin North Chuan'an Chemical Co., Ltd.	50
7	Sichuan Jiang'an Chuan'an Construction Engineering Co., Ltd.	271	11	General contracting, wood processing and building materials sales		Diversified company	Yibin North Chuan'an Chemical Co., Ltd.	15

8	Jiang'an Chuan'an Service Co., Ltd	70	82	Property management and labor services		Diversified company	Yibin North Chuan'an Chemical Co., Ltd.	15
9	Luzhou Huapu Engineering Design Co., Ltd.	473.5	43	Construction, military projects and mechanical design		Diversified company	Luzhou North Chemical Industry Co., Ltd.	66.67
							Natural person	33.33
10	Luzhou North Material Storage and Transportation Co., Ltd.	112.98	52	Warehousing services and general freight transport		Diversified company	Luzhou North Chemical Industry Co., Ltd.	75
							Natural person	25
11	Luzhou Kaida Chemical Co., Ltd.	11724	36	AN-TNT containing explosive, emulsion explosive and expanded explosive		Diversified company	Luzhou Development Resin Co., Ltd.	19
							Luzhou Jiangyang Chemical Plant	39
12	Luzhou North Economic and Trade Co., Ltd.	1616.21	64	Chemical products		Diversified company	Luzhou North Development Investment Co., Ltd.	70
							Natural person	30
13	Luzhou North Power Co., Ltd.	21795.8	385	Alternating current, nitrogen and steam		Diversified company	Luzhou North Chemical Industry Co., Ltd.	70
							Luzhou North Technology Co., Ltd.	30
14	Luzhou Development Machine Co., Ltd.	5078.29	369	Non-standard equipment and automotive fuel tank		Diversified company	Luzhou North Development Investment Co., Ltd.	51
							Luzhou North Technology Co., Ltd.	49
15	Luzhou North Automatic Control System Engineering Co., Ltd.	615.67	55	Industrial automatic control system and instrument design and installation		Diversified company	Luzhou North Development Investment Co., Ltd.	51
							Luzhou North Technology Co., Ltd.	49

16	Luzhou Keneng Economic and Trade Co., Ltd.	1534.89		Industrial tap water, gas, etc		Diversified company	Luzhou North Technology Co., Ltd.	51
							Luzhou North Development Investment Co., Ltd.	49
17	Luzhou North Pharmaceutical Excipients Co., Ltd.			Pharmaceutical excipients		Sole Proprietorship company	Luzhou North Chemical Industry Co., Ltd.	100
18	Luzhou North Development Investment Co., Ltd.	8969.66	119	Investment in chemical industry and high technology		Diversified company	Luzhou North Chemical Industry Co., Ltd.	25
							Luzhou Northdadong Chemicals Co., Ltd.	75
19	Luzhou City Commercial Bank Co., Ltd.	338148		Absorb deposit of the public and issue short, medium and long-term loans		Diversified company	Bureau of Finance of Luzhou	24.8%
							Luzhou Xinglu Investment Group Co., Ltd.	19.23
							Luzhou North Chemical Industry Co., Ltd.	1.57
20	Luzhou Lipu Logistics Co., Ltd.	706.68	92	Dangerous goods transport and general freight transport		Diversified company	Luzhou North Chemical Industry Co., Ltd.	10
							Natural person	90
21	Luzhou Huajiang Industrial Development Co., Ltd.	7348.1	75	Building construction and real estate development		Diversified company	Luzhou North Chemical Industry Co., Ltd.	9.04
							Natural person	90.96

Most of the above subsidiaries have a small scale and are not the priority of strategic development of LNCC. Each subsidiary is in a different condition, such as subsidiary and sub-subsidiary, entity and virtual company, holding company and joint stock company. Governance based on diversified SBU is complex, therefore, the companies in the above table required to be integrated and restructured according to different integration standards, which can be divided into three categories: (1) with military and civilian divisional transformation for

historically-based Luzhou Chemical Industry Co., Ltd., including Luzhou Development Machine Co., Ltd., Luzhou Development Resin Co., Ltd., Luzhou Keneng Economic and Trade Co., Ltd., Luzhou North Automatic control system engineering Co., Ltd., Luzhou North Economic and Trade Co., Ltd. and Luzhou North Development Investment Co., Ltd.; (2) with the purpose of integrating resources, perfecting industrial chain and obtaining advanced management, technology, market and capital, the company forms some subsidiaries by building a JV partnership with state-owned companies, private companies and foreign-owned enterprises, that is, Luzhou North Power Co., Ltd., Luzhou Development Import & Export Co., Ltd, Yibin North Xin'an Composite Materials Co., Ltd., Luzhou North Plastic Chemicals Co., Ltd., North Century Cellulose Technology Research & Development Co., Ltd. and Luzhou North Material Storage and Transportation Co., Ltd.; (3) when Sichuan Chuan'an Chemical Plant went into bankruptcy, the company acquired bankrupt's assets to establish civil product subsidiaries through Yibin North Chuan'an Chemical Co., Ltd., namely Yibin Chuan'an Hi-tech Pesticide Co., Ltd., Yibin Yingkeer Printing Ink Co., Ltd., Yibin North Chuanan Machinery Co., Ltd., Dongguan Beiri Printing Ink Co., Ltd., Chuan'an Construction Engineering Co., Ltd. and Chuan'an Service Co., Ltd. In addition, the company directly or indirectly participates in the equity of two enterprises by the way of claims clean-up and industry restructuring, that is, Luzhou City Commercial Bank Co., Ltd. and Kaida Chemical Industry Company Ltd., Sichuan in which Luzhou Development Resin Co., Ltd. participated to fund its establishment.

Strategic choice of management and control can be obtained according to the analysis of factors influenced by the management and control model. Please see Table 4-6 for details.

Table 4- 10 Management and control models of other subsidiaries

Company name	Scope of Business	Shareholders	Ratio (%)	Original management and control model	Total point	Existing management and control model	Remarks
Yibin North Chuan'an Chemical Co., Ltd.	Military products, chemical materials and chemical products	Luzhou North Chemical Industry Co., Ltd.	100	Strategic management	80	Strategic management and control	
Yibin North Xin'an Composite Materials Co., Ltd.	Metal composite materials, chemical equipment and mechanical equipment	Luzhou North Chemical Industry Co., Ltd.	51		63	Strategic management and control	Management and guidance of the company are required to be strengthened due to huge market of metal composite materials
		Yibin North Chuanan Chemical Co., Ltd.	49				
Luzhou Huapu Engineering Design Co., Ltd.	Construction, military projects and mechanical design	Luzhou North Chemical Industry Co., Ltd.	66.67	Operation management	40	Operation management	
		Natural person	33.33				
Luzhou North Material Storage and Transportation Co., Ltd.	Warehousing services and general freight transport	Luzhou North Chemical Industry Co., Ltd.	75	Operation management	40	Operation management	Both are shipping companies, so there is certain business overlap and integration is required.
		Natural person	25				
Luzhou Lipu Logistics Co., Ltd.	Dangerous goods transport and general freight transport	Luzhou North Chemical Industry Co., Ltd.	10	Investment management	79	Strategic management and control	
		Natural person	90				

Luzhou Kaida Chemical Co., Ltd.	AN-TNT containing explosive, emulsion explosive and expanded explosive	Luzhou Development Resin Co., Ltd.	19	Investment management	82	Financial management and control	
		Luzhou Jiangyang Chemical Plant	39				
Luzhou North Economic and Trade Co., Ltd.	Chemical products	Luzhou North Development Investment Co., Ltd.	70	Operation management	39	Operation management	
		Natural person	30				
Luzhou North Power Co., Ltd.	Alternating current, nitrogen and steam	Luzhou North Chemical Industry Co., Ltd.	70	Operation management	40	Operation management and control	These two companies both provide necessary materials for production and daily life in the company. In order to strengthen management and reduce unnecessary waste, they shall be merged into one company.
		Luzhou North Technology Co., Ltd.	30				
Luzhou Keneng Economic and Trade Co., Ltd.	Industrial tap water, gas, etc	Luzhou North Technology Co., Ltd.	51		34	Operation management and control mode	
		Luzhou North Development Investment Co., Ltd.	49				
Luzhou Development Machine Co., Ltd.	Non-standard equipment and automotive fuel tank	Luzhou North Development Investment Co., Ltd.	51	Operation management	51	Strategic management and control	Automobile industry will develop rapidly in the future, and the company obtains huge room for development, therefore greater authority shall be given.
		Luzhou North Technology Co., Ltd.	49				
Luzhou North Automatic control system engineering Co., Ltd.	Industrial automatic control system and instrument design and installation	Luzhou North Development Investment Co., Ltd.	51	Operation management	56	Strategic management and control	Since automatic control system and main business of the company have low correlations, some room shall be given for development.
		Luzhou North Technology Co., Ltd.	49				
Luzhou North	Pharmaceutical	Luzhou North Chemical	100				Pharmaceutical excipients are mainly

Pharmaceutical Excipients Co., Ltd.	excipients	Industry Co., Ltd.					cellulose, which may be unified managed with cellulose derivatives.
Luzhou North Development Investment Co., Ltd.	Investment in chemical industry and high technology	Luzhou North Chemical Industry Co., Ltd.	25				This company was established for historical reasons, and it may be cancelled today.
		Luzhou Northdadong Chemicals Co., Ltd.	75				
Luzhou City Commercial Bank Co., Ltd.	Absorb deposit of the public and issue loans	Luzhou North Chemical Industry Co., Ltd.	1.57			Financial management and control	
		Bureau of Finance of Luzhou, Xinglu Group, etc.	44.03				
Luzhou Huajiang Industrial Development Co., Ltd.	Building construction and real estate development	Luzhou North Chemical Industry Co., Ltd.	9.04	Investment management	70	Financial management and control	
		Natural person	90.96				

4.4.4 Performance management of parent-subsidiary company

The quality of management and control model ultimately depends on enterprise performance. Parent-subsidiary performance management is an important part of the management control system of parent-subsidiary company, assisting the parent company in providing incentives and control to its subsidiary, so as to successfully execute the general strategic objectives. Given the close relationship between the performance management and management and control model of parent-subsidiary company, its performance management must match and fit in its management and control model. Only doing so can the effect of performance management be fully reached. Performance management method and focus used by the parent company to its subsidiary vary depending on a different management and control model. According to the characteristics of this control model, performance evaluation by the parent company of the subsidiary only concentrating on output results; so the operation management and control model, since the overall operating procedure of the subsidiary is fully controlled by its parent company, the process control is the key focus; for that of strategic control model, because the strategies at all levels are made by cooperating between parent and subsidiary companies, and output control and process control are implemented to control the subsidiary, the rounded performance evaluation to the subsidiary by the parent company including performance evaluation, process performance evaluation and output performance evaluation.

Performance evaluation methods in common use are mainly as follows:

(1) Key performance indicators (KPI)

KPI is abbreviation of Key Performance Indicators, which is an integral part of “evaluation” in the management process of “plan-execution-evolution”, reflecting the basis and indicators for evaluating key performance contributed by individuals and organizations. KPI is a performance indicator not capacity or attitude indicator. KPI is a method starting from enterprise strategic objective, with setting objectives for several important works at all levels across the enterprise and measuring the extent of the objective achievement, thus forming objective and indicator system, through which the performance is managed, measured and evaluated. KPI is understandable, objective and quantifiable, as a result, besides starting with enterprise strategic objectives and considering key process, results and monitoring processes, a series of tests shall be carried out to ensure the objectiveness, mutual compatibility and quantification of key indicators, so as to decide whether the key performance indicators are

applicable.

KPI is derived from splitting the company's strategic objectives, which is a further refinement and development of the company's strategic objectives with focusing on examining the work performance of the current year. Instead of being issued by the superiors in mandatory form or made by the employees in their own duties, the process of setting KPI involving cooperation of the superiors and employees, so is a representation of consensus of both sides. In the process of setting the KPI system, particularly in setting key performance indicators for positions. It should be noted that working objectives are not all about establishing a KPI system, but the more important is that in this process, common sense for key performance indicators reached between the leader and his/her employees of each department by communication and discussion. The main contribution of each department and position is defined by using ideas and methods of performance management, and is used as basis in determining working objectives of each department and employee. Moreover, in practical work, phased performance is continuously improved with working around KPI, in order to urge and guide the objective achievement as well as to improve the quality of work for avoiding waste of efforts.

(2) Balanced scorecard (BSC)

BSC, a new method of performance assessment originated by American scholars Robert S. Kaplan and David P. Norton, was introduced in the early 1990s. The method uses financial indicators to reflect outcomes generated by the actions that have been taken by the enterprise, and assesses customer satisfaction, internal procedures and organizational innovation as well as improved activities, in order to make up for the deficiency of financial measurement indicators. Specifically, enterprise will be examined by the method in four aspects: firstly, how is the customers' reaction? (customer satisfaction), secondly, what is the enterprise good at? (strength), thirdly, whether the enterprise can continuously improve and create value (innovation ability and learning ability), fourthly, how to meet shareholder interest (financial benefit). For the first time, Kaplan and others treat the innovation and learning abilities as important evaluation indicators, indicating that in the era of knowledge economy, constant innovation and knowledge accumulation are the only way for enterprises to keep success in the fierce competition. BSC enables operators to review their own performance in a broader field, prompting enterprises to establish far-sighted strategies. The main aim of BSC is to include all of the major examination indicators, and through adjusting weight, the key points of examination are highlighted, thus influencing individual behavior. Theoretically, BSC is a very effective management tool, an evaluation system that can meet the requirements of business

organization mission, strategy and internal and external environment. However, lacking of integrated and single evaluation indicator is its major deficiency. Because managers need single integrated indicator to reflect the comprehensive effect of combining leading factors and lag factors, but BSC only provides which indicators we should pay attention without telling us how to measure and treat those indicators and their significance. Meanwhile, BSC is not applicable to individual. Because for individual, performance examination shall be understandable, easy to handle and manage, but BSC has not those features. Promptly review performance of each subsidiary and decide its operation by performance evaluation method, providing reference for optimizing and adjusting management and control model.

Chatper 5: Summary and Conclusions

5.1 Research results

This study bases itself upon state-owned enterprises of China, studying the issue of governance, management and control of state-owned specialized chemical enterprises in the framework of diversified strategic development. Through organizing and summarizing existing literature at home and abroad, management and control model type applicable to the case of this study, advantages and disadvantages of various types of management and control model, applicable conditions and detailed managerial and control models are derived.

Through designing 8 factors that influence the management and control model between parent–subsidiary, scoring all subsidiaries under LNCC and deciding management and control intervals for the subsidiary, thus selecting different management and control types for different subsidiaries.

Chinese state-owned enterprises are under eventful years of deepening reform, Although diversified development is an efficient choice for many state-owned enterprises, presently, there is no general and effective management and control model. As a result, this study boldly explores one large enterprise, providing a governance model that may also be efficient for other state-owned enterprises. Most of subsidiaries of the main industries of LNCC produce the same product. In this research, SBU represents all subsidiaries under LNCC, management and control choice for different industry is derived by designing different management and control choice according to each SBU and analyzing based on various industrial value chains.

5.2 Main conclusions of this study

1. The literature review and the analysis of the case discussed in this study allowed the definition of three kinds of management and control models: financial management and control, strategic management and control and operations management and control.

2. Through seeking 8 factors that influence the management and control model between parent–subsidiary, all subsidiaries under LNCC are analyzed and scored according to different industrial chains, in order to find management and control models fit for each subsidiary.

5.3 Inadequacies and prospects of the research

Because the case company just starts in DMC industry, a few data are accumulated for each subsidiary. In the process of rapid development in the future, the current management and control model may be unable to meet requirements or even obstruct enterprise development. Therefore, it needs to be further followed and studied, in order to get more comprehensive data and further optimize the current management and control model.

This study only analyzes and studies the management and control model, lacking for studying other aspects of corporate governance.

Given the specific characteristics inherent in Chinese state-owned enterprises, whether the indicators and influencing factors for studying enterprise management and control model in a general sense applicable to the state-owned enterprises needs to be further studied.

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